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Blighted Potatoes as a Source of Seed.

MANY farmers, in the portions of Michigan that were affected with that form of potato blight which shows up by causing a soft rot or a dry rot of the tubers, are debating the question in their minds—some few have already settled it—whether they should plant such potatoes from their cellars and pits as seem sound, in spite of the fact that from one-third to two-thirds of the potatoes stored rotted badly. In other words, their question is, is the fact that the disease may be carried over in the tubers and is the extent of the rot in the potatoes sufficient to make them unfit for seed?

In regard to the first point as to the carrying over of the disease from one year to the next, it should be said that this has been a debated point of a generation and even now, although a score of eminent scientists have worked on the potato blight, it is not fully established in what form the potato disease lives over winter. It is true that DeBary, the great German mycologist, had as far back as 1876, demonstrated that sprouts from diseased potatoes were diseased with the blight fungus and that on the young leaves and stems from these diseased tubers, spores of the fungus were produced. From these classic experiments, it seems beyond question that this is one if not the chief, method by which the fungus winters over. Recently, the winter stage of late blight fungus has been found in an artificial culture media. This work was done by Dr. Clinton, of the Connecticut Experiment Station. He obtained on special media made from ground-up vegetables and grains, such as oats, a special food material on which the potato fungus grew very well. When small pieces of the blighted tubers were taken so as to avoid contamination from the surface, etc., and placed on this special food, the fungus produced a white growth that is so well known on the outside of rotted potatoes. This white growth was very similar to the one which appears in nature, but along with this, in a few cases, was produced the stage of the fungus which as yet has not been found in nature. This is the sexual, or so-called winter stage of the fungus, and while the existence of this stage had been suspected and had been looked for for fifty years, it had never been found on diseased potatoes and its existence never been proven until this excellent work of Clinton was done. The discovery of this winter body—definite knowledge of its existence—brings another factor into the problem of the wintering over of the fungus. It may be that in all stalks and in the rotted tubers themselves, this fruiting is produced but it has as yet escaped detection and it may be that from this winter body the infection of the next year starts and that this, as well as the carrying over of the disease in the tubers is a factor in the disease production. Hence, for general reasons, it should be said that blighted potatoes are poor ones to plant because of the chance of infection in the field and thus bringing about the much more extensive blighting than if absolutely clean seed were planted.

Also, it should be stated in this connection that even if the man does plant absolutely clean seed on clean ground, the chance of infection from his neighbors who probably will not go to such

the opinion among growers and many men who have studied the disease, that the disease is always at hand but is held in check by weather conditions.

The most decisive thing with reference to the use of blighted potatoes for seed, comes from the fact that potatoes af-

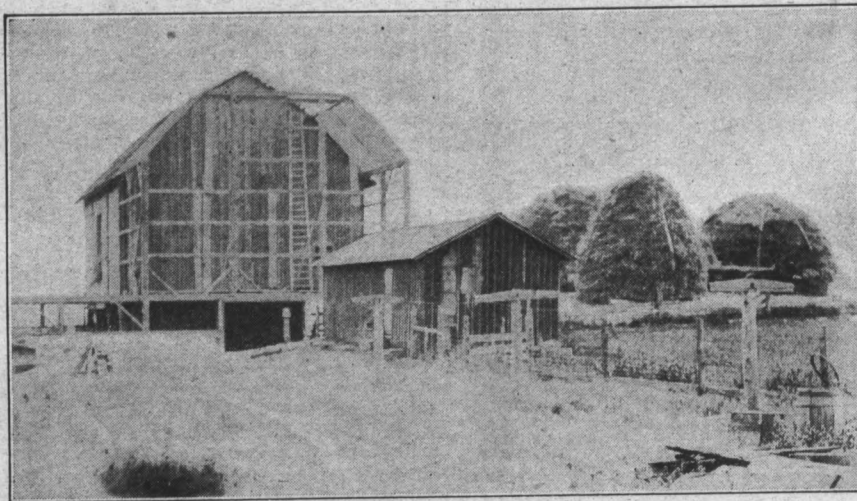
this year, only ten per cent of the potatoes were absolutely free from the disease and when we consider how easily the disease developed in storage by spreading from tuber to tuber, we again see that the chance of infection in the seed potato is very large. Now it may be that only a small portion of the tuber is affected, yet this rot, when the tuber is planted, may increase to such an extent that the entire potato is involved or it may be that the weak growth will result. Professor Jones, who has studied the late blight of potatoes for many years, performed the following experiment. Forty healthy Green Mountain potatoes were inoculated with a pure culture of the blight and the potatoes put under conditions so that the fungus would develop in the tissue. Twenty tubers were left uninoculated as checks. All the uninoculated eyes were then cut out of the diseased tubers and all except two from the check tubers. These were planted. The control tubers grew, sending up 37 shoots, whereas only five shoots appeared from these tubers that were infected at the eyes. It should be stated, however, that the shoots which came up from the diseased tubers appeared normal and remained healthy. All these things lead to the recommendation that blighted seed should be avoided. Jensen, the Danish investigator, who contributed very largely to the information on potato diseases, found by an experiment performed in 1883 that when diseased and healthy tubers were planted in rows side by side that the diseased shoots were unable to reach the surface. He concluded that the deep planting made it impossible for the weak diseased shoots to pierce the thick layer of soil on top of them. The experimental evidence, so far, is not strong enough to warrant a blanket recommendation of deep planting.

Professor Jones holds that the probability is that if the fungus lives over winter in the tubers that the disease will appear on the weakened shoots the following year and from these the disease will start.

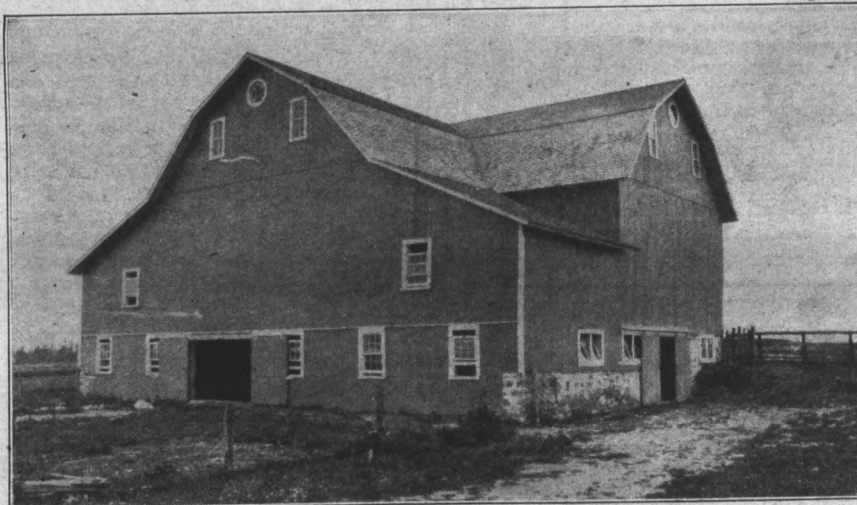
To summarize this statement of the condition of seed potatoes, I believe that it is unwise to plant tubers sorted from cellars or pits where the blight produced extensive rotting for two reasons: First, the introduction of the disease in to the fields the next year and, still more important, because sprouts from potatoes affected with late blight are notorious for their weakness and the farmer is endangering his stand. It would be a good idea, if a man be interested in good seed, to seek out very carefully those parts of the state where blight occurred very early, or better, where it did not show up at all, to secure seed of the standard varieties for planting.

G. H. COONS,
Mich. Ag. Col.

In some seasons there are many weak, spindling plants and missing hills in the fields of late potatoes. General observation would aid in determining if this is due to the effect of blight on the seed and if blight appears earlier in such fields.—Eds.

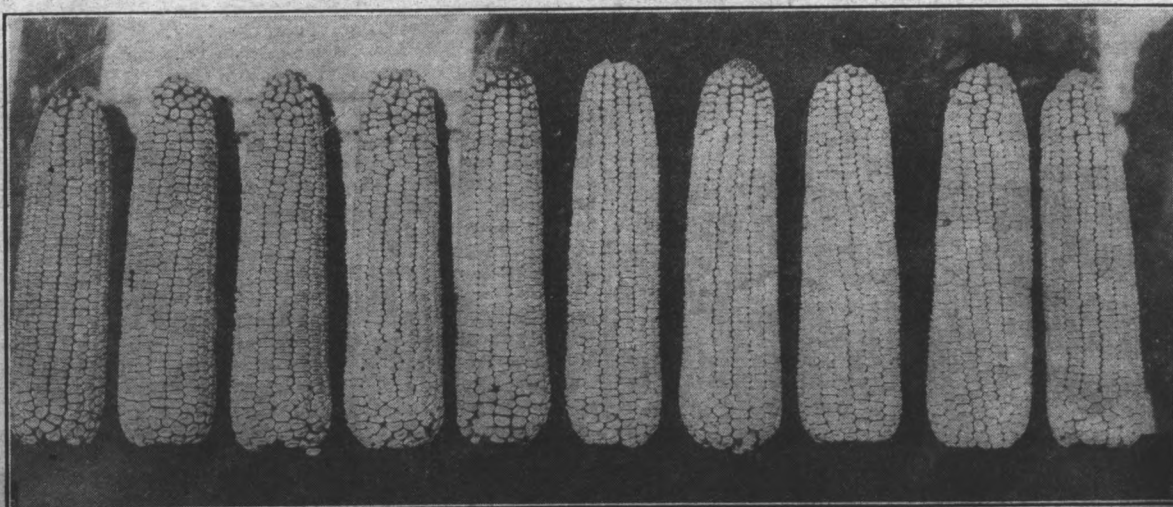


Farm Barn of W. N. Terry, of Mecosta County. Before and After Remodeling. This transformation of a 30x40-ft barn to one 48x60, illustrates the possibilities of remodeling old buildings to make them more commodious and convenient.



precaution, is very great. This has been proven by many experiments and even spindling, or in many cases, no sprouts more conclusively by the epidemic nature of the late blight itself, for when late blight comes, it usually takes every field in a given locality. In fact, this widespread nature of the disease has led to

fectured with the disease produce weak and at all. Many times the potato rots in the ground before the plant can gain a foothold. When we consider the extent of blight, I believe it is safe to say that, in a region seriously affected with rot



Ten Well Formed Ears of Dent Corn.—A Good Type to Select for Planting from the Seed Saved this Year.

It Pays to Fertilize Meadows



"SEVERAL years ago when cutting hay next to a patch of wheat in the same field, I noticed the hay adjoining the wheat was much heavier in widths of a drill than elsewhere; so much so that I began to study out the reason.

This proved simple enough, for in drilling the wheat the Fall before with 250 pounds of 2-8-2 Fertilizer per acre, and running the drill out on the meadow, there would be two to four feet of meadow fertilized, while in going back the drill would not be set in gear until at the edge of the wheat field; consequently every other width of the drill would show a marvelous difference on the grass. This set me thinking that it would be a good investment to fertilize meadows, and the following Fall I tried five acres with the same results, raising the disks and drilling the Fertilizer over the top. Since then we have been doing this and I am satisfied we harvest three-quarters to one ton of hay per acre more where we use the fertilizer. A. A. C. Co. Fertilizers have always given the best of satisfaction." (Name furnished on application.)

The Fertilizer can be sown late in the Fall before the snow covers the ground, or in the early Spring.

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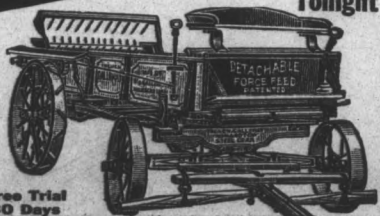
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REFUSE LIME FROM SUGAR FACTORY. WILL IT PAY TO HAUL IT SIX TO SEVEN MILES?

At the West Bay City Sugar Company plant they have a lot of refuse or waste lime, which they have used in making sugar, and which they say is excellent to put on land. I can get it for the hauling, but will have to draw it about six or seven miles. Would you think it would pay to haul it, and if so how much would you put on per acre? Would you plow it under, or just harrow it in?

Bay Co.

G. M.

Refuse lime from a sugar factory is all right for agricultural purposes. It will furnish what lime the growing plant needs and it will correct acidity if your soil is acid. It is just as good as ground limestone. In some respects it is better and does much more good than the limestone, even the best ground limestone. The degree of fineness is very important. If the limestone is coarse, like kerne's of wheat, it will take a long while before it will improve or neutralize the acidity of the soil. It will take a long while before the plant can use it. If, however, it is extremely finely ground, just like dust, then you will get the benefit at once. A portion of the ground limestone is real fine, the balance of it is not fine enough to be immediately available. Now this refuse lime from the sugar factory is all fine, but the trouble of it is it contains a large amount of moisture. In this respect, of course, it is not as good as ground limestone, because the ground limestone is comparatively dry, while the lime from the sugar factory is extremely wet and probably contains as much moisture as the marl taken out of the marl beds, and it is no better than marl. There are lots of marl beds in Michigan and if they were worked, if the marl was taken out and artificially dried to drive off the moisture so it could be handled without so much expense, it would be splendid for agricultural purposes. We need look nowhere else for a supply. It costs considerable, of course, to get this marl out on the surface of the ground in the first place and then it costs considerable to dry it artificially to expel the moisture. Now if this refuse lime from the sugar factory could be artificially dried so that it could be applied with the lime spreader it would be a splendid product to use, but it isn't artificially dried and contains a large per cent of moisture. You can't apply it economically. You have got to spread it with a shovel or with a manure spreader. You can't use a lime spreader because it is so coarse it won't work with that kind of a machine.

On the other hand, it will do no harm to apply a good amount of it. You can put on several tons per acre without injuring the land. Nothing would be better in fitting up a field for alfalfa than to put on a large amount of this kind of lime. In this case part of it could be plowed down and part of it could be applied on top and cultivated in. If you put it on top of the ground and it wasn't very well distributed with the shovel I would harrow the ground thoroughly both ways, distribute it evenly, and then plow it down. Then if I put on more of it I would harrow it in the same way. If you only make one application I wouldn't plow it down. Wait until the ground is plowed and then thoroughly harrow it and mix it with the soil. Now the only question is, whether you can afford to haul this product, containing so much moisture, six or seven miles.

COLON C. LILLIE.

SAVE THE SAW TIMBER.

With all grades of lumber soaring skyward and in many cases hard to get at that, it behooves any man having timber upon the farm to watch it carefully. What I desire to impress by this, is that an occasional examination of such timber should be made from time to time and all trees down by wind and otherwise, also trees in which decay and serious injuries of other kinds are manifest, should be speedily made into logs for lumber, bolts for pickets, lath, etc., or lengths for fence posts, brace poles, over-lays for barns, etc. The residue left should be made into stove wood and corded on poles to dry for future use. Thousands of dollars' worth of valuable timber is annually going to waste on many Michigan farms and in many cases men will go miles with the team and wagon over bad roads and purchase a grade of lumber no better than that at home, for the trouble of cutting and hauling to a near-by mill and pay almost a prohibitive price for the same.

Many in cutting logs only look to the 12, 14, 16 or 20-foot logs, and trees not

making these lengths are discarded. This is entirely wrong. Whoever built a house, barn or shed but what had to find use for much six, seven, eight and 10-foot lengths? In gable ends, around doors, windows, stalls, etc., this is required. And why take a 12 to 20-foot log to mill when it will have to be subsequently cut into shorter length lumber? Save these lengths for timbers, sills, etc., and cut every six, seven or eight-foot length possible, for lumber. By using fair judgment in cutting the logs, it is surprising to see what nice lumber may be had from very rough appearing logs.

I have about completed lumbering pine on a 40-acre tract that has been a "chop-over" for the past 25 years and in the meantime fuel timber has been taken off yearly by a dozen or more occupants. Suffice it to say, we have secured in all nearly 6,000 feet of good pine lumber. Much of this is strictly first grade and all of it merchantable. Many of these pine logs were moss-covered and in many cases literally buried in mud, leaves, brush, etc., and had to be dug and pried out; repeated forest fires had charred them and many trees burned into but they were as sound at heart as the day they stood growing. We also have much oak, black ash, etc., lying in this shape a good share of which, when dry, will go into logs that will make \$18 to \$25 per thousand lumber. We save all straight stuff, even to poles six inches in diameter, as they make dandy sills for pig houses, hen houses, etc., and are worth a dozen times as much this way as if cut into fuel for stoves. This is typical of thousands of other farms in Michigan having valuable timber logs on them, if one would but carefully sort them out.

Gratiot Co.

G. A. RANDALL.

FARM NOTES.

Wood Ashes for Potatoes.

Would a handful of wood ashes placed in field of potatoes be enough beneficial to pay for the time it might take? How would its value compare as with a good vegetable fertilizer?

Calhoun Co.

R. E. W.

Unleached hardwood ashes contain from four to seven per cent of potash in one of the best forms for the use of growing plants. They also contain about two per cent of phosphoric acid and about 32 per cent of lime. Where stable manure is applied to the ground intended for potatoes wood ashes would make a valuable supplemental fertilizer for that crop and it would certainly pay to apply them. They should not, however, be mixed with the manure before applying as this would cause a loss of nitrogen in the form of ammonia.

It would, in the writer's opinion, be the better way to scatter the ashes evenly over the surface of the soil and work them in when fitting the ground, as in this way the lime in the ashes tends to neutralize any possible acid condition of the soil and thus materially benefits the succeeding crop of clover when the land is again seeded down. Also, if applied in the hills the alkaline condition which would be produced by the lime in the ashes would tend to increase the amount of scab in the potatoes where the spores of the scab fungus were present, either in the seed or in the soil.

Wood ashes would not, however, be comparable in value to a good grade of commercial fertilizer, so far as plant food is concerned, the plant food of the content of the latter being worth two or three times as much, according to the analysis of the brand used. Wood ashes, however, are a valuable fertilizer as well as soil corrective and where they are available it will certainly pay to use them.

Crops for Low Ground.

I have a piece of land about five acres, that is a creek flat which overflows in the spring and in June when we have a June freshet, but last summer it overflowed quite frequently. How would rape do on this piece and would I have to sow it with some other grain, such as oats or buckwheat? What would be the best seed to sow for hay on this piece?

Saginaw Co.

V. A. V.

If this soil is in condition to work so that it could be prepared for rape and leave a sufficient growing season to produce a crop, it might be utilized for this purpose, as rape will grow under any conditions where similar plants, such as cabbage or turnips, would grow. However, in a season like this when it overflows frequently, this ground would probably be too wet and would also be too soft to pasture profitably and get the benefit of the rape crop. It would probably be better to seed it to redtop and alsike clover as a permanent meadow.

SORTING THE SEED CORN.

A great deal has been said and written about the selection of seed corn, but what has been said thus far does not seem to have had the desired effect upon the average Michigan corn producer, many of whom are just as careless in this respect as they were some 10 or 15 years ago, hence the excuse for this article. I for one believe that Michigan has a great future as a corn producing state; if we farmers will only set about individually to give her her rightful place.

In the selection of seed corn there are several very important things to be remembered, some or all of which you already know, but knowing, we must practice if we would get results. Granting that you have a larger number of fairly good ears on hand than you will readily need for planting, let us look them over together.

Points to Consider in Sorting Seed Corn.

First, we must discard all but medium-sized ears, because Michigan is too far north and our growing season is too short to mature as large ears as Illinois, Iowa and some of the other great corn-producing states. Of course, this statement may be qualified by saying that there will be a difference even within the boundaries of our own state. Those of us who reside in the southern part will be able to raise larger ears of corn than those who live in northern Michigan.

Second, we must select the heaviest ripe ears obtainable. The cob when dry ought not to weigh anywhere near as much as the grain upon it. So, by selecting a heavy ear you will naturally have a good producer. Now in regard to the ripeness or maturity of the corn, this may be determined by the color, the feeling and the solidity of the kernels in the cob. A mature ear will have a bright luster or color; the immature more dull. The feeling of a mature ear will be warm; the immature cold and clammy. (This may depend upon the storage and dryness of the ears examined). In the mature ear the kernels will be firm, that is, there will be little room between the kernels and it will be quite difficult to press them in with the thumb.

Third, we must select ears which have well covered butts and tips and kernels of a uniform size and shape. The covering of butts and tips will have a great effect upon the yield as that portion of the cob might as well be utilized as not.

Fourth, the kernels should run in as straight rows as possible and should not be too rough on the surface. When an ear is very rough it indicates a late ripening corn. Straight rows give us a uniform product.

The fifth and last point which I will mention is this, see that the corn which you are selecting has not been or will not be frozen before it is fairly dry, because a very large percentage of the corn which was frozen hard while still wet or damp will not grow.

The first page illustration is from a photograph of ten ears of dent corn of good type. A sample like this, if kept at hand for comparison while the sorting is being done will prove helpful in the work.

"Do It Now."

In putting these few suggestions into practical use, do not wait for a more convenient time, but "do it now," because if you wait until next week or next month, winter and spring will pass, the time of planting will approach and you will be so rushed for time that you will plant the seed as you have done in other seasons, that is, with hardly a bare inspection of the ears as they pass from your hand into the sheller.

Ingham Co.

J. M. WENDT.

THE PRIZE POTATOES.

Grown From Seed Kept in Cold Storage.

The Irish potatoes which drew first prize at our farmers' institute were grown from seed potatoes which were kept in the cold storage plant until planting time. The way in which we manage to care for our seed potatoes has proven to be highly successful; it seems to be just the right way to take care of seed potatoes.

Our plan is as follows: Early in the winter, the latter part of January or first of February, before the potatoes begin to throw out sprouts, they are sorted over and the medium-sized potatoes are selected and put into new flour barrels. These barrels are headed up and placed in the cold storage plant until the season for planting has come.

The seed potatoes being kept in an unsprouted state are ready to grow vigor-

ously when planted, and yield a splendid crop of fine potatoes.

We have had wonderful results with Irish potato culture since adopting this plan of storing the seed potatoes in the cold storage plant. We wish everyone who is interested in potato culture could know of this plan.

One point is very necessary. When storing seed potatoes always use new barrels and have them carefully headed just before taking to the cold storage plant.

Late potatoes in this section are planted the last week in June. We always plant our late potatoes three or four inches deeper than the early potatoes. By doing this the protracted drought or excessive heat of the summer season will do the crop no injury.

We are heartily in favor of deep planting for the late potato crop. Our large fields of potatoes are a wonder along in August and September. The vines are so vigorous owing to the strong seed and deep planting.

Indiana.

S. E. B.

HAUL MANURE IN WINTER.

A glaring mistake is made by most farmers when they put off hauling manure until spring. The manure, when left exposed all winter in an uncovered barnyard, not only loses a large part of its value, but it makes this part of the work come at a season when the energy should be expended in another direction.

In the first place, manure should be hauled to the land as fast as it accumulates during the winter so as to save the plant food that it contains. Most of the plant food of manure is soluble. When it is left in the barnyard every rain washes away part of it until it loses one-half or more of its original value. When applied to the land this material is saved.

The average farmer has more time to draw it in winter than he has in spring. In the spring other farm work is generally pressing, the fields are soft and because of the warmer weather and continued strain it is harder work. When it is drawn during the winter, the work is hardly noticed. A few loads each week will keep it out as fast as it accumulates. Often in the spring a farmer has to take two or three weeks from other work and devote it to hauling out manure. It makes him late with his plowing and general work.

Manure Deteriorates Rapidly in the Yard.

Of course, when one has a covered barnyard, it is not so important, that is, from the standpoint of economy. It will make the work come at an undesirable season, but little plant food will be lost. The increased value of manure that is properly sheltered is often seen by that which is hauled out from box stalls. The more luxuriant growth of crops where it is applied is always noticeable even though the original quality of it was not so good on account of the little grain that is fed to young stock in box stalls.

Experiment stations have made hundreds of tests to find out the loss caused by exposure in the barnyard. In most of these the loss has been more than 50 per cent of the original value. This means that when it is properly preserved under cover or hauled direct to the field, that either the same amount of manure would cover twice the area or more beneficial results would be had from the same amount. Most farmers cannot afford this loss. It is hard to understand why they do not save it, especially when the saving makes their work more profitable in other ways.

No farmer would think of buying a ton of expensive fertilizer and leaving it exposed to all the rains for several months. Farm manure has just as great value in proportion and should be handled just as carefully as other fertilizer.

Stable Absorbents Should be Used.

It is a wise plan to use absorbents for saving the liquid manure. Plenty of straw for bedding will help absorb it. Some farmers make a practice of putting horse manure in the trenches back of the cows to take up the liquid manure and to help keep the stable dry. This is not a bad plan if the horse manure is confined to the gutter and not used to take the place of straw for bedding.

The annual expense for fertilizer could be reduced by a large per cent if farmers gave enough attention to saving and making the best use of all manure produced on the farm. As there are only a few covered barnyards, the chief way in which they can save the plant food is by hauling it direct to the field during the winter when it can be done easier and cheaper.

Penn.

L. J. HAYNES.

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Other tractor manufacturers have used their money and brains to build big, heavy tractors for large farms. That alone has kept them busy. None have ever made a serious attempt to build a tractor light enough, simple enough and inexpensive enough for men on farms of 160, 200, 240, 320 and 640 acres.

I have done just the opposite. I have specialized on the smaller tractor, leaving the large ones alone.

With the result that I have perfected a tractor that pulls as much as 16 big horses, yet weighs 6,000 to 8,000 pounds less than any other of the same power. I did this by using high-grade steel, instead of common iron.

Think what a saving of power and fuel to have 3 to 4 tons less dead weight to pull!

And this tractor will work any place that a horse can. With its light weight and wide drivers, it does not pack the soil. You can harrow with it, do your discing, seeding and rolling. Plowing is only one of its many useful features.

You Can Get Into The Fence Corners

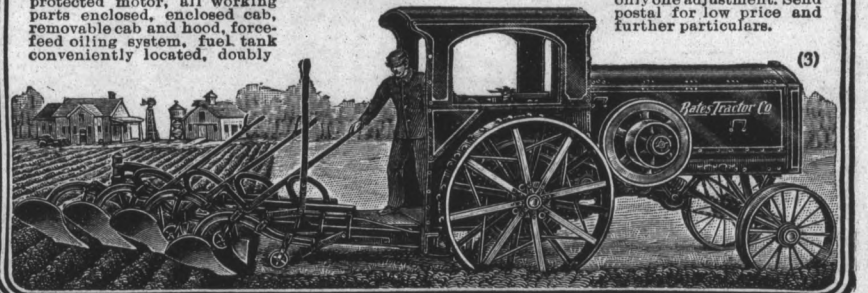
With my direct-connected plowing outfit, you can turn square corners. Can get right up

The Bates All-Steel Tractor

Weight 8,000 pounds—25 and 30 H. P. on the belt (equal to 16 big horses at the draw bar), doubly-opposed engine, doubly-protected motor, all working parts enclosed, enclosed cab, removable cab and hood, force-feed oiling system, fuel tank conveniently located, doubly

efficient cooling arrangement, gear driven from both sides; sliding, positive clutch transmission, gears always in mesh,

stripping of gears impossible, external contracting friction clutch, no slipping, controlling levers in radius of 12 inches, only one adjustment. Send postal for low price and further particulars.



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Wins Kellogg Corn Trophy with Jarecki-Fertilized Corn

Read what one man did with our fertilizer: The Jarecki Chemical Co., Cincinnati, O. Gentlemen:—

I am enclosing herewith photos of Grand Champion ear of corn and of the Kellogg Trophy, won by the same at the National Corn Exposition held at Omaha, Neb.

This ear of corn won First in State, First in Zone, and First in Grand Sweepstakes for the United States and was said to be the finest ear of corn that was ever exhibited.

You will be interested to know that this ear was from a crop grown with Jarecki Brand Fertilizer on an 18-acre field of various soils, both black loam and clay, which made 95 bushels per acre, all of the show and seed corn quality and type. Another field without fertilization made only 60 bushels per acre. Wishing you success,

I am, Yours very truly,

FRED. C. PALIN, Newton, Ind.

Increase your yield of corn. Write for copy of "Six mighty good Reasons why YOU should use JARECKI Brand Fertilizers." Free for the asking.

THE JARECKI CHEMICAL CO., Sandusky and Cincinnati, O. Agents wanted everywhere. Write for proposition.

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dairymen everywhere are using

SHARPLES Tubular CREAM SEPARATORS

Many of them who formerly shipped their milk are now selling the cream and feeding the skimmed milk to the calves, pigs and chickens.

The high price of veal, pork and poultry pays them well to do this—and they're making more money than ever before.

They are successful, progressive men.

Here's a Letter from Maine:

Am using No. 3 Sharples Separator. In 1910 milked eight cows and sold \$450 worth of sweet cream; and raised \$200 worth of calves and pigs on the skim milk. Haven't figured up for 1911, but returns were nearly as good.

Danforth, Me., March 12, 1912.

G. R. FOSTER.

And Here's Another from Texas:

I have a Tubular Cream Separator and like it fine.

Hamlin, Texas, June 16, 1912.

N. G. BAIRETT.

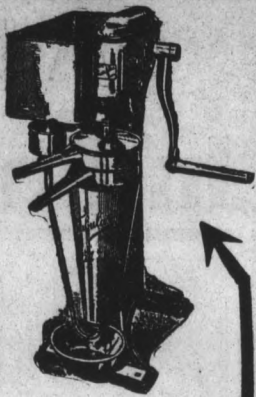
Sharples Tubular Cream Separators make money and save time for you because they get all the cream, are easy to run, and can be cleaned THOROUGHLY in a few minutes.

One of our customers wrote us the other day that his No. 4 Tubular in twelve years had cost him 20 cents for repairs. Some record, that—and worth remembering when you buy a Cream Separator.

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Write for our interesting Tubular A Catalog No. 152 today. It suggests ways to make more money from your cows.



The SHARPLES SEPARATOR CO.

Chicago, Ill. West Chester, Pa. San Francisco, Cal.
Portland, Ore. Dallas, Tex. Toronto, Can. Winnipeg, Can.

Dairy.

YIELD OF BUTTER FROM CREAM— VALUE OF SKIM-MILK.

I would be glad to have Mr. Lillie give me some way of knowing how much butter I would have on different per cent test of cream, testing with a Babcock tester. Would be pleased also to have Mr. Lillie explain about what skim-milk is worth per 100 lbs. for calves and pigs.

Saginaw Co.

SUBSCRIBER.

The yield of butter from a given amount of cream testing a certain per cent cannot be told exactly because butter varies in the amount of moisture and casein, or curd matter, which it contains. These two quantities are always varying quantities in butter. To be sure, the creamery buttermaker, who has experience every day and is a careful observer of conditions, can tell very nearly how much of these two elements his butter will contain, but even he, with every-day experience, cannot be sure of the amount of moisture until after he tests the butter. Therefore, it is absolutely impossible to give the yield of butter from a given amount of cream testing a certain per cent. It can only be given in a general way.

The overrun in butter; that is, the amount or yield of butter over and above the butter-fat, is liable to vary considerably. Some people make a dry butter containing 10 per cent of moisture or less. Others try to get up to 15 or 15½ per cent of moisture. Ordinarily, butter will contain somewhere from nine to 12 per cent of moisture. Many people think that butter ought not to contain over this amount of moisture and that the overrun ought not to exceed 16½ per cent. This was the rule established at the Columbian Exposition in the butter tests there. Many creameries try to have their butter yield a 20 per cent overrun, but more of them fall below 20 per cent than those that equal or exceed 20 per cent. Now if M. W. M. has 100 lbs. of cream testing 30 per cent butter-fat he will have just 30 lbs. of butter-fat, and if he made this into butter and got a 20 per cent overrun he could make just 36 lbs. of butter out of the 30 lbs. of butter-fat. If he got a smaller overrun than this he would have a less amount of butter, and, of course, if he got a larger overrun, which is quite possible, he would have more than the 36 lbs. of butter.

The value of skim-milk for calves and pigs depends quite largely upon what kind of animals it is fed to and the skill with which it is fed. Skim-milk is rich in protein. It has a nutritive ratio of 1 to 2; that is, 1 lb. of protein to 2 lbs. of carbohydrates, which is a very narrow ration. Even young growing calves or young growing pigs do not need a ration with such a high per cent of protein, and to feed this feed alone would be poor feeding. It must be mixed with some other food, and it should be a concentrated food, rich in fat, because the fat has been removed from the milk in separating. As has been explained many times in The Farmer, when you feed the skim-milk to young growing calves there is nothing that we know of better than a gruel or a jelly made out of flaxseed meal. Cook the flaxseed meal in water, using six quarts of water to one quart of flaxseed meal. Then give each calf a small amount at first, say a tablespoonful, and gradually increase it, using your judgment as to the amount. As the calf grows older you can give him a gill, and then two gills, and so on. In this way you help balance up this ration and it doesn't take as much skim-milk for the calf as it would if you did not feed a grain ration rich in fat. Then, again, the calf should have roughage in connection with this skim-milk and flaxseed gruel. He ought to have clover hay, he ought to have a little corn silage if possible, anything of that sort, and he can eat a little dry grain, ground oats, or oats and peas are most excellent. In feeding in this way you can make your skim-milk take the place of a good deal of high priced grain.

It is the same way in feeding pigs. If you attempt to grow pigs alone on skim-milk you won't be very successful, it won't be very economical because here, too, the skim-milk is unbalanced, it contains too large a per cent of protein, and we want to mix corn in the case of pigs with skim-milk, because corn is comparatively rich in fat.

Then again the value of skim-milk as a food when fed to pigs and calves, depends upon the value of these pigs and calves. If they are common scrub pigs

and calves, evidently you will not get as much for them as you would if they were well-bred. If they are pure-breds and you can sell the best of them for breeding purpose then this makes your feed all the more valuable because you get more out of it. There isn't any question but what you can raise nicer calves and pigs and healthier, thriftier and better breeding animals if you have skim-milk to feed them, because it is a natural food for young growing animals. Now if you have got pure-bred hogs and sell a number of the best ones for breeding purposes and get breeders' prices for them, this makes your skim-milk all the more valuable to you; and the same is true of calves. And so these things must be taken into consideration. Fed to ordinary live stock it has been estimated by careful experiments at experiment stations that skim-milk is worth all the way from 20 to 40 cents per 100 lbs. as a food. Fed to well-bred dairy calves or to well-bred pigs, skim-milk is worth more than this. Many times a man could afford to pay \$1 a 100 lbs. for it. I have said many times that I would hate to sell my skim-milk for 75 cents or \$1 per 100 lbs. I don't see how I could get along without it. I need it in growing bacon pigs and dairy calves. But perhaps it wouldn't be worth as much to someone else. The way a great many people feed skim-milk it isn't very valuable, and probably on the average, the way it is fed by the average farmer, it isn't worth more than 15 or 20 cents per 100 lbs., even with the price of feed high.

WILL IT PAY TO SELL CORN FOR 50 CENTS AND BUY OIL MEAL AT \$38 TO FEED WITH SILAGE AND CORNSTALKS?

Will you give me a balanced ration for new milch cows? I am feeding silage, 35 lbs. a day, and cornstalks as roughage. I have no hay. I bought a ton of cottonseed meal at \$30 a ton. I can get wheat bran at \$24 a ton. I have plenty of corn, been feeding cob meal for the last few weeks, 3 lbs. a day. My corn I put in silo, average 75 baskets per acre. Will it be better to sell my corn at 50c a bu. and buy oil meal at \$38 a ton or oats at \$25 a ton?

Allegan Co.

G. J. L.

I am quite sure that it will be good policy to sell some of this corn, if necessary, at 50 cents a bushel and buy some food rich in protein. I am not sure that I would buy oil meal, at least, I would not feed the entire grain ration of this, but the corn silage and the cornstalks are quite unbalanced, giving you a ration with a nutritive ratio of 1 to 12 when you ought to have it in the ratio of about 1 to 6. I would suggest that you feed for a grain ration wheat bran, corn meal, and gluten feed or oil meal. Mix the grain in the proportion of 200 lbs. of wheat bran, 200 lbs. of corn meal, to 100 lbs. of gluten feed, or oil meal. This will make a good ration. You won't have to feed as much of it as you would of corn meal alone, and you will get better results.

Now as to the policy of selling part of your corn for 50 cents a bushel, that all depends upon whether you will need all of this corn or not. Very few farmers in this vicinity have any corn to sell. In fact, there has been several carloads already brought in and delivered here. If you will need this corn to feed horses or hogs at any time during the year before the next crop comes it won't pay you to sell it for 50 cents a bushel. I would rather keep it and buy these other things just the same. I would feed the cows all the corn silage they would eat up clean, and give them a good liberal feed of cornstalks but I wouldn't expect them to eat them all up clean, give them a chance to pick out the best, and then I would feed the grain mixed as suggested above, at the rate of as many pounds per day as the cow produced pounds of butter-fat in a week. Of course, if they haven't been receiving very much grain the proper way to do would be to commence with a smaller ration and gradually increase it. If you think best you can feed the corn and cob meal in place of the corn meal and mix it just the same. Or, if you wanted to feed corn and cob meal you could do away with the wheat bran and mix 200 lbs. of corn and cob meal with 100 lbs. of gluten feed, which would make a good ration to feed with the corn silage and the cornstalks.

It is estimated that as many as six million calves are slaughtered annually in the United States, including those slaughtered on the farms, many of them being well worth maturing as beef. The time has arrived when every well-bred beef calf should be reared for beef.

GALLOWAY SAVED HIM \$45.00

Read this letter sent to me from P. H. Sells, of Garwin, Iowa:

"We wore out a high-priced separator which is the only kind we ever had and I would not give this Galloway for a half dozen high-priced separators, and they sold me their No. 1 for \$65.00 and asked me over \$100.00 for the size of your No. 14, so I saved \$45.00 by buying your No. 14 and think we have a better one."

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I give you 30 to 90 days' free trial to prove quality. "I have never found one as well constructed, as close a skimmer" is the comment of Cornelius M. Hunter, of El Reno, Okla. Theodore Casper of Dodgeville, Wis., says he "wouldn't trade it (the Galloway) for any of those high-priced separators." So, any way you look at it the Galloway takes the banner for Quality and Price. Send a postal today for my separator book—my special offer to 10 or more men in every township, and I will also send my big 6-color catalog of my general line, new handsome, complete, truthful, convincing—all free and postpaid. Write me today. Address:

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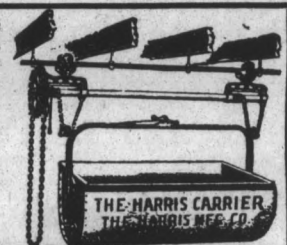


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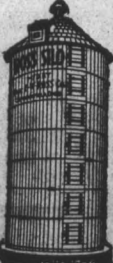
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THE BALANCED RATION.

Brief mention was made of the result of an experiment at the Illinois Experiment Station in feeding a balanced vs. an unbalanced ration, in a previous issue of The Farmer. The bulletin since then has come to hand and I consider it of so much importance that I want to call the attention of the readers of the Michigan Farmer again to this bulletin. I have talked so much through The Farmer and from the Institute platforms about the value of the balanced ration that it is impossible for me to allow this bulletin to pass into its file, where it can be used for reference, without again calling the attention of dairymen to the importance of its teaching.

In these two lots of cows one was fed a ration of 30 lbs. of corn silage, 8 lbs. of clover hay, 4½ lbs. of gluten feed, and 3½ lbs. of ground corn. Lot two was fed a ration of 30 lbs. of corn silage, 5 lbs. of timothy hay, 3 lbs. of clover hay, and 8 lbs. of ground corn. Lot one it will be observed, received a ration which contained a nutritive ratio of 1 to 6, while lot two received a ration which contained a nutritive ratio of 1 to 11. Now a great many more farmers feed this kind of a ration than they do the first kind of a ration. They have the corn silage and the timothy hay and the ground corn and they feed them, and yet we have been preaching for years and years that they could afford to sell part of this corn, and they could afford to sell the timothy hay and buy some gluten feed, or oil meal, or cottonseed meal to feed with a portion of the ground corn to balance up the ration, thus furnishing one concentrated food rich in protein to balance up the carbohydrates. Now the results are these: Lot one, receiving the balanced ration, produced approximately one-third more than lot two, receiving the unbalanced ration. Six and one-half cows on a ration with a nutritive ratio of 1 to 6 produced as much as nine cows on a ratio and a nutritive ratio of 1 to 11. Because of the lack of protein in the ration-fed lot the other two nutrients were not used to the best advantage. This shows in a striking manner that an excess of carbohydrates cannot be made to take the place of a deficiency of protein.

Not only this, but the quality of the ration affects the physical condition of the animal, and the physical condition vitally affects consumption and production. The cows on the poor ration lost greatly in flesh during the test and their subsequent production was reduced.

Now here is the theory put into practice. This is not what somebody thinks ought to be accomplished by feeding a balanced or unbalanced ration, but here were two groups of cows fed according to the theory, and results were produced. There can be no denying this. It shows that the theory is correct, that it is practical, that it will pay farmers to take a little pains to balance up a ration rather than to feed an unbalanced ration, and it will not only pay with dairy cows but it will pay with all kinds of live stock for the same reason. A man should figure on balancing up the ration for the horses, the hogs, and the young stock, and his sheep just as well as for his dairy cows.

CORN AND OATS FOR COWS.

Please tell me what I can afford to pay per bushel for rutabagas to feed milch cows. How does their feeding value compare with sugar beets? Are corn and oats mixed equal parts a good ration for cows, or would you advise using some wheat bran and cottonseed meal? Ingham Co. F. R.

Corn and oats mixed in equal parts ground, do not make an economical grain ration for dairy cows because they do not contain a sufficient per cent of protein to balance up the ordinary roughage ration which is grown on the farm. F. R. does not say what roughage he is feeding, whether he has corn silage or whether he has clover hay or timothy hay to feed, or simply cornstalks, and so I cannot advise intelligently the proper grain ration to feed. I am well aware that a great many farmers heretofore have fed ground corn and oats to their milch cows. Why? Because it was a feed which they happened to have. Everybody grows corn and everybody grows oats, and every farmer has these feeds and he dislikes to go outside and buy them as long as he has his own grain. And while this has been a common practice it is not so common now. Because it has been a common practice it is no sign that it is the best or most economical ration to feed. It is useless to argue that cows will not eat corn and oats and do well upon them. A cow fed good hay for roughage

or corn silage and a good liberal ration of ground corn and oats will do well. They will give a splendid yield of milk. I don't know but they will give as much milk if you feed them enough of it as they will give when fed any grain ration that you can recommend or provide, but that isn't the point. You will have to feed so much of it in order to get a cow to do her best that it will be extravagant and unprofitable. She will have to eat so much of the grain to get what protein she needs to manufacture the milk that an appreciable part of the grain will be lost. It will not make a balanced ration and therefore will not be an economical ration. If a cow has all the good clover or alfalfa hay that she wants to eat, then by feeding ground corn and oats with a little gluten feed mixed with it—say, use 300 lbs. of ground corn and oats and 100 lbs. of gluten feed mixed together—will balance up the ration. On the other hand, if you are feeding timothy hay then I would mix 100 lbs. of gluten feed with every 200 lbs. of ground corn and oats. You won't have to feed so much of these grains to get the same results, and therefore it will be more economical than to feed ground oats and corn alone.

HOW TO MAKE CHEESE.

I would like some information about cheese making. Could you give me some recipe for making cheese? Leelanau Co. F. B.

Cheese making on the farm is getting to be a lost art. My mother used to make it every year in the spring when I was a small boy. Some of this was sold but she rarely made any more than enough for our own use and I have quite an idea how she used to make it. Since then I have inspected cheese factories and have seen professional cheese makers make cheese and know considerable about making it, and yet I am not an expert cheese maker and would not want to give advice along this line. It is a question now whether F. B. can afford to make cheese on the farm. If there isn't a cheese factory within hauling distance of his farm I think he could better afford to make butter or sell his cream and buy what cheese he wants than to attempt to make cheese on the farm. It takes quite a little equipment to make cheese well. There ought to be a good curing room to cure it in, it must receive considerable attention for best results, if made from a single farm herd. However, you can get the full details for making cheese by writing to the Michigan Experiment Station at Lansing, and asking for a Bulletin upon that subject, or write to the Dairy Division of the Department of Agriculture and they will send you a bulletin covering this important business. Quite a number of dairymen have found it profitable to make fancy club cheese which does not need anywhere near the costly equipment nor so large an expense for curing, as the more common cheese, and which can be sold in small quantities at a profit. I am sure such an undertaking would work out better on the farm and be more profitable than to attempt to make the common Michigan or Cheddar cheese.

FEDERAL INSPECTION OF DAIRY PRODUCTS NECESSARY.

Dr. A. D. Melvin, of the Department of Agriculture, recently made the statement that there is need of inspecting dairy products, especially cream and butter, and supervising their shipment. Even without inspection many creameries, he said, maintain a good standard of sanitation and produce high-grade, wholesome butter, but this can not be said of creameries in general. Cream is frequently shipped great distances to creameries to be made into butter and is often received in such a filthy and putrid state as to be thoroughly unfit to enter into the composition of a food product. Investigations have shown that 61 per cent out of 1,554 lots of cream received at creameries and buying stations was of third grade—that is, dirty, decomposed, or very sour; that 94.5 per cent of 715 creameries investigated were insanitary to a greater or less degree; and that 72.6 per cent of these creameries did not pasteurize the milk so as to destroy any disease germs that might be present. As disease-producing germs are known to survive for long periods in butter made from unpasteurized cream, and as butter is eaten in the raw state, this product when made under such conditions as prevail in the majority of creameries can not be said to be wholesome and free from danger to human health.

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 the Michigan Improved Live Stock Breed-
 ers' and Feeders' Association will be held
 at the Michigan Agricultural College, on
 January 14-15-16, 1913.

The Michigan Holstein-Friesian Asso-
 ciation will hold their annual banquet on
 Tuesday evening, January 14. Wednes-
 day will be devoted to the meetings of
 the allied breed organizations which in-
 clude the Michigan Horse Breeders' Asso-
 ciation, Shorthorn Breeders' Association,
 Holstein-Friesian Association, Red Polled
 Breeders' Association, Hereford Breeders'
 Association, Jersey Cattle Club, Guernsey
 Cattle Association, Michigan Berkshire
 Breeders' Association, Duroc Jersey
 Breeders' Association, Poland China
 Breeders' Association, Michigan Shrop-
 shire Breeders' Association, Oxford
 Breeders' Association, and Merino Sheep
 Breeders' Association.

All of the above associations have pre-
 pared interesting programs, any one of
 which would prove of inestimable value
 to any farmer, regardless of his breed
 affiliations. Aside from some of the best
 talent in the state several men of national
 reputation will appear on the various
 programs.

The show of Berkshire, Duroc Jersey,
 Chester White, Poland China, Yorkshires,
 and Tamworth barrows will also be held
 Wednesday forenoon, following which the
 barrows will be slaughtered and all breeds
 compete in a carcass contest Thursday
 afternoon. The Postum Cereal Company
 have put up 300 pounds of corn flake feed
 for the best barrow of each breed, and
 200 pounds of grapenut feed for the sec-
 ond prize barrow of each breed. In addi-
 tion to this the association will award a
 handsome medal to the first, second and
 third prize carcasses weighing under 225
 pounds, and also on the first, second and
 third prize carcasses over 225 pounds.

The general meeting on Thursday, Janu-
 ary 16, will be addressed by three speak-
 ers of national reputation.

Prof. W. C. Coffey, of the University of
 Illinois, will speak about "The Place of
 Sheep on the Michigan Farm."

Mr. Wayne Densmore, secretary of the
 Percheron Society of America, will talk
 on the breeding of draft horses in Mich-
 igan.

Mr. H. B. Rawl, chief of the Dairy
 Division, United States Department of
 Agriculture, will address the meeting on
 some phase of the dairy industry.

No Michigan farmer who desires to
 maintain the fertility of his soil and in-
 crease his profits by the only sure meth-
 od, namely, by the raising of more and
 better live stock, can afford to miss these
 meetings.

GEO. A. BROWN, Sec.

SHEEP FARMING PROFITABLE IN NORTHERN MICHIGAN.

I desire to commend the article of Mr.
 McBride's on "Northern Michigan Agri-
 culture," in your recent issue, wherein
 he notes a field still vacant in Presque
 Isle and adjoining counties, but offering
 numerous opportunities for those desir-
 ing to engage in sheep husbandry and
 the growing of alfalfa, vetches and other
 legumes. To my way of thinking, Mr.
 McBride accurately diagnoses the situa-
 tion. I have had cattle actually leave the
 ranch in the spring for the plains when
 the snow had barely disappeared and to
 remain away until the following Novem-
 ber when I was even then obliged to go
 after them and always sure to find them
 grass fat. "Fully seven and one-half
 months of free pasture." If the milch
 cows had their way, they would do like-
 wise, as the settlers here will testify.
 This much in favor of the plains land
 that is well grassed.

An open winter up here is a rare oc-
 currence. Snow invariably blankets the
 ground in advance of extreme cold
 weather. We thus escape the alternate
 freezing and thawing that plays such
 havoc with the legumes elsewhere. A 65
 per cent lamb crop is considered a satis-
 factory return on the western ranges,
 while a 100 per cent lamb crop here is
 the rule.

Our increased lamb crop and superior
 market facilities counter-balance the ad-
 vantage of a free range possessed by our
 western brother.

In my 12 years' experience with Shrop-
 shire sheep in Presque Isle county the
 fleece always reimbursed me for the win-
 ter's feed and the droppings more than
 offset the expense of their yearly care.
 My sheep barns are protected on the
 north, east and west side from drafts.
 The doors on the south side are nailed
 open the entire winter. As a result, my
 sheep are never bothered with colds.

The hardwood lands in this and ad-
 joining counties are broken by stretches
 of plains land which are in many in-
 stances heavily grassed and therefore
 ideal grazing land for sheep, cattle and
 horses.

Fortunate, indeed, is the settler with
 farm lands bordering the plains land. An
 advantage as yet little realized but des-
 tined to make lands so situated, the most
 profitable agricultural lands in the state.

At this present writing, January 2, the
 ground is but partly covered with snow
 and the grass, where exposed, is green.
 As yet we have had no real winter
 weather to speak of, befitting our station
 on the map. Usually the ground is cov-
 ered with snow by the first of December.
 I venture to say that all things consid-
 ered, our growing period is fully as long
 as in the lower part of the state where
 the mid-summer drought is in order.

Presque Isle Co. J. G. KRAUTH.

FEEDERS' PROBLEMS.

Oil Meal vs. Flaxseed Meal.

As a subscriber to your valuable paper
 I come to you for information in regard
 to flaxseed. I always feed several tons
 of oilmeal of which I purchase the best
 grade. Now what I would like to know
 is, would it not be better to get the seed
 from the west? I have a brother in South
 Dakota where it is grown, and he advised
 me that it sells for \$1.25 per bu., while
 the oil meal is at present \$32 per ton.
 What is the analysis of the whole grain?
 How much does it weigh per bushel and
 could it be ground at a common mill
 alone or by mixing with oats? Would be
 very much pleased if you could advise
 me upon these questions. G. M. W.

The reason why oil meal is so valuable
 a food when used in connection with or-
 dinary farm grown grain, is because the
 oil has been taken out of the flaxseed, or
 the larger portion of it, and the resulting
 by-product, commonly known as oil meal
 or oil cake, is a feed rich in protein which
 can be used in combination with other
 feeds to supply a deficiency of this food
 element in the ordinary farm-grown
 grains. Flaxseed contains 20.6 per cent
 protein, 17.1 per cent carbohydrates and
 29 per cent of fat. Multiplying this by
 2 1/4 to get its approximate fuel value and
 adding the carbohydrates we find that
 flaxseed meal has a nutritive ratio of 1:1.
 Now old process oil meal contains 29.3
 per cent protein, 32.7 per cent carbo-
 hydrates and seven per cent fat, or a
 nutritive ratio of approximately 1:1.3.

Since we already have an excess of
 carbohydrates in corn and other farm-
 grown feeds and what we need in a sup-
 plementary feed is protein to balance up
 the ration for live stock, the excess of
 oil or carbohydrates in the flaxseed would
 be of no use for this purpose, hence the
 oil meal is a very much more economical
 feed for this purpose than would be the
 flaxseed, aside from the fact that it has
 most beneficial dietetic effects upon the
 animals to which it is fed.

Material for Hog Houses.

Kindly tell me through your columns
 what you think of a field stone hog house
 with cement floor.

Livingstone Co. W. J. B.
 There would be no objection to a field
 stone hog house with cement floor, ex-
 cept the item of expense, provided ade-
 quate provision is made for ventilation.
 The expense of such a building, however,
 would be greater than if some material
 were used which could be utilized with
 home labor in constructing the building.
 A cement floor is the only kind which
 should be used in the hog house, or, in
 fact, any other stable, either from the
 standpoint of economy or sanitation.

I noticed your remarkable reduction in
 price in a recent issue of The Farmer,
 and I told my good wife that when we
 could get the best general farm paper
 in our language for paying the postage
 we could not afford to be without it.—
 C. H. K., Route 1, Penton, Mich.

FEEDING THE BREEDING EWES.

Attention should be especially directed by flock owners during the winter season to maintain the ewe flock in a healthy and vigorous condition. Nothing is more discouraging to a flock owner than to have lambs dropped weak and puny and ewes lacking in milk and with a disposition to disown their lambs. Mismanagement during the pregnant period is invariably the cause of much of the difficulty encountered at lambing time and the subsequent weeks while the ewes are still confined to limited quarters and dry feed. Ewes properly handled throughout the winter seldom cause much trouble at parturition and during the suckling period.

Farmers as a rule give too little attention to compounding the ration for pregnant ewes and as a consequence materially impair the growth and development of the unborn lambs. Feeding a properly balanced ration to ewes carrying unborn lambs not only sustains high vitality in the ewes, but promotes strong, healthy physical development of the unborn progeny. Pregnant ewes improperly fed cannot in a full degree nurse their unborn young through the various stages of growth. Imperfection in the nourishment of unborn young invariably manifests itself either at parturition or during the few weeks immediately following. As a general thing, weakness in the physical development of unborn young makes itself evident at the time of birth.

Essential Factors in the Ration.

In feeding the breeding flock a number of vital items should be taken into consideration. First, the ration should be so compounded that it will supply the essential food elements required to sustain the ewes themselves in a high state of health. Second, the ration must not only meet the requirements of the first condition, but it must be so compounded that it will furnish all of the necessary elements to promote healthy bone and flesh formation in the unborn progeny. A ration may be so compounded that it will cause the ewes to take on flesh and maintain high vitality, yet not promote strong, healthy development of the unborn young. A ration containing a too high percentage of carbohydrates will produce this undesirable result.

Protein Should be Liberally Supplied.

The most valuable part of the ration for pregnant ewes and upon which the sustenance of high vitality and proper development of the unborn depends, is protein. Feeds, as a rule, are deficient in this essential element and consequently the ration is generally low in its percentage of this necessary ingredient. The vital problem, therefore, for flock owners to look well to is the supply of protein in the ration for pregnant ewes. Alfalfa, clover and pea hay are excellent roughages to feed in abundance to ewes to promote healthy development of unborn lambs. However, roughage alone is too low in protein to be entirely depended upon and a grain ration should be supplemented.

Bran an Excellent Source of Protein.

The more I study and manage pregnant animals of all kinds, the more highly I appreciate the value of wheat bran as a large portion of the bulk of the grain ration. I am sure I am to a large measure, right in making the statement that wheat bran is far from being fully appreciated by farmers and live stock growers. It not only contains a high per cent of protein, but it supplies a roughage in the grain ration that adds uncomputable value to all kinds of feeds that it is compounded with. Wheat bran at the present price is the most valuable and economic feed on the market for pregnant ewes. It may be compounded in any ratio into the ration without the least danger and retain its food and appetizing value. Other farm-grown grains can be used in making up the ration, such as oats, barley, peas, and some corn.

Study the Feeding Problem Carefully.

The wideawake flock owner will study this feeding problem carefully. Neglect, irregular and improper feeding are too prevalent evils of the sheep growing industry of this country. More thought and improved methods in handling farm flocks is essential to success. Every sheep owner should strive to reduce the mortality of his coming season's lamb crop by directing thought to regular and proper feeding of the breeding flock. Half the battle of profitable sheep raising is won when the lambs come strong and vigorous with plenty of the "glorious to make good" disposition in their physical conformation.

Shiawassee Co. LEO C. REYNOLDS.

Each a Lucky Car

By R. E. Olds, Designer

In every make an occasional car proves almost trouble-proof. No breakdowns, no repairs.

The man who gets it tells his friends he got a lucky car.

But every buyer of Reo the Fifth gets a lucky car. This is how I insure it.

How I Do It

A lucky car means simply a car built with proper care and caution. I have spent 26 years in learning all that is necessary.

I have all of my steel made to formula. Then every lot is analyzed twice to prove its accord with the formula.

Then the finished parts are tested. In every part I require over-capacity, not less than 50 per cent.

The gears are tested in a crushing machine, to prove that each tooth will stand 75,000 pounds.

Springs are tested in another machine for 100,000 vibrations

Added Cost

I use big tires—34x4—to save you tire expense and trouble. This year, by adding 30 per cent to my tire cost, I have added 65 per cent to the average tire mileage.

I use in this car 190 drop forgings,

to avoid all hidden flaws. Steel castings would cost half as much.

I use 15 roller bearings—11 of them Timken, 4 Hyatt High Duty. The usual ball bearings cost one-fifth as much, but ball bearings often break.

I use a \$75 magneto to save ignition troubles.

I doubly heat my carburetor—with hot air and hot water—to deal with low-grade gasoline.

I use a centrifugal pump, instead of a syphon, to insure positive circulation.

I use 14-inch brake drums for safety. Also seven-leaf springs, two inches wide.

1,000 Tests

The various parts of this car, during the making, get a thousand tests and inspections.

Each engine, for instance, is tested 48 hours—20 hours on blocks, 28 hours in the chassis.

Fitted parts are ground over and over, until we get utter exactness.

Each body is finished with 17 coats. It is deeply upholstered with genuine leather, filled with the best curled hair.

The electric dash lights are set flush with the dashboard. Thus the car's appearance shows the care we use.

Center Control

No other car has such easy control as you find in this Reo the Fifth.

All the gear shifting is done by moving a handle only three inches in each of four directions.

Both brakes are operated by foot pedals. So the car has no levers, either side or center, to clog the way in front.

You get in this car the wanted left side drive. The driver sits close to the cars he passes. Yet you shift the gears with your right hand, just as with the old right hand drive.

Costs Me \$200 Per Car

Reo the Fifth, without these precautions, could be easily built for \$200 less. For the first few months you might not know the difference. But in years to come this skimping might cost you several times \$200.

I know this well, for I have built cars for 26 years—over 60,000 of them. I know the cause of troubles.

I save this \$200 per car by building only one model, by building all my

own parts, by wonderful factory efficiency. And I put that saving into these extremes, to save you after-cost.

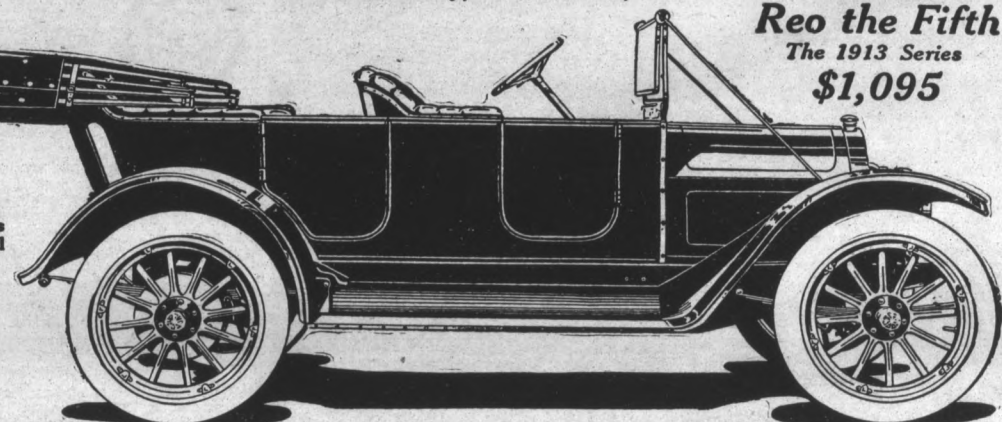
If you think that it pays to have a car like this, ask us to send you the details.

Our thousand dealers now are showing the 1913 model of Reo the Fifth. Write for our catalog and we will tell you where to see the car.

R. M. OWEN & CO. General Sales Agents for **REO MOTOR CAR CO., Lansing, Mich.**
Canadian Factory, St. Catharines, Ont.

Reo the Fifth
The 1913 Series
\$1,095

30-35
Horsepower
Wheel Base—
112 Inches
Tires—
34 x 4 Inches
Center Control
Roller
Bearings
Demountable
Rims
Three electric
lights
Speed—
45 Miles per
Hour
Made with
2 and 5
Passenger
Bodies



Top and windshield not included in price. We equip this car with mohair top, side curtains and slip cover, windshield, gas tank for headlights, speedometer, self-starter, extra rim and brackets—all for \$100 extra (list price \$170).

THE CLIPPER EXCELS

THE MOST PROFITABLE WORK THAT CAN BE DONE ON THE FARM

Is to select and clean all seeds and grains for sowing. This will improve the quality of the seed and bring it up to the highest standard. It will improve the quality, increase the yield and free your land from foul weeds. For this reason you should reclean all clover and other seeds that you buy before sowing. This is just as important as it is to clean your seed, grain and corn from your granary before sowing.

Every farmer knows that Large, Plump, Heavy kernels of seed, grain or corn will produce more and stronger plants, which will increase the yield and improve the quality. Admitting that this will benefit your crop only 10%, what would be your gain for one year? To say nothing of ridding your land of foul weeds, etc.

The U. S. Agricultural Dept., State Experimental Stations and all Prominent Seed Houses use the "CLIPPER" Cleaners for doing just this kind of work and recommend them.

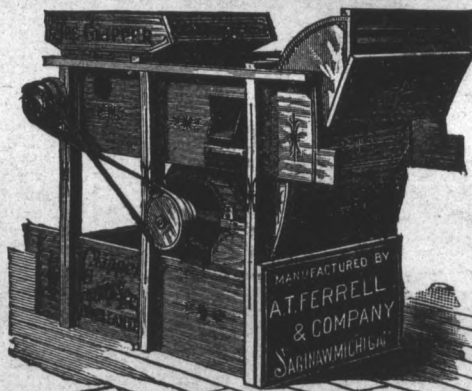
BECAUSE their experience has proven The "CLIPPER" to be the Most Successful Machine for Grading and Cleaning All Seeds and Grains.

This machine will do the same high-grade work as our large \$400 machines. We Guarantee Satisfaction. Prepay the Freight. Give Thirty Days' Free Trial. You To Be The Sole Judge.

Three factors stand out prominently in farm progress—the soil, the working of same and the seed; none of which can be neglected, if bigger and better crops are aimed at.

Distributing points in every grain growing state. Shall we send you our catalog and terms?

A. T. FERRELL & COMPANY, - Saginaw, Mich.



MINERAL HEAVE REMEDY

NEGLECT Will Ruin Your Horse
CURES HEAVES
Send today for only **PERMANENT CURE**
Safe—Certain
Write for descriptive booklet
Mineral Heave Remedy Co., 463 Fourth Ave., Pittsburg, Pa.

GRIND 150 BU. PER HOUR LESS THAN 1¢ PER BUSHEL!

Bowsher Mills often reduce the cost of grinding one-half. That's because they are light running, with perfect conical shape grinders, different from all others.
BOWSHER FEED MILLS
(Sold with or without elevator)
Crush ear corn (with or without shucks.) Grind Kaffir in the head and all kinds of small grains. Handy to operate. 10 sizes—2 to 25 H. P. Also sweep grinders.
FREE Send for folder on values of feeds and manures.
O. N. P. Bowsher Co., South Bend, Ind.



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(Trade Mark Registered.)



Every bottle of Save-the-Horse is sold with an iron-clad contract that has \$60,000 paid-up capital back of it, guaranteeing to permanently cure or refund the money; no matter whether it is Bone or Bog Spavin, Tendon disease or Puffs—nor how aged, serious or complicated the lameness or blemish may be.

OUR LATEST Save-the-Horse BOOK—is our 17 Years' Experience and DISCO VERIES—Treating over 100,000 horses for Ringbone—Thornpin—Spavin—and ALL Lamenesses. It is a Mind Setter—Tells How to Test for Spavin—What to Do for a Lame Horse. Covers 59 Forms of Lameness—Illustrated. MAILED FREE.

But write, describing your case, and from Breeders and business men the world over, on every kind of case, and advice—all free to horse owners and managers.

Write! AND STOP THE LOSS.

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Druggists everywhere sell Save-the-Horse WITH CONTRACT or sent by us Express Prepaid.



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NEW IMPORTATION

We have given more than a quarter century to importing, breeding and distribution of the Belgian horse. We handle no other breed and believe we have now in this new importation of stallions and mares a class of horses that will please you, and all are for sale at prices not equalled by anyone in the business when merit is considered. Will be pleased to have you ask about them and to visit us at any time.

H. & H. WOLF
Wabash, Ind.
HEWO STOCK FARM

METZ BROS., NILES, MICH.

We have a fine lot of imported and American bred

Percheron Stallions

on hand and we can sell them for less money than any other importer. Write us your wants.

METZ BROS., Niles, Michigan.

A. A. PALMER & SONS

Open the season with the finest aggregation of

PERCHERON Stallions and Mares

they have ever offered to the breeding public.

60 Head to select from.

P. O. Beldine, Mich. R. R. Orleans.

PERCHERONS

bred for utility as well as show quality. Stable includes several international winners. Three 2-year-old stallion colts of quality for sale. Come, or write B. F. ANDERSON, R. No. 3, Adrian, Mich.

PERCHERONS—BLACKS and GRAYS

We can show more bone and muscle than any breeder in Michigan. Young stock for sale from mares weighing 1500 to 2000 lbs. Impotent 79403 (79535) weight 2330 lbs. at head of stud.

CHAS. OSGOOD & SONS, Mendon, Mich.

PERCHERONS—One extra good dark gray, 3-year-old Stallion, a ton horse, also yearling stud colts.

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Reg. Percheron Stallion and Mare Colts for Sale.

M. A. BRAY, Okemos, Mich.

FOR SALE or exchange extra fine built Black Mammoth Jack 15 hands high wt. 1000, kind, and guaranteed pure foal getter. Also pedigreed Collie Pups from stock workers. Geo. Moyer, Berrien Springs, Mich.

For Sale—Pair of Registered Percheron Mares 4 and 5 years old. Weight 3,000 lbs. color black. 1 pure bred mare colt 7 mos. old, black. **FRED BIRD, Owner, R. No. 8, St. Johns, Mich.**

Improved and pure bred Stallions. We make a speciality of Belgian & Percheron. G. & H. LOCHER, Bluffton, Ohio.

JACKS and MULES

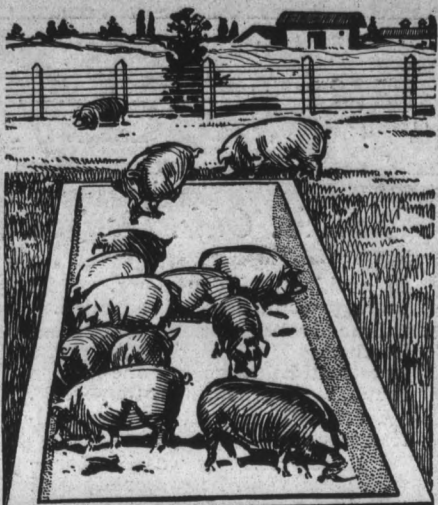
Raise mules and get rich.

18 Jack and Mule farms under one management, where can be seen 420 head fine large Jacks, Jennys and mules, 14 to 17 hands high. Good ones. Stock guaranteed. Write for prices today. Address

KREKLER'S JACK FARM

West Elkton, Ohio.

Branch barns: Clinton, Ind.



Concrete Hog Wallow

Hogs, to be profitable, require just as careful tending as any other animal. A good clean bath now and then is greatly recommended. Filled with a dipping solution the wallow is frequently the means of saving fat hogs on hot days and preventing cholera. And there is only one right way to build a wallow: Use concrete—and insist on

LEHIGH PORTLAND CEMENT

The trade mark on each bag is your protection. The unequalled strength, uniformity, and lasting qualities of Lehigh are recognized by experts all over the country. To be absolutely safe, insist on Lehigh.

Two Valuable Books Free

Over a score of practical, money saving uses of concrete on the farm are described in detail in our book "The Modern Farmer." "Concrete Silos" is a new book giving complete information on every kind of silo and how to build them. Send for these books to the

Lehigh Portland Cement Co.
3361 People's Gas Bldg., Chicago
11 mills, 11,000,000 Barrels Capacity
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FACTORY PRICES YOURS

60 DAY FREE TRIAL

The famous WITTE Gasoline Engine, built for 45 years by Ed. Witte, master engine builder, now sold direct to you. The standard engine of America, with every improvement up-to-date—detached cylinders, vertical valves, etc.—the entire engine backed up by a Real 5-Year Guarantee. Just think! It takes only 2c to get the money-saving, factory prices on 64 styles and sizes. Save money! Write at once for **FREE TRIAL OFFER** and catalog. State style and size wanted. Address

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ELECTRIC Steel Wheel Handy Wagons Are Big Money SAVERS!

No more high lifting or pitching. Saves you work and lightens draft nearly 50%. Don't rut fields or roads. We also furnish Electric Steel Wheels to ANY wagon. Wheels can't dry out or rot. Send for free book of facts and proofs.

Electric Wheel Co.,
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SCIENTIFIC SWEEP MILL

This No. 6 triple geared, double acting sweep mill has more capacity and will do better work than any other two-horse mill; it

turns corn to dollars

Avoid waste, and make big profits by grinding your feed with one of our mills. We make power mills also for engines of any size. Send for free catalog.

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Cedar Rapids Speed Governor
\$3.00 more butter from each cow per year when separator is operated by our Governor. Ask your dealer or write direct to Cedar Rapids Foundry & Machine Co., Cedar Rapids, Iowa.

SOME fine young registered Clydesdale Stallions for sale from 1 to 4 years old. In the spring some will make ton horses with lots of quality and good action. Must be sold before the first of April. **F. A. PETZ, Capac, Michigan.**

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 the letter.

Corns.—I always read the veterinary department of the Michigan Farmer and believe it is worth more than the subscription price of the paper. I have a horse that is troubled with corns, does not go lame, but points as if he suffered some pain. What kind of a shoe would you advise? **T. M. Sandusky, Mich.**—Corns are usually the result of undue pressure from shoe, either by allowing shoes to remain on too long or heels being left too high or foot not being made level. Rubber pads, a three-quarter shoe or a bar shoe and heels left low are the best methods of shoeing. Apply lanolin to hoof once a day.

Obstructed Teat—Bloody Milk.—I have a cow that has a small obstruction in teat which is not painful to pressure, but the cow gives bloody milk. I am not sure which quarter it comes from. **A. H. D., Jonesville, Mich.**—Apply one part tincture of arnica and eight parts water to bruised udder twice a day. As bloody milk is usually the result of an injury, I suggest you make an effort to ascertain how the cow injures her udder, then by removing the cause she will soon recover.

Loss of Appetite.—I have 16 head of spring calves that thrived up to ten days ago, then they began to cough and lost their appetite. Some of my yearlings are affected much the same way. **F. F. A., Jasper, Mich.**—Your calves and young cattle may have taken cold, causing catarrhal fever which will be remedied by keeping them in a warm, comfortable place, changing their feed and giving each one two tablespoonfuls of the following compound powder at a dose three times a day. Mix together equal parts ground gentian, ginger and powdered licorice.

Biliousness.—I have a four-months-old pig that is dull, dumpy, has very poor appetite and is gradually losing flesh. His ears are rough and scabby and cracked open in several places. I am feeding these pigs ground rye, milk and stock food. We also had a March pig that seemed to have the same disease, and after a long sickness died. **J. M. E., Coral, Mich.**—Give pig a tablespoonful of castor oil and four tablespoonfuls of olive oil at a dose every day until his bowels open and act free. Also give a teaspoonful fluid extract gentian and 60 grains of bicarbonate soda at a dose two or three times a day.

Infectious Ophthalmia.—About 30 of my sheep are troubled with sore eyes. This ailment first shows itself by a watery discharge from eyes and an inflamed conjunctiva. Have never been troubled with this kind of a disease affecting my sheep before, and would like to know how to treat them. **G. H. Prescott, Mich.**—First of all, your sheep should be kept in a dry, comfortable place during storms, besides their food should be of good quality. Apply a saturated solution of boracic acid to eyes three times a day and blow a little calomel into eyes once a day. Salt them well and give them good care.

Thick Milky Urine.—For the past four months our four-year-old mare has been passing thick, milky-colored urine and we are inclined to believe she urinates too often. This mare seems to be thriving, coat fresh and she is gaining in flesh. She has been treated by two different Vets. with rather poor results. **Mrs. W. C., Charlotte, Mich.**—Give your mare 1 oz. bicarbonate soda, ½ oz. ground gentian and a teaspoonful powdered nitrate of potash at a dose in feed two or three times a day. Her food supply should be of good quality and possibly changed. I do not believe that she has diseased kidneys; furthermore, I doubt if there is much wrong with her. She should have daily exercise.

Weak Tendons.—My ten-year-old horse has sore cords in fore legs and our local Vet. tells me that his body is too heavy for his legs. This soreness came on him two years ago. **A. P. Scottville, Mich.**—Clip hair off tendon and apply one part red iodine mercury and ten parts cerate of cantharides three times a month. If the horse is very fleshy it would benefit his legs to lighten his weight.

Partial Dislocation of Stifle.—I would like to know what can be done for horse that has been stiff in spavin joint. He stands on foot and leg perfectly natural, but appears to be unable to either back or go ahead and has no power to move leg. The hock joint seems to be perfectly stiff and has been in this condition for the past five days. **G. E. Twining, Mich.**—Your horse suffers from dislocation of stifle joint and whenever the cap is slipped into place he will walk all right. Fasten a strap or rope to pastern, pull foot as far forward as possible, push back stifle joint as far as possible, then with opposite hand push cap into place. In order to keep this bone in place tie foot forward to collar in order to prevent foot from extending back of body which, when in this position, the bone slips out of place easily. Blister joint with cerate of cantharides once a week.

Cracked Heels.—I have a mare that is troubled with cracked heels and I have been applying camphor and sweet oil, but

it fails to give more than temporary relief. I might add that her heels have been sore for the past two years. **D. D. R., Rockford, Mich.**—Apply one part sulphur and three parts vaseline to sores twice a day for a week, then apply one part oxide of zinc and three parts vaseline once a day.

Chronic Cough.—Have a mare four-years old that has been troubled with a cough since mid-summer and I would like to know what to give her. **C. G. Thompsonville, Mich.**—It is possible that a change of feed would benefit her; besides, her teeth may need a little attention. Put 1 oz. of guaiacoli, 2 ozs. of fluid extract opium in a pint of raw linseed oil and give her 1 oz. at a dose three times a day. Also apply one part turpentine, one part aqua ammonia and four parts camphorated oil to throat every day or two.

Indigestion—Leucorrhoea—Scours.—My horses are not thriving; they are fed cut rye and wheat straw with some ground oats, rye and wheat bran mixed. I also have a mare that is troubled with a vaginal discharge. I also have another horse that scoured for two weeks, but showed no symptoms of sickness, except this looseness of bowels. **S. L., Elmira, Mich.**—Feed mixed hay and shredded fodder for roughage part of time and increase their grain ration. Give each horse in each feed two tablespoonfuls of ground gentian, a tablespoonful of bicarbonate of soda and a tablespoonful of ground fenugreek at a dose. Give your mare that has leucorrhoea a teaspoonful of powdered sulphate iron at a dose in feed two or three times a day and dissolve 1 dr. permanganate potash in a gallon of clean water and wash out vagina once a day. This lotion should be tepid heat when used. For your horse that scours feed him a good quality of oats and well cured timothy; also give him 1 oz. of ground ginger at a dose in feed two or three times a day.

Scratches—Worms.—I have a three-year-old colt that has been troubled with scratches since last spring. During the summer his legs healed, now they are sore. This same colt has recently passed a few worms. **N. J., Imlay City, Mich.**—Give your colt a tablespoonful of Fowler's solution and 1 oz. ground gentian at a dose in soft feed two or three times a day. Apply one part oxide of zinc and four parts vaseline to sores twice a day.

Ringworm.—I recently purchased a horse that has sore patches on legs. These little sores when rubbed shed hair and I have noticed that his left knee is slightly swollen and different from the opposite leg. **W. R., Dearborn, Mich.**—Apply one part iodine and ten parts fresh lard to sore spots three times a week. Give a dessertspoonful of Donovan's solution at a dose in feed twice a day.

Perspires in Stable—Stocking.—I wish you would tell me of a remedy for my yearling colt that sweats in the stable, and my horses stock in hind legs. Is corn irritating to the kidneys? **H. T. N., Capac, Mich.**—Corn is fattening, but not irritating to kidneys. Give your colt a teaspoonful of powdered buchu at a dose in feed twice a day. Exercise your horses daily and keep their bowels open. **Eczema.**—I have been a reader of the Michigan Farmer for many years and find the veterinary columns very useful. Have a mare that is inclined to rub herself and on account of this rubbing she has made sores that are raw. **J. H. B., Millington, Mich.**—Dissolve ¼ lb. of borax and ¼ lb. boracic acid in a gallon of water and apply to itchy parts of body twice a day. Also give a dessertspoonful of Donovan's solution at a dose three times a day.

Barrenness.—I have a mare that raised a colt two years ago which fails to breed. **F. C., Flint, Mich.**—If your mare has a vaginal discharge, inject her with the following lotion three times a week: Dissolve 1 dr. permanganate potash in six quarts tepid water. If she has no vaginal discharge, wash her out with a soda solution once a day; dissolve 3 ozs. of bicarbonate soda in a quart of water.

Purpura Hemorrhagica.—(French, anasarca).—I would like to know how to treat a case of purpura resulting from relapse, after a case of distemper or influenza. The prescription for rheumatism in issue of Dec. 13, cured my colt and I might add I have had good success in treating my live stock with remedies taken from the veterinary column. **C. D., Brooklyn, Mich.**—Purpura hemorrhagica is an infectious disease, though not contagious, and generally proves as a sequel of influenza. However, it occurs as an original disease in badly ventilated, badly drained stables, and sometimes follows debilitating fevers. This disease is characterized by the destruction of the blood elements, the blood becomes thin and oozes through the pore into different parts of the body. Give the horse 1 dr. tincture chloride iron, 20 grs. quinine and ½ oz. sweet spirits of nitre in one-half pint of cold water at a dose every four hours. If the muzzle begins to swell, bathe it with warm water. Some practitioners tap these swellings, but it is a mistake to do so. In some cases it becomes necessary to put a tube in wind-pipe. The horse should be fed generously with oats, corn, bran, etc. It is needless for me to say that he should be kept in a clean, comfortable, well ventilated stable.

Bursal Swelling—Sheep Cough.—I have a five-year-old draft horse that has a soft bunch about the size of a hen egg above knee on outside of leg. I also have several sheep and lambs that cough considerably. These sheep are eating well, but do not put on flesh and I might add that two-thirds of my lambs die at birth. **F. B. M., Fowlerville, Mich.**—Apply equal parts spirits of camphor and tincture of kalmine to bunch once a day. Mix together equal parts of powdered licorice, ground ginger, gentian, fenugreek and bicarbonate soda and give each sheep a teaspoonful at a dose in feed night and morning. They should be salted often and well fed.

Incubators—How I Run Mine Successfully.

I have found that the incubator has many advantages over old "biddy." People who succeed in rearing from 150 to 200 chicks each season under ordinary farm conditions, could depend upon rearing twice that number with half the labor if they used incubators. Some seem to think it takes an expert and a couple of hours each day to successfully run an incubator, but such is not the case. I figure that it takes me, on the average, about 15 minutes each day (five night and morning to turn eggs and five at night to fill and fix lamps) to care for two machines having a capacity of 170 eggs each. It requires but little more time to look after two machines with double the capacity. Now, to hatch 340 eggs under hens would require about 25 hens, and one minute for looking over each hen night and morning would consume nearly an hour each day. Then there is the cost of feed, which would far exceed the cost of the incubator oil.

Very clear and practical instructions come with incubators of the best makes, and if these are carefully followed even inexperienced persons can run the machines successfully. In making selection of a machine one should patronize a well established company and select the size most suited to his wants; then order early, for all the factories are rushed. The size of machine depends upon the number of chicks you wish to hatch, but a convenient size for most farmers is one of 150 to 200-egg capacity. Smaller machines, after the infertile eggs are removed and the others that fail to hatch, leave an unsatisfactory number, while a machine of more than 200-egg capacity can not be readily filled by the ordinary farm flock in time, as eggs should not be over a week old when placed in the incubator.

I have found that a well ventilated, dry cellar is the best place for an incubator. After making the machine perfectly level it should be run a few days without eggs. Then it will need very little attention until the chicks begin to hatch. Heat it to 103 degrees before the eggs are put in. Then put in eggs and don't bother them again until the third day, except to fill and trim the lamp every evening. Some fill and trim the lamp in the morning, but I prefer to do this in the evening as the fresh flame will hold more heat during the cold of the night and I am taking less chances of anything going wrong with the flame.

On the evening of the third day I begin turning the eggs by hand, to air them thoroughly; from then until the eighteenth morning I turn them twice a day and keep airing them a little more each day. From the fifteenth day on you will need to change the regulator just a trifle if the eggs run strongly fertile, as the animal heat tends to raise the temperature. I keep turning the eggs until about time for them to hatch; then machine is left closed until hatching is completed. Unhatched eggs and empty shells are then removed with the trays, the chicks being left in the machine over night. Next morning they are taken to the brooder, which has been heating since the previous day. The incubator is then thoroughly cleaned, disinfected and made ready for the next hatch.

New York. A. E. VANDERVORT.

CURING AMERICAN FOUL BROOD.

In discussing treatment it is assumed that hives with movable frames are in use. Box hives are a menace and unprofitable to modern bee culture and are especially condemned in regions having foul brood. Their inmates may be treated for disease after first drumming the colony into another box and then hiving it like a swarm.

The treatment consists essentially in the removal of all infected material from the colony and compelling the bees to take a fresh start by building new combs and gathering new stores. Most commonly treatment is given during a flow of honey, so that bees in the apiary will not be inclined to rob. If this is not possible the operation may be performed under a tent made of mosquito netting. The best time is the middle of a clear day when large numbers of the bees are in the field.

A perfectly clean hive, complete with new frames containing foundation starters one inch wide, is put in readiness; also a lightly closed hive body to hold contaminated combs, an extra hive cover to serve as runway for the bees to their new hive, a drone trap, hive tool and smoker. The hive containing the dis-

eased colony is first lifted to one side and the clean hive set exactly in its place. Its cover is taken off and a few frames removed from the center of the hive. If unspaced frames are used they may be pushed to either side of hive. The runway is put in front of the hive. The old hive is now opened and the frames, as they are removed, are pushed part way into the new hive where, with a quick downward shake, the bees are dislodged. The frames are then put into the extra hive body and quickly covered. After all frames in the old hive have been treated thus the bees remaining on sides of hive are shaken out.

If nectar is coming in freely so that honey is shaken out of the combs, cover the runway with newspaper and shake all the bees in front of new hive. After the operation the soiled papers should be destroyed.

After the bees are mostly in their new hive a queen and drone trap, or a strip of perforated queen-excluding zinc, is placed over the entrance to prevent the colony from deserting the hive. The queen can not pass through these openings, and workers will not leave without her. The bees will build new comb and store what honey they carried from the old hive into cells, covering it with fresh nectar. In four days remove the frames from this hive and put in new ones containing starters or full sheets of foundation. Wax and honey removed in the frames should be carefully covered.

The diseased combs containing brood may be saved until all healthy larvae emerge. If several colonies are being treated at one time, stack several hive bodies containing contaminated combs over a weak diseased colony for 12 days and then remove, when this colony may be treated. Where only a few colonies are being treated it will not pay to do this.

As a substitute for the shaking treatment just described, the bees may be removed to one side and in its place is set a clean hive with clean frames of foundation. The queen is at once transferred to the new hive. As the field bees return they enter this new hive. The infected hive is now placed on top or close beside the clean hive and a bee-escape placed over the entrance so that the younger bees, and those that emerge later from the cells, may leave the contaminated hive but can not return. They therefore join the bees in the new hive. When all the healthy brood has emerged from the infected combs the old hive is removed. This treatment is simpler and induces less excitement in the bee yard. Care should be taken that the old hive is absolutely tight to prevent robbing. The old hive and its contents of honey and wax can be treated as described under the shaking treatment.

If it is necessary to treat a colony so late in the fall that it would be impossible for the bees to prepare for winter, the treatment may be modified by shaking the bees onto combs entirely full of honey so that there is no place for brood rearing. This will usually be satisfactory only after brood rearing has entirely ceased. Unless a colony is quite strong it does not pay to treat in the fall, but it should be destroyed or united with another colony.

Powerful drugs of many kinds, and used in many ways, have not been found efficacious in curing this disease.

The hive which contained the disease may be saved if cleaned of all wax and honey and burned out on the inside with a gasoline blue flame torch. The inner surface of walls, top and bottom should be charred to a light brown. The careful cleaning and disinfecting of frames costs more in labor than frames cost, so these had better be burned.

If there is a considerable quantity of honey in the contaminated combs it may be extracted. To put such honey on the market, although it is safe for human consumption, is against the law, as there is always danger that an emptied receptacle will be thrown out where bees can have access to it, thus causing a new outbreak of the disease. It can be safely used for feeding bees provided it is diluted with at least an equal volume of water to prevent burning, and then boiled for not less than an hour in a closed vessel. This should not be fed for winter stores.

If treatments are given at the beginning of a good honey flow it is practically equivalent to artificial swarming and results in an actual increase of surplus honey. The cost of the treatment is small.

N. F. GUTE.

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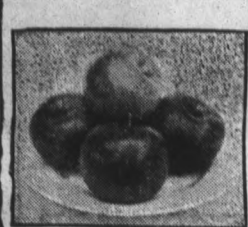
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All knowledge can not be obtained from first hand; the enlightenment of the present age is the result of the preservation of the knowledge of the ages. If we take what we know of the control of our fruit pests from others, why not learn what they have to give us on the pest itself? Supplant that with enough personal acquaintance with our enemies to know them when you see them. Then the fighting will be more intelligent and more efficient.

That we may get a better knowledge of our most prominent fruit foes, the following "character sketches" of them are given.

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It is not always size that counts; Gulliver was fastened down helplessly by numerous pygmies. The San Jose (pronounced san ho zay) scale, a little larger than a dot, has become the fruit grower's most formidable enemy through its prolificness.

About 1870 it was introduced in California on some flowering peach stock which was imported from China. In ten years it was spread all over the state. It was not found east of the Mississippi river until 1893. Three years later it was in every state in the Union except six.

The young are born at the rate of about ten a day, and the number of children each mother has totals 600. The females are of marriageable age when about 35 days old and immediately start having families of their own. A mother becomes a grandmother in a short time and the number of her grandchildren, including the great grandchildren, number up in the millions before the season is over.

As the young are born they crawl out from under the scale covering of the mother on their six legs and, with their feelers, they spend a day or so getting the lay of the land; after which they settle down near their mother unless they are carried off on the legs of birds or insects to another tree. They stick their beak into the bark, start sucking sap, and also secreting the material which forms their scale-like covering. This is white at first but turns dark until it is nearly black.

Before the scale reaches maturity it is about the size of a pin head. If the individual is a female she sheds her legs and feelers, gets to about twice the size of a pin head and becomes a little lighter in color. She is permanently located. If it be the male he takes on a pair of wings, leaves his scale covering and spends the rest of his life seeing the country.

To one unfamiliar with the scale it would be hard to notice a slight infestation or to recognize an individual scale. When the infestation becomes more serious the ashy gray color of the infested bark is noticeable to most all. With a knife this can be readily scraped off, and the little yellow, jelly-like specks seen are the insects themselves.

On the young growth of pear and apple tree the scale will cause a reddish discoloration. The fruit which also has the reddish discoloration is probably the first place that the inexperienced will notice the scale. Reddish blotches with white centers where the scale was and has been flaked off, and reddish blotches with black centers where the scale still is, will be common on infested apples, especially at the blossom end. If the reddish spots on the apple are due to the scale the black centers can be scraped off with the finger nail or a knife.

The San Jose scale infests all of our fruits except the sour cherry, and strawberry. It is seldom found on the raspberries and blackberry, and not very often on the grapes, although they have been found thoroughly encrusted with it. It is also found on the Japanese quince, rose, dogwood, mountain ash, flowering quinces, plums, crab apples, and peaches, and sometimes on the willow. It practically attacks all plants belonging to the rose family to which all of our fruits belong. The osage orange is a favorite

plant for it and osage hedges are an important source of infestation on other plants. They should receive immediate attention in all vicinities.

The forest trees are not attacked by this scale as is supposed by many, and are not a source of danger in that way. Other scales that do not attack fruit trees infest them, such as the cottony maple scale, elm scale, obscure oak scale. The San Jose scale has been found on many of the forest trees, and also on strawberries, corn and milkweed, but these are not natural host plants for it. It does not thrive on them.

This scale is here to stay. It is no longer feared. Its control is part of each year's program in the growing of good fruit. Thoroughness in spraying is the most important factor in the success of its control.

Van Buren Co.

F. A. WILKEN.

BUY SEED EARLY AND FROM RELIABLE PARTIES.

The farmer who buys his seed early is taking less chances than his neighbors who put it off until nearly planting time. Early buying of seed generally means getting that of the freshest and best quality. If reliable seedsmen are patronized. Often when one puts it off until late, the supply is exhausted or only second grade stock is offered. These problems do not confront those who buy early.

The importance of buying only the best grade of seed cannot be too strongly emphasized. It is false economy to save a few cents per pound on the purchase of any seed and run a chance of losing perhaps a hundred or more dollars at harvest time in an inferior crop as a result. The difference between good and poor seed may not be noticeable to the eye. The only way the farmer has of knowing is in the honesty of the seed dealer and the prices charged. For this reason he should buy only from reliable seedsmen and then pay the highest prices.

One may think he is saving money in buying cabbage seed at \$2.50 a pound at some grocery store or an agent, when regular seed firms are asking \$3 or \$3.50 per pound. While one may be able to save a few dollars in this way it does not pay to take a chance of risking the whole crop. Seed stores generally buy in large quantities from original growers, thus getting the freshest and best stock, while the supply that goes to the grocers and dealers that handle seed as a side line, often is old stock or of a quality that would not be accepted by seed dealers. If one wants to buy a good watch he goes to a jeweler instead of a grocer, even though the latter may have a stock of cheap watches for the trade. There is often as much difference in the quality and value of seed as there is between watches.

Early purchasers have the advantage even when only reliable dealers are patronized. Often their original stock is sold out and they are forced to replenish it with inferior goods. The late purchasers are the ones that get this stock. Some dealers will refund the money rather than send stock that they know is not of number one quality.

Responsible seed dealers have nearly uniform prices for seed. They buy hundreds of pounds at a time and in buying such large quantities they are enabled to resell it at about the minimum price for good stock. When agents claiming to represent some company or other dealers offer the same seed at greatly reduced prices, there is apt to be something wrong with the seed.

A germination test might show that the seed had been adulterated and that not over fifty per cent of it would grow. For example, turnip seed is often used to adulterate cabbage seed. When this is done the former is generally boiled to kill the germinating power so that the fraud will not be detected by the unsuspecting farmer. A poor stand is often caused as much by inferior seed as it is by other unfavorable conditions. The law should compel all dealers offering seed for sale to guarantee a certain germination test.
Pennsylvania. **L. J. HAYNES.**

Winter months have been of more value to a few fruit men than the active months of summer. The value came in the new vision they got of their work.

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The Hercules is the only genuine, all steel stump puller made. It is 400% stronger and 60% lighter than the imitations. Don't be fooled by misleading

names like "semi-steel" or "Manganese steel" or "Bessemer Steel." The Hercules is the only *all steel* puller! And its triple power feature gives it more power than a locomotive! No stump is too big or too deep rooted for the power or strength of the Hercules.

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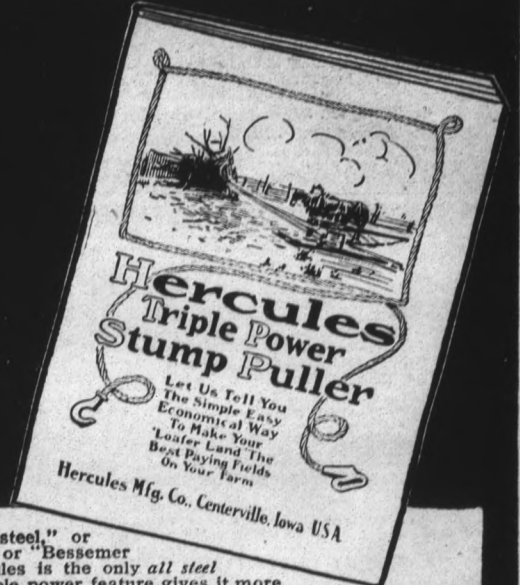
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WE GUARANTEE to stop THE MICHIGAN FARMER immediately upon expiration of time subscribed for, and we will pay all expenses for defending any suit, brought against any subscriber to The Michigan Farmer by the publisher of any farm paper, which has been sent after the time ordered has expired, providing due notice is sent to us, before suit is started. Avoid further trouble by refusing to subscribe for any farm paper which does not print, in each issue, a definite guarantee to stop on expiration of subscription. The Lawrence Publishing Co., Detroit, Mich.

DETROIT, JAN. 11, 1913.

CURRENT COMMENT.

Considerable space has been devoted to the discussion of agricultural credit in our editorial columns during the past year. Since no subject is of greater importance to our readers this discussion will be continued as new data is available upon its different phases. The latest contribution to such data is found in the report of the Secretary of Agriculture for 1912.

General discussion of, and interest in, this subject throughout the country led to an investigation by the Department of Agriculture. As a means of obtaining the real facts with regard to present conditions of agricultural credit a schedule of questions was sent to 9,000 persons in the United States. Three thousand of these were country bankers and about an equal number were country merchants and the balance prominent farmers taken from the list used by the bureau of statistics to collect monthly reports of the prices of farm commodities. These three classes of correspondents were chosen in order that if any class bias appeared in the opinions given it would be recognized and make possible an allowance for an exaggeration or deficiency of statements. The report stated, however, that no such bias was discoverable and the three sets of schedules and answers were compiled together in the making of deductions from the data thus obtained.

This data covers so many phases of the question of agricultural credit that it is impracticable to discuss the same comprehensively in a single comment, for which reason different phases of the data thus obtained will be touched upon in succeeding issues, while this comment will be devoted to the discussion of agricultural credit obtained in the form of loans as disclosed by the data contained in the report recently made by the secretary of agriculture for 1912.

In this connection the first effort of the inquiry was to ascertain the percentage of farmers owning their land who are able to give good security or endorsed notes for loans. In the opinion of the correspondents, as indicated in the secretary's report, 77 per cent of farm owners may be so reported and the corresponding percentage for tenants is 46. It was then attempted to ascertain what percentage of farmers owning their land and able to give good security or endorsed notes are unable to obtain opportunities to borrow. On this point about 43 per cent of the correspondents reported that farm owners are able to obtain such loans and the other correspondents reported that 36 per cent of the farm owners in their community were unable to do so.

Similar questions pertaining to long time loans brought reports from 47 of the correspondents that farm owners were

able to obtain such loans, while the remaining correspondents reported that 40 per cent of the farm owners were unable to do so, the corresponding percentage for tenants being nearly the same. As to the sources of such loans, it was ascertained that of the principal sources of agricultural loans and advancements (not including purchase money) local banks supplied 57 per cent of the total agricultural credit in communities where banks exist. Neighbors supplied 16 per cent in communities where they contributed anything to the supply of credit, individual lenders in nearby cities and towns supplied 12 per cent and loan agents from outside capital supplied 16 per cent, where such agencies exist, while local stores supplied 25 per cent in communities where they contributed anything to the supply of credit and unclassified sources of credit supplied 13 per cent.

It will thus be seen that local banks supply more than one-half of the agricultural credit, other than for purchase money of farms, while general stores supply one-quarter of such credit and both together more than three-quarters. In this connection it is interesting to note the proportion of communities in which these two principal supplies of credit exist. Correspondents reported that in one per cent of the communities there was no supply of credit by banks, while in 47 per cent of the communities no such supply by local stores.

There is much food for thought in these figures. As a general proposition it may be considered as true that the local banks throughout the country in times of prosperity, such as have been experienced in recent years, have their funds well loaned out. At some seasons of the year they may have surplus funds, while at other seasons of the year their available monies are so closely loaned that they are obliged to refuse good opportunities to make loans. In most cases their available funds are practically all devoted to local loans, including local business men and farmers, although in some cases outside loans are made on commercial paper, and in other cases quite a proportion of their available capital is loaned on long time real estate mortgages not included in the above figures.

It would thus appear that less than one-half of the farm owners who are able to give good security are able to make loans locally from the combined sources above listed, and that less than one-quarter of them are able to utilize their credit at the local bank. With the large increase in the number of local banks and corresponding increase in deposits this increase in percentage is undoubtedly growing from year to year, but there is apparent need of increased facilities for making agricultural loans, hence the desirability of added facilities through the co-operative organization of farmers for this purpose which has been repeatedly discussed in these columns.

The few days that have elapsed since the inauguration of the new parcels post, have perhaps shown the wisdom of limiting the usefulness of this service at its inception, since the facilities of the post offices in many of the larger cities have been taxed to their utmost in caring for this special class of mail. Of course, there has been a very general tendency to try out the new plan which may have made the parcels post mail heavier during the early days of its trial than would be the case after the business settles down to normal proportions. It is probable, however, that there will be a growth of business under the new law along certain lines when the public finds out its value and limitations for every day uses.

From an early study of the comparative effects of the new law it would appear that for parcels weighing just over four ounces, to which the new law applies, the cost of transportation is somewhat increased, while for parcels weighing slightly under one pound up to those approaching five pounds in weight the average rate for the average haul will be considerably cheaper than under the old plan, and while the new parcels post increased the weight of packages which may be sent by mail from four to 11 pounds, the rate, except for local delivery, will be generally higher than the express rates on like commodities and, except where the superior advantages of universal delivery are attractive, or for local delivery only, there will be little use made of the parcels post for the transportation of the heavier parcels.

But, as before noted, as experience demonstrates the shortcomings of the new parcels post, public opinion will cry-

talize to such an extent that the shortcomings will be remedied by the post-office department or by Congress itself. Michigan people will be in a position to make their ideas felt upon this question through the appointment of Senator Townsend as one of the special congressional commission to study the parcels post and make such recommendations as its investigation warrants for the future of this service. The first duty will naturally be to obtain all information possible as to the workings of the parcels post system as now inaugurated. While no public announcement as to the exact duty of the commission has been made, it would appear that it would be a proper court of appeal for those who are not satisfied with the workings of the present system upon a fair trial, to the end that the service may be improved where improvement is practical to make it of the greatest possible benefit to the people of the whole country.

The Mortgage Tax Law.

As noted in the last issue, mistakes are the unavoidable accompaniment of progress along any line, and mistakes have been made in the progress toward equal taxation in Michigan, notwithstanding the fact that progress in that direction has, on the whole, been most encouraging. Many, and we believe a majority, of the readers of the Michigan Farmer believe that the new mortgage tax law was such a mistake. For many years this question has come before the legislature at each biennial session, and generally opinion has been pretty evenly divided on the proposition of taxing mortgages on the same basis as other property is taxed. Those who contended that taxation of mortgages on an ad valorem basis was double taxation have periodically had their inning, first in the law of a few years ago which provided for an exemption in the valuation of mortgaged real estate to the amount of the mortgage which was assessed at its cash value, and again two years ago in the exemption of mortgages from ad valorem taxation and the substitution of a small specific tax on same, to be levied at the time the mortgages were recorded.

The first law failed in practice owing to the scarcity of money at the time and the failure of the law to provide a penalty for the shifting of the tax on the mortgage to the borrower, which became the universal practice, thus defeating the purpose of the law. Upon the return to the old plan of assessing mortgages, the big lenders of money again largely escaped taxation by concealing their holdings, so that not more than 50 per cent of this class of property was placed on the assessment rolls, as revealed by the amount of mortgage loans upon which the specific tax was paid under the new law. And even under the new law it appears that some who loan money on mortgage security take advantage of the necessity of the borrower by compelling him to pay the specific tax to secure the loan.

But as present mortgage loans expire and as new capital is attracted to this form of investment under the more favorable conditions as to taxation imposed by the new law, there is hope that a benefit will accrue to borrowers in a reduced interest rate. Indeed, the friends of this new system of taxing mortgages contend that such a tendency is already apparent in that interest rates have not advanced along with the general advance in other values which has been so pronounced in recent years. Undoubtedly, if this should be the ultimate effect of the practical exemption of mortgages from taxation under the new law there would be an element of justice involved, and the benefit to the country at large might become evident in enhanced land values and more general improvement of farm properties.

But the large class of home owners and farmers who have no mortgage indebtedness and whose taxes will be higher because of this exemption of mortgages from taxation will hardly see the justice of this change, and will be slow to be convinced that any benefit accrues to the community thereby, hence the general demand for the repeal of the present law. It would appear, however, that the correction of this mistake, if mistake it be, of placing mortgages under specific taxation cannot be fully accomplished by the repeal of this law, since it is probable that the courts would hold that having paid a specific tax in lieu of all other taxes for the life of the mortgage, mortgages at present in force could not again be placed on the tax rolls for ad valorem taxation. It is possible that the passage of an income tax law may prove the solution of this problem, as this would

impose another form of taxation on the holders of mortgage loans. In any event it would seem that this vexed question will not be soon permanently settled to the satisfaction of all concerned, hence its just solution remains a profitable subject for thoughtful study on the part of every public spirited citizen.

In another column of this issue will be found the announcement of the annual live stock meeting which will be held at the Michigan Agricultural College on January 15-16. The different breed meetings will be held in the rooms assigned to them in the agricultural building on Wednesday, January 15. These meetings are each and every one important, not only to those who have heretofore been interested in the breeding or feeding proposition, but as well to every farmer in the state, and none who can arrange to attend them should forego this opportunity to secure an inspiration toward the better breeding and more efficient feeding of live stock maintained upon Michigan farms than which no other factor of their conduct is more essential to the highest success and most general prosperity of our agriculture.

HAPPENINGS OF THE WEEK.

National.

During the past eight weeks 200 deaths have occurred in the city of Chicago from diphtheria.

Carefully compiled statistics show that during the year 1911, 7,093 persons died of consumption in the state of Ohio.

Ebenezer S. Wheeler, who was engineer in charge during the construction of the Poe lock at Sault Ste. Marie, and also of the Middle Neebish channel, died at his home in Detroit Sunday morning from heart disease. Mr. Wheeler also surveyed for a Nicaragua canal in the 90's and for the construction of the Lake St. Clair ship canal. He was 73 years old at the time of his death.

The explosion of a locomotive on the Detroit & Toledo railroad in the city of Detroit, Sunday, instantly killed one man and badly scalded six others. No cause for the explosion was reported.

The Western Calvert Heirs' Association will make another effort to gain possession of the Calvert estate, which consists of lands in and around the city of Baltimore. The lands were granted in the seventeenth century to the first Lord Baltimore by King James 1st, of England.

The Chicago Federation of Labor held an exciting session on January 5, when resolutions were considered touching upon the conviction of the 33 labor leaders found guilty of conspiracy at Indianapolis. The conservative members were unable to control the assembly, enabling the radicals to adopt resolutions condemning the United States government and denouncing the judge and jury in the recent trial.

Dr. Louis Swift, America's greatest astronomer, died Sunday in Marathon, N. Y., at the age of 92. Dr. Swift is acknowledged as the discoverer of more than 1,300 nebulae, or "little worlds," and 15 comets. He was a Fellow of the Royal Astronomical Society of England.

Upon the return of President Taft from Panama it is learned that he purposes submitting to England, with the consent of the Senate, a proposition to have a special tribunal consisting of a body of men between the two countries regarding the operation of the Panama canal.

The congressional committee on banking and currency will make further inquiry into the operations of financial affairs as they are carried on at the present time. Other hearings looking toward a general revision of the currency system, begin on Tuesday.

A bill has been introduced in the Michigan Senate which will compel railroads, mining and express companies to pay their employees weekly, should it become a law.

The state board of immigration of Minnesota will ask the legislature of that state for \$100,000 to bring settlers to occupy the undeveloped lands of that commonwealth.

Charles P. Neill has been renominated by President Taft as United States Labor Commissioner.

Storms are raging over the western part of the country. It is declared by reports from southern California that low temperatures have probably destroyed the orange crop of that section, the loss being estimated at about \$50,000,000. San Francisco reports the coldest weather in 25 years. In Washington and the other northwestern states railroads are finding it difficult to battle with the heavy snow which in places covers the tracks to a depth of 14 feet. New Mexico is also clad in snowdrifts with the thermometer registering from nine above to 35 below. The loss of live stock has been very heavy. Zero weather prevails at Salt Lake City. The cold at the latter place is responsible for broken water mains which is causing a serious situation.

A number of New York restaurant keepers have organized for the purpose of bringing together the leading restaurant and hotel keepers of the city into a co-operative society which will buy all its food supplies directly from the producer.

Senator William Alden Smith, of Michigan, chairman of the investigating committee investigating Mexican affairs, is in conference with Senor Pedro Lascurain, Minister of Foreign Affairs of Mex-

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NOTICE

At the annual meeting to be held in the City of Hastings on January 14, 1913, to commence at ten o'clock A. M., the members of the Michigan Mutual Tornado, Cyclone and Windstorm Insurance Company will vote on amendments of sections 5 and 7 of the charter of the said Company. Dated Hastings, Mich., December 9, 1912. D. W. ROGERS, Sec.

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of selected men, to consider the difference, where they are considering conditions in the latter country and the ill treatment which Americans and American property have been subjected to during the past two years.

Highland Park, Mich., is petitioning the government for a post office. The city now obtains its mail through the Detroit office.

The United States Supreme Court has declared that the disputed counts in the trial by government against Jas. A. Patten, et al., who are charged with violating the Sherman Anti-Trust law in forcing a corner on the cotton market constitutes such a violation. The conspiracy is described in the bills as calculated to yield the promoters \$10,000,000 in profits.

President Taft has appointed Senator Charles E. Townsend, of Michigan, to make a study of the operations of the parcels post system for the purpose of suggesting further improvements in the service. The post office department through the parcels post is doing a much larger business than was expected. This appears to be more or less true of the larger post offices over the entire country. In Detroit six automobiles were provided for the service. After less than a week's time it has been found necessary to employ 17 automobiles to make deliveries.

Members of the Central Fruit Growers' Association, with headquarters at Battle Creek, are planning for the erection of a cold storage building in that city. The members expect to spend over \$20,000 for the plant. With such accommodations the growers should realize a much larger profit for their produce. A similar institution is contemplated by growers around Augusta.

Foreign.

Another accident occurred on a French battleship Monday. The main steam pipe of the Massena burst, killing eight of the crew. The boat was just leaving Toulon as the accident occurred.

Dr. Francisco Vasquez Gomez, former Minister of Education of Mexico, was arrested Sunday on a court order and is now held at police headquarters, Mexico City, charged with inciting rebellion against the present administration. He aided Madero in the revolution against the Diaz regime but later broke with the Madero family and has since retired to private life.

The peace conference at London is slowly bringing together the representatives of Turkey, and the allied forces. The latter continue steadfast in their demand for all the territory which they have taken during the recent war. Turkey, on the other hand, is gradually making concessions which may ultimately bring the conferees to a basis upon which an agreement can be made. As a result of the negotiations war is being delayed for a considerable period of time.

William Rockefeller, who is being sought by the Pujo committee of congress to testify regarding present-day financial conditions, is reported at Nassau, Bahama Islands, to which place he recently sailed from Miami, Florida.

CROP AND MARKET NOTES.

Lapeer Co., Jan. 4.—Ground is covered with about three inches of snow this morning. Weather colder. Some are threshing beans, and others are hulling their clover seed, also the power corn husker has lots to do yet. Wheat and meadows do not appear to be damaged as yet. Wheeling on the highways excellent. Taxes the heaviest known since the Civil war. Labor not much in demand, but flour and meats bring big prices. Hay, \$10.50 per ton; potatoes remain at 40c per bu; corn, 60c; oats, 38c.

Emmet Co., Dec. 31.—Weather for December was exceptionally mild. Precipitation light; mostly snow. Fields were bare most of the time, though there was pretty fair sleighing where the roads were smooth when freezing weather set in. The price of seasoned stove wood rose as high as \$3 a cord, but the large amount that was then placed on the market by farmers, soon dropped the price to \$2.50. In some instances wood is being hauled a distance of 12 miles or more. Hay selling around \$15; straw, \$10; dressed hogs, \$7@8; eggs, 35c.

Shiawassee Co., Dec. 30.—Weather moderate with strong south and southwest winds. Very little snow on the ground. Roads in splendid condition and a large amount of teaming being done. The last of the sugar beets are being hauled to the factory. On account of the lower rate per ton paid by the factory for beets the coming season farmers are very slow to take new contracts, claiming that they cannot afford to grow beets for \$5 flat rate for 12 per cent beets and 33 1/2c for each per cent above. Farmers are complaining of the poor keeping quality of the fruit in cellars. Potatoes still are rotting badly and heavy loss is looked for, especially from pitted potatoes. Wheat is coming on through the winter in fine condition. Clover is also withstanding the winter in splendid condition. A great deal of human sickness in this locality. Live stock, however, is usually healthy. A number of farmers are milking a large string of cows for the local creamery company, and are quite well satisfied with returns. A large number of lambs are on feed in this section and feeders are hoping for a good market.

Hardin Co., Dec. 31.—Butchering and doing the chores seems to be the order of the day through our section of the country. Some doing odd repair jobs on the farm tools and fences. The weather has been great this fall for feeding stock. There has been snow on the ground almost all the time. Wheat and rye holding their own very well this winter. The hog cholera is dying out and not many losing hogs now. A number had their hogs treated for this disease through here.

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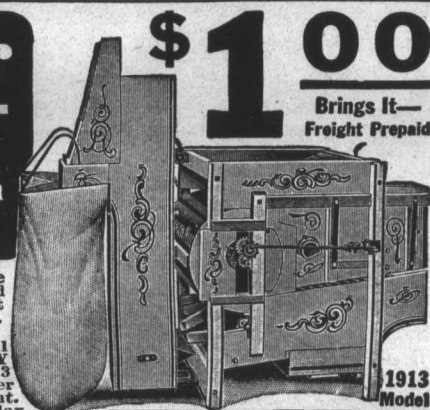
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Practical Science.

A FAMILIAR EXAMPLE OF THE DEFICIENCY OF MINERAL MATTER IN FOODS.

BY FLOYD W. ROBISON.

We Acknowledge the Courtesy of Dr. H. B. Baker.

We desire to call the attention of our readers to an error which crept into our studies under date of December 7, when we were discussing the function of lime as an accessory in the human dietary. In a very interesting letter, Dr. Henry B. Baker calls our attention to a misstatement regarding the lime content of milk. We had stated as follows: "At the age of six months the human infant is requiring about one quart of milk daily. This milk, which is practically a saturated solution of lime, contains about one and one-fifth ounces of lime."

Now what we should have said is: That this quart of milk contains about one-fifteenth ounces of lime. Just how this error crept in, we are unable to say, but when we figure, as we were then referring to cows' milk, a total mineral content of seven-tenths of one per cent, and then know as we discussed further on in this same article, that between 30 and 40 per cent of this mineral matter is lime. We would then have average cows' milk containing 21 to 28 one-hundredths of one per cent of lime. This would give as a minimum, approximately one-fifteenth ounces of lime per quart.

Some Well Known So-called Acid Soils.

From a point near Benton Harbor, extending along the shore of Lake Michigan almost as deep as the peach belt extends, and as far as Grand Traverse Bay, is a strip of land which has been a source of annoyance to stockmen for many years. This soil, which responds so beautifully to orchard crops, has not been an ideal soil for farming. It is an example of what many mean when they say acid soils. That this soil is acid, is testified to with a considerable degree of force by the well known fact that clover crops are almost unknown except where special effort has been made to provide congenial conditions for the clover plant. Just whether these soils are acid from the standpoint of showing an excess of acid reacting substances has, we think, never been satisfactorily proved. In fact, some chemists have denied the existence of acidity in soils. We believe, however, that when a crop will not grow, at least such a crop as the clover crop, under ordinary conditions in a soil, and yet will respond well when that soil is treated with lime, we are warranted in declaring that soil to be an acid soil. The preceding statements explain in a few words the characteristics of the soil in this lake shore region. A few years ago when the writer was chemist of the Michigan Experiment Station, a great many cases of apparent mal-nutrition, particularly of cattle, was called to the earnest consideration of the station. In investigating the conditions we found a great many cattle in this strip of land sick, emaciated and dying, the victims of the dreaded lake shore or Grand Traverse cattle disease, as it was commonly called.

These animals were apparently starving with plenty to eat. They were anemic to a very marked degree. The haemoglobin content of the blood was low. The animals recovered when placed on new feed, particularly clover and alfalfa, after a proper regulation of the bowels, but when placed again upon the normal feed of this territory very soon exhibited the old familiar symptoms. In analyzing the different forage feeds from this section, in practically every instance we noted marked deficiencies in iron and lime. To account for the deficiency in a natural way, we secured a great many samples of water from surface wells, i. e., wells dug in the sand to a few feet depth. This gave us a pretty average sample of the soil water of each particular community. In nearly every instance an analysis showed this water to be very deficient in both iron and lime, the same ash ingredients which were so conspicuously deficient in the crops grown on these soils. The soil water therefore was very low in iron and lime. These two inorganic plant constituents exercise an important influence in animal nutrition. The crops grown on such a soil having access only to the soil water

could not take up a sufficient amount of these elements, hence the very marked deficiency in iron and lime which we found upon analysis.

We understand that practically all of the surface water from this section of the state is very soft, and the samples we were able to obtain and analyze, indicated water almost as soft as our ordinary rain water. The clover plant recognized this deficiency in the soil and refused to grow. It has been made to thrive beautifully on these same soils by liberal applications of lime.

Acids and Bases Again.

In a recent discussion we have laid emphasis on the vigilance which the animal body exerts against the introduction of difficultly oxidizable acids.

Among these acids is oxalic acid, which in cases of advanced mal-nutrition, is actually formed within the body. Oxalic acid calls for immediate neutralization in order to avoid its toxic effect. This calls for a removal of a basic substance, lime, and for an excessive metabolism of proteid material to furnish nitrogen which in turn becomes converted into ammonia in this way neutralizing the oxalic acid with ammonia and forming ammonium oxalates. These oxalates of ammonia and of lime levy severe toll upon the kidneys and such excretory organs and not infrequently promote concrete formations, such as calculi (stone in bladder), etc. Without doubt, the presence of sorrel and such weeds in the forage of the lake shore and Grand Traverse regions, aggravated the conditions there, due to a deficiency of the inorganic plant constituents, particularly of iron and lime.

The Relation Between Some Acids and Bases in Some Common Foods.

We have stated that in general we find a preponderance of basic mineral constituents in vegetable foods and in the natural food of infants and young mammals, that is, milk. Forbes, of the Ohio Station, compiled data from various sources showing the relation of these bases and acids in 48 different food materials. Taking in each instance 1,000 grams (approximately 33 ounces), of the dry material. He found in cows' milk an excess of bases over acids of 293 units. In human milk he found an excess of 122 units of bases. In sheep's milk an excess of 510 units bases over acids. In beef he found an excess of 125 units of acid over bases. In pork an excess of 157 acid over bases. In eggs an excess of 133 acids over bases. This table is so interesting from a dietetic standpoint that we will give below in tabular form the figures which we desire to emphasize at this point.

	Excess base.	Excess acid.
Cow's milk	293.0 units*	
Woman's milk	122.5 units	
Sow's milk	337.3 units	
Ewe's milk	510.4 units	
Black albumen		122.8 units
Beef		124.7 units
Pork		156.7 units
Chicken		181.5 units
Eggs		32.9 units
White of eggs	428.0 units	
Potatoes	368.8 units	
Sweet potatoes	308.2 units	
Beets, red	1006.6 units	
Turnips	849.3 units	
Tomatoes	3704.5 units	
Onions	549.3 units	
Cabbage, heart	1080.5 units	
Asparagus	592.4 units	
Spinach	2618.9 units	
Rhubarb	1695.8 units	
Oranges	618.8 units	
Apples	236.3 units	
Plums	310.4 units	
Raisins	259.1 units	
Figs	412.1 units	
Apricots	652.4 units	
Wheat, grain		9.1 units
Wheat, bran	84.6 units	
White bread		172.2 units
Graham bread		35.5 units
Gluten flour		75.9 units
Rice, hulled		8.8 units
Oatmeal		42.8 units
Oats, grain	18.4 units	
Corn, bran	11.1 units	
Pearl hominy		83.4 units
Beans	79.3 units	
Soy beans	155.0 units	
Cottonseed meal	160.6 units	
Linseed oil meal	381.7 units	
Corn stover	590.8 units	
Oat straw	445.3 units	
Timothy hay	474.7 units	
Red clover hay	1420.4 units	
Alfalfa hay	1304.2 units	
Rape, green	731.7 units	

* 1 unit=1 c. c. normal solution.

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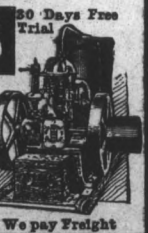
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TAXATION.

Address of Associational President McBride, before the recent State Association of Farmers' Clubs.

(Continued from last week.)

Timber valuations are better known generally in Michigan than some others. The timber expert makes an estimate of the stumpage value by count and measurement. Among the largest individual fortunes in the United States is that of Weyerhaeuser, of Minnesota, made in timber. One of the merits of well selected timber land is that the year's growth on the trees or increased stumpage, often approximates the interest on the investment, and without involving any expenditure or outlay for labor. Barring losses from fire, there is no depreciation, but rather a natural and expected increase of material. Timber and mining are alike in one respect. No calculation or intent exists for maintenance or replacement. They are worked until depleted. This is the reason that students of taxation have advised higher rates of taxation on what might be called the transient industries, or those where the growth of years or ages is depleted in a brief period. Specious pleas of risks and costs are usually accepted by those who are unacquainted with the basis of values. One should not however, mistake developed mining property for prospects.

It is rather interesting to study the basis of value of a projected railroad. Construction bonds are based on an exhaustive survey of population and resources. The infant in the cradle is counted as an asset in figuring population. Agricultural area adjacent and tributary is the greatest asset. It may be of interest to know that an acre of fertile soil, cultivated, means annually an average of \$5.00 to the railroads for transportation purposes. The trained railroad official sees in that clearing an added acre of land, and in the toiler who made it an added asset to the value of the railroad. Standing timber is regarded as a good immediate source for freight, but not lasting. Iron ore and coal are good and promise a large and continued tonnage. But as a final and continued source of freight, it is well cultivated fertile soil. The "granger" roads are looked upon as safe investments and are barometers of financial conditions.

To show the basis of a country's strength and value, pupils are taught in war colleges that the most irreparable damage to the enemy and not soon replaced, is to destroy the crops or subsistence. It was the humanity of Gen. Grant, and based on this fundamental principle of wealth, that made him insist that the Confederate soldiers take their horses home and get the crops for the spring of 1865 in the soil. The point to these observations is that the value of railroads and their earnings depend upon the soil.

Timber and mining operations are almost independent of agricultural conditions. In the contention for a more equitable system of tax burden there should be harmonious co-operation between agriculture and transportation in Michigan, a fact that not all railroad men recognize. The Wisconsin idea of physical valuation of railroads would show the replacement value as distinct from the community value derived from increased population, which has been capitalized into stocks and bonds. As a matter not vitally connected with this subject is that in the analysis of property for purpose of taxation there is being found a strong sentiment that calls for either the abandonment of claim to communal or incremented property, or the increased taxation of that element. (Concluded next week.)

Grange.

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

THE JANUARY PROGRAMS.

State Lecturer's Suggestions for First Meeting.

Song, "The Model Grange."
Installation of officers.
Brief addresses by newly installed officers.
Humorous recitation.
Reports of State Grange: 1. General work of the Grange, by the brother. 2. Woman's part and suffrage, by the sister. Prayer for the true spirit of co-operation, by chaplain.
Song, "There Shall be no Golden Harvest."

Suggestions for Second Meeting.

Song, by Grange chorus.
Roll call, responded to by quotations from Will Carleton.
Echoes from institutes, by two women and one man.
Recitation.
How to make parcels post a strong bond between producers and consumers.
Recitation.
What are we asking of the legislature this winter? by master, followed by discussion of main subjects named.
What is meant by the "Referendum?" "Recall?" "Initiative?"—to be answered by a woman.
Song.
Roll call and recitations selected from Will Carleton's poems.

FORTIETH ANNUAL STATE GRANGE.

(Concluded from last week.)

Public ownership was favored by the committee on public utilities and the Grange concurred. Other recommendations which met approval called for enforced disinfection at stated periods of public waiting rooms and conveyances, especially railroad coaches, and the curtailment of Wall street gambling through the suppression of news of stock operations on exchanges.

Several amendments were offered by the committee having State Grange by-laws in charge, chief among which was that affecting Section 1, Article 7, rendering all State Grange officers, except secretary, ineligible to more than two consecutive terms. Another provided that the salary of the State Lecturer be increased to \$400 per annum, and a third made necessary changes in the by-law governing the advisory election of State Grange officers. All of these amendments met with the approval of the delegates.

Liberal appropriations were favored by the committee on Agricultural College, to be employed in extending all lines of practical and scientific agricultural work. A woman field agent for the extension department was deemed desirable. The committee commended the short courses and asked that the college co-operate with Supt. Wright and the county commissioners of schools in introducing agriculture into rural schools.

The committee on transportation advocated giving the state railroad commission greater power in the important matter of regulating railroad schedules and asked the Grange to use its influence in every legitimate way to improve transportation conditions.

On temperance matters the Grange sustained its committee's contention for an anti-treating statute, for the abolishment of the federal liquor law in dry territory, for the passage of the so-called Kenyon-Shepard measure now before Congress, and for co-operation with the Anti-Saloon League in endeavoring to secure state-wide prohibition.

The committee on home economics, Mrs. C. E. Bassett chairman, urged that subordinate lecturers encourage the study of this subject by giving problems in home economy a prominent place upon Grange programs and at farmers' institutes. It was also deemed essential that the scope of agriculture, as the study is now being taught in grammar and high schools, be made broad enough to include home economics. The committee also favored the appointment of a woman field agent by the Agricultural College.

In instructing its delegates to the National Grange, the body explicitly favored the abolishment of the present Electoral College, and a more equitable representation of the several states in the National Grange.

COMING EVENTS.

Pomona Meetings.
Ingham Co., with Mason Grange, Friday, Jan. 24.

What Low Price Means To YOU



Read what I have to offer you:

A New 1913 Model Farm Engine

—So simple a child can run it;
—So economical, it costs but a cent or two for gasoline on a big job;
—So reliable, it won't go wrong;
—So efficient, a touch starts it going;
—So durable, I give you a permanent guarantee of satisfaction;
—And so positive am I that you'll buy one if I make my price low enough, that I'm going to sell my 1913 Model.

Galloway Engines \$50 To \$300 Lower In Price

than asked for the next best engine on the market. You can't go wrong on a deal like this. My 30, 60, 90 days' FREE trial protects you. If you don't want the engine after the trial, send it back. I won't charge you a cent for the use you have had of it.

Free Book Reveals the Secret

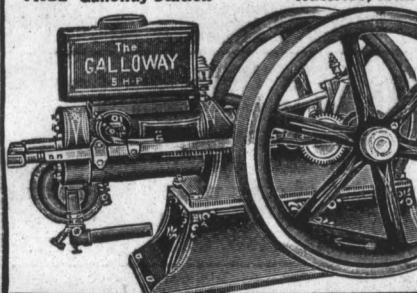
of my exceptionally low prices and why I can undersell everybody on engine of equal quality. It also explains what a good engine should be and how much to pay for it. Write for book today, learn these things for yourself and get my special 1913 proposition and prices. Write NOW, before you forget it.

WM. GALLOWAY, Pres.

THE WILLIAM GALLOWAY COMPANY

645BZ Galloway Station

Waterloo, Iowa



EXCELSIOR ALFALFA AND CLOVER DRILLS

Guaranteed without Reservation to any reputable farmer for drilling

Clover in Wheat

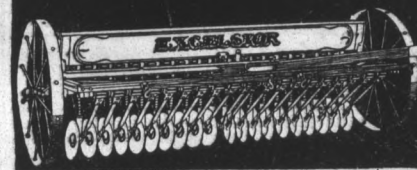
Cultivates your wheat without injury and increases yield 3 to 7 bu. per acre. Saves half your seed and secures far better stand than by any other method. The Excelsior is sold with this understanding. Records from reliable farmers show that they have paid for the Excelsior with what they saved in seed alone.

The Excelsior is the Original Drill

with the discs 4" apart for the proper planting of alfalfa, clovers, timothy, rape, millet, etc.

Write for full information now! Our SPECIAL BOOKLET M-56 has proved invaluable for others—it will for you; it shows conclusively WHY the Excelsior is the one best drill for such costly seeds. Our literature mailed only on request.

Velvetlawn Seeder Co.
Springfield, Ohio



FREE

Instructive 64-page illustrated catalogue

Brimful of what you want to know about getting bigger better results from the soil. Describes the most efficient farm and garden tools ever invented—

Planet Jr

No. 4 Planet Jr Combined Hill and Drill Seeder, Wheel Hoe, Cultivator and Plow sows seed accurately and works quickly, easily, thoroughly.

55 other tools described include seeders, wheel hoes, horse hoes, harrows and two-horse cultivators. Send postal today.

S. L. ALLEN & CO.
Box 1107M Philadelphia, Pa.

BREEDERS' DIRECTORY.

CATTLE.

For Sale—Horses, cattle, sheep, swine and poultry, nearly all breeds. Sires exchanged. South West Michigan Pedigreed Stock Ass'n., David Woodman, Sec'y.-Treas., Paw Paw, Mich.

ABERDEEN-ANGUS.

Herd, consisting of Trojan, Ericea, Blackbirds and Prides, only, is headed by Egerton W. a Trojan Ericea, by Black Woodlawn, sire of the Grand Champion steer and bull at the International in Chicago, Dec., 1910. A few choice bred young bulls for sale.
WOODCOTE STOCK FARM, Ionia, Mich.

AYRSHIRES—One of foremost dairy breeds; young bulls and bull calves for sale. Berkshire swine. All pure bred.
Michigan School for Deaf, Flint, Mich.

GUERNSEY BULL CALVES, YORKSHIRE PIGS. Good Stock.

HICKS GUERNSEY FARM, Saginaw, W. S., Mich.

10 Registered Guernseys

Cows in milk. Bulls and bull calves. Write today for sale list. G. A. WIGENT, Watervliet, Michigan

REG. GUERNSEY BULL CALVES—large improved Yorkshire hogs, sows bred of the best breeding. Price cheap. **JOHN EBELS, R. 10, Holland, Mich.**

HATCH HERD HOLSTEINS—Choice sires from ARO dams. Reasonable prices. **HATCH HERD, Ypsilanti, Michigan.**

HOLSTEIN Bull ready for service. Also bull calves. Sired by 80-lb. bull, A.R.O. dams. Duroc Jersey boars of best breeding. **E. R. Cornell, Howell, Mich.**

FOR SALE**HOLSTEIN COWS and BULLS.**

2 Fine A. R. O. Cows \$400.
1 3-year-old Herd Bull \$250.
Very choice and good enough for most any herd.
1 Bull Calf 12 mos. old \$150.
Dam has 19-lb. record in 7 days.
LONG BEACH FARM, Augusta, (Kalamazoo Co.,) Mich.
FRED S. KENFIELD, Prop.

Bigelow's Holstein Farms

Breedsville, Mich.

Have for sale several fine young bulls out of cows with high official butter and milk records.

Send for circular.

Holstein Bull Calf, out of grand daughter De Kol 2nd. Butter Boy 3rd. Sired by best son of Pontiac Butter Boy. Price only \$50. **C. D. WOODBURY, Lansing, Mich.**

HOLSTEINS—Springers and heifer calves from A. R. O. stock for sale. **W. J. MORGAN, Saginaw, W. S., Michigan.**

Service Bulls and Bull Calves

Sired by Johanna Concordia Champion,

whose sire's dam and dam's dam average 34.06 lbs. butter in 7 days, average fat 4.67%. Also cows and heifers bred to him. I can offer you bulls at bargain prices. Try me and see, and do it quick.

L. E. CONNELL,

Fayette, Ohio.

FOR SALE—HOLSTEIN BULL CALF

Born June 5, 1912, sire a son of the King of the Pontiacs from a daughter of Hengerveld De Kol. Dam of calf, an A. R. O. daughter of Sadie Vale Concordia's Paul De Kol, her dam a 29-lb. Imported cow.
ED. S. LEWIS, Marshall, Mich.

Purebred Registered HOLSTEIN CATTLE
The Greatest Dairy Breed
Send for FREE Illustrated Booklets
Holstein-Friesian, Assn., Box 164, Brattleboro, Vt.

"Top-Notch" Holsteins.

Choice bulls from 11 to 14 mos. old, of fashionable breeding and from dams with official milk and butter records for sale at reasonable prices. Also young bull calves.
MCPHERSON FARMS CO., Howell, Michigan.

Lillie Farmstead Jerseys

(Tuberculin tested. Guaranteed free from Tuberculosis.) Several good bulls and bull calves out of good dairy cows for sale. No females for sale at present. Satisfaction guaranteed.
COLON C. LILLIE, Coopersville, Mich.

FOUR CHOICE A. R. O. HOLSTEIN BULL CALVES

from six weeks to one year old. Price \$40 to \$150. **ELLIS W. DORIN, Brookside Farm, Sunfield, Mich. R.F.D. 3.**

BULL CALVES

—Richest Hengerveld, DeKol and Korndyke breeding. Special prices for quick sale. **YPSILANTI FARMS, Ypsilanti, Mich., Cole Brothers, Owners.**

REGISTERED Holstein Cattle

Two good bull calves. Herd headed by Hengerveld Coin Pietertje. Barred Plymouth Rock Cockerels.
FLOYD F. JONES, R. F. D. 3, Oak Grove, Mich.

A FEW CHOICE

Holstein Friesian Bull Calves for Sale. A. R. O. Stock.
GREGORY & BORDEN, Howell, Michigan.

Holstein Friesian Cattle

—young bulls out of A. R. O. dams and sired by a bull with a 31 lb. dam. **W. B. JONES, Oak Grove, Michigan.**

REGISTERED HOLSTEIN Bulls

2 to 3 months old. R. Worth \$100, the kind we have been selling for \$75 now reduced to \$50, delivered, for 2 weeks only. Get pedigree and photo. **Hobart W. Fay, Mason, Mich.**

Hereford Bulls For Sale, Also Poland China Hogs.

ALLEN BROS., Paw Paw, Michigan.

Jerseys

—Bulls ready for service, bred for production. Also cows and heifers. **Brookwater Farm, R. F. D. No. 7, Ann Arbor, Mich.**

BUTTER BRED JERSEY BULLS

FOR SALE
CRYSTAL SPRING STOCK FARM, Stock, Silver Creek, Allegan County, Michigan.

Dairy Shorthorns

—Large Cattle—Heavy Milkers. Milk Records Furnished. Bulls all sold. Prices right. A square deal to all.
W. W. KNAPP, R. No. 4, Watervliet, Mich.

FOR SALE Jersey Bulls, old enough for service, sired by a grandson of Imp. Interested Prince and from cows that produce 60 to 500 lbs. butter annually. **A. Newman R1, Marlette, Mich.**

Farm Commerce.

THE NOMID SYSTEM.

A Method of Distributing Farm Products.

CHAPTER II.—(Continued from last week.)

Getting Patrons Through Friends.

Often friends or relatives are the first patrons of a list that afterwards grows to a considerable size. The great exodus of rural population from the country has left scarcely a farm home without representatives in some large city. This situation makes it possible, except in a few cases, for those who wish to market farm produce direct, to do so without going outside of their present friends. It has, of course, been held that it is a poor business policy to count upon your friends in a business proposition. It is true that there are many instances where such dependence has caused a business to fail; but out of the great total of businesses that have failed it is probable that as large a proportion of those started among strangers fail as those started among friends, the latter being prominent only for the reason that the greater number of enterprises are started among those whom the promoters know. With friends we can usually be frank in explaining what is wanted, and can often experiment to determine if a certain course of procedure will be successful when reduced to a business basis; all of which is helpful in working under new conditions. Former friends and those made through business are usually willing to aid in securing new customers for the party who ventures into an undertaking of the kind here considered.

Other Methods.

Several other methods are available to the producer to start to enlarge his direct selling business. He may have a farm bulletin board upon which he publishes the names of articles of produce he has for sale. Business cards and stationery should inform those who see them that the party sells produce direct. General publicity work may be done by using a trade or private mark upon all packages, barrels, boxes, crates, baskets, and papers in which fruit may be wrapped, etc. If regular trips are made to the city with wagon, or auto truck, appropriate printing may be displayed thereon. The farm should be named and the name used in publicity work. Still other ways will likely be found by the wide-awake man to increase his sales.

The First Cost.

In building up a private market, the producer when seeking his first customers should constantly keep before himself the fact that he is building for a long time. What it costs to get these first customers should not be charged against the first shipment of goods any more than a manufacturing company charges against the first consignment of products the cost of the building in which the goods were manufactured. Such a policy would abort any enterprise. The building may stand for 20 years and if so its cost should be charged against the goods manufactured during that time. It is not an uncommon thing for business men to spend large fortunes in getting new undertakings started. Experience has taught them that when a market is once established the gross profits will cover the initial cost and leave a handsome net profit besides. In this same way the producer of farm products who wishes a private market should look upon the expenses incurred in establishing it. If he deals well with his customers he will continue to supply them for a number of years, so that the first cost of reaching them will be reduced to an absurdly small amount when charged against the total value of the goods delivered. And the consumer who goes out to find a source of supplies should look upon the first investment of time and expense as a preliminary feature of a more or less permanent business relation.

CHAPTER III.—Setting the Price.

Important to Have Understanding.

It is always a wise policy under any circumstances or system of dealing to have an understanding as to the price to be paid or at least a method whereby it can be determined. A review of cases in our justice courts would convince even the easy-going person of the value of

such a course. There is always less trouble when pains are taken to have a clear notion of the cost price of an article before it is delivered to the buyer. There is an economical reason for trouble where the terms are uncertain. The buyer desires to get the goods as cheaply as he can while the vendor aims to realize the highest price obtainable. The conflict of interests is therefore likely to bring the business relations of the parties to grief so that it is important to have the price set or some definite arrangement for its determination when the goods pass to the vendee.

Price Regulated by General Market Quotations.

A satisfactory method of regulating prices is to agree to have them a certain number of cents above the wholesale quotation of a certain market. For example, if one is selling butter an arrangement setting the price five cents above the weekly Elgin, Chicago or New York quotations for the best grade of creamery butter, could be agreed upon. This method has the advantage of keeping the price quite in harmony with those of the general market and does away with temptations to the seller to forsake his regular customers when values go up, or to the buyers to get supplies elsewhere when the general market drops below a price agreed upon.

Price Set for All or Part of the Year.

Often the consumer and the producer agree that for the year beginning with a particular date the price for eggs will be 30 cents, or some other figure, and the price for butter per pound will be 30 cents, or some other figure. This plan is simple and definite and meets with general approval because of not being difficult to understand. But it is not elastic and does not fluctuate with the general market as regulated by supply and demand. Nevertheless the plan is followed quite generally by those engaged in direct selling and few, if any, real complaints are made. Some parties modify the plan by making one price for winter months and another for summer months. The price for summer being lower, of course, except perhaps in a resort trade.

Price Set for Each Month.

A method that allows greater fluctuations and still makes definite and clear what the price will be at any time, is where the contract is made to stipulate a set price for each month of the year. One poultryman has the following agreement with his customers as to price for eggs: For April, May, June and July the price is 25 cents per dozen; for August and September, 35 cents; for October and November, 40 cents; for December and January, 45 cents; for February and March 35 cents. Besides conforming more or less to the regular market and being explicit, this method encourages the liberal use of eggs when they are plentiful and of a moderate use when they are scarce so that it will be easier for the producer to meet the requirements of his customers.

Price Set on Presentation of Goods.

In peddling, selling on city markets and at fairs, the vendor sets the price when he offers the goods for sale. Quite generally, this is true in selling specialties through correspondence, and also where one is selling general goods to regular customers. This method permits dealing to be done on the same price basis as prevails in the regular market.

Sending Bill.

Another system that is popular with some is to forward goods and then send bill. The method is most common, of course, where the buyer and seller have confidence in each other. Under such conditions the plan is feasible. The usual custom is to send a bill with each shipment, but it can be sent once or twice each month for all goods delivered since previous bill was forwarded. Because of a desire on the part of most people to know just how they stand and also to check up the shipments as they arrive with the claim of the vendor as to quantity, quality and price, it is policy to send statement of the amount, grade and quotation at the time the goods are forwarded. This makes the adjustment of mistakes easier. It also gives the consumer references for checking up when monthly bills are received.

Preliminary Arrangements.

It often happens that parties do not "care" to enter into any agreement for a period of time until they better under-

stand the advantages that may accrue from the relationship and to enable both the farmer and the city man to learn what these advantages are a little experimenting is usually necessary. In the preliminary correspondence a satisfactory way is for the producer to state definitely what he asks for the different kinds of products. He should know what he can secure for the goods on the regular market and to this price should be added what he estimates the additional expenses may be for marketing direct, considering, of course, whether he, or the consumer is to pay the freight, or express charges. He should also be informed on what such goods are retailing for in the city where the consumer resides. This is not always an easy matter and often entails expense and trouble. Beginning with the first issue of 1913 the Michigan Farmer will give weekly quotations of Detroit retail prices on the eastern market and in the average city retail stores, for such products as will usually enter into a business of this nature. This will aid producers who may choose to trade in Detroit to an understanding of local retail prices. With this regular market quotation, the probable extra expense for direct dealing and the retail price in the consumer's city, the producer should not find it a difficult matter to place a just and reasonable quotation on his goods that will at once be satisfactory to the consumer and himself as well. Later transactions may show the quotation to be too low or too high, in either event it can be changed by the parties. After a few sales have been made, the advantages understood and confidence of each party in the other gained, then, if some definite price seems more desirable, it can be fixed.

CHAPTER IV.—How Goods May be Delivered.

Introductory.

The average person has had little occasion to consider the different ways that products can be delivered direct to the producer from the farm. There are, however, many ways this can be done. They may be delivered on the farm, by the producer's conveyance, at public markets, or by third parties, such as railroads, express companies, electric lines, boats, and parcels post.

Delivering on the Farm.

A real satisfactory arrangement where conditions are favorable is to have the consumer call at the farm for the produce. Town folks not only enjoy but are greatly benefited by taking trips to the farm. The popularity of the automobile now makes possible a wide application of this method of delivery, it being the habit of many urban families to take weekly tours of the country surrounding their town or city. To have another purpose in mind while out would in no way lessen the pleasure of such traveling and would, in this instance, go far toward defraying autoing expenses. The plan permits the purchaser to inspect the goods and select those he desires. It also permits the parties to complete the entire bargain before parting.

By Producer's Conveyance.

The delivery of goods to the consumer is customarily made in the conveyance of the producer—this, of course, where the dealing is direct. The plan has all the advantages of the preceding method, except that the consumer must content himself to select from what the producer has chosen to put upon his wagon. An additional advantage of this method is that the trip to the city can include the orders of several customers, whereas when the delivery is made to the purchaser on the farm only one family's supplies are taken in the load.

Where the delivery of goods is made by wagon or other vehicle, every precaution should be taken to give the wagon and its contents the appearance of cleanliness, neatness, and prosperity, if you please. A good wagon and horse, carefully oiled harness, and neat attractive containers will help sell the wares and enthrall customers to advertise among their friends. It is scarcely possible to overdo a matter of this kind. To one who has been a close observer of men employed in the delivery of produce to city people the question of appearance impresses itself as a very important one, one more valuable than the average farmer usually believes it to be.

(Continued next week.)

The Iowa Fruit Growers' Association was organized December 27, for the purpose of buying supplies and of selling fruit in season.

SUCCESSFUL CO-OPERATIVE
CREAMERY.

An illustration of what may be done along any particular line by the wide-awake farmers of a locality, is found in the rapidly growing dairy business of Litchfield township, of Hillsdale county. Before entering upon the body of this article, it may be well to state that what is herein set forth, is simply a general statement of facts, and can be in no way considered as advertising material for the various movements and institutions mentioned. The system in Litchfield township has already worked out its own salvation. The patrons of the creamery can not be materially increased, as practically every farmer living within a reasonable distance from the plant, is already a patron. This article is simply the setting forth of facts which may help to solve the dairy problem and other problems in other farming communities.

To begin with, the first step taken by the Litchfield farmers in the development of the dairy business was a mutual enterprise. A co-operative creamery, owned and controlled by the farmers, has proved to be one of the best and most profitable institutions of its kind to be found anywhere in the state. No stockholder in the concern can hold more than \$100 worth of stock, and the profits of the business, minus a small per cent which goes to the stockholders, goes directly to the patrons. As a result of this arrangement, the patrons are receiving several cents more for their product than is received by patrons of neighboring plants not similarly managed.

But although the farmers' co-operative creamery proved to be a marked success, the progressive dairymen did not stop here. The next step was the formation of a Jersey Cattle Club, with the object in view of raising the standard of the cattle kept by the farmers and thus increasing the importance and profitability of the dairy enterprise. Most of the larger dairymen in the locality now belong to this club, except a few who prefer some other breed of cattle for the dairy business.

With the co-operative creamery doing a profitable business and a thoroughbred cattle association well organized, it would seem that nothing more could be needed to make the dairy business prosperous. But the progressive farmers of Litchfield township are not willing to stop here, and a movement is now on foot for the organization of a cow-testing association, the object of which will be to weed out the poor cows from each herd, through systematic inspection by experts. Preliminary to the organization of such an association, a cow contest was held recently, and aroused lively interest among not only the participants, but the patrons of the creamery in general. With the growth of the dairy business, the number of silos in the district has greatly increased. Not all dairymen, however, own silos, and the cow which won out in the recent contest, was not a silo-fed animal.

While this article will doubtless prove interesting to dairymen in particular, the success of the movement ought to be of interest to all readers of this paper. If the farmers of any given locality will only unite and go ahead, they can obtain for their section, the industry for which that section is best fitted. Co-operation and progress are the secrets of success in any enterprise of the kind mentioned in this article. In addition to the organizations already mentioned, Litchfield township has what is known as the Progressive Farmers' Club, composed of intelligent, energetic, progressive men and women who are striving to get the most out of farm life. It is such organizations as this that are helping in their own way, to make farm life profitable and attractive.

Hillsdale Co. J. A. KAISER.

RECEIPTS OF LIVE STOCK AT DETROIT
IN 1911 AND 1912.

The following tables are comparative statements of the receipts at the live stock yards at Detroit for 1911 and 1912 and shows a total increase of 23,513 head over 1911. In every department but hogs an encouraging increase is shown. The decrease in hogs is purely on account of shortness in production and has occurred at nearly every market in the country. Cattle receipts were never so large as they have been this year and it is safe to say the quality was never so poor, the receipts of canners and common cows have been unusually large. But the demand for them has been good and prices averaged from \$3.00 to \$3.75 nearly

all the year, a large portion of these went to the Chicago packers where they were canned and shipped to foreign countries engaged in war. The quality of the sheep and lambs has not been as good as in previous years and a great many of the thin lambs and common sheep were purchased by Michigan feeders and returned to the country, the farmers having a good corn crop being willing to put it into this commodity as prospects look bright for higher prices during the coming winter and spring. The receipts as shown above, do not include anything but stock sold on this market and most of it was raised in our own state.

Many improvements are contemplated at the stock yards this coming spring and Detroit is fast becoming one of the foremost markets east of Chicago.

Cattle.	
January	1912. 5,111
February	5,633
March	7,852
April	5,958
May	5,592
June	5,696
July	5,104
August	10,478
September	8,634
October	10,794
November	13,690
December	8,280
Total	95,219
Increase for 1912,	24,755.

Calves.	
January	1912. 3,775
February	3,113
March	6,003
April	6,445
May	8,759
June	6,254
July	4,643
August	4,126
September	2,572
October	2,936
November	3,409
December	2,352
Total	70,464
Increase for 1912,	1,447.

Sheep and Lambs.	
January	1912. 39,924
February	27,236
March	35,888
April	16,139
May	18,392
June	6,254
July	10,792
August	17,268
September	28,394
October	34,782
November	48,253
December	30,939
Total	315,617
Increase for 1912,	25,896.

Hogs.	
January	1912. 34,256
February	21,575
March	35,888
April	32,436
May	40,887
June	22,149
July	12,245
August	12,853
September	19,878
October	25,627
November	52,639
December	35,231
Total	339,760
Decrease for 1912,	19,585.

THOMAS MEARS.

CO-OPERATION AMONG FARMERS.

The Green River Tobacco Growers' Association has ordered the sale of 20,000,000 pounds of tobacco grown in the counties of Davless, Breckenridge, Hancock, McLean and Ohio in Kentucky, and Spencer county of Indiana. For this tobacco the association will realize from \$9 to \$15 a hundred for leaf and lugs, and \$3 a hundred for trash.

The New York fruit growers found themselves up against the problem of getting a just share of the selling price of their fruit. There was no time last fall that good peaches were not retailing for less than \$1.00 per basket, and many growers sold for less than 25 cents per basket. An investigation of city markets by one apple grower showed that the same grade of apples that he sold for \$2.00 per barrel were retailing in city stores, when re-packed in baskets, for from \$6 to \$12 per barrel.

NOTICE.

To Farmers Who Wish to Sell Produce Directly to City Consumers.

A list of names of Detroit people who desire to get farm products direct from producers will be furnished to any reader of the Michigan Farmer who requests it on a post card or letter, to the Michigan Farmer offices at Detroit. Be sure to state the products you have for sale, and the prices you expect to receive. A form letter that may be used in correspondence with prospective customers, and other helpful suggestions will be enclosed with the list of names. There will be absolutely no charge whatever for this service.

THE BEST TEACHER

Old Experience Still Holds the Palm.

For real practical reliability and something to swear by, experience—plain old experience—is able to carry a big load yet without getting swayed.

A So. Dak. woman found some things about food from Old Experience a good, reliable teacher.

She writes: "I think I have used almost every breakfast food manufactured, but none equal Grape-Nuts in my estimation."

"I was greatly bothered with weak stomach and indigestion, with formation of gas after eating, and tried many remedies for it but did not find relief."

"Then I decided I must diet and see if I could overcome the difficulty that way. My choice of food was Grape-Nuts because the doctor told me I could not digest starchy food."

"Grape-Nuts food has been a great benefit to me for I feel like a different person since I began to eat it. It is wonderful to me how strong my nerves have become. I advise everyone to try it, for experience is the best teacher."

"If you have any stomach trouble—can't digest your food, use Grape-Nuts food for breakfast at least, and you won't be able to praise it enough when you see how different you feel." Name given by Postum Co., Battle Creek, Mich. Read the little book, "The Road to Wellville," in pkgs. "There's a Reason."

Ever read the above letter? A new one appears from time to time. They are genuine, true, and full of human interest.

SAW WOOD



Saw your own wood and save time, coal and money; your neighbors and MAKE

\$5 to \$15 a DAY

Hundreds are doing it with an APPLETON WOOD SAW

We make 7 styles—steel or wood frame—stationary or mounted on truck with gasoline engine, making a

Portable Wood-Sawing Rig Rigid frame, lathe-turned arbor, running in self adjusting, non-heating, dust-proof boxes makes our saw frames simple, strong, safe and successful.

We also make the famous FRICTION-DRIVE DRAG SAW APPLETON CIRCULAR LOG SAW.

Ask for our complete free catalog. APPLETON MFG. CO. 620 Fargo St., Batavia, Ill.

FOR SALE or EXCHANGE—20-room Hotel, furnished and steam heat, livery barn and potato cellar. Cheap for cash, or will exchange for good farm. Address Box 36, Clarion, Mich.

Breeders' Directory—Continued.

FOR SALE—4 Registered Guernsey Bull Calves, 8 months old. Descendants of Glenwood Main Stay & Shot Anchor blood. Geo. W. Reeves, R. No. 2, Grand Rapids, Mich.

Scotch Shorthorn Bulls and Heifers For Sale. W. W. KNAPP, Howell, Michigan.

Dairy Bred Shorthorns—Beef type, dairy strain, young bulls, 1 months old for sale. Cash or good note. J. B. HUMMEL, Mason, Mich.

SHEEP.

"BREED UP YOUR SHEEP" Article sent free to any address. "The Sheep Man of the East." PARSONS, R. No. 1, Grand Lodge, Mich.

Northern Grown Shropshire Sheep and Berkshire Swine. Yearling and two-year-old rams, two years old enough for service, one of the best Jersey bulls in Mich. 3 yr. old. Blue Bells Golden Lad 8885. Will be sold cheap if taken at once. D. O. Magahay, R. 1, Harrisville, Mich.

Reg. Rambouillet Sheep, Pure Bred Poland China HOGS and PERCHERON HORSES. 2 1/2 miles E. Morrice, on G. T. R. R. and M. U. R. J. Q. A. COOK.

SHROPSHIRE FOR SALE 50 Choice two-year, yearling and ram lambs; 20 yearling ewes from imported sires. F. R. OTTAWAY, Flushing, Mich.

HOGS.

BERKSHIRE BOARS May and June farrow, large size, heavy bone. \$18 and \$20 each. GEO. E. LAPHAM, St. Johns, Michigan.

BERKSHIRES—Boars ready for service \$16; sows ready to breed \$18; sows bred \$20. Stock guaranteed. B. B. REAVEY, Akron, Mich.

BERKSHIRES Choice spring boars and gilts, priced to move quick. Farmers stock. ELMHURST STOCK FARM, Almont, Mich.

Quick Maturing Berkshires—Best breeding; best type. Satisfaction guaranteed or money refunded. O. S. BARTLETT, Pontiac, Mich.

O. I. C.—TWO BOARS fit to head any herd. Fall pigs ready to ship. C. J. THOMPSON, Rockford, Michigan.

Improved Chesters—Young breeding stock, either sex. Also a few tried sows to be bred for spring farrow and early fall pigs. W. O. WILSON, Okemos, Mich.

O. I. C. Extra choice bred gilts, service boars and spring pigs, not akin from State Fair winners. Avondale Stock Farm, Wayne, Mich.

O. I. C.'s of superior quality. 17 choice young gilts and 11 top young boars. Pairs no akin. FRED NICKEL, Monroe, Michigan.

O. I. C. SWINE Write me for Pigs, pairs and trios, not akin. Have a number of service males of good type. Write me describing of your wants. A. J. GORDEN, R. No. 2, Dor, Mich.

O. I. C. Swine, both sexes. Males weighing 100 to 225 lbs. Herd registered in O. I. C. Association. GEO. P. ANDREWS, Dansville, Ingham Co., Mich.

O. I. C.'s—Fall pigs, either sex, from prize-winning stock. Also 2 May boars left. Call or write. Rolling View Stock Farm, Cass City, Mich.

O. I. C. Pigs of September and October farrow for sale cheap. JOHN BERNER & SON, Grand Lodge, Mich.

O. I. C.'s—All ages growth and large, sows bred. Males ready, 100 to select from. Attractive prices on young stock. H. H. JUMP, Munith, Mich.

Reg. Chester Whites—Both sexes and bred gilts, also serviceable registered Holstein bulls. Bargains. RAY PARHAM, Bronson, Mich.

O. I. C.'s—A fine lot of last spring stock for sale, big growth type, either sex, pairs not akin. Sired by Grand Champion boar, Scott No. 1. Half mile west of depot. OTTO B. SCHULZE, Nashville, Mich.

DUROC-JERSEYS—Fall and Spring boars from prize-winning strains. Sows all ages. SPECIAL BARGAIN in summer pigs. Brookwater Farm, R. F. D. No. 7, Ann Arbor, Mich.

LARGE TYPE DUROCS—Spring pigs that are large boned and lengthy. Some open fall gilts of the right sort. Let me tell you about anything you may be in need of or call at MAPLE GROVE FARM, Stockbridge, Michigan.

Duroc Jerseys—for sale: 20 fine service boars of fancy breeding and individual quality. Prices reasonable. John McNicoll, North Star, Mich.

DUROC JERSEYS—6 SPRING BOARS FOR SALE. CAREY U. EDMONDS, Hastings, Michigan.

Duroc Jerseys for Sale—Spring boars ready for service. Holstein Friesian bull calf, dropped Sept. 25. Write or come and see. R. G. VIVIAN, R. No. 4, Monroe, Mich.

DUROC GILTS—\$20 to \$30. Shropshire \$20 to \$30. KOPE-KON FARM, Kinderhook, Michigan.

Duroc Jersey SWINE. Spring and summer pigs for sale, both sexes. I pay express, 25 years experience. J. H. BANGHART, Lansing, Mich.

Butler's Big Bone Poland Chinas.

We don't claim to own all the good hogs in the U. S., but we do claim to have bred and sold more big type Poland in the last ten years than any two other breeders in Michigan. If you want a good fall boar write J. C. BUTLER, Portland, Michigan.

THIS

O. I. C.

SOW WEIGHED 932 LBS.

AT 23 MONTHS OLD

IONIA GIRL

I have started more breeders on the road to success than any man living. I have the largest and finest herd in the U. S. Every one an early developer, ready for the market at six months old. I want to place one hog in each community to advertise my herd. Write for my plan, "How to Make Money from Hogs." C. S. BENJAMIN, R. No. 10, Portland, Mich.

We are Going to Sell a Litter of Boar Pigs

Eight weeks old. Sire, a son of Orion Chief. Dam a Crimson Wonder sow. They are as fine a lot as we ever raised. The price is \$5 apiece. Pedigree furnished. Hurry up and order one for they won't last all winter at this price. Write F. A. LAMB & SON, Cassopolis, Mich.

POLAND CHINAS—Both Western and Home Bred. Either sex, all ages. Prices right. W. J. HAGESHAW, Augusta, Mich.

POLAND CHINAS—Either sex, all ages. Something good at a low price. P. D. LONG, R. No. 8, Grand Rapids, Michigan.

POLAND CHINAS—Spring boars ready for business. Extra good length and bone. Prices right. L. W. BARNES & SON, Byron, Michigan.

LARGE styled Poland China spring and fall pigs from strong, healthy, prolific breeders, either sex at low prices. ROBERT NEVE, Pierson, Mich.

P. C. BROOD SOWS—bred for April and May farrow. Big bone, prolific. Also boars ready for use. Maplewood Stock Farm, Allegan, Mich.

P. C. BOARS AND SOWS—large type, sired by Expansion. A. A. WOOD & SON, Saline, Michigan.

P. C. BOARS—large type—sired by Expansion 80439 and E. M. F. 83987. Satisfaction guaranteed. R. W. MILLS, Saline, Mich.

LARGETYPE C. HOGS—Largest in Mich. Boars all sold. A few fall pigs. Also some extra large spring gilts to be bred to two of the best young boars I could buy in Iowa. Come or write. Free livery. W. E. LIVINGSTON, Parma, Michigan.

MULE FOOT HOGS—at public sale. From the Indian kind. Jan. 28, 1913. The popular prize-winning all. C. L. TEVIS, Box B, Milroy, Indiana.

MULE FOOT HOGS—Fall pigs, service boars and bred sows for sale. Best quality, price right. G. O. KREGLOW, Ada, Ohio.

As Good As The Best!—Yorkshires. Gilts bred for spring farrowing. WATERMAN & WATERMAN, Meadow Land Farm, Ann Arbor, Mich.

LARGE YORKSHIRE SWINE—Pairs not akin. Sired by Canadian bred stock. Geo. S. McMullen, Citz. Phone. Grand Lodge, Mich.

LARGE Yorkshires—Choice breeding stock, all ages, not akin, from State Fair prize-winners. Pedigrees furnished. W. C. COOK, R. 42, Box 22, Ada, Mich.

CHOLERA PROOF HOGS.

I keep from 4000 to 6000 grade Yorkshire and Poland China cholera immune hogs and am selling prolific brood sows, also shoats weighing from 50 to 150 lbs. at prices that make them desirable on cholera infected farms. Sows weighing more than 100 lbs. are supposed to farrow in April and May. I expect to have several thousand pigs from immune sows and boars for sale next spring.

ALVAN BROWN'S PIG FARM, Grand Rapids, Michigan.

Lillie Farmstead YORKSHIRES

A splendid lot of fall pigs at reduced prices, pairs and trios not akin. Young sows and gilts bred for April farrow. Your money back if you are not satisfied. COLON C. LILLIE, Coopersville, Mich.

Markets.

GRAINS AND SEEDS.

Wheat.—The bulls have been well pleased with the tendency of the wheat trade the past week. Supplies have shown a general advance of over a cent a bushel. Much of the strength comes from the war situation in the east. Apparently the peace conference in London failed in its mission, thus leaving the one alternative of further war activities in Turkey. Weather conditions on this side have also aided the bulls. Snow in the west has interfered somewhat with the delivery of wheat at local elevators and in other sections exposed fields are believed to be damaged somewhat by the intense cold. It is probable, however, that the last two factors have been somewhat over estimated. Millers are not anxious buyers of cash wheat and there is considerable of the grain being exported which gives the cash deal an active market. The visible supply increased over two million bushels. One year ago the price for No. 2 red wheat on the local market was 97c per bu. Detroit quotations are as follows:

	No. 2	No. 1	Red.	White.	May.	July.
Thursday	1.12 1/4	1.11 1/4	1.16 1/2	95 1/2		
Friday	1.12 1/4	1.11 1/4	1.16 1/2	95 1/2		
Saturday	1.12 1/4	1.11 1/4	1.16 1/2	95 1/2		
Monday	1.13	1.12	1.17 1/2	96		
Tuesday	1.13	1.12	1.17 1/2	96		
Wednesday	1.13	1.12	1.17 1/2	96		

Chicago, (Jan. 7).—No. 2 red, \$1.10@1.12 1/4; May, 97 1/4; July, 81 1/4c per bu. New York, (Jan. 7).—No. 2 red, \$1.07 1/2 f. o. b. afloat; May, 97 1/4@98 1/4c per bu.

Corn.—Business is being conducted on practically the same basis as a week ago. Primary receipts are reported but a few thousand bushels short of that for the previous week. The trade was given a little strength by bad weather in the corn belt for moving the grain. There is a fairly good domestic demand from feeding sections and cables from abroad indicate some firmness. The strength, however, was not sufficient to advance prices materially. The visible supply shows an increase of a little over half a million bushels. One year ago No. 3 corn was quoted at 62 1/2c on the local market. Detroit quotations are as follows:

	No. 3	Yellow.
Thursday	48	49
Friday	47 3/4	48 3/4
Saturday	48	49
Monday	48 1/2	49 1/2
Tuesday	48 1/2	49 1/2
Wednesday	48 1/2	49 1/2

Chicago, (Jan. 7).—No. 2, 49c; May, 49 1/2c; July, 50 1/2c per bu.

Oats.—There is a slightly better feeling among holders of oats than prevailed a week ago. Prices have stiffened, ruling a fraction higher than the closing price before the New Year's holiday. Primary receipts are slightly less than a week earlier but about four times as large as for the corresponding week a year ago. At Detroit there is a good demand. One year ago the price for standard oats here was 57 1/2c per bu. Detroit quotations for the past week are:

	Standard.	No. 3	White.
Thursday	35 1/4	34 1/4	34 1/4
Friday	35 1/4	34 1/4	34 1/4
Saturday	35 1/4	34 1/4	34 1/4
Monday	35 1/4	34 1/4	34 1/4
Tuesday	35 1/4	34 1/4	34 1/4
Wednesday	35 1/4	34 1/4	34 1/4

Chicago, (Jan. 7).—No. 2 white, 42@44 1/2c; May, 33 1/4c; July, 33 3/4c per bu.

Beans.—No change of importance has occurred in this deal. Values remain the same as a week ago. Immediate and prompt shipment and January are quoted at \$2.20 per bu.

Chicago, (Jan. 7).—Pea beans, hand-picked, \$2.48@2.55; prime, \$2.35@2.40; red kidneys, \$2.50 per bu.

Clover Seed.—A firmer tone and higher price rule in the seed market. Farmers realize the shortage and are making early inquiry for their supplies, thus improving the general demand. Offerings are small.

Detroit.—Prime spot, \$11.55; prime alsike, \$12.75.

Toledo.—Prime cash and January, \$11.65; March, \$11.77 1/2; prime alsike cash, \$12.95; March, \$13.05.

FLOUR AND FEEDS.

Flour.—Jobbing lots in 1/2 paper sacks are selling on the Detroit market per 196 lbs. as follows: Best patent, \$5.60; second, \$5.30; straight, \$5.20; clear, \$4.90; spring patent, \$5.10; rye flour, \$4.90 per bbl.

Feed.—Detroit jobbing prices in 100-lb. sacks are as follows: Bran, \$23; coarse middlings, \$23; fine middlings, \$28; cracked corn and coarse corn middlings, \$29; corn and oat chop, \$20 per ton.

Hay.—This trade is slightly recovered from the slump reported last week. Detroit trade rules about steady. In Chicago all grades remain steady except a decline in choice timothy. At New York advances occurred. Carlots on track at Detroit: No. 1 timothy, \$14.50@15; No. 2, \$13@13.50; light mixed, \$13.50@14; No. 1 mixed, \$13@13.50.

Chicago.—Choice timothy, \$16.50@17.50; No. 1, \$14@15.50; No. 2 and No. 1 mixed, \$12@13; No. 3 and No. 2 mixed, \$9@11; clover, \$7@11.

New York.—Market irregular; standard \$21 per ton; No. 1, \$21.50; No. 2, \$20@20.50.

Straw.—Car lot prices on wheat and oat straw on Detroit market are \$9@9.50 per ton; rye straw, \$10@10.50 per ton.

DAIRY AND POULTRY PRODUCTS.

Butter.—No price changes but firmer feeling prevails, due to colder weather and supplies being well cleared up. Jobbing prices in the Detroit market are: Fancy creamery, 35c; firsts, 32c; dairy, 22c; packing, 21c per lb.

Elgin.—Market firm at 34c. Chicago.—This market is very quiet as dealers are buying only for immediate needs. With receipts running far below those of a year ago there is some accumulation of stocks but there is little disposition to shade prices. Dairies and some of the lower grades of creamery are, however, quoted lower. Quotations: Extra creamery, 35c; extra firsts, 33@34c; firsts, 29@31c; seconds, 26@27c; dairy extras, 31c; firsts, 27c; seconds, 25c; packing, 12@21 1/2c as to quality.

New York.—Market unsettled; extra creamery a full cent lower; lower qualities unchanged. Creamery extras 36@36 1/2c firsts, 32@35c; seconds, 29@31c; thirds, 27@28c; state dairy, best, 32@34c; good to prime, 28@31c; common to fair, 23@27c; packing, 21@22c as to quality.

Eggs.—A 2c drop in values has occurred since this time last week, but colder weather promises to check production to some extent and is creating a firmer feeling. At Detroit current offerings, candled, and cases included, are quoted at 24c per dozen.

Chicago.—Cold weather at this point has stimulated the market and prices are generally 1/2@1c higher. Demand is strongest for new-laid stock but all kinds are moving well. Miscellaneous receipts, cases included, are quoted at 19@25c; do. cases returned, 18 1/2@24 1/2c; ordinary firsts, 19@20c; firsts, grading 70 per cent fresh, 25c; refrigerators, April, 19c per dozen.

New York.—Another drop of 2c recorded in this market; firm at the new range. Fresh gathered extras, 29@30c; extra firsts, 27@28c; firsts, 26@26 1/2c; seconds and lower grades, 22@25c; western gathered whites, 26@32c.

Poultry.—Detroit.—Receipts light; demand for chickens strong enough to advance prices very materially. Ducks, geese and turkeys generally steady. Dressed.—Spring chickens, 15@15 1/2c; hens, 14@14 1/2c; turkeys, 19@20c; ducks, 16@18c; geese, 14@15c per lb. Live.—Spring chickens, 14@14 1/2c; hens, 13@13 1/2c; No. 2 hens, 9@10c; old roosters, 9@10c; turkeys, 18@19c; geese, 13@14c; ducks, 14@15c per lb.

Chicago.—Fowls and spring chickens are again higher. Supplies moderate and demand fair. Quotations on live are: Turkeys, good weight, 15c; others, 10c; fowls, good, 14c; spring chickens, 14c; ducks, large, fat, 15c; do., Indian runners, 12c; geese, full feathered, 13c; do., plucked, 8@10c per lb.

New York.—Dressed stock firm with prices generally showing advances. Fresh killed western chickens, 12@19c; fowls, 12@16c; turkeys, 14@23c per lb.

FRUITS AND VEGETABLES.

Apples.—Detroit trade easy; prices remain unchanged. Detroit wholesale quotations are: Baldwin, \$2.25@2.50; Greening, \$2.50@2.75; Spy, \$2.75@3; Steele Red, \$3@3.50.

Potatoes.—Deal is weaker and prices rule 2@3c below last week's figures. Michigan stock in car lots, 50c in sacks, 46c in bulk.

Chicago.—Receipts are double the amount of a week ago and much heavier than the corresponding weeks of 1912 and 1911. Fancy Michigan stock sold in bulk as high as 46c and sacked at 48c Monday.

New York.—Michigan potatoes continue to be favored at advanced quotations. Michigan offerings, 65@70c per bu.

DETROIT RETAIL PRICES.

Detroit Eastern Market.—Apples constituted the bulk of offerings on the market this week. The average quality is poor. Prices rule from 50c@1.10 per bu., according to grade and variety. Cabbage is plentiful, white being quoted at 20@25c per bu., and red at 40@50c per bu. Onions are selling at 60@65c per bu; carrots, 25c; potatoes in fairly liberal supply, 35@60c per bu; parsnips, 40c; celery around 20c per bunch. Pork was quoted at \$10.50 per cwt. Eggs that were guaranteed strictly fresh were selling at 40c per dozen. No poultry was offered.

In Detroit retail stores apples are quoted at 80c@1.15 per bu., according to variety and grade; potatoes, good quality, 75c; best eggs, 36c, which is 4c below the average quotation of a week ago. Best creamery butter is quoted at 42c; dressed chickens, good quality, 20@21c.

Grand Rapids.

Potatoes are bringing around 35c; although Greenville reports 37@38c, with offerings liberal and the market weak at these figures. Dealers in fresh eggs and butter are paying the country trade 24c for fresh eggs and 26c for dairy butter. Wheat has advanced to \$1.10, rye is 45c, oats 35c, corn 49c, beans on \$1.75 basis. Hay continues at \$10@15. Dressed hogs are worth 9 1/2@10c; live hens, 10@11c; turkeys, 15@17c; ducks, 11c.

THE LIVE STOCK MARKETS.

Buffalo.

January 6, 1913. (Special Report of Dunning & Stevens, New York Central Stock Yards, East Buffalo, New York).

Receipts of stock here today as follows: Cattle, 105 cars; hogs, 125 double decks; sheep and lambs, 60 double decks; calves 900 head.

With 105 cars of cattle on our market here today, and 29,000 reported in Chicago, we again quote our market from 15@25c per cwt. higher on all except the extreme heavy cattle, which were full strong with last Monday. The day was very disagreeable; a cold rain falling all through the day, and consequently the cattle filled badly. At the close of the

market everything was sold and the market closed steady with the opening.

We quote: Best 1350 to 1500-lb. steers, \$8.75@9.25; good to prime 1200 to 1300-lb. do., \$8@8.50; good to prime 1100 to 1200-lb. do., \$7.75@8.25; coarse, plainish 1100 to 1200-lb. do., \$7.25@7.75; medium butcher steers, 1000 to 1100, \$6.75@7.50; butcher steers, 950 to 1000, \$6.50@7; light butcher steers, \$5.75@6.25; best fat cows \$5.75@6.50; butcher cows, \$5@5.50; light butcher cows, \$4.25@4.75; cutters, \$3.75@4; trimmers, \$3.50@3.75; best fat heifers, \$7.50@8; medium butcher heifers, \$6.25@6.75; light do., \$5.25@5.75; stock heifers, \$4@4.25; best feeding steers, dehorned, \$6.25@6.75; fair to good stockers, \$5.50@5.75; light common stockers, \$4@4.25; prime export bulls, \$6.25@6.75; best butcher bulls, \$5.50@5.75; bologna bulls, \$4.50@5; stock bulls, \$4.50@5; best milkers and springers, \$6.50@7.50; common to fair kind, \$4@5.50.

With liberal receipts of hogs on our market today, 125 double decks, and heavy runs and lower prices reported from the west, sellers were forced to make concessions of a dime to 15c compared with last week's close. A few scattering sales on some mixed grades were made at \$7.90, but the bulk of the good weight offerings crossed the scales on a basis of \$7.85; best weight yorkers sold at \$7.85, with a few at \$7.90; pigs and light yorkers brought from \$8@8.15; roughs, \$6.90@7; stags \$5.50@6.50. About everything sold at the close.

The sheep and lamb market was active today, with prices about 50c higher than the close of last week; most of the choice lambs selling at \$9.50. Yearling wethers, \$7.50@8. Look for a little lower prices the balance of the week unless the runs continue light.

We quote: Choice lambs, \$9.40@9.50; cull to fair do., \$5.50@8.50; yearling wethers, \$7.50@8; yearling ewes, \$5.50@6.50; bucks, \$2.50@3.50; wethers, \$5.25@5.75; handy ewes, \$5@5.25; heavy ewes, \$4.75@5; cull sheep, \$3@4; veals, choice to extra, \$11.50@12; fair to good do., \$8@11; heavy calves, \$4.50@6.

Chicago.

January 6, 1913. Cattle. Hogs. Sheep. Received today 29,000 50,000 35,000 Same day last year 15,973 22,028 23,289 Received last week 49,876 163,595 106,405 Same week last year 60,490 137,920 128,294

This week opens with a good cattle supply for these times, largely made up of a middling kind, and steers are selling very slowly, prices being at least a dime lower on an average, and danger of a worse close. The demand for butcher stock is animated at well maintained prices. Hogs are selling nearly as well as on Saturday, sales ranging at \$7.30@7.60. Sheep and lambs are active and 15@25c higher, tops being as follows: Lambs \$8.85; yearlings, \$8; wethers, \$5.60; ewes, \$5.00.

Cattle started off last week active and higher, buyers being hungry for them after the meager offerings furnished for Christmas week, but later in the week, after they had supplied their most pressing wants, the demand was much less urgent, prices ruling lower for most descriptions. The bulk of the steers sold during the week at \$7.25@9, with the lower class of light weight grassy lots going at \$5.85@7.50 and the better class of corn-fed steers at \$8.50@9.60. Prices were very high as compared with former years, being at least \$1 higher than a year ago, but they compared with a top of \$11.25 some five weeks' earlier this winter. Short-fed cattle brought \$7.60@8.25, and there was a good market for butchering cattle with cows and heifers wanted at \$4.50@7.60 and scattering sales going up to \$8@8.25. Cutters brought \$3.90@4.45, canners \$2.75@3.85 and bulls \$4.10@7.50.

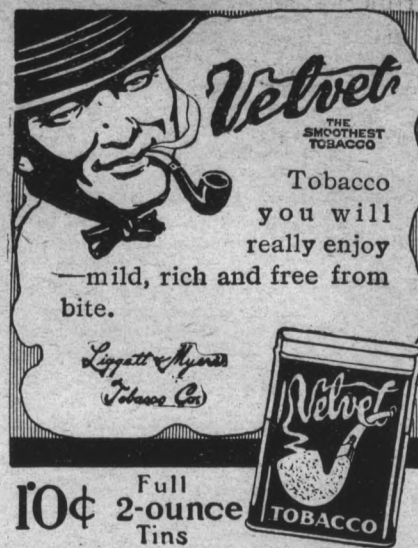
Sheep and lambs have been selling recently at decidedly the highest prices ever recorded at the opening of the year, the cause being the great shortage in feeding districts throughout the east and middle west and a big demand for fat live muttons for meeting the unprecedented consumptive requirements of lamb and mutton everywhere. Last week saw an early sharp advance and a later slump in values, the rise bringing in larger offerings.

Hogs have been showing of late a very much stronger undertone than they did for a long period, during which eastern shippers were small purchasers, leaving the fixing of values largely to local packers. Now that eastern hogs have been mostly marketed, the eastern packers are again good buyers here, and the outlook looks encouraging for higher prices in the future. Stockmen should bear this in mind and refrain from overstocking the market, as well as from sending in underweights. Of course, there are regions where hog cholera still rages, and it is from such districts that the greater part of the sick and healthy pigs that crowd the market frequently are shipped. Pigs sell at a wide range of prices.

Pull Stumps! Make Money!

Get this Milne Unbreakable All-Steel Combination Stump Puller. Self or Stump Anchored. Pulls stumps, green trees and hedges quick, easy. Raise crops next year on land now full of stumps. Pull trees faster than able to cut them. Pull 1 to 5 acres without moving Milne Double Triple and Quadruplet attachment. Also Rotary Power Attachment for sawing, grinding, washing, etc.

MILNE MFG. CO. 875 Ninth St. Monmouth, Ill. Postal brings Catalog



Velvet
THE SMOKIEST TOBACCO
Tobacco you will really enjoy—mild, rich and free from bite.
Lippett & Myers Tobacco Co.
10¢ Full 2-ounce Tins

9 CORDS IN 10 HOURS
RUNS EASY. No Backache. Weighs only 41 lbs. EASILY CARRIED. SAWS DOWN TREES.
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Clover, Timothy, Alsike, Alfalfa and all kinds of Pure Field Seeds direct from producer to consumer; free from noxious weeds. Ask for samples.
A. C. HOYT & CO., Astoria, Ohio.

THIS IS THE FIRST EDITION.

In the first edition the Detroit Live Stock markets are reports of last week; all other markets are right up to date. Thursday's Detroit Live Stock markets are given in the last edition. The first edition is mailed Thursday, the last edition Friday morning. The first edition is mailed to those who care more to get the paper early than they do for Thursday's Detroit Live Stock market report. You may have any edition desired. Subscribers may change from one edition to another by dropping us a card to that effect.

DETROIT LIVE STOCK MARKETS.

Last Thursday's Market.

Cattle.

Receipts, 1276. Market slow at Wednesday's prices; 10@15c higher than last week.

We quote: Extra dry-fed steers, \$7.50 @8; steers and heifers, 1000 to 1200, \$7@7.50; do. 800 to 1000, \$6@6.75; do. that are fat, 500 to 700, \$5@6.60; choice fat cows, \$5.50@6; good do., \$4.50@5; common cows, \$3.75@4.25; canners, \$3@3.85; choice heavy bulls, \$5.50@6; fair to good bolognas, bulls, \$4.75@5.25; stock bulls, \$4@4.25; choice feeding steers, 800 to 1000, \$6@6.50; fair do., 800 to 1000, \$5.50@6; choice stockers, 500 to 700, \$5.25@5.50; fair do., 500 to 700, \$4.50@5; stock heifers, \$4@4.75; milkers, large, young, medium age, \$50@70; common milkers, \$30@40.

Spicer & R. sold Sullivan P. Co. 2 bulls av 1475 at \$5.75, 6 cows av 900 at \$5, 1 heifer weighing 940 at \$6.50, 5 butchers av \$40 at \$5.75, 9 do av 611 at \$4.50, 11 bulls av 440 at \$4.25, 1 do weighing 930 at \$5, 3 cows av 707 at \$4.25, 1 do weighing 1100 at \$5.25; to Bresnahan 10 canners av 828 at \$3.75, 1 do weighing 1000 at \$3.75, 6 do av 795 at \$3.55, 24 butchers av 450 at \$4.60; to Bray 2 cows av 1000 at \$5.75; to Thompson Bros. 10 do av 984 at \$4.65; to Bresnahan 3 do av 880 at \$3.60, 2 do av 900 at \$3.85; to Marx 1 heifer weighing 1000 at \$7.50, 9 butchers av 770 at \$5.25; to Sullivan P. Co. 3 cows av 1123 at \$5.25, 3 heifers av 753 at \$6.25; to Rattkowsky 1 bull weighing 900 at \$5.50; to Mich. B. Co. 3 butchers av 777 at \$6, 8 steers av 962 at \$7, 3 cows av 887 at \$5; to Breitenbeck 9 do av 900 at \$4.25; to Bresnahan 4 do av 850 at \$3.75, 2 do av 940 at \$3.65; to Fry 6 do av 986 at \$4.75, 19 butchers av 750 at \$6; to Sullivan P. Co. 6 do av 743 at \$5.25, 7 do av 914 at \$6.65, 1 bull weighing 1150 at \$5.75, 1 do av 680 at \$5.25, 7 steers av 811 at \$6.35, 8 cows av 1022 at \$5.25, 1 bull weighing 1340 at \$6, 2 cows av 985 at \$4.25.

Roe Com. Co. sold Bresnahan 5 cows av 886 at \$3.85; to Sullivan P. Co. 2 do av 1040 at \$5, 20 steers av 1085 at \$7.25, 1 bull weighing 1080 at \$5.50; to Kamman B. Co. 5 cows av 1136 at \$5.40, 10 butchers av 687 at \$6, 2 do av 600 at \$5, 17 do av 703 at \$5.40; to Newton B. Co. 1 ox weighing 1650 at \$6.90, 5 steers av 1166 at \$8; to Breitenbeck 14 cows av 986 at \$4.75; to Kamman B. Co. 5 butchers av 790 at \$5.50; to Rattkowsky 3 cows av 917 at \$4, 4 do av 980 at \$4.50; to Bresnahan 3 do av 900 at \$3.75; to Newton B. Co. 8 steers av 851 at \$7.10, 3 cows av 870 at \$3.75; to Mich. B. Co. 9 do av 1066 at \$5.25, 8 do av 1070 at \$5, 2 do av 925 at \$4.

Bishop, B. & H. sold Thompson Bros. 1 cow weighing 900 at \$4.50, 2 do av 735 at \$3.75, 2 do av 935 at \$4.50, 3 do av 870 at \$3.65; to Sullivan P. Co. 1 steer weighing 1050 at \$7.75; to Mich. B. Co. 3 bulls av 920 at \$5.25, 9 butchers av 805 at \$6.50, 3 cows av 916 at \$4, 7 do av 1073 at \$5, 1 bull weighing 1080 at \$5.50, 11 butchers av 790 at \$6; to Hammond, S. & Co. 1 cow weighing 1100 at \$4.50, 2 do av 1020 at \$4.25, 1 bull weighing 950 at \$5, 20 butchers av 894 at \$6.50; to Newton B. Co. 16 steers av 944 at \$7.50, 3 do av 633 at \$6.50, 7 do av 671 at \$6.25, 2 cows av 1075 at \$4.25, 2 do av 885 at \$4, 13 do av 974 at \$4.35, 2 do av 665 at \$3.75, 6 butchers av 740 at \$4.25, 29 do av 801 at \$6, 19 cows av 904 at \$5, 14 do av 843 at \$4, 3 do av 1037 at \$5, 5 canners av 696 at \$3.50, 2 cows av 1000 at \$4.60, 8 do av 1005 at \$4.50, 1 bull weighing 1820 at \$6, 4 steers av 1050 at \$6.50, 2 cows av 1055 at \$5, 2 do av 1115 at \$4, 1 do weighing 1020 at \$5, 6 do av 970 at \$4, 6 butchers av 770 at \$5.25, 5 cows av 992 at \$4.75, 6 do av 800 at \$3.75.

Youngs sold Nagle P. Co. 1 cow weighing 1070 at \$4.50, 1 do weighing 1096 at \$5.40.

Sandall sold same 2 cows av 1265 at \$5.75.

Veal Calves.

Receipts, 442. Market steady at last week's prices. Best, \$10.50@11.50; common, \$7@9.50; milch cows and springers dull and \$5@8 lower.

Bishop, B. & H. sold Goose 8 av 120 at \$10, 2 av 100 at \$8.50, 2 av 140 at \$11; to Goose 2 av 170 at \$8.50, 3 av 140 at \$10.50, 4 av 145 at \$10.50; to Hammond, S. & Co. 2 av 175 at \$11.50, 1 weighing 320 at \$5, 2 av 175 at \$11.50; to Parker, W. & Co. 3 av 170 at \$11.50, 2 av 130 at \$10.50, 14 av 140 at \$10; to Kull 12 av 135 at \$11; to Rattkowsky 5 av 125 at \$8, 7 av 135 at \$10.50; to Hammond, S. & Co. 5 av 160 at \$9.50, 7 av 140 at \$10.50, 5 av 130 at \$9.50; to Thompson Bros. 10 av 138 at \$10.50; to Goose 4 av 120 at \$10, 9 av 120 at \$9; to Parker, W. & Co. 5 av 125 at \$10, 5 av 140 at \$10.50; to McGuire 17 av 150 at \$11, 2 av 150 at \$8, 8 av 120 at \$10.50.

Sheep and Lambs.

Receipts, 5364. Market 15@25c higher than last week; steady with Wednesday. Best lambs, \$8.25@8.75; fair to good do., \$7.50@8; light to common do., \$5.50@6; fair to good sheep, \$4@4.50; culs and common, \$2.50@3.

Bishop, B. & H. sold Thompson Bros. 52 sheep av 100 at \$3.75, 16 lambs av 70 at \$8; to Sullivan P. Co. 12 do av 55 at \$6.25, 36 do av 50 at \$6, 14 do av 45 at \$6.17 do av 65 at \$6; to Nagle, P. Co. 87 do av 77 at \$8.25, 28 do av 86 at \$8.50, 29 sheep av 85 at \$2.75, 21 do av 90 at \$4, 34 lambs av 73 at \$8.25, 159 do av 75 at \$4.

\$8.50, 15 do av 65 at \$8, 92 do av 77 at \$8.25, 21 do av 73 at \$8.50, 51 sheep av 120 at \$4.25, 7 lambs av 65 at \$8.25, 23 do av 75 at \$8, 13 do av 75 at \$8.25, 7 sheep av 95 at \$4.25, 20 do av 95 at \$3.50, 15 lambs av 65 at \$7.75, 66 do av 83 at \$8.50, 77 do av 70 at \$8.25, 203 do av 80 at \$8.60; to Mich. B. Co. 28 do av 65 at \$8; to Hammond, S. & Co. 14 sheep av 120 at \$4.25, 22 lambs av 53 at \$6.50; to Mich. B. Co. 29 sheep av 90 at \$4.

Hogs.

Receipts, 6,953. None sold up to noon; prospects look weak to 5c lower than on Wednesday.

Range of prices: Light to good butchers, \$7.50; pigs, \$7.50; light yorkers, \$7.50; stags one-third off.

Bishop, B. & H. sold Hammond, S. & Co. 4,500 av 180 at \$7.40.

Same sold Sullivan P. Co. 127 pigs av 110 at \$7.50.

Roe Com. Co. sold same 725 av 200 at \$7.50.

Spicer & R. sold Parker, W. & Co. 600 av 180 at \$7.40.

Sundry shippers sold same 760 av 190 at \$7.40.

Hog market closed 10@15c lower than last week with the exception of pigs, which were 10@15c higher.

Friday's Market.

January 3, 1913.

Cattle.

Receipts this week, 1707; last week, 680. Market steady at Thursday's prices. We quote: Extra dry-fed steers and heifers, 1000 to 1200, \$7.50@8; steers and heifers, 1000 to 1200, \$7@7.50; do. 800 to 1000, \$6@6.75; do. that are fat, 500 to 700, \$5@6.50; choice fat cows, \$5.50@6; good do., \$4.50@5; common cows, \$4@4.25; canners, \$3@3.85; choice heavy bulls, \$5.50@6; fair to good bologna bulls, \$4.75@5.25; stock bulls, \$4@4.25; choice feeding steers, 800 to 1000, \$6@6.50; fair do., 800 to 1000, \$5.50@6; choice stockers, 500 to 700, \$5.25@5.50; fair stockers, 500 to 700, \$4.50@5; stock heifers, \$4@4.50; milkers, large, young, medium age, \$50@70; common milkers, \$30@45.

Veal Calves.

Receipts this week, 682; last week, 353. Quality considered, market was steady. Best, \$9@11; others, \$4@8.50. Milch cows and springers steady.

Sheep and Lambs.

Receipts this week, 7,284; last week, 3,545. Market dull and 25@50c lower than on Thursday. Best lambs, \$8.25@8.30; fair to good lambs, \$7.25@8; light to common lambs, \$5@5.50; fair to good sheep, \$3.75@4.25; culs and common, \$2.50@3.

Hogs.

Receipts this week, 10,033; last week, 3,669. Market 10c higher than on Thursday. Range of prices: Light to good butchers, \$7.50@7.55; pigs, \$7.50@7.55; light yorkers, \$7.50@7.55; stags one-third off.

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We forget one little thing in the training, though, and that thing the most vital of all, that the child is unconsciously influenced by the daily life around it, by our unguarded words and unstudied actions, more than by all the preaching we could do in a life time. It is what we live, not what we say, that is reflected in our children's lives. The things which we unconsciously put first are the things our children will consider most important.

A woman has a seven-year-old daughter whose sole thought is dress. She can tell you the latest thing in hats, what color is most fashionable, whether pannier skirts are becoming to you or not, and she demands the very latest in dresses, coats and even underwear. Her mother deprecates this in so young a child. She wants her to be thinking of dolls and sports. She tells her small daughter how foolish it is to think so much of clothes and often locks her pretty dresses away for a week in a vain effort to incline the youthful twig some other way.

But, when this mother goes out and comes in again, the only thing she has seen, apparently, is the clothes people had on. She can tell you exactly what every woman wore, how it was made, whether or not the gowns fitted, how long this one has worn her coat and what year that one got her bonnet. She can, and does, relate all this to her family, but she has never heard anything worth while, never seen a pretty sunset, a rippling brook, a snow-laden tree or, in fact, anything except clothes. The mother thinks clothes and talks clothes. The wee daughter copies her, in spite of wordy lectures on the enormity of little girls' being vain. The child copies what the mother lives.

Another couple want their son to go to college. They tell him that he will be better prepared to earn a living if he has a college education, that he can mingle in better society and be a broader man because of the four years' study. They tell these things to the son. But they never read a book, never study anything, not even the things they should know to make their own work easier. They frequently say that they always hated school, and never have any pleasant stories to tell about school days. Study is irksome, is their expressed and lived thought. The boy declares that if they send him to college he will break enough rules the first week to get himself expelled.

Their neighbors are anxious for their boy to go to college, too, but they haven't said much to him about it, though. Instead, they have surrounded him with books. They study with him, they tell him of the pleasure they took in school and are constantly referring to this fast friend they made while in school, to that bit of success that came to them as a direct result of work done in school days. They are making college seem worth while, and the boy is planning his course and saving his pennies to help pay his way through school.

So it is with everything about the child life. He is going to think most desirable the things he hears talked about most of all. If father believes money getting is the chief end and aim in life, the son is going to think the same thing, unless he gets a strong bias from mother. The children will carry out in their lives not the things the parents preach, but the things the parents practice. If the parent is loud-voiced and scolding, the children will be quarrelsome and overbearing. If

the parent is quiet and mild-mannered, the little ones will copy.

Live what you want your child to be. It will be much more effective than preaching.

DEBORAH.

HOME PASTIMES.

BY GENEVA M. SEWELL.

The most entertaining pastime for children is that which develops the imagination and brings out originality, or in other words, makes them think. The instinct for play has manifested itself

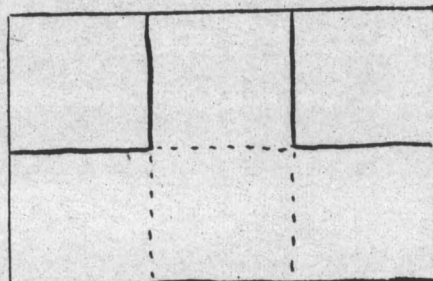


Diagram 1.

through all past generations, even reaching back to our pre-human ancestors, so when we give children the opportunity to develop this instinct, we are providing for the natural development of a natural inheritance. In giving games to children we not only give them something to utilize their surplus activity, but we also give them pleasure, training in attention, sense perception and rhythm.

Children should be supplied with things to play with, but not expensive toys. The children's fancy will supply everything required. Empty spools, pieces of colored paper and bits of string, if the children are shown how to use them, will prove a never failing source of entertainment.

For years I have been gleaned, originating and adapting from various sources simple amusements, which the mother may use in the home for the development and instruction of small children. I always call things by their correct names, and in this way a child learns many of the first forms without knowing he is learning them, simply by hearing them spoken of as oblong, triangle, square, etc. The sources from which I have obtained this knowledge have long since been forgotten but I never show a child how to do something that amuses him that I do not offer up thanks in my heart to the ones who, in no matter how small a way, have taught me one more way of amus-

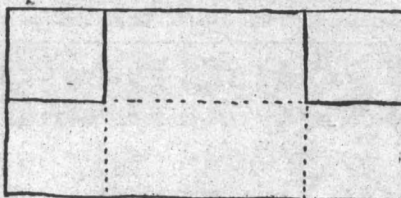


Diagram 2.

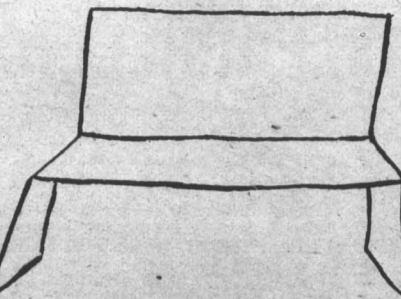


Figure 2.

ing, or teaching a little child how to amuse himself.

Mothers may receive much information if they will send for mail order catalogs, and kindergarten supply catalogs and carefully study what is offered therein and adapt it to their own particular

needs. They will find many simple things that will benefit their children more than the most expensive mechanical toy, which a child is apt to have a burning desire to take apart to see what makes it go.

The paper construction work never fails to be an instructive as well as amusing pastime. Of course, some children are taught this in school but there are many more who do not have these advantages, and if the mothers are able to give them a little instruction along this line it will not only amuse them but will be a genuine help to them. I know this from experience for with some pieces of paper we have made about everything which a vivid imagination could think of and active fingers manufacture. Do not always tell the children what you are going to

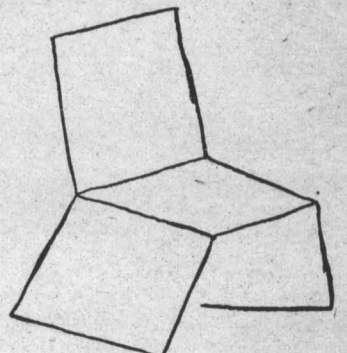


Figure 1.

make, for instance, if they are old enough to know how to measure with a straight-edge ruler we begin something like this: "Choose your color." One will choose green, another pink, another yellow, and so on, from paper which has been previously dampened and ironed free from

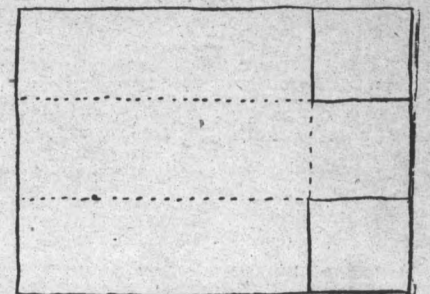


Diagram 3.

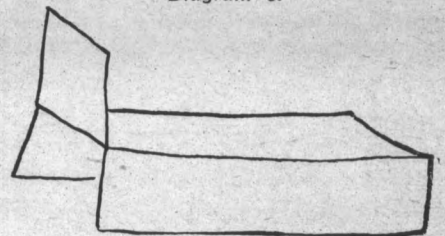


Figure 3.

all wrinkles, and squared so all edges are true.

The next command will be: "Rulers," and the children will hold rulers in right hand, paper in left.

"Position," the children lay the paper near the edge of the desk or table at which they are working, holding it in place with the left hand.

"Measure six inches," the rulers come down.

"Mark," the rulers are held in place along the edge of the paper and the six-inch place marked.

"Turn," the paper is turned to the right so the next edge is in place to be marked.

"Measure four inches," this is marked along that edge.

"Finish your oblong," a line parallel to the six-inch line and one parallel to the four-inch line are quickly drawn in.

"Cut," and the oblong is cut out.

"Place two long edges together, crease fold," this must be done carefully so the fold will be in the exact center.

"Fold crosswise into three equal parts," this must also be carefully done or the object will not be true.

"Open," the oblong is opened out flat again, and is found to consist of six squares, each two inches in size, marked by the creases in the paper.

"Cut out top right hand square," snip snip go the scissors.
 "Cut out top left hand square," in a flash it is done.
 "Fold the single square up and the two end squares down, what have you?"
 "Oh—a chair," and the delight expressed is ample to repay one for the few minutes spent in teaching the child-

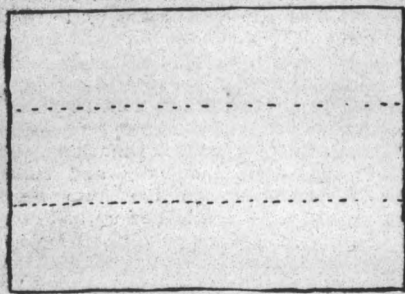


Diagram 4.

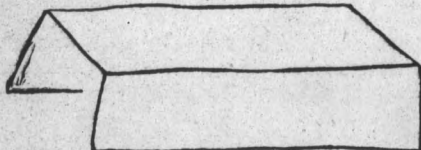


Figure 4. . .

dren how to do it. Working in concert it takes no longer to teach several than it does to show one. If the children are not old enough to use ruler and pencil correctly the mother may have the forms ready prepared, making them when she has the leisure. The children will be able to do the folding and cutting out small squares.

Diagram 1 shows how the flat paper should look; cut solid lines and fold dotted ones. Figure 1 shows the form completed. This is the simplest form of construction work that I know, as it requires no pasting and but little cutting and folding.

Let them make all the chairs they want to and when they begin to tire, have them try to originate some designs of

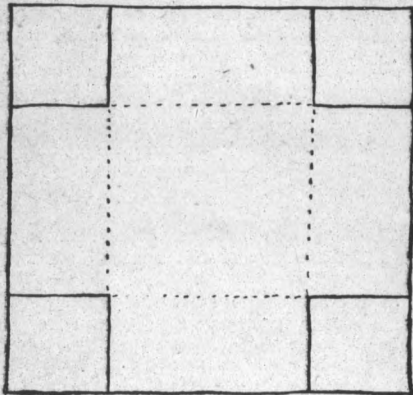


Diagram 5.

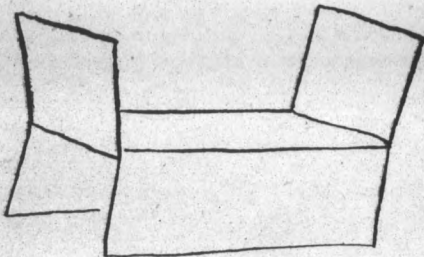


Figure 5.

their own. If they are quite young or the work is new they may not be able to do this at once, so let each one make a "surprise" for the others.

Whisper to one, "Make your oblong 4x8 inches and cut and fold as before." Diagram 2 and Figure 2 show how to do this.

To another whisper, "Make your square 6x8 and cut out corners and fold as before." Diagram 3, Figure 3.

Another may be told, "Make yours 6x8, do not cut but fold in thirds, open till it stands up." Diagram 4, Figure 4.

To another, "Make yours 8x8 and cut out all corners, fold two ends up and two sides down." Diagram 5, Figure 5. Continue with all the changes you can ring in. If the children read writing or printing, these directions may be written and each one draw from a box what they are to do. That in itself will be a novelty.

By the time each child has made and shown the others how to make his specialty it will surely be time for a game of some sort.

Another time the furniture may be decorated with crayola and carved with scissors.

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BRAMBLE HILL

By ROBERT CARLTON BROWN.

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Chapter IX.—"Man Proposes—"

"Well, be that as it may, Sidney, I'm glad to see ye back," exclaimed Brigadier General Hornbill, pressing Sid's hand with faltering firmness.

"Did you think I'd gone off and left you for good?" smiled Sid.

"Well, it's hard to tell what notions you young fellers will git. I was thinkin' you was afraid to come back an' face it out."

"Not hardly, General," replied Sid. "I've come back to fight. Somehow, since I've been away I've learned to like Turtle Creek a good deal. I think it's really worth while, you know."

"Good! I hoped to live to the day when I'd hear ye say that, Sidney."

"Oh," Sid cut him short, "I'm not irrevocably wedded to Turtle Creek, you understand. I have seen places that I like quite as well."

"Ye'll change your mind. Ye'll be one of us yet," grinned old Hornbill enthusiastically.

Putting his resolution into action, Sid having returned from his vacation with a fine store of vim and push, an unusual store for him, went to town next day to find out how things were going with the railroad, and to look around and talk with a few villagers, hoping to get track of some way to work out of the railroad a bigger price for that land. He also wished for a sight of Susan. It was too early to call. Furthermore, now that he had decided Turtle Creek might be made livable he was going to blossom into a social being. The villagers would have to like him if he made respectful and conservative advances. He'd been holding himself altogether too aloof for his own good. He'd be sociable and neighborly now.

On the road to town he met Bud trudging out with his armful of Bayview Bugles and Pike County Vigilants.

"Hello," called Sid.

Bud looked at him for a startled moment, blushed a deep red, stammered out, "Ha-ah-allo," as though he were gargling, dropped his eyes and walked past. When Sid looked back at the young fellow a minute later, wondering what made him seem so strange, he found that Bud had turned in the road and was staring after him.

"Well, what's up?" Sid said to himself. "Bud isn't so fastidious in his speech as a rule. Anything happened, I wonder?"

He had come in on the night train and had seen only a few loungers in town as he went through. Something must have happened. He wished he had called Bud back and pumped him.

Several times Sid passed speaking acquaintances on the way; all of them greeted him, but it was with the same shy, hesitant, kittle-got-your-tongue manner that Bud had adopted.

By the time Sid had reached the village store he was quite alarmed about it.

There was the reception committee, lined up like a gathering of wise old gophers sunning themselves on a sand bank. Sid sauntered up and picked out Aloisious Stimpson from the assembled fathers. He wanted to talk with him about the railroad. Stimpson had been in Turtle Creek so long his advice would be valuable.

"Can I have a word with you, Mr. Stimpson?" asked Sid, greeting the old chipmunk with a smile.

"Can you have a word with me?" Stimpson's high-pitched hay-feverish tone twanged like a Jew's-harp and he just sat back and stared straight at Sid with the directness and intensity of a Svengali.

"Can he have a word with him?" chorused a pair of surprised, timid, old lady-like gentlemen, who couldn't have been distinguished from their own corn field scarecrows had they been stood alongside of them.

"Yeh think ye're fit ter converse with a self-respectin' citizen?" Stimpson was so much in earnest he forgot to swear.

"Why, yes, of course," answered Sid, a bit awkwardly. "I have a clean collar on and I challenge you to find a cigarette on my person. Why not?"

"After what you done in Chicawgo?"

"What did I do in Chicawgo?"

"What did he do in Chicawgo?" Stimpson turned and winked a flaming eye at his colleagues, repeating the remark with fine sarcasm.

"Well, are you going to let me into

this very interesting secret?" asked Sid.

Stimpson turned on him with a wolfish snap: "You're a nice young feller to be allowed to associate with decent folks, ain't yeh? Yeh're a h—l of a God-fearin' citizen, you air." He paused and got tremblingly to his feet with the aid of his staff. His eyes seared their way through the audience and finally rested on Ed Humphrey. "You an' Ed Humphrey here air about in the same blame class. You'll be a common ditch drunkard if yeh keep up them dod-blasted pernicious habits of a sot."

Ed Humphrey leered up very consciously and interrupted. "You might a said, Aloisious, he was too drunk to tell a corner lamp from a high-flyin' fire fly, like you've often said to me."

The old gentleman snapped his neck around to Ed Humphrey again with perilous abruptness; it might have cracked off had it been anything but an old, scrawny, leathery, tough neck.

"That'll be about all from you!" he marked; then turning on Sid, "But I reckon Ed's right. I reckon yeh was so drunk yeh—"

"I say," Sid interrupted quickly, stepping close to the old gentleman and fixing him with very serious eyes, "what's all this about? Did you see me in Chicago, drunk, or what is it?"

"No, I didn't see yeh, but Sam Dunlap did. Said yeh was drunk as a white-livered lord. He seen yeh reelin' out of a saloon there with a bottle under each arm." Aloisious paused and calmly surveyed Sid's crimson countenance, "and with a breath that blame near knocked him over. Now do yeh want a word with me?"

"No, but I'd like to have one with Sam Dunlap, and I will," answered Sid, his fists clenching involuntarily.

"Well, he's right over there now, I reckon yeh won't have no trouble engagin' him in conversation; not a blame bit of it." Stimpson turned and pointed across the street to where Sam Dunlap was padding his slow, fat-footed way through town.

Sid looked, and stood in indecision. It was clearly up to him.

Without a word he hurried across the street, calling after Sam Dunlap in a voice that contained the last bit of uncertain wavering in his mind.

"Well, what do you want?" demanded Sam, turning sharply to thrust his thick neck out at Sid like a snapping-turtle, and taking in the village fathers in a glare as they stood up, all together for once, some sauntering casually across the street as though nothing in particular were going on, and even if there were they would be the last ones to care to see or hear it; others looking up innocently at the clouds, for rain, no doubt.

"Well, what do you want?" repeated Dunlap by way of emphasis.

"I want to know if you spread the story in this town that you saw me in Chicago, drunk?" asked Sid in a clear voice that carried to the village fathers, even the near-deaf ones.

"You know whether you was or not," replied Sam Dunlap, with a very accusing glare.

"But do you know?" Sid felt it wasn't exactly the right way to go about it with an older man, but he wasn't practiced in disputation.

"I certainly saw you come out of a saloon, and you talked very foolish to me and that was enough. I leave any man to draw his own conclusions."

It was a sweeping statement; it swept across the street to the village fathers.

"Would you be very much surprised to know that I had only one drink in that saloon?" Sid asked sharply; it was on the tip of his tongue to add that the one drink was milk, but that didn't seem pertinent—it might as well have been something else, when his intention was considered.

"I would be very much surprised; not only surprised, but inclined to believe you were a liar, young man."

Sam Dunlap continued his ponderous way through town, after throwing off this glittering gem of repartee, looking neither to the right nor left. His reply had evidently been a clincher in the eyes of those of Turtle Creek.

Sid's action after his departure furnished this conviction. He stood for a moment looking after the hulking form,

then shrugged his shoulders and turned toward home, clearly beaten.

Sid was beaten. The smack of that retort was still crimson on his cheek. There were a thousand things he could have said in reply, but what good would it have done? The village fathers had heard; they were a fixed jury, anyway. Oh, no, it had been best to say nothing.

He kept his head rather well down all the way home, to avoid speaking to those who might be confused or embarrassed by a greeting from him. Only once did he raise his head fully, and that was at the toot of an automobile horn as he was crossing the street.

Susan Dunlap was in the machine. Sid lifted his hat mechanically and smiled eagerly, hopefully, as the auto swept down on him. Susan looked up and down the road; there were only two people in sight; she glanced from left to right and then slackened speed, leaned toward Sid for an instant and smiled nervously. "I'm sorry," she said, "but I don't believe it! You didn't—"

"No!" answered Sid in a burst of happiness that someone believed him. Above all, that she believed in him.

Before he could go on she had thrown on more speed and was some distance away.

Well, there was something to offset the trouble. But he wanted to say more. She had gone too quickly. Her expressed confidence meant a great deal more to him. The spontaneity of her sympathy expressed much. Somehow he forgot that nasty scene of defeat in front of Niles Pash's store. Susan had said she didn't believe the story. That was a good deal. Yes, that was enough.

When Sid had confessed so much to himself he felt relieved. The moment he reached home he did a very impetuous thing. Making sure there was no one around, to overhear, Sid took down the receiver to the primitive party telephone, primed it by turning the bell handle at the side a dozen times, and then asked for the Dunlap residence.

The "hired girl" answered, and Sid asked for Susan. Luckily she was already home. Her voice, quick and soft, came over the phone, "Hello."

"Hello. This is Sidney Edgeworth," he breathed. "Can you meet me at the grove in our private road? Nobody can see you there?"

"But I—"

"Please."

"But isn't it—"

"Nobody else believes in me. I've got to reinstate myself and I need your help. Besides, I—"

"I'll come," she answered abruptly, in an anxious whisper; Sid felt that her father must have entered the house at that moment and forced her decision, and he was convinced of it when she went on in an unnatural tone, "Yes, Dorothy, I'm crazy to see your new dress. I'm just going for a ride. I'll stop in and see you. Good-bye, dear."

The receiver was hung up before Sid could recover his breath. How that "dear" tingled through him! She'd said it unconsciously as part of the play, of course. But, oh, if she knew how it rang through him. He stepped into his own room and made sure of his cravat and hair. Then he sauntered down the Edgeworth private road, so seldom used, to a place where the grove grew thick on either side of it and shut off nearly all view. True, it was getting winter and the leaves were nearly all gone from the trees, but the place was sheltered from observation, except from a strip of the main road running nearby. Sid strolled in and out among the trees listening for the familiar chug-chug of the automobile.

At last the machine came and Sid sprang to the road, offering his hand to the girl. She seemed flushed and ill at ease, glancing back continually, but gave her hand in greeting and Sid exclaimed: "It's awfully good of you to believe in me."

"It isn't so much that, as the fact that I know how it is," she answered with troubled directness. "The people here won't recognize the difference in city standards. Father thinks if a man takes one drink he is drunk, if he misses church one Sunday he's an infidel. It's all right to be strict that way, but I can't help feeling badly for you; I've been a victim of circumstances in this town myself more than once, but I have a father and a life-long residence here to fall back on, and you have no one—but yourself."

"I guess that explains it pretty well," answered Sid. "It was mighty good of you to come out here to meet me. I'm glad you were willing to do that."

(Continued next week.)



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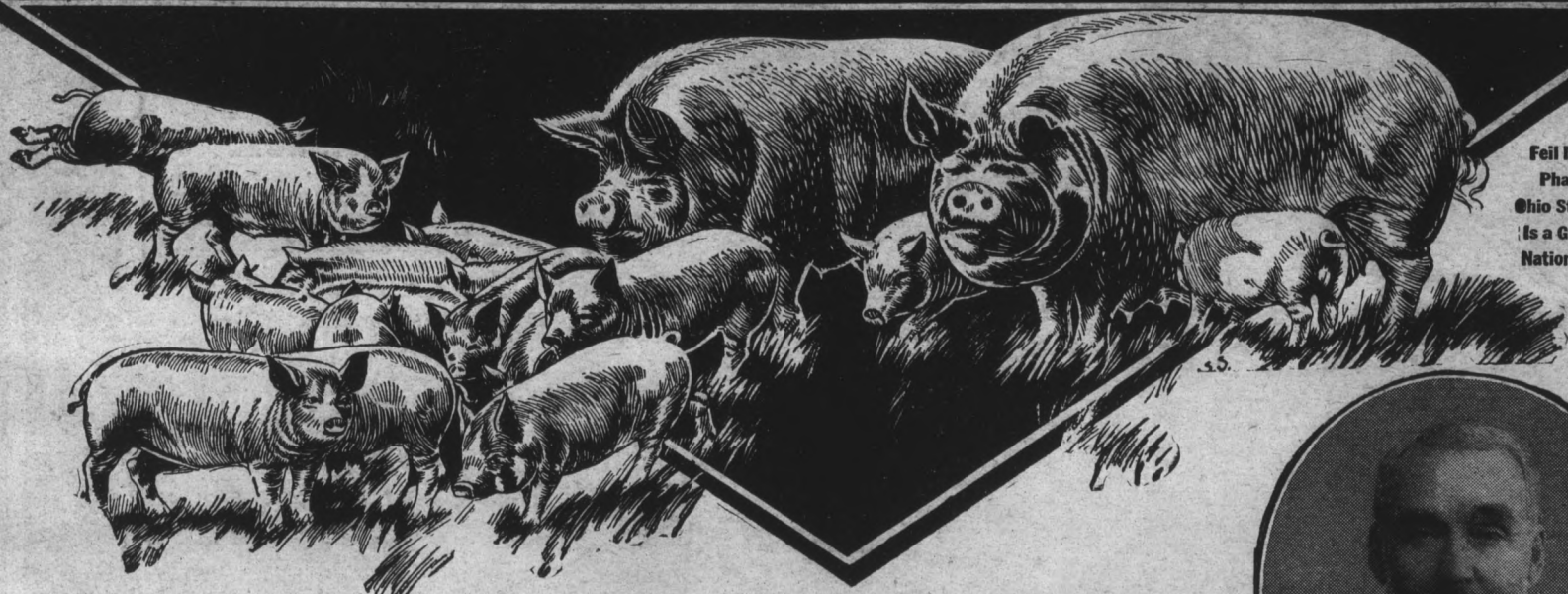
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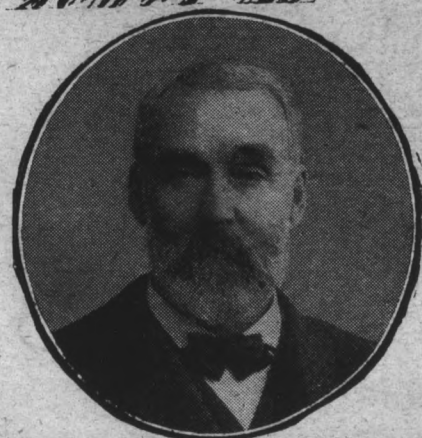
Look Out
For Worms

For Worms This Month

Look Out
For Worms



Mr. Sidney R. Feil is a Registered Pharmacist Under Ohio State Laws, and is a Graduate of the National Institute of Pharmacy



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Read What Mr. T. B. TERRY Says About



The writer has not been in the habit of paying any attention to special stock foods and mixtures. But when he saw the strong testimonials of Dr. C. D. Smead and Editor L. H. Cooch, he decided that there must be virtue in Sal-Vet. Both of these gentlemen are personal friends. The page advertisement in Dec. 2nd issue attracted my attention particularly. At once I sent for a quantity of Sal-Vet for trial. Ever since then Robert has been feeding it to all the stock on the place. We are unable to see any gain to the cows. The fact is, we could hardly expect any. They were in fine, healthy condition, extra well fed, hair bright, milking well, and nothing could be expected to make them any better. They may have given a little more milk, but one cannot say about this. But about the horses there is a far different story to tell. Robert has one mare, 9 years old, that from a colt has been troubled with some skin disease. There were itching eruptions on skin, and she was rubbing and biting herself often. And this condition has all gone. Robert took her blanket off today to show me and she stood entirely still. In the past she would have been twisting about and biting herself at once. Robert also has a driving mare that was troubled somewhat the same. And now she is well. There is a marked improvement in the looks of our driving mare, 29 years old. Her hair is unusually bright and she is shedding her coat finely now in February. There is no question but what Sal-Vet has done our horses good. Robert and myself are both satisfied on this point. We keep no sheep or hogs. I should presume they would show more gain from feeding this material than any other stock would. And when cows or young cattle are itching and rubbing, hair dull in color, probably Sal-Vet would do them much good.—T. B. TERRY.

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