

MICHIGAN FARMER

AND
LIVE STOCK
PUBLISHED WEEKLY.

JOURNAL
ESTABLISHED 1843.

The Only Weekly Agricultural, Horticultural, and Live Stock Journal in the State.

VOL. CXLII, No. 1.
Whole Number 3764.

DETROIT, MICH., SATURDAY, JAN. 3, 1914.

50 CENTS A YEAR.
\$2 FOR 5 YEARS.

True Stories About Self-Made Farmers

How One Young Man Earned His Own Farm and Made a Notable Success of Farming.

BORN of English parents who came to this country in mid-life to earn for themselves a home and a competence in this land of opportunity, the subject of this sketch labored with them to that end until he attained the years of his majority. Working on the home farm in summer, or contributing his earnings when he could be spared to help other farmers in the neighborhood, to aid his father in paying off the mortgage, doing chores and working Saturdays for his board each winter after he reached his "teens" and attending the district school which is his only alma mater, this young man arrived at the age of 21 years with very limited resources. These consisted mostly of a splendid physique, excellent health and good habits, due to the busy and useful nature of his boyhood. His financial resources were limited to the proceeds from a patch of cucumbers which his father permitted him to grow for himself the previous summer which, like those preceding it, was devoted to helping his father with the season's work.

With this small capital, and a desire to see something of the world, he started out after the fall work was done on the home farm, to make his fortune, as so many young men have done from time immemorial. Accustomed to farm work and having little experience in any other kind of employment, he first made for the harvest fields of the corn belt and when the husking season was over followed Horace Greely's advice to young men by going west, working at whatever employment offered until he finally landed on an irrigated alfalfa and dairy ranch in Nevada, where efficient labor was paid high wages, but where, though perhaps considered "worthy of his hire," the laborer received nothing further in the way of human consideration. Tiring of the life, he returned to his native state after some 18 months and spent the next five years working for farmers in his old home community, where his services commanded a premium above the "going wages." Unlike many young men with similar opportunities, he saved his money and at the end of this period of his experience he found himself in the possession of a tidy bank account of some \$1,050.

Then, at the age of 28 years, he married and begun housekeeping on a rented farm, his savings providing the means for securing the necessary equipment. And right at this point this young man exhibited the good sense and business ability which has contributed so greatly to his later success. His father's farm was a rather unproductive, rolling and broken sandy soil, from which he felt that the yield was most often not commensurate with the labor expended. So in selecting a farm for rental he made a canvas of the country for miles around until he secured a farm which was in good repute from the standpoint of production, although the buildings were sadly out of repair. Two years on this farm gave him such an enviable reputation as a hard and efficient worker and good farmer that he could practically make his own selection from the farms which were for rent in that and adjoining townships. Then he moved to a better farm with better buildings and made a still greater success.

But he was not satisfied. Working a rented farm is uphill business at the best, and he was a hard worker and felt the effect of his work. Like many another successful farmer he became of the opinion that he "could make a living easier,"

so when opportunity presented itself to go into other business he resolved to make the change. Consequently he made a sale and converted his accumulation of property into cash, to find that the proceeds from his sale added to his already respectable nest egg, amounted to approximately \$2,500.

This amount he invested in a country mercantile business of which he assumed the active management. This was, to him, an illuminating experience. What he had believed would prove an easier way of earning a livelihood and ultimately a competence, he found to be a most confining task, worrying his spirit and even undermining his magnificent health. So,

The farm has been re-fenced, a windmill has been erected from which water is delivered though the house to concrete tanks at the barn and the farm house is now in the process of remodeling. Up-to-date farm equipment has been added as needed, some of the more expensive and less used implements being owned in partnership with a near neighbor. In the barn are to be found a new automobile, a new carriage and a two-seated surrey which will accommodate the whole family—there are three fine children—aside from the utility conveyances needed in the conduct of the farm business. The presence of these pleasure vehicles is a good indication of the fact that this fam-

placed, from an equal number of which the monthly milk check reached but \$25 or \$30. Instead of simply concluding that the dairy business didn't pay, this novice at the business studied the cause of the low receipts and removed it by disposing of the star boarders and replacing them with good cows as opportunity offered.

Every experienced farmer will know that it requires a considerable investment to rehabilitate a run-down farm, even to the degree above described, and to provide the equipment enumerated. The fact that through his own unaided efforts he has been able to buy and thus improve and equip this farm, and accumulate a tidy bank account besides, at 40 years of age, makes George Newbound, of Oakland county, an example of that type of "self-made farmer" so common in Michigan, which should prove an inspiration to the young men who would like to be farmers if they only had the farms.

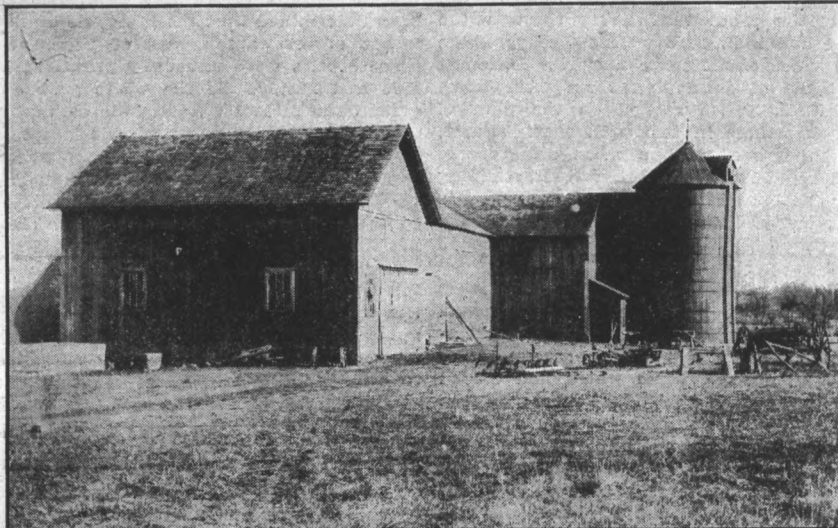
The most interesting part of this story would be the details of how all this has been accomplished by the subject of this sketch. Space would not permit the printing of these, were they all available. Certain prominent factors of his success may, however, be briefly mentioned. As will be gathered from the above story, Mr. Newbound engaged in the dairy business for the first time after buying this farm. Like most renters, he had been to some degree a soil robber while working rented farms, as is the inevitable result under our present system of short and indefinite tenantry. But not so on his own farm. Here he has kept live stock to consume most of the roughage and grain produced on the farm, although some hay has been sold on the Detroit market when hay was bringing a high price. As a main factor in this contingent of live stock dairy cows were selected because they would bring a constant and steady income, a considerable part of which was represented by his own labor invested in their care. Besides the dairy cows some young cattle have been fed almost every year in order to utilize all of the available roughage and grain and still retain the fertility on the farm.

In addition to the manure thus made Mr. Newbound has used commercial fertilizer to some extent in a supplementary way. The fertility of this naturally good soil has been conserved by this means and by a judicious rotation of crops to such good purpose that one field of oats this year yielded over 70 bushels per acre, and eight acres of ensilage corn required over five pounds of twine per acre to bind it and filled a 16x30 silo. Besides this, six acres of corn was husked, and this also was an excellent crop. Besides the corn and oats, barley is grown, because of its superiority as a crop with which to seed the land to clover. Potatoes is the principal cash crop grown. Formerly these, and sometimes the timothy hay which was sold, were hauled some 25 miles and sold on the general market in Detroit, but with increased prosperity this practice has been practically abandoned, and the crops grown have been such as can be grown and marketed in a similar way by the average general farmer in Michigan. The rotation used is a short one in which the corn and potatoes are planted on clover sod and followed by small grains, the land being again seeded in the oats or barley or, as is sometimes the case, in wheat following one of these crops.

Formerly this husky young farmer did nearly all the work on this 80-acre farm



Farm Home and Barns of George Newbound, of Oakland County.



notwithstanding, the fact that the business was successful and profitable, when opportunity offered after two years he retired from it and invested his accumulated savings in a small farm.

Here, again, he sought far and wide, with an eye to the quality of land rather than to fine improvements, and purchased the 80-acre farm on which he now resides, in Novi Township, Oakland county. Because the improvements had not been kept in a high state of repair he was able to purchase this farm at \$60 per acre. After investing in the necessary equipment for its operation he found himself in debt \$2,000 on the land. In three years this indebtedness was paid. Since that time many improvements have been made.

ily does not find farm life one of unmitigated care and labor, although here business comes before pleasure, as it ever must if success is to be attained. Also a fine dairy herd of high-grade Holsteins has displaced the aggregation of star boarders with which the owner of this farm started dairying in a small way. As an illustration of the difference in the results secured from this herd and the original cows, it is but necessary to state that the owner's October milk check from eight cows, some of which were strippers, was \$98.26, while the annual receipts from this small herd run considerably over \$100 per head. In sharp contrast with these results were the returns from the ordinary cows which they dis-

himself, which he was able to accomplish by efficient planning and management as well as hard labor. This factor in his success can be well illustrated by the following incident. A visitor at his farm during the early winter offered to aid him in his chores by cleaning out the cow stable. He accepted the offer but instructed his friend on just how to do the job. Many readers will doubtless smile at this, but there was a very good reason for his method of doing this very commonplace task. The manure from the stable was piled in a carefully built conical heap outside the stable door, but away from the eaves of the barn, instead of being thrown out promiscuously through a more convenient door which the former owner of the farm had used for that purpose. His instructions to his helper were to place the manure all in a certain indicated place on the pile and pack it down and smooth it off well with the fork after the job was finished. His explanation was that this took little if any longer than a more careless way of doing the job and that when so treated the manure would not freeze so that it could be hauled out into the field at any favorable time during the winter, thus conserving its content of plant food and at the same time getting the work of hauling it out of the way before spring came. Right here is a good hint for the reader who thinks he can't haul his manure direct to the field in winter because the pile is frozen solid.

Like many farmers who have attained success on a small scale, Mr. Newbound has had an ambition to own a large farm. At one time he was on the point of selling his eighty at an attractive price, and buying a larger farm. But upon reflection he decided that it would be more sensible to improve his small farm to its maximum limit and take life a little easier than it is possible for the "land poor" farmer to do. So instead of selling the farm he planted an orchard on the best location and plans to add small fruits in the future, as his two small boys get old enough to take a hand in the farming. He now believes that he has land enough to provide his boys as well as himself with a competence, unless they should prefer to become "self-made men" in some other calling, when they shall have attained their majority, as their father elected to be a "self-made farmer," and has attained his ambition. In any event, his children are certain to have the benefit of educational advantages superior to those which their father enjoyed. He has felt the handicap of a very limited early education, and is resolved that his children shall not have this obstacle to surmount. His appreciation of this important factor in the rearing of children is attested by the pride with which he speaks of the gratifying progress which his oldest child, an exceptionally bright little girl of eight years, is making in her studies, a faculty which, by the way, he frankly admits the child inherited from her mother, a charming and capable lady to whose ability and inspiration this young man owes not a little in the attainment of success.

THE VALUE OF THE SKUNK TO AGRICULTURE.

A recent circular from the U. S. Department of Agriculture gives the following conclusions on the economic value of the skunk to agriculture:

"The skunk, which is represented throughout the country by a number of varieties, genera and species, is an animal of great economic importance. Its food consists very largely of insects, mainly of those species which are very destructive to garden and forage crops. Field observations and laboratory examinations demonstrate that they destroy immense numbers of white grubs, grasshoppers, crickets, cut-worms, hornets, wasps, and other noxious forms. The alarming increase of the white grub in some localities is largely due to the extermination of this valuable animal.

"It is a matter of common observation where white grubs are particularly abundant in corn fields to note little round holes burrowed in the ground about hills of corn. These are made by skunks in their search during the night for these grubs. During the recent outbreak of grasshoppers in Kansas it has been determined that in many cases a large proportion of the food of skunks consisted of these grasshoppers.

"Some of the most destructive insects in agriculture are such as do their work below the ground and out of reach of any method that the farmer can apply and it is against many of these that the skunk is an inveterate enemy. Notwith-

Self-Made Farmers

HE is a Self-Made Man!" How often we hear this expression applied to some successful professional man who started as a poor boy, worked his way through college and, with the increased earning power which was really the result of the free educational advantages afforded him by the state, attained an enviable affluence along with high rank in his chosen profession. And the term is rightly applied, since only the young man who, in the vernacular of the day, is "made of the right kind of stuff," will be found in this small, though select class of citizens.

We also hear the same term applied, and probably more fittingly though perhaps less frequently, to the young man who has entered the employ of some business firm in his youth and by constant application to work, coupled with a vigilant watchfulness in his employer's interest, has worked himself up to a position of responsibility and trust which carries with it a satisfactory emolument. These men owe their success to their own unaided efforts in perhaps greater degree than is the case with the class first mentioned. True, what others are prone to refer to as fortunate circumstances, or perhaps pure luck, may have been a factor in their advancement, but in its final analysis this is generally but another name for the ability to recognize an opportunity when it presents itself and improve it without hesitation or delay.

Then there is another class to whom we hear this term still less frequently applied—the young men who have natural business ability and, often unaided by either education or training, win success for themselves in the keen competition of the business world by sheer force of personality and character, backed up by untiring energy and close application to the task before them. Yet, while we hear

standing all of this, there is probably not an animal that is as ruthlessly slaughtered as is this one, whereas it is equally entitled to protection with, if not more so, than some of our birds which enjoy this privilege.

Some years ago I had an experience which fully demonstrated the correctness of these conclusions. For two or three years the tobacco worm, more commonly known in Michigan as the tomato worm, was quite prevalent in the potato fields on my own and neighboring farms. These worms have voracious appetites and would quickly strip the leaves from the hills on which they made their appearance, with disastrous results to the plants attacked. These ravages increased until about the third year after the first visitation they became so numerous as to necessitate an attempt to protect the potatoes. I had 13 acres of potatoes that season and tried to save the crop by the laborious method of going through the field and killing all worms discovered on the vines about twice a week. Different methods of destroying them were tried, until finally we settled on the plan of clipping them in two with sheep shears, which was at best a most disagreeable and repulsive job. But, notwithstanding our zeal and vigilance, the crop was practically destroyed, and our yield of merchantable tubers was only about 25 bushels per acre.

But if we were unsuccessful in saving this crop, we had help from our friend the skunk, which practically exterminated the pest. Late in the season, after the full grown worms which had eluded our vigilance buried themselves in the ground and spun their cocoons, preparatory to spending the winter in the pupal stage and to emerge the following spring as matured moths to produce another generation of the pests, we observed signs that a new force had been enlisted in their destruction. Little holes could be seen burrowed in the ground beside the potato hills and many tracks of small animals could be seen all through the field on the soft ground between the rows. These tracks were most numerous at one corner of the field adjacent to a small piece of woodland, which was known to be a "good place to dig skunks" by the fraternity which followed that profession in the community, as evidenced by the many pits they had left without the bother of filling. Careful examination of the tracks on freshly stirred soil, together with other evidences left by the animals, left no doubt as to the nature of the "helpers." And they did so good a job that few of these de-

men of this class designated less frequently as "self-made men" than either of the other classes above described, they are really most deserving of the appellation, since had their educational opportunities been broader or their early business openings better, it is but a fair presumption that their success would have been proportionately greater. In other words, they have achieved success under a handicap which entitles them to greater credit.

But, when we think of it, it is a rather peculiar fact that we rarely, if ever, hear this complementary phrase applied to a farmer. Yet there are all around us young men who have chosen agriculture as a business and who have achieved a notable degree of success under even greater handicaps than have been surmounted by the classes of men above referred to. Their very number constitutes, perhaps, the reason why their genius and ability has not received more general public recognition. They are all around and about us and, in order that every reader may recognize them in his own neighborhood, the Michigan Farmer has determined to cite a few examples of "self-made farmers," which phrase will be less often a misnomer than the other, but more frequently used term. In fact, it is a broader term than "self-made man" in its generally accepted meaning, since men to whom this phrase might be quite justly applied have frequently been heard to say that they had a preference for country life and would have chosen farming as their business if they had only had a farm. But the class of men of whom typical examples will be cited in the series of articles which will be published under the above title did not have farms. They have earned them for themselves, hence we have styled them "self-made farmers."

structive insects have since been seen on the farm and no damage was done by them to succeeding crops of potatoes.

Skunks are a bad proposition in the chicken coop, and are not particularly welcome traveling companions when accidentally encountered in the highway on a moonlight evening, but this experience convinced me that they were of an economic value to agriculture, instead of being simply a public nuisance, as so generally considered, and I am glad to see their good qualities given official recognition.

This official recognition of the economic value of the skunk to agriculture is particularly timely just now, owing to the fact that the Bureau of Entomology of the U. S. Department of Agriculture has issued a warning to the effect that the May beetle, the parent of the common white grub, will be unusually prevalent in the northern states during 1914. It has been determined that the life cycle of this insect covers three years of time, and these beetles were unusually prevalent in 1908 and 1911, while the white grub did great damage in 1909, and it is estimated that in 1912 the ravages of this insect in Iowa, Wisconsin and Illinois cost the farmers of those states not less than \$7,000,000. If the skunks could be protected to aid our farmers in lessening a similar loss this indirect benefit would be many times greater than the value of their pelts to the transient hunters and trappers who are a greater nuisance in many farming communities than their unsavory victims are generally supposed to be.

Oakland Co.

A. R. FARMER.

FLOOD GATES ACROSS STREAMS.

One of the greatest problems for the farmer who has a stream running through his farm, is to provide permanent line fences across the stream.

A good water gate is one that will give the least resistance against the flow of the water and not catch the drift, and one that will return to its place in the fence after high waters have subsided without having to be repaired every time. Something is also wanted that will turn the stock, hogs as well as horses and cattle. The swinging water gate will meet all of these requirements. This type of gate is constructed as follows:

First, cut a good log from 10 to 12 inches in diameter, the length exceeding the width of the stream by several feet. Then make an abutment of logs on each bank of the stream, built up in a triangular shape and filled in with stones or

concrete. In these abutments embed the ends of the log firmly. Now take pieces of 2x4 oak scantling that will just reach to the bed of the stream; if the stream is narrow, one of these at each edge of the normal flow of water and one in the center of the stream will be sufficient, while if the banks of the stream, instead of being abrupt, slope back gradually, other pieces should be placed on each side, all of them to swing clear of the ground. Bore a hole in the end of each of these pieces and suspend them to the log with chains, or wire. When these are in place nail on strong slats, placing these about six inches apart. If the slats are put closer than this, the gate may choke up with trash or leaves, especially in the fall when trees are casting their leaves.

If preferred, instead of using a heavy log as the foundation for the flood gate, a heavy cable composed of several strands of wire twisted together, may be stretched to large posts on each bank of the stream. The gate proper is then constructed as described above. Either method of building will give one a good serviceable gate, one that is light enough to swing easily and rise and float upon the surface of the water during a flood, thus allowing the drift to pass under, and as the water goes down the gate will again return to its normal position in the fence.

Indiana.

W. F. PURDUE.

MUCK PRODUCED GOOD RESULTS WHEN APPLIED TO SANDY SOIL.

In the Michigan Farmer of the 20th inst., I note your Mr. Lillie's reply to P. D. Q., Mecosta county, with regard to hauling muck from banks of ditches to his sand upland.

I am similarly situated with regard to soil as P. D. Q. is, except that my muck land was ditched some years ago, before I purchased the place, and bears a thick June grass sod on top and the top is well decayed, while the former owner had farmed the sand year after year until he had exhausted the humus on part of it entirely and the sand had the same effect of smothering crops that too much water would.

Until I purchased this place four years ago I had not done any farm work for nearly 30 years, and have only been on this one full season since, and have not been able to do much experimenting, but one year I had some of this muck hauled from the bank along one of the ditches and spread on a strip of the land which was badly in need of humus, and it appeared to benefit the crop considerably. I was not on the place at the time and my son did the work, so I am unable to say how many loads were applied to the acre and just what condition the muck was in when he hauled it, but it was hauled in the winter and spring and spread as hauled, was frozen more or less after hauled, and I could see a noticeable difference in the crop that summer where the muck was spread.

I do not consider that the muck has a fertilizing value at all compared with good stable manure properly applied, but I do think that it is well worth the hauling when as plentiful as on my place and the work can be done in the winter when other work is not crowding.

If I understand the matter rightly, sand loam is simply sand land from which the original humus has not been exhausted, and the original humus was simply the decayed matter of the forest, and the muck of a swamp is the same except that it has been in water and is not decayed to the extent that it is in the sandy loam soil, but as in my case it is partly decayed it will lighten up the sand and furnish enough humus so that I can get a start to build up by green manuring more quickly.

I expect to try the value of the muck in improving the mechanical condition of the sand next season, hauling this winter to get the benefit of the freezing and thawing in order to break up the texture of the muck and help to correct possible acidity from too much water souring it.

As I stated before, I have been away from the farm for 30 years and it makes up-hill pulling of it for me to get all of the modern problems figured out, but I think I will be able to pull through with the aid of the Michigan Farmer and our county farm demonstrator, who, by the way, appears to be pretty busy on larger interests, and only reaching us little farmers with the twenties, in a rather general way, although us "back to the land" city people need more help than the old timers with the big farms. However, I am not kicking, I will get a bite while they get a full feed.

Kent Co.

D. E. WHEELER.

Winter Handling of Manure.

THE question of handling the manure on the farm in the winter is an important one. An old farmer recently told me that he could, in nine cases out of ten, render good judgment as to a farmer's thrift if he knew how the farmer handled the manure supply of the farm. At first thought, this seems rather exaggerated but surely the care of the manure plays a very important part in soil fertility and as crops are largely dependent on soil fertility and thrift is dependent on crops of some sort or other, it would seem that the old farmer was correct in his analysis of the situation. It is a well known fact that the most successful farmers are usually those who take the best care of the manures produced on the farm.

The most conservative estimates are that by housing and storing manure in the very best way, the losses are about 15 per cent, while with poor housing this loss may get up as high as 35 per cent. Roberts estimated the average loss per farm in the United States to be 33.3 per cent and this amounts to about \$83.33 per farm. Now if the loss is equal to \$83.33, this being one-third of the value of the manure produced, the value of all the manure produced would be \$250. If this loss can be reduced so that only 15 per cent of the value of the manure is leached away, only \$37.50 would be lost.

Now if any one of us farmers should see a constant stream of pennies rolling down that ravine back of the barn, we would make all possible haste to dam up this stream and get the money. About the same thing is happening where the rainwater is allowed to run onto the manure heap and leach it out, and the leachings run away down the valley. As with the pennies, the daily loss is very small, but in the course of a year the loss assumes immense proportions.

It is not enough that the dung alone be saved, for analyses show that the liquid manure contains two-thirds of the total amount of nitrogen present and four-fifths of the total amount of potash salts, while the dung contains practically all of the phosphates. Careful analyses also show that a ton of complete manure (both liquid and solid) contains approximately 10 pounds of potash salts, five pounds of phosphates and 10 pounds of nitrogen. When we buy these elements in a commercial fertilizer we pay about 15 cents a pound for the nitrogen and five cents a pound for the phosphates and potassium salts. At this rating, the nitrogen in a ton of complete manure would be worth \$1.50, the potash salts would be worth 50 cents and the phosphates are worth 25 cents, making a total worth of \$2.25 for a ton of complete manure. Whether a ton of this manure is actually worth this figure when applied to the land is quite another question; some men say it isn't, while others equally as good as authority say that a ton of complete manure is worth more than this.

Would it not be better economy then, to save as much of the liquid manure as possible and to so handle all of the product that it is worth the greatest possible figure? I imagine every wide awake farmer will answer "yes." The condition which limits the amount of liquid manure saved is the absorbent or litter used. Any organic materials, such as straw, leaves or sawdust that will absorb the liquid manure and preserve it until delivered to the land, is performing a very useful service. The condition where a farmer does not use any absorbent is very deplorable for many reasons, the main of which are that the plant foods are not returned to the soil from which they sprang and so year after year the soil is depleted. I know that it is very often a perplexing problem to get bedding material, and where a sufficient amount of this material is not produced on the farm one does not always feel that he can pay \$8 or \$10 a ton for straw with which to bed his stock. A practice which has been followed by some is that of placing the horse manure in the trenches behind the cattle and if one has never tried this scheme, he has only to give it a trial to become convinced that this is a very effective way of absorbing the liquid excrement of the cows and one would be surprised to see how much of this liquid manure will be absorbed by a very small amount of horse manure. I heard somebody say, "this would not be sanitary." It might be criticised from the sanitary point of view where the horse manure is left in the gutters while the cows are being milked but I question

very seriously if this would not be very much more sanitary than to have cows switching the milker with their tails that have lain in the gutter when no absorbent is used. However, it would be an easy matter to get around this objection for the horse manure might be placed in the gutter after the cows are milked in the morning and cleaned out again about five o'clock, or just before the cows are milked at night, and a few shovelfuls thrown in after milking. Of course, I know that where a great many cows are kept and the horses are few, this would be very impractical but for most Michigan farmers who will read this article, this method would be quite acceptable.

Now that we have decided to save the liquid manure, the next thing is the disposition to make of the manure when it is produced. Probably there is no better way of getting out of this difficulty and still save most of the plant foods than to haul the manure directly to the field as soon as it is produced. With many it is possible to haul the manure spreader, wagon or sleigh into the yard in such a position that the refuse from the stables may be placed directly on the vehicles and when they are full it may be immediately hauled to the field. Where manure is thrown about over the field the liquid leaches down into the soil and the dung is kept so cool that bacterial decomposition can not take place. When manure is stored or kept in a pile, the problem is to prevent leaching and oxidation. Horse manure is warm, while cow manure is often spoken of as a cold manure. Bacterial decomposition will seldom take place in a pile of cow manure but horse manure decomposes very rapidly but inasmuch as horse manure is worth much more than cow manure, we cannot afford to lose it. A very good way of preventing this waste is to mix the horse manure with the cow manure which keeps the latter from breaking down and giving up its ammonia by burning.

The most important part of handling manure in winter is to preserve the liquid excrement and so house or store the product that the bacteria cannot work on it until it is put onto the land. The old saying that "a dollar saved is as good as a dollar earned," applies to the manure pile as well as to any other product of the farm.

Ingham Co.

I. J. MATHEWS.

EXPERIENCE IN APPLYING MUCK ON SANDY SOIL.

I see in the Michigan Farmer of Dec. 20, that P. D. Q. would like to hear from parties who have used muck on sandy soil. A few years ago I had a piece of corn on sandy gravelly land. I took the corn off and plowed it, applied about 20 loads of muck to the acre, and sowed it to wheat and seeded it down. I had a heavy crop of wheat, and the clover and timothy grew so rank for three or four years that it lodged down.

Tuscola Co.

R. A. WALDO.

SEEDING THIN LAND TO ALFALFA.

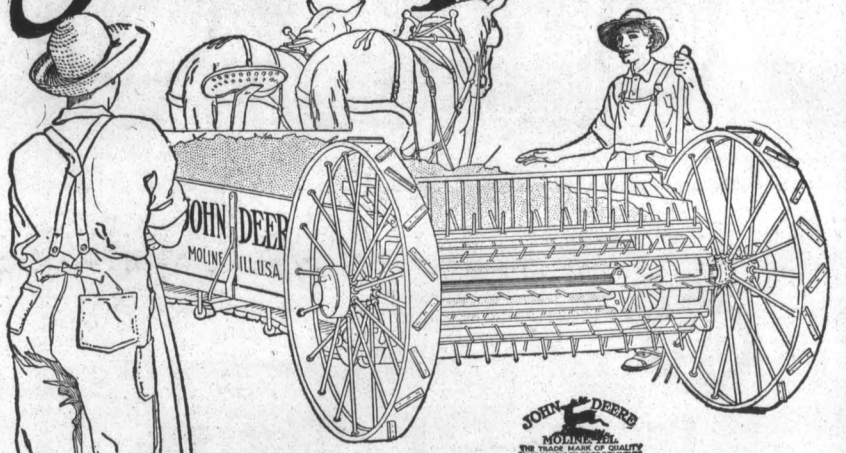
Kindly give me some information about alfalfa. I have a piece of land which is light and poor, and has been considered too poor to be plowed. Am considering seeding it to alfalfa. Would this be advisable and if so when would be the best time to sow?

Kent Co.

J. L.

Land that is in a very poor state of fertility and practically depleted of its vegetable matter or humus should not be sown to alfalfa with any expectation of profitable results until its fertility and mechanical condition has been improved. Certainly land which has been considered too poor to plow could not be expected to grow alfalfa profitably, and disappointment would be very apt to follow an attempt to seed it to alfalfa. The better plan would be to plow this land and sow it to a mixture of rye and sand vetch in August, turning this crop down the following year as a green manure, when it would doubtless grow a profitable summer crop, especially if some mineral fertilizer is used in a supplementary way, and this treatment would at the same time put the land in a very much better condition to seed to alfalfa with a prospect of success. It is quite possible, too, that it would be necessary to apply lime to this soil in order to have alfalfa succeed upon it. It would at least pay to experiment sufficiently to determine whether this is needed or not.

JOHN DEERE



The Spreader with the Beater on the Axle

Easy to load. Only hip high to the top and still has big drive wheels. Less than half the usual lifting.

Here's the reason for the strength, simplicity and good, everyday working qualities of the John Deere Spreader—

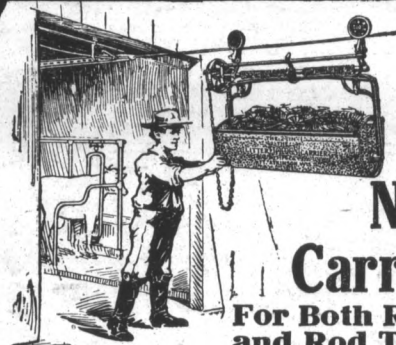
Beater and all driving parts mounted on the rear axle (patented). No strain on frame. No shafts to get out of line. No chains, no clutches, no adjustments. Only half the parts heretofore used on the simplest spreader.

Light draft because of few parts, the roller bearings and the beater and apron being driven directly from the rear axle. Built of steel, securely braced.

BOOKS FREE Every farmer who asks about the John Deere Spreader will also receive "Farm Manures and Fertilizers". This book tells all about manure, how to apply it and how to double the value of each load by a proper system of top dressing. To get it ask for Package No. Y5

Write **John Deere, Moline, Illinois** Today

For
ANY
Barn



A
New
Carrier

For Both Rigid
and Rod Track

JAMES

**2-in-1
Carrier**

Rigid and Rod Track Combined

A combination that offers all the advantages of the rigid track inside the barn—all the advantages of the rod track outside.

It enables you to use, inside the barn, the celebrated JAMES I-beam track, bent to any curve without use of heat, with JAMES simple switches and a raising and lowering carrier.

"Button-on" hangers make the I-beam track easy to erect.

Tub lowers by its own weight; is kept under perfect control by JAMES friction brake and clutch.

While filling tub carrier "stays put"—moves only when you push it, because track cannot sag.

Outside the barn you use the rod track. Stand at the door, give carrier a shove; it runs out, dumps itself at proper point, and returns automatically to the barn. *Never fails to dump.*

Cannot jump either the rigid or rod track.

We make carriers for rigid track—carriers for rod track—also this combination; all backed by the proved national success of JAMES Sanitary Cow Stalls, Stanchions, Pens, Ventilators, etc.

Get the facts before you invest a dollar in carriers.

James Manufacturing Co.
AV31 Cane St., Ft. Atkinson, Wis.
"Originators of Sanitary Barn Equipment Ideas"

James Mfg. Co., AV31 Cane St., Ft. Atkinson, Wis.
I have _____
Please send me complete information regarding your _____
_____ Catalog No. _____
_____ Carriers _____
Name _____
P.O. _____
State _____
R. F. D. _____



It is like Putting Money in the Bank to

Use A·A·C Fertilizers

BY building up the fertility of the soil you make more profit and increase the value of your farm. You gain at both ends. Land value is based upon the productiveness of the soil. Therefore fertilize and increase its productiveness. There is no money for anybody in poor crops and run down farms.

We furnish a fertilizer with 34% available phosphoric acid; high grade grain fertilizer 2-12-3 and 20 4 analysis; half potash fertilizer for muck land.

Farmers should learn the composition of fertilizer required to grow crops on their different kinds of soil and how to use them. We have spent fifty years and a great deal of money to find out how to make the right kind of fertilizers—the kind that produces results.

Write us, and we will send you a booklet on fertilizers; also a large handsome calendar, postage paid.

We want agents for unoccupied territory under our Consignment Contract. Write at once and tell your friends to do the same.

The American Agricultural Chemical Co.
Detroit Sales Department, Detroit, Mich.

Also Cleveland and Cincinnati. Address nearest office.

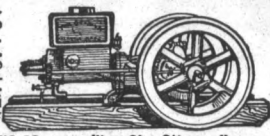


Get More Money
for your crop, by installing a
NAPPANEE
SILO Let us tell you
about its many
superior features.
Work and material fully
GUARANTEED.
AGENTS WANTED.
Address the manufacturers
NAPPANEE LBR. & MFG. CO.
315 Madison Street,
NAPPANEE, INDIANA

GLAZED TILE SILO
From Kiln To Farm
RED CEDAR doors with galv'z'd frame,
galv'z'd peaked hoops, continuous opening, safe
ladder. Money saved in early-in-the-year pur-
chase, and right through including installation.
Catalog and facts from Cement and Tile Dept. J
KALAMAZOO TANK & SILO CO., Kalamazoo, Mich.

5 H. P. GASOLINE \$89⁵⁰

Simple, durable, pow-
erful. Carefully made
to give satisfaction.
34 sizes and kinds.
Shipped anywhere
on trial. Fully guar-
anteed. Send for Big
48 page Catalog. It will
help you to buy a better
engine for less money.
OTTAWA MANUFACTURING CO., 518 King St., Ottawa, Kansas.



ZYRO Metal Silos
TRADE MARK
are made of exceptionally pure gal-
vanized iron — valued for its rust
resistance. They are durable, easy
to erect and absolutely air-tight.
Experience has proven that they
Preserve Silage Perfectly
ZYRO Silos are fire-, storm- and trouble-proof,
with many unique patented features.
They are practical, lasting and orna-
mental. Made in 50 sizes.
All superior "Zyro points"
are fully explained in our
illustrated catalog. Let us
send you your FREE copy.
Please write to-day.
Canton Culvert Co.,
Box 20
Canton, Ohio

THE ROSS SILO
Only silo made with these com-
bined features. Doors on Hinges.
Continuous Door Frame. Refrig-
erator type of Door and Door
Frame. Oval Door Frame to fit
exact circumference. Not a bolt
in entire door frame or doors.
Extra Heavy Hoops and Lugs
Roof Rafter and Anchors furnished
FREE. Backed up by 65 years of expe-
rience. Write for catalog which explains
all. AGENTS WANTED.
THE E. W. ROSS CO.
Box 14
Springfield, Ohio

\$15⁹⁵ AND UPWARD SENT ON TRIAL AMERICAN CREAM SEPARATOR

Thousands In Use giving splendid sat-
isfaction justifies
your investigating our wonderful offer to
furnish a brand new, well made, easy run-
ning, easily cleaned, perfect skimming separator for only \$15.95. Skims one
quart of milk a minute, warm or cold. Makes thick or thin cream. Different from
this picture, which illustrates our low priced large capacity machines. The bowl
is a sanitary marvel and embodies all our latest improvements.

Our Twenty-Year Guarantee Protects You

Our wonderfully low prices and high quality on all sizes and generous terms of
trial will astonish you. Whether your dairy is large or small, or if you have an old separator of any
make you wish to exchange, do not fail to get our great offer. Our richly illustrated catalog, sent free
of charge on request, is the most complete, elaborate and expensive book on Cream Separators issued by
any concern in the world. *Western orders filled from Western points.* Write today for our catalog
and see for yourself what a big money saving proposition we will make you. Address.

AMERICAN SEPARATOR CO., Box 1061 Bainbridge, N. Y.



Dairy.

CONDUCTED BY COLON C. LILLIE.

CLOVER HAY AND CORN FODDER FOR ROUGHAGE.

I am feeding from one-half to full blood Jerseys. Have clover hay and corn fodder. Can buy from local dealer, mid-
dlings, bran, oil meal, ground corn, oats,
rye and barley. Please give me the most
economical balanced ration from above.
Could also buy dried beet pulp from the
sugar factory. I am feeding at present
equal parts by weight, middlings, bran,
ground corn and oats, one pound for each
3½ lbs. milk per day and all the hay they
will clean up night and morning, and
fodder at noon. How far am I off on
that?

C. P. H.

This roughage ration, while very good,
is a little deficient in protein. Clover hay
itself is just about a balanced ration,
containing the protein and the carbohy-
drates in the right proportion for eco-
nomical digestion and assimilation. Now,
when you feed corn fodder, by which I
presume is meant cornstalks, that is, the
corn plant after the ear has been husked
and removed, you feed a material defi-
cient in protein. Consequently the grain
ration must contain an excess of protein
to balance up the corn fodder. As has
been explained many times, clover hay,
being just about a balanced ration, would
be a splendid ration to feed alone if it
wasn't for its bulk. The cow cannot eat
sufficient clover hay to get food nutrients
enough to do their best and so we must
have a concentrated food in with this. I
consider your present ration a very good
one indeed. It is hard to beat for re-
sults. But I think, however, that you
could cheapen it by cutting out wheat
bran and wheat middlings entirely and
feeding two pounds of cottonseed meal a
day. Then feed enough of the corn and
oat chop to get your required grain
ration.

As long as your ration does not con-
tain a succulent food like corn silage, and
if you haven't roots, like mangel-wurze's,
it might be a splendid thing to buy
dried beet pulp and moisten it 10 or 12
hours before feeding so it will absorb the
water. This will, in a measure, supply
you with a succulent food. The cotton-
seed meal is fed on this moistened beet
pulp. If you buy beet pulp you could
dispense with the corn meal and feed as
many pounds of dried beet pulp as you
are feeding corn meal. I am inclined to
think that from an economical stand-
point it would pay you to make these
suggested changes. However, I hardly
believe that you would get an increased
flow of milk, but you would get an equal
amount of milk at least with a little less
expense, and that would make you more
profit, and certainly that is what we are
all looking after. I am quite positive that
beet pulp moistened 12 hours before it is
fed, is a very appetizing food and has a
good effect upon the other dry foods fed
in the ration. It is a well established
fact that cows having one succulent food
in the ration can digest and assimilate
the dry foods in the ration more eco-
nomically than they can where all of the
foods are dry and without any succu-
lency. The succulency seems to have a
good effect upon the digestive organs of
the cow. It stimulates the flow of gas-
tric juice and, in fact, all of the diges-
tive fluids of the alimentary canal; con-
sequently the cow will eat more dry food
and digest and assimilate it more eco-
nomically if she has a succulent food in
the ration.

HOW TO PREPARE A BALANCED RATION.

Please tell me how to balance the ra-
tion for my cows. I am now feeding
heavy corn ensilage and shredded fodder.
Some of the cows are fresh, some give
only a small quantity of milk, and some
are dry. Also can you give me, or tell
me where I can find a table showing
the different constituents of all feeds, and
what a balanced ration consists of?

Ca's Co.

G. P. W.

It would scarcely be possible, in an-
swering an inquiry like this, to tell spe-
cifically the philosophy of the balanced
ration and how to make one. It is quite
a long story. It makes a long chapter in
a good-sized book. I would recommend
to G. P. W. that he buy a copy of Hen-
ry's "Feeds and Feeding." It is a book
that ought to be in the library of every
man who is at all interested in the uplift
of agriculture and stock feeding. In this
book the whole subject of balanced ra-

tions is explained in a very careful and
plain manner.

I can but briefly state the principle of
the balanced ration. Food constituents
necessary for us to consider in feeding
animals, are protein, carbohydrates and
fat. Protein contains nitrogen, and this
nitrogen goes to build up the vital tissues
of the body, and also to produce animal
products that contain nitrogen, like wool,
hair, and the casein in milk. Carbohy-
drates and fat are composed of sugar and
starch. They are used to keep up the
temperature of the body and they actual-
ly burn up to do this. Scientists have
the animal's body. Now scientists have
found that in order to have an animal do
its best it must have the protein and the
carbohydrates in the right proportion. If
you feed a milch cow a ration that con-
tains too little protein there isn't enough
nitrogen in that ration to produce the
casein in the milk for a normal flow.
You could reduce the protein so much
that there would not be enough to build
up the vital tissues of the body. Protein
is the expensive part of the ration and
costs more than the carbohydrates.
Therefore we don't want to feed any
more protein than is absolutely necessary
on account of the economy of the ration.
On the other hand, while the carbohy-
drates are the cheapest, we don't want to
feed them in excess, because it would be
a waste. The animal wants carbohydrates
enough to furnish heat and energy for
the animal functions. Careful experi-
ments show that the dairy cow requires
for her normal existence for every 1,000
lbs. of live weight, 0.7 of a pound of
protein, seven pounds of carbohydrates,
and 0.1 pound of fat per day.

Now when she produces milk, then she
must have more feed and her feed should
be increased in proportion to the quantity
of the milk which she gives. For in-
stance, a cow weighing 850 lbs., yielding
40 lbs. of 4 per cent milk a day should
have approximately 2.46 lbs. of protein,
14.51 lbs. of carbohydrates, and 0.72 lbs.
of fat to keep up her body and to pro-
duce this amount of milk.

On looking up the analysis of corn
silage and shredded corn stover we find
that these foods are deficient in protein
and have carbohydrates in excess for a
balanced ration. A cow can not do her
best on corn silage and stover alone. If
she could eat enough corn silage so that
she would get protein enough to give a
full flow of milk there would be an ac-
tual waste, because she would be con-
suming more carbohydrates than neces-
sary, and these would actually be wast-
ed. Now the thing to do in this sort of
a ration is to purchase some food richer
in protein than is necessary for a bal-
anced ration, so that you will have a sur-
plus of protein in the concentrated food
to help balance up the deficiency of pro-
tein in the home-grown feed. Where
silage and shredded corn stover are used
as a roughage there is nothing better to
include in the ration than cottonseed
meal. You can not buy any food today
in which you can get a pound of digesti-
ble protein as cheaply as you can in cot-
tonseed meal. But cottonseed meal is a
very concentrated ration and I would not
like to feed enough cottonseed meal to
balance this ration. I would not feed
over two pounds of cottonseed meal per
day to any cow. Then, for this sort of
a roughage ration I would also add
wheat bran. You could feed each cow
two pounds of cottonseed meal per day
and then you feed her enough wheat
bran so that you are feeding a pound of
grain to every three or four pounds of
milk produced in a day, or you are feed-
ing three-fourths of a pound of grain for
every pound of butter-fat which the cow
produces in a week. If you will get Hen-
ry's "Feeds and Feeding," and figure the
thing out carefully you will find out
probably that my recommendation is not
absolutely correct, but you must bear in
mind that this idea is simply a guide for
us. One animal differs from another—no
two are alike. And it is practically im-
possible to get a ration that will fit all
cows exactly. But there isn't any ques-
tion but what the principal is right. A
cow must have the food constituents in
a certain proportion in order to have an
economical ration and enable her to pro-
duce maximum yields, and if you will
follow Haecker's system of feeding cows
in proportion to the live weight of the
cow, the quality of the milk, and the
amount of milk which she produces, you
will find out that my suggestion is not
far out of the way. It can be used with
the assurance that you are feeding a ra-
tion to your herd of cows that will give
you as economical results as you can
hope to get.

THE CREAM TEST VARIES—HOW TO CHECK UP YOUR CREAM BUYER.

Our cream buyer comes every week for cream, tests it and pays us before he leaves. What I wish to know is, why is there such a variation in the tests when the milk and cream have been treated the same each week? One week the test will perhaps be 43 per cent and the next week it will be 34 per cent. This has happened several times. The man who gathers the cream is working on a salary so I cannot understand any motive for giving wrong tests, which fact confuses me the more. Could you tell me how I may get my cream tested?

Wexford Co. Mrs. D. E. M.

As suggested in this inquiry, we expect the cream tests to vary a little. It is almost impossible to so mix the cream from a can that contains several skimmings and be so accurate in weighing out samples, that they will test absolutely alike. Then, too, the cream itself varies from one skimming to another—the cream separator is not always operated at the same speed, and the milk is not always at the same temperature. And there are various other causes which might affect the per cent of butter-fat in the cream. For instance, when people get through skimming they always flush the separator out with water. This is correct, but it must be watched closely so as not to allow too much water to run into the cream for this will reduce the percentage of butter-fat. If you are very careful about always stopping when the cream is out of the bowl and not letting any water run into the cream receptacle the cream should be quite uniform, but we are all more or less careless and sometimes we let more rinsing water run in than we ought to, and this, of course, must affect the per cent of butter-fat in the cream.

But when one is careful there ought not to be such a difference in the test as D. E. M. states. I should say that it showed carelessness on somebody's part. Perhaps it is in skimming the milk in the first place, or perhaps it is in the tester. I do not know. I should take a duplicate sample and have it tested by some other disinterested party. Now for this very purpose and for all instances like this, the Michigan Farmer has established a new service bureau, for the very object of testing samples of milk and cream where farmers do not seem to get careful and accurate testings. This service was carefully explained in the Nov. 22 issue of the Michigan Farmer. For those who did not notice that announcement and subsequent ones, I would state that it amounts to this: Take a sample of the cream you are selling, after the manner indicated below, put it in a four-ounce wide-mouthed bottle, enclose the bottle in a mailing tube and send by parcel post to the Michigan Farmer Laboratories, 674 Woodward avenue, Detroit, where it will be tested free of charge. If you haven't a suitable mailing tube and bottle, send 10 cents to the Michigan Farmer, Detroit, Mich., and they will send you a mailing tube and bottle all ready to put the cream into. If you want the mailing tube and the bottle returned after you have sent a sample of cream send five cents extra and they will be returned for another sample.

Now, how should one get a sample? When the man comes to test your cream if you have more than one can of cream he will certainly stir the cream up well and then take some out of each can and put it in a bottle and mix it up together thoroughly. If you only have one can, of course he must take it out of the one can. But he puts it in a bottle and shakes it up thoroughly to get an even distribution of the butter-fat. Then he weighs out a sample of this cream on a delicate pair of scales and tests it with the Babcock tester to determine the per cent of butter-fat. Now when he gets his sample all ready for testing and takes out his small portion of the sample to test, you take the balance of the cream that he has taken his sample from and send a portion of it to the Michigan Farmer and see how their test agrees with his test. If the man who does your testing won't allow you to have this portion of cream it will look suspicious at once. Of course, if he won't allow you to have a sample of this cream then you go to work and take a sample in just as near the same way that he does, that is, by stirring up the cream well and then taking out the sample, and send it by parcel post to the Michigan Farmer Laboratories, 674 Woodward Ave., Detroit, and see how their test agrees with the cream buyer's. If the man is honest and conscientious and is trying to do the fair thing he will not object to this, he will, rather, be glad of it, because if he is

right and he knows that you have sent a sample there and the test is corroborated, then it places him above suspicion.

WHAT TO FEED A YOUNG CALF IN PLACE OF WHOLE MILK.

Kindly advise me what I should use as a substitute for the butter-fat taken from the milk by the separator for feeding a calf three weeks old. We cannot afford to feed whole milk when butter is so high. Also tell me the kind of grain I should feed this calf when he begins to eat grain.

Montcalm Co.

N. G.

This question has been discussed many times in the Michigan Farmer, quite recently also, but perhaps N. G. is a new subscriber. There is no need of feeding a calf whole milk after it is two weeks old. You can raise good calves without it, and nobody can afford to feed whole milk when they can feed skim-milk and some grain that will take the place of the butter-fat which the separator removes. In fact, I am positive that where you want to raise a calf for dairy purposes the calf will make a better animal, is more liable to make a good cow, if it is fed on other food rather than whole milk after it is a week or two old. I don't think this rule applies for animals raised for beef purposes, but for dairy purposes I am positive that it does. Feed the calf its mother's whole milk until it is about a week old. Then gradually commence to put in a little warm skim-milk from the separator in place of part of the whole milk. Don't make the change all at once. In two or three days discontinue the whole milk entirely and feed a ration of skim-milk. Don't make the mistake now of feeding more skim-milk than you did whole milk. Keep the ration down to the same amount. If you go to feeding more skim-milk than you did whole milk simply because it is cheaper, you will make a great mistake. The digestive organs of the calf will become impaired.

For the grain to replace the butter-fat use ground flaxseed, not oil meal, but the flaxseed ground into meal before the oil is taken out of it. Take a cupful of this meal and six cupfuls of water and put it on the stove and let it come to a boil. Stir until it makes a nice jelly. As soon as you commence to feed skim-milk put in a little of this jelly. At first a tablespoonful, and gradually increase until the calf has a gill of this flaxseed jelly to a feeding. This is very rich in fat. Flaxseed contains about 30 per cent of fat and this will, in a large measure, take the place of the butter-fat which the separator has removed from the milk.

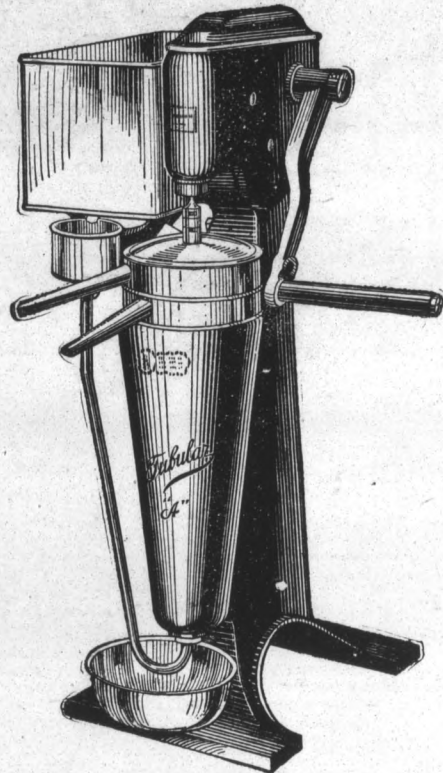
Now when the calf gets to be two weeks old it will begin to eat a little bit of clover hay, not much, but just a little. It will also begin to eat a little ground oats. Maybe the first time you offer it ground oats it will not take it, but put a taste into the manger or into the bottom of the pail after he has drunk his milk, and in a few days you will find that he will begin to eat the ground oats, or a little corn meal, or a little whole oats or whole corn. Gradually you will get him to eat clover hay, corn silage, if you have it, and some whole grain. But do not increase the mess of skim-milk, allow the calf to take his extra food in a dry ration. If you are careful not to overfeed on the skim-milk your calf will get along nicely, be thrifty, and make a splendid growth.

THE CORRECT PRINCIPLE.

Having read the Michigan Farmer and taken much interest in that department of inquiry and answers, I wish to ask a few questions concerning feeding milch cows a balanced ration. For roughage I have clover and timothy hay mixed, and corn fodder. The grain feed will be corn and oats ground with cottonseed meal or linseed meal.

SUBSCRIBER.

Using cottonseed meal as a part of the concentrated ration, with clover hay and timothy hay, or rather mixed hay, and corn fodder, is correct in principle. Your roughage is deficient in protein and you have in connection with your ground corn and oats a concentrated food very rich in protein, and you can get nothing better than cottonseed meal. As you have no succulent food in the ration it might be better to use oil meal in the place of cottonseed meal because it is a little laxative, while cottonseed meal is just the opposite. If you will feed two pounds of cottonseed meal a day and then a sufficient amount of the corn and oat chop to give each cow a pound of grain to every three or four pounds of milk, from three-fourths to a pound of grain to every pound of butter-fat which they produce in a week, you ought to get good results.



SHARPLES TUBULAR CREAM SEPARATOR

The possession of the world's best is none too good for you farmers and dairymen who steadfastly strive to anticipate the trend of progress. Knowing this we ask you to bear in mind the fact that in purchasing a SHARPLES TUBULAR CREAM SEPARATOR you are investing in a lifetime of service and increased revenue.

Every separator made by us has fulfilled all the requirements of durability, labor- and money-saving, and has increased the production of butter-fat from each cow. It has met the demands of the most critical and exacting users.

Because we believe in its supremacy, we attach to each machine the name SHARPLES—our method of inspiring confidence.

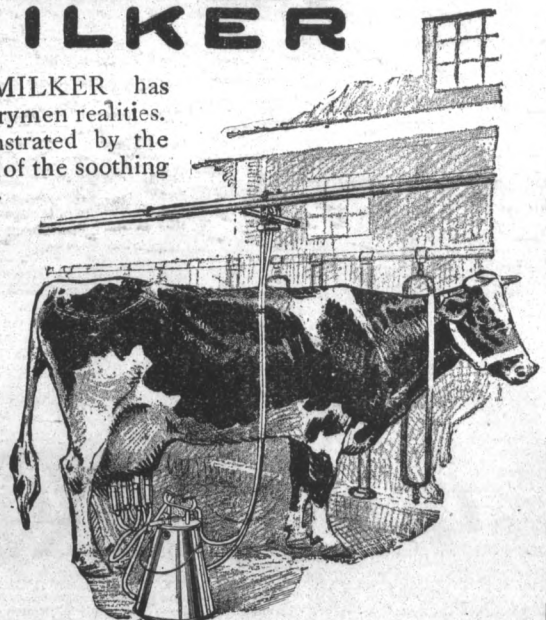
SHARPLES MILKER

The SHARPLES MILKER has made the dreams of dairymen realities. Its efficiency is demonstrated by the twice-a-day adjustment of the soothing teat cup with the upward squeeze to the teats of 100,000 appreciative cows.

Ask for Catalog
**THE SHARPLES
SEPARATOR CO.,**
West Chester, Pa.

Chicago, Ill. San Francisco, Cal.
Dallas, Texas Portland, Ore.
Minneapolis, Minn. Omaha, Neb.
Kansas City, Mo. Winnipeg, Can.
Toronto, Can.

Agencies Everywhere.





The Secret of Making Profit out of Stock

GILBERT HESS,
Dr. of Veterinary Science
Dr. of Medicine

I want all you farmers to get this fact riveted in your mind regarding stock—that the only animals that are paying you a profit are those that are digesting their feed—bowels regular every day and absolutely free from worms.

And it is just at this very time of year when stock are not in that condition, because they are cooped up, deprived of exercise and for the last few months have been on dry feed, which does not contain the laxatives and tonics so abundantly supplied by grass.

Dr. Hess Stock Tonic

Aids Digestion Makes Stock Healthy Expels Worms

Being both a Doctor of Medicine and a Doctor of Veterinary Science I formulated Dr. Hess Stock Tonic to aid digestion, make stock healthy and expel worms.

This scientific, 21-year-old preparation contains highly concentrated tonics that improve the appetite and aid digestion, laxatives for regulating the bowels and vermifuges that expel the worms.

Remember, it's the cow in the pink of condition that fills the milk pail, the steer with an appetite that lays on fat, the horse that enjoys its dinner that pulls on the bit, the hog that is healthy and free from worms that gets to be a 200-pounder in six months.

Dr. Hess Stock Tonic will positively put your stock in these conditions. So sure am I that it will, that I have authorized your local dealer to supply you with enough for all your stock and if it does not do as I claim, return the empty packages and get your money back.

Dr. Hess Stock Tonic is never sold by peddlers—only by reliable dealers whom you know. I save you peddler's salary and wagon and team expenses, as these prices prove: 25-lb. pail \$1.60; 100-lb. sack \$5.00. Smaller packages as low as 50c, except in Canada, the far West and the South.

If not sold by your dealer, write direct to

DR. HESS & CLARK, Ashland, Ohio

Dr. Hess Poultry Pan-a-ce-a

A splendid tonic that tones up the dormant egg organs and keeps the hens scratching and happy and laying all through the winter. Shortens moulting period and promotes rapid feather growth. Nothing better to make chicks strong and healthy. Cheap—a penny's worth is enough to feed 50 fowl per day. Sold only by dealers whom you know. Never sold by peddlers. 1 1/2 lbs. 25c; 5 lbs. 60c; 25-lb. pail \$2.50. Except in Canada and the far West. Guaranteed.

Dr. Hess Instant Louse Killer

Kills lice on poultry and all farm stock. Dust the hens and chicks with it, sprinkle it on the roosts, in the cracks or, if kept in the dust bath, the hens will distribute it. Also destroys bugs on cucumber, squash and melon vines, cabbage worms, etc., slugs on rose bushes, etc. Comes in handy sifting-top cans, 1 lb. 25c, 5 lbs. 60c. Except in Canada and the far West. I guarantee it.

Feed will again be high in price

Place your order at once for

Dried Beet Pulp

For a short time prices will be same as last year, but every year the demand is greater than the supply so **ORDER NOW** of your dealer or

T. F. MARSTON,
Bay City, E. S., Michigan.
Michigan Broker for Manufacturer.

CHEAP FEED

For sheep and cattle feeders and dairymen. Salvage grain, oats, barley, wheat and corn, damaged in elevator fires. Bone dry and equal in feeding value to other grain. For sale in carlots direct to feeders. The best feeders in Michigan have been using it for years. Write at once for samples and prices, and information as to what experienced feeders think of it. "We save on your feed bill."

C. E. DINGWALL CO., Milwaukee, Wis.

Feed By-Products—A money saving proposition. Ask Cotton Seed Meal, highest grade manufactured. Linseed, Beet Pulp, Gluten, Brewers, Distillers, Salvage Grains, Corn, Corn Flakes, Corn Meal, Mill Feeds, Screenings, Cull Beans, Tankage, Meat Meal, Lump Rock Salt, Wholesale Flour, The Bartlett Co. Michigan's Largest Feed Shippers, Jackson, Mich.

HARNESS OUR OWN MAKE

Hand or Machine Made Out of No. 1 Oak Leather, we guarantee them. If your dealer does not handle them, write direct to us. **SHERWOOD HALL CO. Ltd.,** Ionia & Louis Sts., Grand Rapids, Mich.

Always mention the Michigan Farmer when writing to advertisers.

SAVE-THE-HORSE BOOK FREE

Why We Make a Contract to Cure
Mr. W. C. FRALEY, 502 Fisher St., Salisbury, N. C., Mar. 27, '13, writes: I used 2 bottles and cured two horses and one pony of bone spavin two years ago and they are sound as a dollar.

FOUR YEARS AFTER—STILL SOUND
Mr. H. G. PUTNAM, dealer in Coal, Danvers, Mass., Oct. 6, '13, writes: Four years ago I sent for Save-the-Horse for thoroughpin and made a cure. The horse has done a good day's work almost every day since on coal wagon.

WE ORIGINATED the plan of treating horses Under Signed Contract to Return Money if Remedy fails. You risk nothing by writing; it will cost you nothing for advice and there will be no string to it.

OUR LATEST Save-The-Horse BOOK is our 18 Years' Discoveries—Treating Every Kind Ringbone—Thoropin—SPAVIN—and ALL—Shoulder, Knee, Ankle, Hoof and Tendon Disease—Tells How to Test for Spavin; how to locate and treat 58 forms of LAMENESS—Illustrated.

OUR CHARGES for Treatment ARE MODERATE. But write and we will send you—BOOK—Sample Contract and Advice—ALL FREE to (Horse Owners and Managers—Only).

TROY CHEMICAL CO., 24 Commerce Ave., Binghamton, N. Y.

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

Best Conditioner
Worm Expeller
Death to Heaves
"Guaranteed or Money Back."
Coughs, Distemper, Indigestion.
NEWTON'S \$50, \$1.00 per can.
At druggists or sent postpaid.
THE NEWTON REMEDY CO., TOLEDO, OHIO

Live Stock.

MICHIGAN IMPROVED LIVE STOCK BREEDERS' AND FEEDERS' ASSOCIATION.

Twenty-third Annual Meeting, January 14-15, 1914.

Arrangements for the twenty-third annual meeting of The Michigan Improved Live Stock Breeders' and Feeders' Association are now complete, and with the talent appearing on the various programs, the coming meeting should be the largest attended and most enthusiastic in the history of the association.

The wether lamb show will be judged Wednesday morning, at 11 o'clock, by Mr. David McKay, of Fort Wayne, Ind.

At 1:30 p. m. the meetings of the allied breed organizations, all of which have prepared interesting programs, will be called to order.

The following associations will hold meetings at this time: Michigan Horse Breeders' Association, the Shorthorn Holstein, Jersey, Guernsey, Red Poll and Hereford Cattle Breeders; the Duroc-Jersey, Berkshire, and Poland China Swine Breeders; the Merino, Shropshire, Oxford and Hampshire Sheep Breeders.

Several noted men from out of the state will appear on the various programs and it is sincerely hoped that our Michigan breeders will give them a large audience.

The first general meeting will be called to order at 5 p. m., when Mr. A. T. Roberts, of Marquette, will talk on "The Live Stock Possibilities of the Upper Peninsula." After the reports of the secretaries and exchange of reminiscences by older members, the State Board of Agriculture will tender their annual banquet to the members of the association.

The general meeting, Wednesday, January 15, will be called to order at 9:30 a. m., and the following program rendered:

Reading minutes.
Appointment of committees.
President's annual address: A. E. Stevenson, Port Huron.

Profitable Swine Production: H. G. Krum, White Bear Lake, Minn., Secretary American Yorkshire Club.

Farm Management as a Pure-bred Breeders' Problem, E. H. Webster, Fort Atkinson, Wis., Associate Editor Hoard's Dairyman.

Noon recess.

Meeting called to order at 1:30 p. m.
Feeding Sheep and Lambs for Profit, Prof. J. M. Evvard, Ames, Iowa, in charge of experimental work, Iowa Agricultural College.

Election of officers.
Judging of Carcasses of Wether Lambs, David McKay, Fort Wayne, Ind.

Awarding of medals to winners.

No farmer and breeder in the state who expects to keep abreast of the times and up to date in his chosen profession can afford to miss these meetings. Aside from the topics which will be discussed from the platform, the knowledge gained, and enthusiasm created, by rubbing elbows with your fellow breeders, will more than compensate you for the time spent at Lansing, January 14-15, 1914.

Start the New Year right. Attend these meetings. Profit from the experience of your fellow breeders and give them the benefit of your work during the past year.

G. A. BROWN, Secy.

FEEDERS' PROBLEMS.

Grain to Feed with Ensilage in Wintering Steers.

How many pounds of silage, fed twice daily, with roughage at noon, should be fed to 650 to 700-lb. steers to get through the winter in good shape? Would it be economy to feed cottonseed meal on the silage, and about how much should be fed to 650 to 700-lb. steers to get through is the red cob ensilage corn and has very little, if any, grain in it.

Shiawassee Co. SUBSCRIBER.
Experiments conducted at several experiment stations indicate that it is profitable to feed a small grain ration to steers being run through the winter on silage and other coarse forage. Experiments have also been conducted to determine the amount of silage profitable to feed to this kind of cattle. At the Illinois station, calves weighing 500 lbs. were started on a ration composed of 15 lbs. of silage, 4 lbs. of mixed hay, and 2 lbs. of grain, oats being fed in this case. By the first of March, the silage ration had been increased to 25 lbs. per day with no increase in the hay and grain allowance. Some dry forage should be fed with corn silage for best results, and the nature of the grain ration which will give most

economical results will depend not a little upon the kind of forage used. If clover or alfalfa hay is available, this would about balance up the nutritive ratio of the roughage fed, so that a grain ration composed partly of corn would be more economical than one composed entirely of nitrogenous concentrates. In any event, not more than two pounds of cottonseed meal per day should be fed, and if clover or alfalfa hay is available, less would answer every purpose in connection with corn or corn and oats. These steers if put on full feed to fatten them, would consume at least 15 lbs. of grain per day, and from one-quarter to one-half this amount could be fed to them with profit where they are being run through the winter to finish on grass. The method of combining the ration should depend largely on the character of the roughage fed, it having been determined that economical results can be secured with a nutritive ratio as wide as 1:8.

Bean Pods for Colts.

Will you advise me if bean pods would be good to feed two and three-year-old colts once a day? I have lots of them and they seem to relish them. Their main feed is timothy hay for roughage and oats for grain ration.

Shiawassee Co. F. A. L.

As a general practice, bean pods are fed mostly to sheep, and are highly prized as a forage for them. The writer has fed bean pods to sheep with the best results for many years, but never tried them for horses, and is unable to find any experimental data on this subject. If the bean pods are bright and clean, however, it would seem to be an entirely safe proposition to make them a factor in the roughage ration for colts of the age mentioned. Fed with timothy hay, they would help to balance the roughage ration, and the fact that the colts relish them is an added incentive to feeding them, since palatability without question adds to the efficiency of any ration.

Bean pods contain a relatively high percentage of fibre, but probably not a much larger percentage than timothy hay, and this would not be a strong argument against their use in limited quantities in the ration for growing colts. The greatest danger which might arise from their use would be the possibility of the presence of molds which would be harmful to horses. Corn silage has been demonstrated to be a profitable feed for horses when rightly used, but is frequently a source of forage poisoning where silage containing mold is carelessly fed to the horses. In fact, moldy or musty feed of any kind is injurious and sometimes fatal to horses, hence it would probably be expedient to exercise greater care in the feeding of bean pods to colts or horses than in the use of other rough feeds on this account.

Grain Ration for Colts.

Would spring rye and oats, baled, be good to feed to colts, or would it be better to have these grains ground? What will make them grow the fastest, oats or corn?

Grand Traverse Co. F. R.

Undoubtedly the best single grain for colts is oats, and if heavy grains, such as corn or rye, are fed, some other grain, such as bran should be used to lighten up same; or if fed in connection with oats, the grains should be ground together and a little oil meal fed in connection with them to balance up the ration by the addition of more protein. Corn is not a suitable grain feed for colts when fed as the exclusive grain ration.

Barley vs. Oats for Growing Pigs.

Which grain is preferable for growing pigs after being weaned, barley or oats? Lapeer Co. SUBSCRIBER.

Barley is more comparable to corn than to oats as a feed for growing pigs. At the Wisconsin station, oats were found less profitable where fed alone than when fed in combination with corn meal, one-third oats to two-thirds corn being used when grinding the meal. Oats when ground with the hulls on contain too much fibre for very young pigs. Middlings is the best grain feed for young pigs when first weaned, and if skim-milk is available, corn meal or barley meal may be used in connection with same, using one pound of the grain, combined with one to three pounds of the skim-milk for best results. Barley has not been found as valuable as corn, pound for pound, as a feed for fattening hogs, but may be considered its equal or even a

Empire FEEDING MOLASSES 12 1/2¢

Every gallon saves a bushel of grain. Guaranteed pure cane molasses. Cut price \$7.00 per barrel (56 gallons), f. o. b. Pennsylvania factory. Money back if not satisfied after feeding half a barrel. Order quick.

WATTLES & COMPANY, Box 13, Litchfield, Michigan

superior single grain for growing pigs, while oats are, as above noted, most profitably used in connection with corn, or even barley.

MICHIGAN'S SHEEP FEEDING INDUSTRY.

Detailed information regarding every shipment of live stock coming into Michigan is sent to the office of the State Live Stock Sanitary Commission at Lansing. This affords accurate statistics regarding the western sheep and lambs brought into Michigan for feeding purposes. According to a recent advice from President H. H. Halladay, of the Commission, the total of such shipments between July 8 and December 8, aggregated approximately 200,000 head. This number of westerns added to the normal lamb crop from nearly 1,500,000 ewes, as shown by the last census, would make 1,000,000 head of sheep and lambs a conservative estimate of the total yearly volume of Michigan's sheep feeding industry.

FEEDING SHREDDED FODDER.

Every farmer who has had experience in feeding shock fodder during the winter, in all kinds of weather, knows that it is an unpleasant task. The majority of farmers feel amply repaid for the work and expense of shredding by the satisfaction gained in having both fodder and corn taken care of before bad weather, and by the increase in value of the feed and manure.

Shredded fodder is much more convenient to feed than the shock fodder. The time and labor saved in feeding the former almost compensates for the time and labor taken in shredding it. A large quantity of shredded fodder can be put into a small mow and all feeding is done in the barn. There are no cold hands, nor heavy unwieldy bundles to carry to the stock.

Some care should be exercised in storing the shredded product, otherwise the mass may heat and spoil soon after it goes into the mow. It will keep more safely when it is not tramped down; the more solid it is packed the more liable it is to heat. It is sometimes necessary to have one or more hands in the mow to distribute it properly, but it should not be tramped. The fodder, being compact, ferments slightly and sweats or cures quite similarly to new-mown hay. It should not be molested in any way, no matter how hot the mass gets, until it has gone through the sweat.

If horses are confined to a steady diet of this roughage, a bushel basket full to each animal at each feeding is considered about the right amount to give. All of this, particularly the coarser parts of the fodder, will not be eaten, but if a sufficient amount is provided so that the coarser parts will be rejected, these parts can be utilized in bedding the animals.

Indiana.

W. F. PURDUE.

LIVE STOCK NEWS.

Chicago and other hog markets continue responsive to large receipts, and unless eastern shippers take hold freely on days when supplies are heavy, prices are pretty sure to weaken. However, rallies occur as a rule after considerable breaks, and the market does not display the persistent weakness that was so marked a feature a few weeks ago, when there seemed to be no bottom to values. The dearthness of corn impels many stockmen to market their hogs much earlier than they would otherwise, and it must be confessed that the great shrinkage in prices for swine since the high time of the year has all along been the cause of many premature marketings, while the ravages of hog cholera have forced enormous numbers of mere pigs on the market, thereby making a big hole in future supplies of matured hogs. Under all the circumstances, owners of healthy young hogs should hold them to maturity, provided they have sufficient feed for them. Making a comparison with other years at this time, it is found that hogs are still bringing very fair prices. The unusually small percentage of choice heavy lard hogs results in a liberal premium being paid for these offerings, with the lighter hogs going at a marked discount.

Cattle have experienced some sharp declines in prices at different times in the Chicago market quite recently as a result of increased offerings. Naturally, the International Live Stock Exposition proved an important factor in the market, as intending purchasers of the choicer class of beef cattle preferred to wait for the auction sales of show heaves, and then there were lots of choice heaves thrown on the open market, as they failed to come up to the show standard and were rejected by the "weeding committee." Buyers in the open market have continued to show a pronounced preference for fat little cattle, yearlings being remarkably popular, and prime yearlings sold at a big premium over the prices paid for the choicest heavy steers.

Charles Escher, the well-known stockman, of Botna, Iowa, says: "When the International Live Stock Exposition was started, 13 years ago, the steers exhibited were nearly all three years old and weighed from 1,600 to 1,700 lbs. No one thought of showing yearlings. Finally one stockman thought of showing yearlings. That was the beginning of the handy-weight cattle, and the decline of the heavy kind. The steers shown then would not have the slightest chance now."

A fine record in cattle feeding was recently made by G. B. Carpenter, the extensive cattleman of Iowa, who finished the marketing of his season's feeding by the sale in the Chicago market of 70 head of branded steers that averaged 1438 lbs. at \$9.10 per 100 lbs. These cattle were the last of 577 head of dehorned branded steers sold in that market since August 25. They were purchased as feeders in the South Omaha stockyards last autumn, costing an average of \$6.82 per 100 lbs., their average weight at that time having been 917 lbs. The average weight of the entire lot when sold was 1382 lbs., and they brought on an average \$8.96. They made an average gain of 465 lbs. per head, and the net price of the entire lot was \$119.61 per head. But two steers out of the entire lot were cut out and sold at different prices from the main shipments. The cattle are given the run on land that is valued at from \$100 to \$125 an acre.

Visitors who attended the International in Chicago recently were greatly impressed with the display of prime heaves fed partly on silage. It has been thoroughly demonstrated recently that silage has five times as much food value as grass per acre. By this method of fattening cattle, the owners of high-priced corn lands are able to make cattle feeding very profitable.

A leading live stock commission firm in business in Chicago, with branches in all other leading markets, advises its country patrons to divide up their cattle shipments when they are feeding several loads, as by this method it is giving a better show for avoiding bad markets. The firm also advises stockmen to finish off their cattle well, as a good market for fat heaves is expected for next spring and summer months, and the prediction is made that good young cattle bought for fattening at any time this month will make good money returns. Next spring such cattle are expected to be scarce, and such stock bought now will put on considerable weight during the winter on cheap roughage, much of which would go to waste otherwise.

It has been suggested recently by a live stock commission firm that owners of large numbers of feeding cattle should top out the best from time to time, as by this means the others are given a better show for getting fat. It is well known that the bolder cattle are apt to crowd away from feed the more timid ones where feeding facilities are not of the best.

Percheron grade mares have been purchased in the Chicago market recently for shipping to Georgia to be bred to jacks for the high-grade mule market. A carload of such mares was purchased there recently by a representative of the Georgia agricultural college for this purpose, and the buyer said that he expects to return early next spring and buy four or five carloads more. The southern banks are in the habit of loaning money to the planters for aiding them to buy mules and plant cotton, and after the farmers sell their cotton in the autumn, they return the money to the banks.

Chas. Escher, the widely known Angus breeder and winner of big prizes in the International Live Stock Exposition in Chicago in past years, makes the following statements in an interview given in the Drovers' Journal: "Two years ago I bought around 200 grade cows of just a good kind, and have raised some very presentable young stuff from them, which will be roughed through the winter, and a year hence they will be fat, heavy heaves. Thus far it has been a profitable venture for me, since I am not worried over high cost of feeding steers this season, having mine on hand already, and they stand me considerably less than would a high-class drove of feeder stuff just now. My farms need the fertility which cattle grazing brings them, and the whole of Iowa is in need of more of the same kind of farming. Cholera cleared our section of hogs last spring, and the farmers are going to raise a pig crop of liberal volume before engaging in feeding cattle on a big scale."

Fat ewes have been furnishing cheap meat to retail meat markets, but comparatively few retailers are in the habit of lowering prices for mutton to their customers in accordance with reductions made to them. Many fat ewes have been shipped to market in recent weeks that were kept on wheat stubble, and they had a good sale invariably. The packers have been availing themselves of every opportunity to load up with cheap carcasses of mutton in their refrigerators, and not long ago it was learned that one of the big packing concerns had been freezing 25,000 head of cheap ewes for the western Canadian trade.

Because of the unusual dearthness of corn stock feeders throughout the country have not wasted any in feeding to their live stock, and they have been favored with such a remarkably mild, pleasant autumn season that stock required much less feed than in most years at corresponding periods. The result is that farmers have economized in the use of corn and have more on their farms on the beginning of winter than they had counted upon having. Advances of about 23c per bushel over prices for corn at this time last year will go a long way toward making good the shortage of 662,000,000 bushels in the corn crop as compared with the crop grown last year, and farmers who grew fair-sized crops this year are extremely fortunate.

This Coupon Is Good for Prof. Beery's Introductory Course in Horsemanship FREE!

CUT OUT AND MAIL TODAY
PROF. JESSE BEERY,
Box 42, Pleasant Hill, Ohio
Please send, free of cost, to the address below,
Prof. Beery's Introductory
Course in Horsemanship
Name.....
Postoffice..... State.....
R. F. D.



Bad Habits Cured

By Beery System

Refusing to lead.
Running away when halter or bridle is removed.
Getting fast in the stall.
Pawing in the stable.
Pawing while hitched.
Growing in the stall.
Fighting halter or bridle.
Tender bitting.
Pulling on one rein.
Lunging on the bit.
Lunging and plunging.
Refusing to stand.
Refusing to back.
Shying. Balking.
Afraid of automobiles.
Afraid of robes.
Afraid of clothes on line.
Afraid of cars.
Afraid of sound of a gun.
Afraid of band playing.
Afraid of steam engine.
Afraid of the touch of shafts or harness.
Running away.
Kicking.
Biting. Striking.
Hard to shoe.
Bad to groom.
Breaking straps.
Refusing to hold back while going down hill.
Scaring at hogs or dogs along the road.
Tail switchers.
Lolling the tongue.
Jumping fences.
Bad to hitch to buggy or wagon.

To the first 100 men owning horses, who answer this advertisement, I will positively send my introductory course in Horse Training and Colt Breaking ABSOLUTELY FREE.

World's Greatest System of Horsemanship

Twenty-five thousand FARMERS and horse-owners have taken my regular course and found that *it does the work*. Even if you have only *one horse*, it will pay you to master my wonderful system. The Beery Course is the result of a lifetime's work as a tamer and trainer of horses. As one of my students has said, "The horse has never been foaled that Prof. Beery cannot handle." My record proves it.

Master Any Horse

The Beery Course gives you the priceless secrets of a lifetime—enables you to master any horse—to tell the disposition of any horse at sight—to add many dollars to the value of every horse you handle—and my students are all good traders.

Break a Colt in Double-Quick Time!

You can do it by my simple, practical, humane system. There is a lot of money in colt training.

**Make \$1,200 to \$3,000
a Year**

Many of my graduates are making big money as professional horse trainers at home or



BEFORE TRAINING



AFTER TRAINING

My Graduates Are Doing Wonders

A. L. Dickinson, of Friendship, N. Y., says: "I am working a pair of horses that cleaned out several men. I got them for \$110, gave them a few lessons, and have been offered \$400 for the pair." Fred Bowden, R. R. No. 2, Keokuk, Iowa writes: "It's worth many times its cost." I have many similar letters from graduates all over the world.

traveling. I made a fortune traveling and giving exhibitions. You have the same opportunity.

Send the Coupon

and get the Introductory Course in Horse Training FREE. This special offer may never be repeated. Act now. Tell me about your horse.

PROF. JESSE BEERY
Box 42, Pleasant Hill, Ohio

A "365" Day Liniment

YOU ARE SAYING TO YOURSELF—

"If I only knew of something to stop that Backache—help my Rheumatism—cure my Neuralgia, I would send and get it at once."

Get It. Gombault's Caustic Balsam will give you immediate Relief. A Marvelous Human Flesh Healer and a never failing remedy for every known pain that can be relieved or cured by external applications. Thousands testify to the wonderful healing and curing powers of this great French Remedy. A Liniment that will soothe, heal and cure your every day pains, wounds and bruises.

Gombault's Caustic Balsam The Great French Remedy Will Do It

It Helps Nature to Heal and Cure. Penetrates, acts quickly, yet is perfectly harmless. Kills all Germs and prevents Blood Poison. Nothing so good known as an application for Sores, Wounds, Felons, Exterior Cancers, Burns, Carbuncles and Swellings.

"I had a bad hand with four running sores on it. The more I doctored the worse it got. I used Caustic Balsam and never needed a doctor after that." —Ed. Rosenberg, St. Ansgat, Ia.

Mrs. James McKenzie, Edina, Mo., says: "Just ten applications of Caustic Balsam relieved me of goitre. My husband also cured eczema with it, and we use it for corns, bunions, colds, sore throat and pain in the chest."

A Safe, Reliable Remedy for Sore Throat, Chest Cold, Backache, Neuralgia, Sprains, Rheumatism and Stiff Joints. Whenever and wherever a Liniment is needed Caustic Balsam has no Equal.

Dr. Higley, Whitewater, Wis., writes: "I have been using Caustic Balsam for ten years for different ailments. It has never failed me yet."

A Liniment that not only heals and cures Human Flesh, but for years the accepted Standard veterinary remedy of the world.

Price, \$1.50 per bottle at all Druggists or sent by us express prepaid. Write for Free Booklet and read what others say.

THE LAWRENCE WILLIAMS CO., Cleveland, Ohio

Don't Pay Freight on Water

Spray with
NIAGARA BRAND
Soluble
Sulphur Compound
(in Powder Form)



Dissolves instantly in Cold or Hot Water. Takes the place of and is superior to Lime and Sulphur Solution for Controlling—

San Jose Scale and Fungus Diseases

Also has Controlled Aphis at the same time.

The Best All Around Spray for Apples, Peaches and Pears

For nine years we have manufactured Lime and Sulphur solution. Three years ago we succeeded in putting out this material in dry form, which has met with ALMOST UNIVERSAL APPROVAL OF FRUIT GROWERS because it has the following—

Advantages over Lime and Sulphur Solution

A 100 lb. Drum Soluble Sulphur Compound equals a 600 lb. bbl. of L. and S. Solution. 1-6 the freight. No leakage. Does not crystalize. Will keep indefinitely in any climate. No barrels to break or return. No water to pay freight on. Controls San Jose Scale in four days, sticks like paint, etc. Reports from the Government, Fruit Growers and Experiment Stations covering a period of three years substantiate the above.

Write today for full information and prices.

It will pay you to ask us to send our catalog on

Spraying Machinery and Accessories

We make quality machines with the power to put Spray materials on properly, easy to handle and economical to operate.

When you write tell us just what catalogs you want.

NIAGARA SPRAYER COMPANY

33 Niagara Street.

Middleport, N. Y.

Makers of Everything for Spraying. First Quality only.

Distributing Agents in all parts of U. S. and Canada.



Horticulture.

APPLE TREE CANKER.

The term "canker" is a very pliable one; it can be used to cover most any disease or trouble of the bark of a tree. To the layman it means little when it is mentioned, and therefore often serves as a loophole for an expert's ignorance. So, if you should be asked what the trouble with a certain tree is, and do not know, just say "canker," and the other man will utter the usual half-enlightened, "Oh," and think you are wise.

As stated above, the term canker includes all troubles involving portions of living bark. It may be caused by frost, sun, blight or fungi of various kinds. Regardless of what the source of the canker is, it is a serious trouble to have fruit trees affected with, as it restricts the sap. It is often found on the trunks of the tree, where it checks the flow of the sap and the nutrition of the top of the tree.

The blight canker is due to the blight bacteria, and is recognized by the blighty appearance of the affected portion, which is the bluish black discoloration so common on blighted limbs. The only possible method of control is to cut out the affected portions and all blighted limbs when they appear. The cuts should be made well back to the apparently healthy wood, so as to make certain to get all the bacteria which might be working into the healthy tissue. All wounds made by this process of cutting should be disinfected with a weak solution of carbolic acid or a dilution of lime-sulphur at about one to eight. This is to prevent the carrying of the disease from one place to another.

Canker caused from the sun, commonly called "sun scald," and injury from frost will generally show themselves on the trunk of the tree, the sun scald usually being on the south side of the tree. Frost injury often does not show itself until some time after the injury is done, as the cambium layer of the bark is the part usually affected. After the growing season starts, the outer bark will shrivel and loosen and give the first outward signs of the trouble. Cankers from either of the above troubles should be taken care of by cutting away all of the loose dead bark, trimming the wound to good healthy wood. Wounding of the tree by farm implements or other causes should be treated in the same way.

Several cankers are of a fungus source. There is the rot canker due to leaving rotten fruit hanging in the tree during the winter. The rot spores are carried by the rain from the fruit to the limbs below, where the canker will appear. The common New York apple canker is caused by the black rot fungus and the canker so common in Illinois is caused by a fungus of an unspeakable name. The New York canker is described as enlarged sections of roughened bark and with the wood often laid bare. The dead bark clings tightly to the decaying wood; cracks appear later in the diseased part, and the bark assumes a dark, charred appearance. The Illinois canker shows itself in a dark flaky roughness of the bark. Under the bark will be found a mottled appearance due to the interspersing of healthy areas among the diseased parts. In time the wood is affected and will assume a brownish, unhealthy appearance.

There are no specific remedies for these troubles. All that can be done is to cut out the badly diseased parts and do what can be done to encourage the vigor of the tree. Some of the thrifty growing and hard varieties such as the Spy, are quite resistant to rot canker, while others, such as the Wagener, are quite susceptible to it. Spraying will do much to keep cankers from this source in check.

SYSTEMS OF STRAWBERRY CULTURE.

The methods of strawberry culture are many. They vary from intensive and good methods to poor and indifferent, from growing a single plant in a hill to a general field culture where plants are allowed to run as they will. Although some claim to have success with it, the latter method is not to be recommended, as it savors too much of neglect.

The first step toward improvement over this method is the wide matted row,

which is quite frequently used with success. For this system, the plants are usually set about two feet apart in rows three and a half feet away. Varieties which are poor runner makers, such as the Marshall, are usually set close together in the row. The rows are allowed to get from one to one and a half feet wide, which leaves about one foot space between the rows for the pickers.

This method is less intensive than the narrow matted row, which is probably the most popular method in use. It is the happy medium between the two extremes of neglect and intense culture, and is successful under a greater variety of conditions than any other system. It is very similar to the wide matted row, except that the rows are allowed to become from six inches to a foot in width. This will leave more space between the rows and therefore make less liable the crushing of the fruit by the pickers. There is also generally an increase in the size of the fruit over that of the wide matted rows.

The hedge row and the hill systems are the intensive methods of growing strawberries, and may be classed together as are the matted rows. For either of these methods, the plants should be set from a foot to a foot and a half apart in rows a foot and a half apart. In the hedge row system, the runners are allowed to grow in the row only, and after the row is filled, other runners are cut off so that the row is only the width of one plant. In the hill system none of the runners are allowed to grow and the plants are cultivated in hills. The runners being kept off tends to conserve the energy of the plant, which will be used for the development of fruit buds and later for the increase in size of the fruit.

What is known as the "Kevitt" system is a form of hill culture, the difference being in the method of setting the plants. Instead of being planted as suggested above, the plants are put in beds of five rows each, the rows being a foot apart and the plants a foot apart in the rows. Between the beds are alleys wide enough for the pickers. Very large yields have been grown by this system, and plantations have been productive for a number of years without a renewal of the plants. The fact that a single plant will be productive for several years is contrary to the general idea; however, the conservation of energy due to keeping the runners from growing makes it possible.

None of the intensive methods should be attempted unless it is the intention to put a lot of work in hoeing and cultivation. On account of the extra expense in growing, a fancy market should be sought if these systems are to be followed. For this market, the higher quality varieties are the best. Marshall, Wm. Belt, Ridgeway, Bubach and Glen Mary are varieties of this type. From the standpoint of growth these varieties are also good for these systems, as none of them are very great runner makers. Without exception they need quite rich soil to do well.

A summary of the important points to be given consideration if the hedge and hill systems are to be followed are as follows: Thorough work, good soil, plenty of fertility, high quality varieties, and a market for high grade fruit. If proper attention cannot be given these the narrow matted row or something less intensive had better be followed.

TROUBLE DEPARTMENT.

Lime-Sulphur Freezing.

Will freezing injure lime-sulphur. There seems to be considerable dispute about this among fruit growers.

Lapeer Co. F. B. Lime-sulphur is not injured by even very severe cold weather. The writer has seen barrels of it left out in the open all winter, open up in apparently good shape in spring. In tests which have been made it has been subjected to artificial freezing at 112 degrees below zero without any injury. Lime-sulphur does not freeze very easily. Mixtures which test about 32 degrees Beaume freeze at about five degrees above zero and those testing 27 degrees Beaume were found to freeze at about 14 degrees F. Even when lime-sulphur does freeze it does not freeze hard, but becomes the consistency of slushy ice.

The only bad effect which can come

GOOD SEEDS

BEST IN THE WORLD. CHEAPER THAN OTHERS; In addition we throw in a lot of new varieties extra with every order. OUR BIG FARM GARDEN SEED AND NURSERY CATALOGUE IS NOW READY FOR YOU. It is FREE. Write for it today; also send address of your friends and neighbors who buy seeds. Address
RATEKIN'S SEED HOUSE
BOX 7
SHEMADOAH, IOWA
(LARGEST SEED CORN GROWERS IN THE WORLD)

Strawberries

(Summer and Fall Bearing) and All Small Fruit Plants
 Strawberries and all Small Fruit Plants mean big and quick profits for you at a small outlay of money. We are headquarters for Summer and Fall Bearing Strawberry Plants, Raspberries, Blackberries, Gooseberries, Currants, Grapes, Fruit Trees, Roses, Ornamental Shrubs, Eggs for Hatching, Crates, Baskets, Seed Potatoes, etc. Best varieties, lowest price. 30 years' experience. Free catalogue full of valuable information. Write today.
L. J. FARMER, Box 460, Pulaski, N. Y.

ALFALFA

AMERICAN NORTHERN GROWN
 Guaranteed to be 99% pure and free from dodder. Write for sample on which we invite you to get Government tests. We do not handle Turkish "Dwarf Alfalfa" or cheap inferior European seed. We offer only the very best. Our seed should produce at least 30 net acres annually. Can usually furnish Kansas, Nebraska, Montana or Dakota and Grimm Seed at very moderate prices.

CLOVER and GRASSES

Northern grown and of strongest vitality. We can furnish grass mixture suitable for any soils.

WING'S GARDEN and FLOWER SEEDS

Are of highest quality and can be produced—fully described in our free catalog. Write for it today
WING SEED CO., Box 242 Mechanicsburg, O.

Strawberries
 YIELD \$500 to \$1200 per acre under the Kellogg sure-crop method. Our beautifully illustrated 64-page book gives the complete Kellogg Way and tells all about the great Kellogg plant farms in Oregon, Idaho and Michigan.
R. M. KELLOGG CO.
 Box 575, Three Rivers, Mich.

STRAWBERRY PLANTS!
 Vigorous northern stock, 36 varieties \$1.65 per 1000, also Raspberries, Blackberries, Currants, Grapes, Asparagus, Early seed potatoes. A most valuable illustrated catalog free. Mayers Plant Nursery, Merrill, Mich., Bohemian Nurseryman.

SWEET CLOVER
 SEED, pure white and biennial yellow. Prices and circular how to grow it sent on request. Everett Barton, Box 123, Falmouth, Ky.

Save 1/2 on Your Fruit Trees

Buy direct from our nurseries and save 30 to 50 per cent agents' charges. Highest grade trees—apples, plums, pears, cherries, peaches, etc., including the most profitable J. H. HALE peach trees, better quality, harder, better shipper, larger fruit than Elberta; propagated directly from Mr. Hale's bearing orchards. All trees are doubly guaranteed true to name.
 Write for New Catalog 120 pages, handsomely illustrated. It describes every standard variety of tested fruits—apple trees, quinces, grapes, blackberries, raspberries, currants, gooseberries, roses, shrubs, shade trees, vines—everything. Low prices, plain figures. Catalog sent only on request. Write today.
WILLIAM P. STARK NURSERIES
 Station C7, Stark City, Missouri

SPRAYERS

Are a Necessity and a Benefit.
 They save your crop, increase the yield and improve the quality. Our Spray Calendar shows when to spray and what materials to use. Our "Spray" booklet shows 70 combinations of
IRON AGE
 Bucket, Barrel, Power and Traction Sprayers for orchard and field crops and other uses. Built complete or in units—buy just what you need. Ask your dealer to show them and let Uncle Sam bring you the rest of the story and the spray calendar. Also "Iron Age Farm and Garden News" free.
Batemans Mfg. Co.
 Box 1044
 Grenloch, N. J.

SPRAY Rigs of All Sizes For All Uses

Junior Leader Orchard Sprayer with 2 H. P. engine, 3-plunger pump.
 Keeps 6 nozzles going at high pressure. Automatic agitation of liquid, suction strainer is brush cleaned. We also make Bucket, Barrel, Mounted 4-Row Potato Sprayers, etc. Free catalog describes entire line. Write for it. Also spraying formula, calendar and complete spraying directions. Address
FIELD FORCE PUMP CO., 18 11th St., Elmira, N. Y.

DOUBLE SPRAYING RESULTS
 by saving half the solution and labor with the "Kant-Klog" Sprayer
 Nine different sprays from same nozzle—round or flat—course or fine—starts and stops instantly. Ten different styles. Mail postal for special offer. Agents wanted.
Rochester Spray Pump Co.
 189 Broadway, Rochester, N. Y.

from freezing is the probability of the barrels swelling or bursting. This will admit air to the lime-sulphur, which will cause crystallization. Lime-sulphur which has become crystallized can not be used, as it can not be brought into solution again. When crystallization is present it is better to use the lime-sulphur which remains in solution, a little stronger than usual.

Potting Plants.

Kindly tell me how to prepare the soil for house plants. My plants are not doing well this winter. They have a sickly yellow foliage, and I think the soil is at fault.—Reader.

When plants are grown in pots they are living under unnatural soil conditions. It is therefore necessary to give special attention to the soil used and the methods of potting.

Probably one of the chief causes of trouble is improper drainage. Three things may cause trouble from this source; planting in too large a pot, watering too much, or using soil which is too compact and has a tendency to puddle. Because it is confined in the pot the root system of a plant should not be allowed to have too much room but rather it should be so that the roots will quite thoroughly permeate the soil. Best results can be had if the pot is just large enough to have the soil surround the root mass about two inches. If the pot is larger than that, enough small pieces of stone or pieces of broken pot should be put in the bottom of it to take up the excessive space in the pot.

The chief cause of sickly plants in pots is the lack of air to the roots. The three conditions mentioned above will exclude the air from the roots. When there is excessive moisture in the soil an acid condition which is detrimental to the plants will also arise.

The best soil for potting plants is that of a porous nature. One-third turf loam, one-third leaf mold and one-third sand makes a good combination for the first potting. When plants are repotted less sand and lead mold should be used.

Varieties of Fruit.

What do you consider the best sour cherry beside the Montmorency? What are the best varieties of gooseberries and red currants?

J. F.

The variety of sour cherry next in popularity to the Montmorency is the Richmond. However, in some places the Richmond is a shy bearer and for that reason some prefer the Dyehouse which ripens about Richmond time. This variety is very productive but does not produce as large a tree as the Richmond. The Montmorency has, however, a big lead over other varieties as an all-around cherry.

The best variety of gooseberry is undoubtedly the Downing. Houghton is quite popular with many people, but it is not as large although it is slightly more productive. The Portage is one of the newer varieties which has many good features. It is a large, handsome berry which bears quite well. It would especially be adapted for fancy market purposes.

London Market and Victoria are the best varieties of red currant. The London Market is slightly larger than the Victoria but is not considered quite as vigorous. Wilder and Prince Albert are preferred by some and will do well when the soil is fairly rich. Perfection, the new variety, is gaining friends every year. It also needs rich soil.

PRACTICAL TREE REPAIR.

Due to the fact that we have come to realize the importance of conservation, tree repair work or tree surgery has recently become an important factor in horticulture. Because there was no published work on this subject many tree doctors have played upon the ignorance of the public and charged high prices for comparatively simple work. Therefore, "Practical Tree Repair," a book by Elbert Peets, of the Harvard University, fills a long felt want. It is a good book on a subject for which a book was wanted. It treats clearly and in an interesting manner, all of the operations involved in tree repair work. Tree structure and manner of growth, wounds, the treatment and control of boring insects, and rot fungi, are thoroughly discussed. Methods for filling cavities and the treatment of cavities without filling, are dealt with in detail, as is also the prevention of wounds, cavities and broken limbs. The closing chapter contains notes on various species of trees, of which the apple is given considerable space. As this book is intensely practical it would be useful to anyone interested in trees. Orchardists, owners of land containing either a few trees or a woodlot, should have it. To those who wish to make tree repair work a specialty it would be invaluable. The numerous good illustrations add to the value of the book. Published by McBride, Nast & Co., New York City; 265 pages; price \$2.00 net.



THE CHATHAM Grain Grader and Cleaner

Handles 70 Kinds of Seed Grain and Grass Seed From Wheat, it takes Wild Oats, Tame Oats, Cockle, Rye and Smut. Cleans the dirtiest Flax. Has special knocker and skimmer which prevents clogging. (Other machines choke up.) Takes Dodder, Barn Yard Grass and Foxtail out of Alfalfa and Millet "slick as a whistle." Takes Buckhorn from Clover. Sorts Corn for Drop Planter. Famous BEAN MILL. Handles all varieties, takes out the SPLITS, Clay, Straw, etc. Handles Peas as well as any Grain or Grass Seed. Removes foul weed seed and all shrunken, cracked and sickly grains. Takes out all dirt, dust and chaff. It is also a bully chaffer. Handles 60 bushels per hour. Gas power or hand power. Easiest running mill.



For \$100, I Clean and Grade Your Seed Grain

You can't afford to plant common Seed (and take chances on a poor crop, when I am offering to scientifically clean and grade every bushel of your Seed Grain for this spring's planting for one paltry dollar.

Here's my proposition, and if you are a smart man you will write me before sunrise tomorrow:

Send me one dollar and I will ship you, FREIGHT PAID by MYSELF, this improved 1914 Chatham Grain Grader and Cleaner, with all equipment. Clean your Seed Wheat, Oats, Flax, Barley, Peas, Beans, Corn, Grass Seed, etc. Then PLANT those fine seed. AFTER you have harvested a bumper crop, pay me the balance of my low price. Not one penny need you pay, except the \$1, until next October. And by October YOUR CHATHAM WILL HAVE MORE THAN PAID ITS ENTIRE COST IN INCREASED CROPS. Then you'll have it to work FREE for you the rest of your life.

Your Dollar Returned

I only want the dollar as evidence of good faith—to protect myself from mischievous boys. If after 30 days' hard test, you don't want my "Chatham," send it back at my expense and I will return the dollar.

A "Made-to-Order" Machine

Every "Chatham" is practically a made-to-order machine, for I send you the exact and proper Screens, Riddles, Hurdles and Sieves to grade and clean every Grain and Grass Seed grown in your locality. That's the secret of my success. I would not be the leading maker of Graders and Cleaners if I had tried to make my equipment fit ten million farms. What would you think of a clothing maker whose suits were all one size? Wouldn't it be a miracle if he gave you a fit. Yet

all makers of Graders and Cleaners, except me, send the same equipment, whether you live in Maine, Ohio or Oregon. They wouldn't do that, if they had my 41 years' experience.

Extra Screens Free

I use, all together, 81 Screens and Sieves. It usually requires 15 to 17 for the average farm. These I select from the 81. After 41 years in the business, I am pretty sure to pick the exact equipment needed on your farm. If I shouldn't, just drop me a line and I'll send your additional requirements. There will be no charge for this.

Samples Graded Free

Maybe you have some Seed Grain that you can't clean or grade or separate. Send me a sample. I will purify it and tell you how you can do it cheaply. No charge for this.

Seed Corn Sorted

My big Corn Sorting Attachment, invented 2 years ago, is a great success. Twelve thousand farmers and many leading Agricultural Colleges are using it. It is the only machine I know of which scientifically sorts seed corn for drop planters.

New Book Ready

Send me no money now—just a Postal, for the finest, most complete Book on Seed Selection I've ever written. After the Book comes, write me what size machine you want and I'll ship it, freight prepaid, on receipt of \$1.00. Then clean and grade all your Seed Grain. If you write today, you get my Book by return mail. Address nearest office.

Manson Campbell Company

Dept. 60
Detroit Kansas City Minneapolis

Don't Buy Until You Get My Factory Price

on the Detroit-American Tongueless Disc—I'll save you money—don't pay dealers' prices but send a postal NOW for the greatest low price, long time, free trial offer ever made on the original

Detroit-American Tongueless

It's all steel—perfectly balanced—light weight—light draft—greater strength—absolutely guaranteed and sold only on

30 Days' Free Trial MANURE SPREADERS and CULTIVATORS at equally low bedrock prices. A complete spreader \$65—delivered—yes, Freight Prepaid—to all East, Central and Middle West States.

Big Book Free for the asking—drop me a line right away.

FRED C. ANDREWS
General Manager
AMERICAN HARROW CO.
1410D Hastings St., Detroit, Mich.

16, 18, 20 inch same price

Forkner Orchard Cultivator

Does more work with less draft and leaves a better surface mulch than any other cultivator made.

It Works Right Up To Your Trees

Cultivating the entire surface beneath low branches without disturbing boughs or fruit. Write for catalogue and free book "Modern Orchard Tillage."

LIGHT DRAFT HARROW CO., 606 Nevada Street, Marshalltown, Iowa

Know Before You Plant That Your Trees and Shrubs Will Bloom as You Expect

Shrewd people buy merchandise from established houses—houses that will be in business when they need service. Why should not a planter buy his Trees, Shrubs, Vines, Roses, Bulbs and Seeds with the same precaution? How disappointing it is, when your trees or shrubs have leaved out, to find something you did not order—something you do not want. Have you ever had this experience? Don't take any risk when ordering. Buy direct of the producer and at first cost. We have a reputation at stake. Have been in business 60 years and expect to continue indefinitely. You always know where to find us. 46 greenhouses.

1,200 acres. 192-page Catalog FREE Write for it today. It's interesting and valuable.

THE STORRS & HARRISON CO., Box 266, PAINESVILLE, OHIO

Green's Trees

Buy Direct and Save Half

Deal with us, the growers—not with agents. You save half and get better trees. Whatever you want for the Fruit Garden or Orchard—we have it.

A Big Supply of Apple and Peach Trees

Pear, Plum, Quince, Cherry, Grape Vines, Ornamental Trees, Roses, Plants, Best New Fruits. All of them finest stock—true to name.

Our 35 years' reputation for square dealing is your guarantee. We deal direct by catalogue only. There's no Nursery like Green's for value. Our finely illustrated catalogue gives practical, useful information on care of fruit trees. It's free. "Thirty Years with Fruits and Flowers" or C. A. Green's Book of Canning Fruits sent free also. Write us today.

GREEN'S NURSERY CO., 30 Wall St., Rochester, N. Y.

CLOVER \$5.00 Per Bu.

AND TIMOTHY

INVESTIGATE—Best and Cheapest Seeding Known. Alsike Clover and Timothy mixed, Fully 1-3 alsike, a big bargain. Greatest hay and pasture combination grown. Write for free Sample and 76-page catalog and circulars describing this wonderful grass mixture. Beats anything you can sow and ridiculously cheap. We handle only best tested cleaned seed guaranteed. Write before advance.

A. A. BERRY SEED CO., Box 531, Clarinda, Iowa

Maple Sugar Makers NOW IS THE TIME

to fit up for sugaring. If you want the best and handiest Evaporator on the market, buy the I. K. L. Write us for catalog and prices. Mention Michigan Farmer.

Warren Evaporator Wks., Warren, O.

MAPLE SYRUP MAKERS! The Grimm Evaporator

used by principal maple syrup makers everywhere. Saving of time and fuel alone will pay for the outfit. Write for catalogue and state number of trees you tap.

GRIMM MANUFACTURING CO.
619-621 Champlain Ave., N. W., Cleveland, Ohio.

The "Berlin" The White Basket

That secures highest prices for your fruit. Write for 1914 catalogue showing our complete line and secure your baskets and crates at WINTER DISCOUNTS.

The Berlin Fruit Box Co.
Berlin Heights, Ohio.

PURE FIELD SEEDS.

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., FOSTORIA, OHIO.

STRAWBERRY PLANTS—\$1 for 1000

Guaranteed as good as any one's plants. All kinds and everbearers. Catalog free. Allegan Nursery, Allegan, Mich.

Pulverized Lime Rock

We can ship in carload lots in two days after order is received from Muskegon and Benton Harbor. Write for prices direct to you.

LAKE SHORE STONE CO., Milwaukee, Wis.

ROKLEY'S FRUIT PLANTS

Michigan's best, hardy, well rooted stock from old established growers. All varieties of Strawberries, Raspberries, Blackberries, Currants, etc. Also the great Everbearing Strawberry. Moderate prices.

J. N. ROKLEY'S NURSERIES, R6, Bridgman, Mich.

FRUIT Healthy, Hardy TREES

are necessary to start a paying orchard. We furnish them true-to-name, direct from nursery to planter, at wholesale prices. Ask for Free Catalog.

Celery City Nurseries, Box 12 Kalamazoo, Mich.

SCARFF'S TESTED SEED CORN

5000 bushel 1912 crop. Tested and sure to grow. Finest quality. 20 Varieties. Also Seed Oats, Barley, Grass Seed, Potatoes, etc. 1200 acres. Catalog and samples on request. Write today. W. N. SCARFF, Box 67, New Carlisle, Ohio.

The Michigan Farmer

Established 1843.

The Lawrence Publishing Co.

Editors and Proprietors.

39 to 45 Congress St. West, Detroit, Michigan.
TELEPHONE MAIN 4325.NEW YORK OFFICE—41 Park Row.
CHICAGO OFFICE—604 Advertising Building.
CLEVELAND OFFICE—1011-1015 Oregon Ave., N. E.M. J. LAWRENCE.....President
M. L. LAWRENCE.....Vice-President
E. H. HOUGHTON.....Sec. Treas.I. B. WATERBURY.....Associate
O. E. YOUNG.....Editors.
B. W. WERTH.....
F. A. WILKEN.....
ALTA LAWSON LITTELL.....

E. H. HOUGHTON.....Business Manager

TERMS OF SUBSCRIPTION:

One year, 52 issues.....50 cents
Two years, 104 issues.....\$1.00
Three years, 156 issues.....1.50
Five years, 260 issues.....2.00Canadian subscriptions 50c a year extra for postage.
Always send money by draft, postoffice money order, registered letter or by express. We will not be responsible for money sent in letters. Address all communications to, and make all drafts checks and postoffice orders payable to, the Lawrence Publishing Co.

RATES OF ADVERTISING:

40 cents per line agate measurement, or \$5.60 per inch, each insertion. No adv't inserted for less than \$1.20 per insertion.
No lottery, quack doctor or swindling advertisements inserted at any price.
Entered as second class matter at the Detroit, Michigan, postoffice.

COPYRIGHT 1914

by the Lawrence Pub. Co. All persons are warned against reprinting any portion of the contents of this issue without our written permission.

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.

DETROIT, JAN. 3, 1914.

CURRENT COMMENT.

Keen interest was taken by potato growers and dealers throughout the country in the recent hearings held by the order of the Secretary of Agriculture relating to the existing and proposed quarantine against the importation of foreign potatoes. The reader will recall the facts published in previous comments relating to the quarantine effective since September 20, 1912, against the importation of potatoes from Newfoundland; the islands of St. Pierre and Miquelon, located in the St. Lawrence River and belonging to France; Great Britain, including England, Scotland, Wales and Ireland; Germany, and Austria-Hungary, in which countries the destructive black scab or wart disease of potatoes is known to be prevalent. Mention has also been made in these columns of the order of recent date extending this quarantine against the importation of potatoes to include the rest of continental Europe and the Dominion of Canada. The last mentioned order was issued for two reasons, viz., the fact that it was suspected that infected stock from other countries was finding its way to this country through the ports of Belgium and Holland, against which the quarantine was not effective, and the further fact that another serious potato disease known as the powdery scab is prevalent in many sections of the countries included in the supplementary quarantine order.

The hearings ordered by the Secretary of Agriculture opened the way for the presentation of testimony relating to both of these quarantine orders by all the interests affected. The hearings were largely attended and the testimony presented as summarized in a recent communication from the Office of Information of the Department of Agriculture will be of interest to potato growers. This summary of the evidence presented indicates that it was shown that the powdery scab is a serious disease, greatly affecting the value of infected tubers, for which there is no known preventive treatment, such as is now commonly used as a protection against loss by our common scab of potatoes, and that it infects the ground on which the diseased potatoes are grown for an indefinite period of time. This disease may be introduced by the planting of infected seed or even by the use of contaminated sacks or garbage waste used as fertilizer or hog feed. The powdery scab has become quite common over large areas of eastern Canada through the use of European seed stock and perhaps to some extent through the other means of communication mentioned.

Both during and before the hearing representative potato growers from all parts of the country and pathological experts from all the principal potato growing states urged the maintenance of strict quarantine regulations against the importation of potatoes from infected dis-

tricts. Practically all the opposition to the enforcement of the quarantine came from a small number of importers or handlers of imported potatoes, while some of the larger importers of and dealers in foreign potatoes indicated their willingness to have a strict quarantine maintained provided the diseases under consideration were of sufficient importance to warrant such a course.

The testimony given by foreign representatives is also of much interest, particularly with regard to the opinions brought out as to the serious nature of the diseases. Canadian testimony admitted the serious prevalence of the powdery scab in the eastern provinces but argued for the admission of potatoes from uninfested sections under proper regulation. Perhaps the Canadian point of view is best illustrated by the fact brought out at the hearing that an absolute quarantine is now maintained by the Dominion against importations of potatoes from any European country, including Great Britain and Ireland, and against the neighboring provinces of Newfoundland.

The fact was brought out at the hearing that examinations made at the ports of Boston, New York and Philadelphia indicated that infected potatoes are coming into the United States from Canada, Belgium and Holland, nearly 50 per cent of infestation having been found in some of these shipments. Representatives from Belgium and Holland maintained that these countries are free from the disease, and explained the presence of disease in shipments clearing from their ports as of probable German origin, due to the action of unscrupulous dealers in the commodity of shipping the diseased stock through their ports. Evidence in the hands of the Federal Horticultural Board, however, indicates that the disease does occur in these countries as well as in France, Norway and Sweden.

The resulting action of the board following this inquiry is, however, of greater interest to the reader than the inquiry itself. This result is embodied in two orders recently issued by the Secretary of Agriculture relative to the importation of potatoes into the United States. One of these orders temporarily extends the quarantine order effective since September 20, 1912, to include, in addition to the countries against which it was originally effective, all of continental Europe and the Dominion of Canada. This order became effective December 24, 1913, except that shipments covered by consular invoices on or prior to that date will be admitted up to January 15, 1914. The other order provides for the admission of disease-free potatoes from uninfested districts under proper regulation and inspection.

While the order relating to the regulations under which foreign potatoes will be admitted has not yet been issued, it is understood that it will correspond with the order relating to the importation of nursery stock. This will mean that potatoes cannot be imported without a permit from the Federal Horticultural Board, and that to be admitted potatoes must be certified by the government of the country of origin as free from dangerous diseases and insect pests new to or not now widely prevalent in the United States, and must have been grown in a district free from the wart disease and powdery scab.

This will involve arrangements with foreign governments for a survey and designation of disease-free districts. This will require some time before importations of consequence can occur, although the statement is made through Department of Agriculture channels that, "It is possible that, in the case of certain provinces of Canada, and certain countries and districts of Europe, the absolute quarantine can be lifted in time to allow the later movement of the present year's crop under regulation and inspection."

It would thus appear that reasonable precaution will be taken against the introduction of these destructive potato diseases into the United States, but owing to the economic importance of the diseases and the fact that diseased potatoes have found their way to this country, in limited quantities at least, we shall publish a description of these diseases in an early issue of the Michigan Farmer.

The English Sparrow Nuisance.

No reader of the Michigan Farmer will question that the English sparrow is an unmitigated nuisance, but it appears that this knowledge is not shared by some public spirited people who have interested themselves in the matter of securing better protection for Michigan

birds. According to a recently published statement, the Kalamazoo Humane Society is considering the proposition of initiating a movement for the repeal of the sparrow bounty law and the placing of that bird under the same protection as that provided for other feathered inhabitants of the state upon the assurance of its secretary that his investigations show that "the sparrow benefited mankind by its destruction of insects" and "that the belief that the bird is one of prey on crops is a popular fallacy."

While this alleged movement does not merit serious consideration for the reason that it is not likely to assume formidable proportions, in a state where most laymen are better informed regarding the good and bad qualities of the English sparrow than the gentleman who is quoted above appears to be, if we are to credit the assertions of our leading zoologists on this question, it would not be out of place to call general attention to some phases of the sparrow nuisance which are perhaps of greater economic importance to farmers of the state than his pilfering of grain and harrassing of other and more useful birds. Modern investigators have become convinced that the English sparrow is an active agent in the spreading of the more dangerous infective diseases prevalent among our live stock, notably hog cholera and the white diarrhea of chickens. In view of this fact it becomes all the more important that a campaign of extermination should be vigorously prosecuted against the pest. It seems to have been demonstrated that the bounty law has done little more than prevent the further great increase of the pests, and that their extermination will never be accomplished by this means, and probably not by any other. In view of this fact the repeal of the bounty law might not be a great mistake, as it would compel more interested farmers to give individual attention to the sparrow problem, although undoubtedly the bounty law materially reduces the number of the pests bred in the cities. But it is quite certain that the dream of extending protection to these feathered pests can never be realized by the well meaning but deluded dreamers, since public opinion would effectually prevent the enforcement, if not the enactment, of any such provision.

HAPPENINGS OF THE WEEK.

National.

Christmas was a sad day for the people of Calumet, Mich. On the evening of the 24th while exercises were being held in Italian Hall, a false alarm of "Fire" was given by some unknown person, which threw the whole audience, consisting mostly of women and children, into a panic, and in the stampede to reach the exits 72 persons were killed by being trampled to death while many others were injured. The factions that had developed among the people because of the strike suddenly disappeared through the great sacrifice of life. Assistance is being rushed to the unfortunate families from all sections of the state. Fifty-nine of the victims were buried Sunday.

Charles H. Moyer, president of the Western Federation of Miners, who was conducting the strike in the copper country of Michigan, now lies wounded in a Chicago hospital. He and his co-worked, Charles Tanner, charge that the miners' president was shot, clubbed and dragged through the streets of Hancock. Upon this charge, they purpose to lay before Congress a declaration showing a situation that calls for an immediate investigation by a congressional committee. Gov. Ferris resents the idea of federal interference in Michigan affairs, especially until the state has shown itself incapable of handling the situation.

The federal government has won two cases under the Sherman anti-trust law during the past fortnight without bringing the offenders to trial. The American Telephone & Telegraph Company and the Western Union have voluntarily separated their organizations, as have also the National Wholesale Jewelers' Association and the Association of Manufacturing Jewelers. The government had filed charges against these concerns, declaring the organizations to be in restraint of trade. Settlement was made in both instances on motion of the defendants.

Despite labor disturbances in Colorado, the occurrence of floods in Ohio last spring, and the general complaint that mines could not be worked to their capacity because of labor shortages, there was an increased production of coal in the United States during 1913. The increase amounts to somewhere between thirty and forty million tons as compared with 1912. This fact is taken as an indication that the industries of the country are doing a normal business.

The U. S. public health service reports that there are 119 cases of typhoid fever in Michigan during the month of November.

During a flight at the Panama exposition grounds at San Francisco, Lincoln Beachey looped the loop six times, thus breaking the world's record for this feat.

Miss Mattie Williams died the result of burns caused by the explosion of a can of gasoline at Alma, Mich., on Christmas morning. The gasoline can was mistaken

for one containing kerosene and the volatile fluid was used for starting a fire, the accident resulting.

Foreign.

Information has reached Washington indicating that Great Britain and Germany have entered into a commercial alliance against the United States. This opposition was first hinted at when these two countries refused to co-operate in the Pan-American Exposition to be held at San Francisco in 1915. Further evidence comes from South America, where the United States financial interests have been handicapped by aggressive European capitalists. While the alliance seems to have been instituted to prevent an extension of American markets in all quarters of the world, the warfare will be most acute in South America, where capital is now being invested in large sums. It is understood that the government at Washington has instituted an inquiry to learn more of the exact situation regarding the combination to thwart American enterprises abroad.

Mexican rebels are marching against Ojinaga, where Huerta's troops are fortified. This position lies just across the river from Presidia, Texas. Although the rebels are approaching the city through a tortuous canyon where a few men could hold a considerable army at bay, no attempt has apparently been made by the federal forces to interrupt the rebels' advance. The worst the federals expect, however, is a siege which would not involve great hardship, owing to the fact that ample supplies can be secured from across the river.

It is reported that the federal soldiers of Mexico upon the excauation of the city of Monclova, poisoned the wells without notifying the citizens, and that as a result, more than 400 residents died. The federals are also reported to have destroyed considerable property in the vicinity of that city.

The provinces of Aomori and Hokkaido, Japan are suffering from the worst famine experienced since 1869. The failure of crops and fisheries is the cause for the lack of food. The government intends to appropriate three million dollars for the relief of the peasants, and also of the banks in the affected territory.

MICHIGAN FARMERS' INSTITUTES.

The following is a partial list of the Farmers' Institutes to be held during the month of January:

County Institutes.

Presque Isle Co., Millersburg, Jan. 6-7; Alpena Co., Long Rapids, Jan. 7-8; Alcona Co., Harrisville, Jan. 8-9; Arenac Co., Standish, Jan. 10; Iosco Co., Whittemore, Jan. 9-10; Gladwin Co., Gladwin, Jan. 12-13; Eaton Co., Charlotte, Jan. 14-15; Mason Co., Ludington, Jan. 15-17; Kalamazoo Co., Oshtemo, Jan. 16-17; Clinton Co., Ovid, Jan. 16-17; Clare Co., Clare, Jan. 19-20; Osceola Co., Hersey, Jan. 19-20; Isabella Co., Mt. Pleasant, Jan. 20-21; Gratiot Co., Alma, Jan. 21-22; Montcalm Co., Sheridan, Jan. 22-23; Ingham Co., Mason, Jan. 23-24; Ionia Co., Portland, Jan. 23-24.

One-day Institutes.

Leelanau Co., Empire, Jan. 2-3; Allegan Co., Chicago, Jan. 5; Leisure, Jan. 6; Glenn, Jan. 7; Ganges, Jan. 8; Saugatuck, Jan. 9; Laketown, Jan. 10; Hamilton, Jan. 12; Salem, Jan. 13; Monterey, Jan. 14; Hopkins, Jan. 15; Plainwell, Jan. 16; Moline, Jan. 17; Arenac Co., Arenac, Jan. 5; Tuner, Jan. 6; Maple Ridge, Jan. 7; Moore Jct., Jan. 8; Sterling, Jan. 9; Benzie Co., Honor, Jan. 5; Lake Ann, Jan. 6; Inland, Jan. 7; Thompsonville, Jan. 8; Frankfort, Jan. 9; Calhoun Co., Albion, Jan. 5; Rice Creek, Jan. 6; Convis, Jan. 7; Penfield, Jan. 8; Bedford, Jan. 9; Ceresco, Jan. 12; Stanley, Jan. 13; Abcota, Jan. 14; Tekonsha, Jan. 15; Sanilac Co., Melvin, Jan. 6; Brown City, Jan. 7; Marlette, Jan. 8; Snover, Jan. 9; Shabbona, Jan. 10; Argyie, Jan. 12; Carsonville, Jan. 13; Shiawassee Co., Morrice, Jan. 7; Maple River, Jan. 8; Vernon, Jan. 9; Hillsdale Co., Camden, Jan. 7; Cambria, Jan. 8; Jefferson, Jan. 9; Allen, Jan. 10; Litchfield, Jan. 12; Mosherville, Jan. 13; Moscow, Jan. 14; North Adams, Jan. 15; Wheatland, Jan. 16; Jackson Co., Springport, Jan. 12; Tompkins Center, Jan. 13; Rives Junction, Jan. 14; Henrietta, Jan. 15; Michigan Center, Jan. 16; Norvell, Jan. 17; Parma, Jan. 19; Hanover, Jan. 20; Liberty, Jan. 21; Napoleon, Jan. 22; Grass Lake, Jan. 23; Jackson, Jan. 24; Mason Co., Custer, Jan. 12; Riverton, Jan. 13; Summit, Jan. 14; Ingham Co., Leslie, Jan. 13; Stockbridge, Jan. 13, evening, and Jan. 14; Dansville, Jan. 15-16; Locke, Jan. 20; Holt, Jan. 21; Aurelius, Jan. 22; Newaygo Co., White Cloud, Jan. 15; Big Prairie, Jan. 16; Newaygo, Jan. 17; Sitka, Jan. 19; Grant, Jan. 20; Enstey, Jan. 21; Bitley, Jan. 22; Hawkins, Jan. 23; Cass Co., Dowagiac, Jan. 5; Volina, Jan. 6; Jones, Jan. 7-8; Union, Jan. 9; Adamsville, Jan. 10; Midland Co., Smith Crossing, Jan. 6; Poseyville, Jan. 7; Crane, Jan. 8; Homer, Jan. 9; Midland, Jan. 10; Hope, Jan. 12; Averill, Jan. 13; Geneva, Jan. 14; Coleman, Jan. 15; Ottawa Co., Zeeland, Jan. 12; James-town, Jan. 13; Hudsonville, Jan. 14; Nunda, Jan. 15; Coopersville, Jan. 16; Alledale, Jan. 17; Gladwin Co., Dale, Jan. 16; Grout, Jan. 17; Wagerville, Jan. 19; Sherman Twp., Jan. 20; Charlevoix Co., Bay Shore, Jan. 19; Barnard, Jan. 20; Ironton, Jan. 21; Peninsular, Jan. 22; South Arm, Jan. 23; Wilton, Jan. 24; Tuscola Co., Unionville, Jan. 6; Akron, Jan. 7; Richville, Jan. 8; Vassar, Jan. 9; Fostoria, Jan. 10; Mayville, Jan. 12; Deford, Jan. 13; Cass City, Jan. 14; Livingston Co., Gregory, Jan. 17; Hamburg, Jan. 19.

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

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

The **FARM BOY**
and **GIRL**
SCIENTIFIC and
MECHANICAL

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

The Alchemy of Human Life —BY— GEO. E. WALSH.

IN the world's most wonderful laboratory—the human body—the secrets of cell life, which science has sought in vain to reveal, are withheld from alien eyes by effectual protective devices which excite our admiration and inspire our utmost respect for their creator. Ever since Pasteur, Koch, Lister and Virchow lifted a corner of this veil and gave us fleeting glimpses of the marvelous germ life going on within our bodies, scientists have worked overtime trying to break down the barriers and lay bare all the secrets of life. Centuries of study and investigation have merely revealed to us the surface gold, as it were, of this remarkable mine of information wrapped up in the human organism.

It was a great achievement of science when the old myths and superstitions were stripped from our physiology, and the different organs and their functions were described and catalogued accurately. But even the new physiology is subject to changes and modifications as we probe deeper into the mysteries of life. We no longer attribute it to nature's lack of purpose when we fail to comprehend the full meaning and function of some unimportant organ, but acknowledge that the fault is man's in not probing deep enough. A glance at some of the physiological myths or misconceptions of the past would indicate the weakness of our position in trying to hide our ignorance under the easy assumption that nature had made a mistake or had failed to make good in some particular point.

There was the old Adam's apple mis-

conception, which for ages held that this peculiar protuberance in the throat was a freak or fault of nature. But now we know that this little lump in the throat is in reality an important blood-storage cistern which protects the brain from severe blood pressure. Under great mental or emotional stress the heart pumps the blood too rapidly into the brain for our well-being, and the little automatic storage cistern intervenes to protect us from apoplexy. It checks the sudden flow and acts as a buffer for the brain. Likewise, it serves as a feeder to the brain when the flow of blood is below normal, parting with its supply to make up any deficiency.

The little semi-circular canals or channels in the bones of the head, filled with a fluid lymph, were objects of scornful contempt for many years, and the nearest approach to a comprehension of them was that nature had failed to carry out her plan, or we had gradually lost all power to make use of them as originally intended. But in the new physiology these semi-circular canals are represented as very important agencies in making life comfortable and safe for us. The canals practically constitute a spirit level which enables us to keep our balance. The lymph flowing back and forth in the canals informs the brain of the position of the body, and without them it would be impossible for us to realize when it was tilted at a dangerous angle. Their automatic operation always assures us, without conscious effort, an equilibrium of body to perform our daily work.

Even our perspirative or sweat glands

were so ignorantly considered at one time that it was looked upon as a dangerous symptom for a person to perspire freely, and attempts were even made to close them up artificially. But this safety valve saves our life every time we run, walk a mile, or perform any mental work. Without these two and a half million sweat glands our temperature would rise above the boiling point every time we attempted to run around the block or to walk a mile.

The emancipation from these physiological myths has given us a clearer and better appreciation of what the human body is in its operation and functional workings. If we cannot understand the purpose of the little appendix vermiformis, for instance, we are less inclined to dismiss it as a freak or fault of nature, and if we do not comprehend the object of any other small organ in the body it would be a rash man who would condemn it as worthless and useless in the economy of nature.

Physiologists have determined many new and startling things in the functional workings of the organs that we only half understand today. There is, for instance, a remarkable little chemical machine in our stomachs engaged at all times in manufacturing the most deadly of poisons—hydrochloric acid. This deadly poison, fortunately for our health, is under absolute control, and is made in exact proportion to the amount of food taken into the stomach. It is estimated that it is about one-fifth of one per cent of the contents of the stomach, and this quantity is just sufficient to destroy the

injurious microbes which enter with our food. Without this chemical machine our food would poison us, and if the hydrochloric acid were manufactured in too great quantities we would be immediately poisoned to death.

Discoveries of new laboratories for the manufacture of chemicals and poisons in the body are constantly being made through investigations. The liver is a great chemical laboratory where poisons are made to destroy germs which may seek to pass through it. There is a chemical laboratory in the mouth, and another in the intestines which protects us from the inroads of outside enemies. Indeed, there are more kinds of chemicals manufactured in our bodies than can be found in an ordinary factory devoted to their manufacture, and each one has a duty to perform. Our physiology is at fault if we do not know why certain symptoms precede a break-down in the physical system, or why the body does not begin to build up again after a spell of sickness.

We know that in the alchemy of life there are hidden springs which gush forth the true elixir of eternal youth. There is rejuvenation, rebuilding, re-making, and new creation going on continually. The body is a self-sustaining and self-building machine which passes all understanding of the ordinary laws of dynamics and mechanics. How this life is sustained and rebuilt is the marvel of science. We have been making some pretty good guesses about the germ life and cell life, and investigators are hot on the trail of these mysteries.

The Last of the Original Hardwood.

By ORIN E. CROOKER.

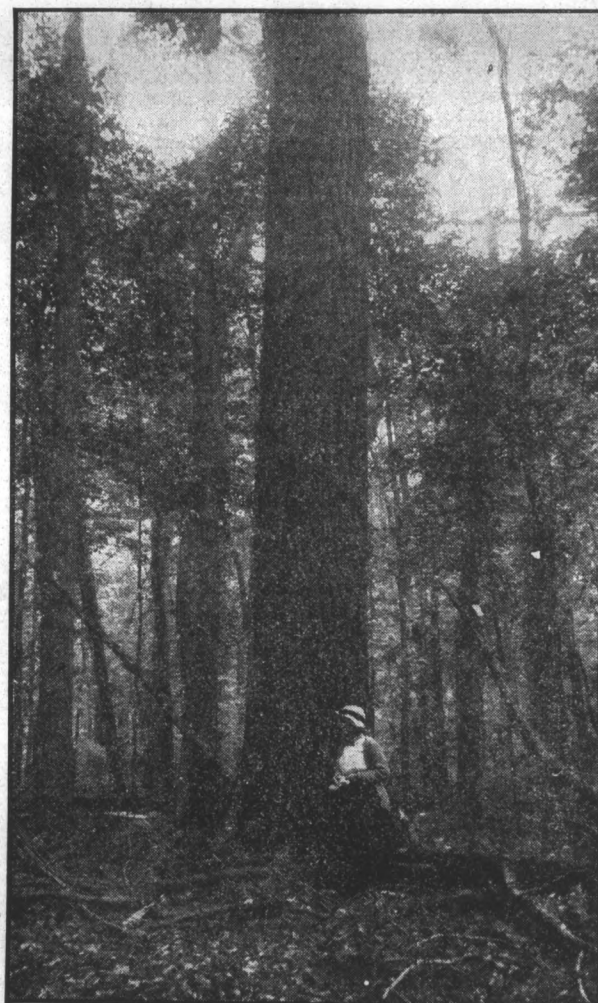
WHAT is declared to be the last original hardwood timber standing in the

Mississippi valley, known as the Makemson timber tract, is now being cut. This bit of timber is world renowned and has been visited by many thousands of people who have desired to see what the timber looked like that covered much of the Mississippi valley two and three generations ago.

Situated five miles east of Danville, Ill., it was purchased over eighty years ago by the father of the owner who has recently died and whose death permitted the timber to be sold. The price paid for the 400 acres by the original purchaser was not far from two dollars an acre. Owing to the eccentricity of the two men who have owned it not a tree has ever been cut and the tract now offers a splendid illustration of what the country's natural resources, when left undisturbed, coupled with the increase of population will accomplish. The Makemson tract will net the heirs of those who guarded it so long and so jealously no less than a quarter of a million dollars.



Splendid Ash Trees on the Makemson Timber Tract.



Sample of Black Walnuts in Makemson's "Wood Lot."

When the timber was sold a few months ago at public auction the black walnut brought over \$65,000; the ash, hickory and oak brought the total sum thus acquired up to about \$100,000. There is still left an immense amount of maple which will bring a good price, and the land, when cleared—as it soon will be—will bring from \$350 upwards an acre. Some believe it will go higher than this, since other land in the near vicinity is selling at \$225 an acre.

The trees on this "wood lot," as Hiram Makemson used to refer to his timber, are of immense size. Some of the black walnuts are 18 and 20 feet in circumference. One of them has been estimated to cut \$1,600 in lumber. The ash trees are almost as large, while some of the oaks are truly gigantic. To a lover of trees it is a sad sight to see these monarchs of the forest fall under the woodman's axe and to watch the sharp saws cut into the mammoth trunks. Three years have been given the purchasers of the timber to clear it off. After this the stumps will be pulled and this celebrated timber

tract, said by those who profess to know to be the last original black walnut grove of any size in the world, will be a thing of the past.

Joe, A Brother.

BY BERTHA E. BUSH.

"Take care of Kiren, Joe."

It had been the dying mother's last word. Kiren was a sickly little fellow and Joe, though he was only two years older, was so strong and steady that he seemed a proper guardian.

There was a father, but he was a busy man who did not understand children. All that a mother does for a growing boy Joe did for Kiren, and his heart thrilled with loving pride as he looked at him now, at twenty.

No one would think of calling Kiren sickly any more. Tall and brilliant and handsome, he quite eclipsed the older brother whom he spoke of with affectionate tolerance as "old Joe" and privately considered a "slowcoach."

It was more the contrast with Kiren than anything else that made Joe appear dull and slow. Kiren was so bright and quick-witted. He made up his mind in a flash and usually gave the effect of making plans for both. It was because Joe loved Kiren so much that he did so much as Kiren said. His whole heart and soul were bound up in his brother.

Nothing pleased him so much as praise for Kiren. Kiren's chances were more to him than his own. He never thought of being jealous of Kiren's greater popularity. He never resented being called slow. He was a plodder and he knew it, and Kiren, who did not realize how much Joe had done for him, had come to pride himself on his submission to this slower brother and to make great plans for starting out for himself in the spring. But in the cold weather it was good to stay with Joe. Joe was a master hand at making things comfortable.

It was the winter of 1863-4, the coldest winter in the recorded history of Iowa. No one who lives in the clustered, well-warmed houses of today can realize what winter was like when the wind swept down unchecked for a hundred miles or so before it struck the shivering little frame house built when every board and shingle had to be hauled over unbroken roads from fifty miles to two or three times that distance.

Two years before there had been an Indian massacre in Minnesota. At Estherville, and some other little towns near the border, United States soldiers had been stationed to prevent another Indian uprising. These soldiers must be fed. To obtain provisions for them in the depth of winter was a difficult thing.

There was no railroad within two hundred miles. All the supplies the government sent to them must be hauled across a snow-covered, trackless prairie where the drifts piled up as high as the upper windows of a two-story house—if there had been any houses of such a size to measure by.

Joe and his brother, and another young man named Archer, formed a squad who engaged in this work of hauling, traveling together and each driving a team that drew a loaded bob-sled. It was hard, perilous work all winter long; but on that first of January, 1864, when men froze to death sitting bolt upright with the reins held in their stiffened hands, this teaming was as dangerous work as could be found anywhere. As Joe looked about, or rather attempted to look through the whirling snow that day, he felt that he would give all the money he had earned to feel the right to lie by in shelter until this unprecedented cold spell broke.

It was not that he minded the suffering for himself; but Kiren complained of it, and anything that hurt Kiren hurt Joe worse than agonizing pangs for himself.

They were hauling three loads of shelled corn, for the soldiers' use, to Estherville and had gone floundering through the drifts, cutting out a road before them with shovels when it was otherwise impassable, for a week. The going had been a matter of greatest difficulty but they had kept at it heroically with Joe in the lead and Kiren and Archer following in the track he broke. All the while the weather grew colder and colder until, on that bitter morning, it was fifty degrees below zero. There had been much snow-fall and the snow was light.

"If a wind should rise now there'd be the mischief to pay," muttered Archer looking through frost-whitened lids at the piled up drifts. Even as he spoke

little puffs of snow began to slide over the white surface. The wind was rising. The snow rose higher and higher as the wind rose.

"From the northwest! And we've got to face it!" groaned Kiren. "Joe, we can't go on in a blizzard. Let's turn back to the settlement and stay till the blow is over."

He spoke in the persuasive tone that had never failed to win Joe over to his will. Joe did not reply quickly. It was not his way to be quick about anything. Archer and Kiren had begun to take it for granted that their plan would be approved before he spoke. But when he did speak they were astonished and angry. For the first time in his life Joe refused to yield to his brother's desire.

"No," he said. "The government is depending upon us to get these supplies to the soldiers. We must go on with them, if we can't make more than a mile a day."

They argued. They reasoned. They wheedled. But Joe was as firm as a rock.

"He's got the notion into his slow old head that it's a duty, and so he's bound to do it," said Kiren, sarcastically. But Kiren never dreamed how hard it was for his slow old Joe to resist his wish. Desire and affection combined to urge him to yield. Kiren was but a boy of twenty and not very strong yet, in spite of his height. Suppose the hardships of the attempt should bring hurt to him! Why was he bound to consider the welfare of a company of soldiers—strangers—rather than that of the beloved brother who was dearer to him than life? It was cruelly hard. Kiren's wish to turn back was but small compared with his. But he had contracted to deliver the corn at the first possible moment and he felt that he had no right to stop. Stubbornly, as the two younger boys thought, he shook his head.

"We must go on," he said. "But—" a grain of comfort coming to him—"we'll reach Mickey Jackman's grove tonight and there will be shelter."

On and on they broke their way through drifts more than waist high, each hour's progress slower than the last. The wind increased to a gale. The snowflakes, sharp and stinging as tiny bits of ice, blew directly into their faces, piercing like needles. A blinding whirl of white hid all things. They could not see so far as to their horses' heads. To sit on the seat and drive was out of the question. Each one walked and led his horses. Joe, of course, was first, plunging into sinking drifts that seemed to engulf him at every step.

There was not a landmark anywhere. The only way to judge of direction was by the wind, which must be faced. Behind Joe plodded Kiren, one hand leading his horses and the other grasping the hindboard of the bob-sled in front, for if they should become separated they could not see to get together again. Last came Archer, leading his team and holding on to Kiren's sled. Again and again as he wallowed through the snow, falling and struggling up again, it came to Joe that he alone had brought the others into this danger. Even the horses refused to accept his guidance willingly. They were constantly trying to veer around and go with the wind instead of against it.

On the struggled till darkness was at hand. There was no sign, to Joe's anxious eyes, of Jackman's grove with its blessed shelter. It was useless to try to go farther now. With the reins over one arm and the wearied horses too tired to take a step without his guidance, even in the way they wished to go, Joe made his way back by feeling the side of the sled to talk to the others.

"We'll have to camp here, boys," he said cheerily, and Kiren never guessed how anxious and troubled he was. Kiren himself was still somewhat resentful, but there was nothing like following old Joe's say-so to get as much comfort as possible. Under his directions they proceeded to make for themselves the best shelter that they could obtain, with the wind howling like demons around them and the cold so far below freezing that they had lost any way of estimating it.

They arranged the loaded bob-sleds in a semi-circle against the storm, and in this semi-circle they hitched the horses. From a hardened drift they cut blocks of frozen snow with their shovels and piled them up as a barricade on the windward side of the sled. Over these walls they shoveled loose snow until they had made a windbreak that would have served fairly well to keep them in comfort during an ordinary winter day.

But this had been no ordinary day. It was the coldest recorded in Iowa.

"Look at that! Did you ever see the

like of that?" exclaimed Archer. "It's so cold that the horses won't eat."

With unlimited supply of shelled corn before them, the horses stood without so much as thrusting their noses into the boxes.

It was the coldest time any of them had ever seen and the night was just beginning. What should they do through its long, dark, bitter hours? Already the drowsiness that precedes freezing was beginning to creep into their chilled bodies.

"Good-night, old fellow. I'm dead sleepy. Wish you'd put an extra blanket over me," murmured Kiren. Joe sprang up in greatest distress. Well he knew that to sleep in that cold meant death. But how could he impress it on the others, already sinking away under its spell?

He shook them. Archer roused, but Kiren still slept.

"Let me alone!" he muttered. Joe shook and pounded, and even brought the stinging lash of the whip down on the brother for whose sake he would gladly have died.

"Wake up and shovel snow!" he cried.

"If you sleep, you'll freeze to death." By sheer force of will he got them up at last and out shoveling until the blood flowed freely again through the chilled limbs. Not a wink of sleep did weary Joe dare to take. Not more than ten minutes at a time did he dare to let the others take. Archer, who was older, roused to the situation, but Kiren had to be kept from that sleep of death solely by the efforts of the others.

"Why won't you let a fellow sleep?" he would ask, piteously, accusing his brother of cruelty and making dreadful threats that wrung Joe's heart.

How the long January night dragged out! A summer sun would have been high in the sky before the dawn first began to break, and the blackness to change into grayness, and the grayness into whirling whiteness. And even after daylight had come they dared not go on. They had lost all sense of direction and had no idea which way to go.

Where were they? There was no slightest landmark. There was no way to tell which was east or west or north or south.

"Wait a while," said Joe to the others who were frantic to start out anywhere. "At noon the sky will be lighter in the south. Then we can tell."

Sure enough, after hours of waiting, the blessed brightness appeared.

"We will ride the horses," said Joe. There was no possibility of hauling the loads farther just now. "This must be the way to Jackman's. Get on, boys!"

But he saw to his dismay that Kiren was quite unable to mount a horse. With a heart heavy as lead he lifted him upon the horse bodily. Had his devotion to what he thought was duty sacrificed the being who was dearer to him than life?

Again and again Kiren toppled over, but Joe and Archer managed to hold him on. Then, as suddenly as it had come up, the wind went down. Lower and lower scudded the flying snow. Ahead of them was the grove and, covered almost to the eaves, the house and barn. They had reached safety at last.

If it was not too late! Joe looked anxiously at Kiren; Jackman was out attending to his stock; there was much to do and he did not look up until, soundlessly, the three ghostly snow-covered figures appeared before him. He started back as if they had risen from the ground.

"Howly Mither an' where in the worl'd did you come from?"

"From over there! We've been out on the prairie all night."

The pioneer threw up his hands in amazed protest. "You never could. It's not a livin' soul could kape alive on the prairie last night," he cried, incredulously. But Joe had no ears for what he might say. Kiren was reeling from his seat on the horse's back and Joe caught him in his arms.

"Take care of the horses, Mickey!" he gasped. Then he carried Kiren to the house as if he had been a child.

The settler's wife was melting snow. A great tub of ice water stood on the floor.

"I'll take the tub out an' make more room," she said hospitably, for the single-roomed cabin was so small that three men nearly filled it.

"No," said Joe, "we need that ice water."

He knelt down before the chair on which he had placed Kiren and began cutting off his shoes and stockings and slitting the legs of his trousers. Not only were Kiren's feet frozen, but his legs to the knees. Joe thrust them into the tub of icy water, dipping it up and pouring

THE TURN OF THE ROAD.

BY ANNA STERNS.

It may be a long way to the turn in the road,
The path may be rugged and heavy our load,
Our hearts grown faint from hope deferred,
And sad with needless yearning.

But some day, somewhere, the turn will appear,
Then will vanish our weariness, doubt and fear,
Our hearts will be filled with joy and cheer
And strength and hope returning.

The sky overhead may be leaden and gray,
The wind cold and chilling, and dreary the day;
Not a glint of sunshine across the way
To relieve the day's dull seeming.

But a rift in the clouds will some day greet our view;
The bright eager sunbeams come struggling through,
Giving glimpses beyond of the clear azure blue
And a brighter tomorrow revealing.

Our hearts may be burdened with sorrow and care,
Too sad for a song and too weary for prayer;
Dismayed at the troubles we meet everywhere,
While our strength is swiftly waning.

But some day, faint heart, comes a turn in the tide;
God's love is so deep, His mercy so wide;
Neither sunshine nor storm can forever abide;
Each one, as we need, we're receiving.

Then let's travel joyously, blithely along,
With sometimes a prayer, and often a song,
And always a lift for the weak in the throng,
Till we come to the long road's turning.

it over them. And he never knew that his own hands were frozen. He was so busy thinking of his brother that he had no time to think of himself.

But the ice water that drew the frost out of his brother's limbs drew it out of Joe's hands while he was working with him. It was owing to this ready tub of half-frozen water, doubtless, that no amputations were necessary. Amputation would have been a most serious and very likely fatal thing, for the nearest surgeon was seventy miles away at Fort Dodge. The skin peeled off from Kiren's feet and legs completely, and he could not put on his shoes for three months, but he recovered and was in no wise permanently hurt by the experience.

Of course he could not go on; but Joe never thought of giving up. He felt that he was under obligation to the government to get those loads to Estherville at the first possible moment.

The bitter cold continued, though the blizzard ceased; but the next day Joe and Archer, with the owner of the cabin to take Kiren's place until they should be able to hire a third man for a driver, shoveled out the loads of corn, hitched the teams to them and went on in their difficult way. In less time than would have seemed possible under the circumstances, the loads were in Estherville and were received with joy by a company of soldiers uncomfortably near the famishing point.

Joe had not sacrificed his brother in doing what he held to be his duty. Instead he had won from him greater love and appreciation than ever before had been his. Kiren had learned from this experience. He never called his brother a "slowcoach" again. Instead his face lit up at mention of Joe's name in a way that was good to see. He and Joe both became successful and prosperous Iowa farmers, and died, not a dozen years ago, honored by all the community.

TELL IT TO SOMEBODY.

BY FRANK H. SWEET.

"Oh, isn't that fine!" exclaimed a girl, her eyes shining when she was told that she had won the essay prize in the academy. Then, her eyes growing still brighter, she added quickly, "I must tell Martha." And she hurried away almost on a run to the telephone to call up her friend.

Have you ever noticed how much of your ambition and effort to succeed is inspired by the thought, "I will tell her," or "I will tell him," when victory is won? A great deal of the world's best work, the work that requires skill and patience, is accomplished through the stimulus and encouragement of the thought, "I will tell it to someone," when it is finished.

It may be a father or mother, a brother or sister, or some other relative, or a friend, to whom we go with our story of achievement. But whoever it is, it is sure

to be one who understands our efforts, appreciates the difficulties of the work and rejoices over every advance we make, every victory we win. What an inspiration during the long periods of training, or during the long day's work, to look ahead and see the eyes of some friend brighten and his voice gladden when he hears how we strove and succeeded.

How it doubles the pleasure of an unexpected piece of good fortune to have someone to tell it to, someone who will rejoice to hear the good news! It is a pretty discouraging world for the boy or girl, or man or woman, who has no one to tell it to.

And should we not give that which we love to receive? If we need a friend to sympathize and rejoice with us, to understand our work and be interested in all that comes to us, then someone else needs such a friend, and we should be the one. It is not possible for any of us to be keenly interested in everybody. Some large-hearted people take an active interest in a great many persons, and furnish generous encouragement to most of the young people they know. Such persons are a marked blessing to any community.

Most of us cannot feel a deep interest in such a large number, but all of us can be interested in at least a few. Not only can we feel and freely express a lively interest in our own particular friends' work and success, but we can select one or two or three others, boys and girls, who have not many friends—lonely strugglers who have no glad listeners to whom to tell their struggles and victories.

By getting acquainted with these boys and girls, by frequent inquiries as to their work, their hopes and ambitions, we may soon become keenly and sympathetically interested in their progress. And as surely as we come to feel that way toward them so surely will they turn to us as the one to tell things to. When effort is hard and success seems remote, they will struggle the more heroically because of the thought that it will make us glad to hear of their success. And when they win a point it will seem worth while, because we shall understand how much it means and be happy over it.

Be somebody to tell it to, even if you can be it to only one or two or three. An attentive ear and a rejoicing heart are makers of courage and hope in the heart of your friend.

THE LAND OF TODAY.

BY LOU D. STEARNS.

Dorothy Gray sat disconsolately on the rug before the fire, her round chin resting heavily in the hollow of her pink palms, her eyes fixed on the dancing flames.

Outside, the merry shouts of children echoed from the opposite hill where they were enjoying the first coasting of the year. Beside her, her new book of fairy tales lay unopened, and Pussy Purr begged unsuccessfully for a romp. All Dorothy's thoughts were with the children outside.

But to all her pleading her mother continued to shake her head. "No, dear," she replied. "For a little girl who was indoors, sick, all yesterday, the house is the place after the sun goes down. It's cold and raw. You were out for an hour. Tomorrow, if it is nice and bright, you will have plenty of time for play, for it is Saturday, you know. Visit with Pussy, and read the new book you wanted so badly."

Dorothy leaned her head against the easy chair close by, and a big tear splashed down on her cheek; then another. "Oh, dear," she choked, "I wish it was tomorrow!"

"Mother Gray glanced up from her work. "I know a girl," she said gravely, "who has a bad habit of forgetting today. She is generally either wishing for tomorrow, or dreading it. The time to be happy, little girl, is today."

"But, Mother—" Mrs. Gray arose. "Dear," she said pleasantly, "if you cannot be happy with your books and your dolls, and your cat, I do not care to hear about it. I must go and prepare tea now, for Daddy'll soon be here."

Splash! A tear dropped down to the clean, white apron this time. And then, suddenly, a queer thing happened.

The tongue of flame Dorothy had been watching shot up straight and high, stood quite still for a moment, then slowly wavered—swayed athis way and that—parted—and a queer little old man stood in its place.

He was dressed in scarlet and gold, and his long, white beard flowed nearly to

his feet. A high, peaked cap sat jauntily on his head, and in one hand he balanced a long, slender rod that looked like a bit of shining sun. His eyes were sharp and smiling, and his face crinkled into the brightest smile Dorothy had ever seen.

He stepped forward: "I come from the Land of Today," he greeted cheerily.

She gasped. "Why," she exclaimed, "I never heard of such a place!"

He thumped his stick vigorously and it sent forth a shower of tiny sparks, like bits of flame and gold. Stretching forth his hand, he smiled: "That's because you live in Tomorrow," he chuckled. Then, "Come," he invited, and all at once she seemed to be floating softly on a kind of pink, shining cloud.

At last it stopped and she found herself in the most beautiful place she had ever dreamed of.

Everywhere flowers were blooming, and birds and butterflies of the most gorgeous colors darted all about. The sun was brighter than she had ever seen it, and the most wonderful little people flitted about—working here, or playing there; some studying and others reading. But whatever they were doing every one seemed happy. No one frowned. Even those who were working hardest smiled as joyfully as those who played.

Then, quite suddenly, the sun went behind a cloud and great drops of rain began to fall; yet in some strange way the place seemed as bright as ever and no one minded the rain at all—not even Dorothy.

The little old man, who had left her for a bit, came up just then. "What do you think of the Land of Today?" he asked.

"Oh," she cried, "it's a beautiful, beautiful place! But how can it be so bright when it is raining, and there is no sun?" "It's the light from the hearts, child," he smiled.

Dorothy smiled. "I wish I lived in such a land," she cried.

"You can, if you will," he nodded. "You have only to keep happy and helpful today. We don't think about what's coming tomorrow, but what is here today. That's all the difference between your world and ours."

He waved his long, bright rod. "Try it," he urged, "and see," and with a jerk she was caught up on the cloud once more.

Meow-ow-ow! Meow-ow-ow!

Dorothy opened her eyes as Pussy sprang into her lap. For a moment she gazed wonderingly about; then she gave the waiting cat a great hug. Was it all a dream? "You dear old thing," she cried energetically, "let's try being happy today!" and as she stroked the soft coat a warm little glow came into her heart.

The room seemed suddenly brighter. She drew in her breath with a little gasp. "Puss! Puss!" she exclaimed, gleefully, "I do believe the dream man was right! Why, just hugging you has made it seem bright!"

DID YOU FORGET

To send your renewal order for the Michigan Farmer? Why not do it right now while you think of it? Remember you only invest 50c for one year, \$1.00 for two years, \$1.25 for three years, or \$2.00 for five years.

LOST ARTS.

BY APOLLOS LONG.

Where are the pies of boyhood days, That came to me in devious ways? At dead of night, when all was still, How oft I joyed to eat my fill Of pumpkin pies my mother made— That on the pantry shelves were laid, Where hungry boyhood's fingers left Scooped pie, and empty tins were left— And then to bed, where sleep was sweet; While in these days if I but eat A single piece of pie for tea, In dreams I frightful goblins see, That torture sleep, nor take their flight Until the morning's golden light.

Now oft I question which to blame. Are pumpkin pies still made the same As those of old, or can it be The change has only come to me?

I know that pumpkins grow as round As those in olden times I found, And later, when the knife cleaves through, Display the same deep golden hue, Until I dream the pies shall be Like those my mother made for me.

Alas, but when the pies are made, How quickly does the vision fade; No more, no more shall I behold A pumpkin pie like those of old, The art is lost—a hand is laid Upon my arm, I see displayed A pie tin deep, and twelve by eight, That has been scraped as clean as fate. Wife smiles, "my boy," the tale is told, My boy—a hungry twelve-year-old, And has he slept a wink? You bet! It's eight o'clock, he's sleeping yet.

If you find 12 gauge guns and loads too heavy and a bit slow in an all-day hunt, just get this splendid new

Marlin

The Safest Breech-Loading Gun Built.

16-Ga. Hammerless Repeating Shotgun—\$24.50

For snipe, quail, partridge, woodcock, squirrels, rabbits, etc., it has the penetration and power of the 12-gauge without the weight.

It's a light, quick gun of beautiful proportions, superbly balanced, with every up-to-date feature: Hammerless; Solid Steel Breech, inside as well as out; Solid Top; Side Ejection; Matted Barrel; 6 Quick Shots; Press-Button Cartridge Release; Automatic Hang-Fire Safety Device; Double Extractors; Take-Down; Trigger and Hammer Safety. It's just the gun you want!

Marlin 12-gauge hammerless repeater, \$22.60

Send 3c postage for complete catalog of all Marlin repeating rifles and shotguns.

The Marlin Firearms Co., 127 Willow St., New Haven, Conn.

Write for "Betty" That's the name of the beautiful girl on the

Coca-Cola

1914 Calendar (Size, 13 X 32 inches)

Send your name and address and a 2c stamp (it pays part of the postage) and we'll send you Free and postpaid this beautiful lithographed and perfect reproduction of the oil painting "Betty," painted especially for us. 1914 calendar is attached.

FREE Coca-Cola booklet enclosed. THE COCA-COLA CO. Atlanta, Ga.

Twelfth Year of JACKSON Success

Jackson

"No Hill Too Steep—No Sand Too Deep"

"Olympic Forty" \$1385; "Majestic," a big four, \$1885; "Sultan Six," \$2150. Write for catalogue today.

JACKSON AUTOMOBILE CO. 1508 E. Main Street, JACKSON, MICH. 978 Woodward Ave., Detroit, Mich.

HAVE BETTER LIGHT

NO SMOKE NO SMELL

WITH THE "PERFECT" BURNER Wonderful new invention—turns dim red flame into big brilliant, white, steady light. As good as gas or electricity. Works on any lamp. No smoke, no smell. Makes one lamp do work of three. Prevents eye strain. Saves oil. Fine for all night use. Guaranteed. Price 25c. for No. 1 or No. 2 lamp, or No. 2 Cold Blast lantern, by mail prepaid. Agents Wanted. Write quick. Perfect Burner Co. 437 Spitzer Bldg. Toledo, O.

Look! Read and Save Money

We have a big Stock of Apple, Peach, Pear, Cherry, & Plum trees, at 3c & up. Shade trees. Berry plants, Roses, Shrubs, Etc. Seed Corn, Potatoes & Oats. We were formerly at Moscow, but have better facilities now to serve our Patrons, send for Catalogue, ERNST NURSERIES, Box 1, Eaton, Ohio.

BERRY PLANTS of all kinds: Strawberry, Blackberry, Raspberry, Gooseberry, Currants, Grape Vines, Etc. We grow and ship nothing but first class true to name, strong rooted, healthy plants. Warranted to grow and of best varieties. BRIDGMAN NURSERY CO. Cultural Catalog Free. Stahelin & Son, Prop., Bridgman, Mich., Box 66.

NOTICE

At the annual meeting to be held in the city of Hastings on January 13, 1914, 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. D. W. ROGERS, Sec. Dated at Hastings, Mich., Dec. 9, 1913.

95 cents

5 YEAR GUARANTEE

Use NATCO Tile—They Last Forever

Farm drainage needs durable tile. Our drain tile are made of best Ohio clay, thoroughly hard burned. Don't have to dig 'em up to be replaced every few years. Write for prices. Sold in carload lots. Also manufacturers of the famous NATCO IMPERISHABLE SILO, Building Blocks and Sewer Pipe.

NATIONAL FIRE PROOFING COMPANY, Fulton Building, PITTSBURG, PA.

GO TO WESTERN CANADA NOW

The opportunity of securing free homesteads of 160 acres each, and the low priced lands of Manitoba, Saskatchewan and Alberta, will soon have passed.

Canada offers a hearty welcome to the Settler, to the man with a family looking for a home; to the farmers son, to the renter, to all who wish to live under better conditions.

Canada's grain yield in 1913 is the talk of the world. Luxuriant Grasses give cheap fodder for large herds; cost of raising and fattening for market is a trifle.

The sum realized for Beef, Butter, Milk and Cheese will pay fifty per cent on the investment.

Write for literature and particulars as to reduced railway rates to Superintendent of Immigration, Ottawa, Canada, or to Canadian Government Agent.

M. V. MacInnes, 176 Jefferson Avenue, Detroit, Mich.

160 ACRE FARMS IN WESTERN CANADA FREE

WE SHIP ON APPROVAL

without a cent deposit, prepay the freight and allow 10 DAYS FREE TRIAL. IF ONLY COSTS one cent to learn our unheard of prices and marvelous offers on highest grade 1914 model bicycles.

FACTORY PRICES Do not buy a pair of tires from anyone at any price until you write for our large Art Catalog and learn our wonderful proposition on first sample bicycle going to your town. RIDER AGENTS everywhere are making big money exhibiting and selling our bicycles. We sell cheaper than any other factory. TIRES, Coaster-Brake rear wheels, lamps, repairs and all sundries at half usual prices. Do Not Wait; write today for our special offer. MEAD CYCLE CO., Dept. W77, CHICAGO

Choice Fish

Now being caught in large quantities daily. Our price list is free. It will cost you just 1c. to send a postal card asking for it. You can't make a better investment.

WISCONSIN FISHING CO. Department Y, Green Bay, Wis.

If you Your Leg Cut Off

you would insist upon the wound being carefully dressed and cared for; why not give the same care to the minor injuries of daily occurrence? The danger of blood poisoning is as great in one case as in the other. Use OXALBITOL for dressing wounds, it is an antiseptic dressing that has merit and is sold by mail only. Price 35 cents. Money returned if not satisfied. OXALBITOL CO., Honesdale, Pa.

TRAVELING SALESMEN

EARN \$1000 TO \$5000 A YEAR

You can learn to be a salesman in eight weeks by mail and be earning while you learn. No former experience required. Write today for particulars, list of hundreds of good openings and testimonials from hundreds of our students who are earning \$100 to \$500 a month. Address nearest office, Dept. J11 National Salesmen's Training Association Chicago New York Kansas City San Francisco

AGENTS WANTED

For lubricating oil and paint, putting in entire time or in connection with other work. Good chance to increase your income. Address The Harvey Oil Co., Cleveland, O. Dept. S.

WANTED

Agents to sell Power, Pump and Field Sprayers through Erie and Potato districts of Michigan. Good lay out for active man. Address Sprayers, cr. Michigan Farmer, Detroit, Mich.

GOVERNMENT FARMERS WANTED

Make \$125 monthly. Free living quarters. Write, OZMENT, 17 E. St. Louis, Mo.

BOUGHT

Bears, Foxes, Minks, Ducks, Guinea, William J. Mackensen, Box 334, Yardley, Penna.

Railroad Watch

To advertise our business, make new friends and introduce our catalogue of Watch bargains we will send this elegant Railroad watch by mail post paid for ONLY 95 CENTS. Gentlemen's size, full nickel silver plated case, locomotive on dial, lever movement, stem wind and stem set, a perfect timekeeper and fully guaranteed for 5 years. Send this advertisement to us with 95 CENTS and watch will be sent by return mail post paid. Satisfaction guaranteed or money refunded. Send 95c today. Address R. E. CHALMERS & CO., 538 So. Dearborn St., CHICAGO.



Tommy Truckfarm: "Say, Ma, I'm awful glad you're done your wash. I want a lunch to go fishing with. Oh, what do you think—I was out looking at the chickens and that city girl pointed to a chicken and ast me if it laid an egg what would I do with it. I sez 'I'd send it to a museum. That chicken's a rooster.' Ain't you glad you heard about Fels-Naptha Soap and can get your work done so soon?"

Anty Drudge: "It looks to me like you're glad too. Fels-Naptha is the friend of every one. I always keep a box on hand so's I'll be sure to have enough."

The Fels-Naptha way is the best way and easiest way of doing all kinds of work.

The Fels-Naptha way is the cool-water, no hard-rubbing, time-saving way. For the weekly washing, for house-cleaning, scouring greasy pots and pans, making china and glassware glisten, there is nothing so good as Fels-Naptha Soap in cool or luke-warm water.

Full directions on the red and green wrapper.

Better buy it by the carton or box.

Fels & Co., Philadelphia.



Who is to Blame for my Failures?

THERE is a man of my acquaintance who is a failure from a financial point of view. He is now past middle life and has never made money, so it is safe to assume he never will. There are many more in the world like him, and I should never think of singling him out for remark if he was not always trying to explain his poverty. It seems one time when he was a young man he saw a chance to make a profitable investment. Instead of investing his savings at once and keeping still, he told a friend he was going to invest tomorrow. That night while he was counting his expected wealth his friend cut in ahead of him, snapped up the investment, and is today worth thousands of dollars.

My friend has always charged his poverty to his friend's treachery. It has never occurred to him that his own failure to seize opportunity when it presented itself is the thing responsible. He doesn't even dimly suspect that he has not in him the qualities which make for success, clearness of vision, prompt action, courage and aggressiveness. Nor does he seem to know that the one lost opportunity could not have kept him down if he had had it in him to rise. To the end of his days he will believe that he remained a poor man because one friend proved false.

On a par with him is a young woman I know, a music teacher who has never had many pupils nor kept the few she had very long. She blames her failure to the fact that her parents would not send her to New York to study. Everyone else thinks that had she been worth sending to New York to the best teachers she would have got there some way, even if her parents could not have sent her. She is a failure because she lacks musical ability, temperament, personality, the things necessary to make her a successful teacher. She is a failure because she was born one, not because she has not had sufficient opportunities to make good.

Another woman who is out of touch with everything blames her unhappy life on her bringing up. She has never been happy, never been successful, has practically no friends, and is altogether about as wretched a person as one would want to meet. And she blames it all on her mother, says her mother didn't bring her up right. No one can see where her mother made any mistake, unless it was in bringing her up at all. She really doesn't seem to justify the effort. But instead of looking within herself for the cause of her unfortunate temperament, she insists that somewhere along the years her mother did something she shouldn't, or did not do something she should, and no one can persuade her differently.

I really haven't much patience with people who are always blaming their faults and failures on the other fellow. To me it is a sure sign of weakness. The big man or the big woman is as willing to stand for his mistakes as to take credit for his successes. If things go wrong, instead of trying to throw the blame elsewhere he will sit down and try to see wherein he might have done differently with better results. He will profit by his mistakes and learn what to guard against in the future, instead of saying, "If So-and-So had acted differently I would have been all right."

In this class of weaklings I always count the people who refuse to do what they know they should because someone in the church has not done right. Just how the fact that someone else has done wrong can excuse me if I copy after them is a problem I have never been able to solve. I should not feel justified in killing a human being because, on various occasions clergymen have yielded to passion and taken life. Why, then, should I excuse my cheating in business or lying or short-weighting or swearing or doing anything that is vicious on the ground that some of the church folks I know aren't square? It can't possibly matter to me what the other fellow does. If I want to be square I know how and I can

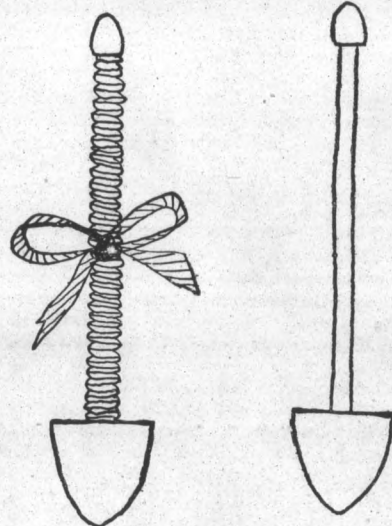
be, even if my neighbors aren't. If I don't want to be I needn't, but the fact that someone else wasn't square either is no excuse for me. I am what I elect to be, success or failure, saint or sinner, and the conduct of friends or foes can not alter me unless I will it.

DEBORAH.

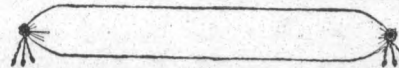
Dainty Toilet Articles.

By MAY Y. MAHAFFY.

ONE of the daintiest possible gifts for maid or matron, which must at the same time be inexpensive and bespeak the work of willing fingers, consists of a pair of slipper trees which will keep the best party pumps in trig shape when not in use. These trees, of wooden ends, with flexible steel connecting strip, are procurable for five or ten cents at almost any shoe store. The toe and heel parts of wood are placed in the toe and heel of the slipper, and the steel arches up according to the slipper's



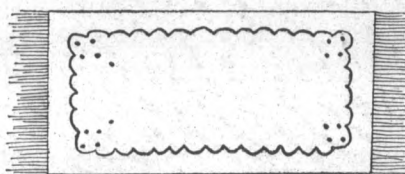
No. 1. Slipper Trees.



No. 2.



No. 3.



No. 4.

length. Two yards of ribbon one inch wide will be needed to cover the steel portion nicely, and may be in pink, blue or any preferred shade. Divide the ribbon, allowing half for each tree. Again divide the portion for one tree, and overcast it together on the right side, running the stitches as nearly invisibly as other side must be overcast while holding the strip over the steel, and the ribbon pushed along so that the fullness will be evenly distributed. An extra half yard of ribbon will be needed for the bows around each. The covered and uncovered tree are represented in Fig. 1.

Figs. 2 and 3 show two collar protectors, either of which may be fashioned in a few minutes, and will be found just the thing for use with coats or furs which are likely to soil pretty neckwear. No. 2 is made of net one yard long and 12 or 14 inches wide. Fold the net the long way, and turn the edges together, overcasting them carefully. Some prefer to darn in and out of the meshes, and if this is done the darning must run all around the scarf. The square ends are then gathered up under crocheted roses or other

ornaments, finished with crocheted balls or pendants. These add sufficient weight to the scarf to keep it in place after folding it round the neck. If one is not an adept at crocheting, small rosettes of ribbon or lace will answer. The centers may be filled with beads, and strands of beads dangle therefrom.

The other collar protector is made from a yard of six-inch ribbon, figured or plain. The ends are pointed, and at the center back a slash is cut across the ribbon two-thirds of the way. From opposite directions a few inches at either side sloping cuts are made of equal length. These give the ribbon an opportunity to spread around the back of the neck and over the shoulders instead of rolling up. The edge is then finished with lace, held just a trifle full, this lace running up and down on the slashed portions as well as on the plain edges.

A vanity bag is made of half a yard of pretty ribbon three inches wide, or a strip of silk of the same size answers for the upper part of the bag. An extra oval or round piece must be used for the bottom. Gather the bottom of the bag and fit to the bottom section. Remove the frame from a tiny mirror, wrap it in narrow ribbon of the color predominating in the bag, and fit this into the bottom of the bag, which should be cut just a seam's width larger than the mirror. Stitches taken through the ribbon-wrapped mirror and into the bag proper will hold it firmly. It is sometimes possible to procure mirrors with satin backs, all ready to track into place. Others may be glued into position. Lace edging then finishes the top above a hem or facing arranged for the gathering ribbon. If a powder puff, or a bit of chamois scalloped or pinked and tacked by French knots to a quarter if a yard of fringed ribbon, as in Fig. 4, is rolled up and placed inside the bag this little gift will be complete, indeed. Or, a circle of chamois may have an edging of lace to match the top of the bag.

A charming cover for a talcum powder can is made from half a yard of ribbon as wide as the can is high. Machine stitch a narrow silk tape on the wrong side along each edge, and run with elastic just large enough to go around a can very snugly. Join the ribbon, and finish at either side of the top by numerous loops and ends of baby ribbon of a harmonizing shade. These are readily slipped over a can, the elastic holding the cover in place, and when one can is emptied it is only a moment's work to transfer the cover to a full one.

A chamois and powder bag combined ought to find a warm welcome from any man who has contracted the habit of shaving at home. Crochet a circular piece about four inches across, using the single crochet stitch, gradually increasing just enough to keep the work flat, a soft white cotton serving as the medium for work. Finish the edge with a small scallop. Attach this to a circle of chamois of the same size, stitching just back of the scallops, and leaving one side open for the insertion of the powder bag. This bag should be made of two circles of thin muslin just a little smaller than the outer cover, and be filled with good talcum. Slip into the outer cover and overcast the open portion. These overcasting stitches are easily removed when the bag needs refilling, or requires laundering.

An attractive dresser set is made from small figured cretonne edged with Cluny lace or crochet. Besides the scarf there should be a square or oblong cover for a cushion and a couple of round mats for toilet bottles. If desired, bags for laundry, collars or hair combings may be added.

THE "FRIENDLY CLINIC."

Already the Twentieth Century Club is receiving letters from mothers in the country in response to the statement printed in The Farmer a week or so ago that the club was planning a committee to befriend country girls. One letter asks the charge for help. There is no charge made for any service rendered. To quote the chairman of the committee, Mrs. Geo. P. Fraser:

"The service is given wholly through the spirit of sisterhood that should exist between all women, hoping to lessen the burden of mothers who must be parted from their daughters, and at the same time to have a watchful interest over the daughter, to shield her as much as possible from the dangers of city life."

The following leaflet is being distributed throughout the city:

"The Twentieth Century Club of Detroit, announces that it has established a Friendly Clinic, to receive any girl stranger in the city or otherwise, who desires information as to places to live, employment, or similar matters, who would appreciate a general friendly interest."

"This clinic will be conducted by the women of the club, and will be held during the winter months, November 1 to April 1, on Saturday evening, from 7:30 to 8:30 o'clock, in the Twentieth Century building, corner of Witherell and Columbus streets, using the Witherell street entrance."

HOUSEHOLD ECONOMY.

BY FLORENCE BROWN.

At a recent gathering of women the above subject was discussed and it was interesting to hear the different opinions as to the meaning of the word economy. Webster got the impression somewhere that it meant "thrifty management; frugality; disposition of things." Mr. Webster would have been greatly enlightened on the meaning of this much abused word had he listened to the discussion.

Much of the so-called economy in the home is the greatest extravagance. For instance, a woman will spend days and weeks piecing up scraps of calico and quilting them, and when she has the finished product will have a virtuous feeling that she has saved the family a small fortune. In the olden times it was true economy to piece quilts, for the pretty white spreads were unknown and every scrap of calico used in that way was wisely used. Now one can buy a spread that will look much better, wash easier, and last longer than a quilt and at less cost than a quilt can be made. To be sure, a spread does not quite answer the purpose of a quilt, but since it has become the custom to make light weight comforts of white cheesecloth the bedding is more satisfactory than in the days of quilts. We are all proud of the quilts we have inherited and look with wonder upon the dainty stitches, but we realize that the day has come when it is the poorest economy to spend one's time and strength piecing and quilting them.

In many homes a false idea of economy prevails in the use of old rubbers and old lids on fruit jars. The loss of one good can of fruit would buy a dozen of the best grade rubbers and it would be a small expense to get new covers when needed. So many complain of losing canned fruit, but there are a few simple things to prevent this loss. First, have perfect cans. When a new lot are bought test each one with water before putting fruit in it. Some cans are made imperfectly and no amount of care will save the fruit put into them. Use only new rubbers, or if some old ones are seemingly good, use two on a can and if the fruit can be turned upside down and not leak they will be all right. This is the second point of importance. The third point may not be so well known to housekeepers. Many screw down the lids as they have stood awhile. This is a mistake, as several years of experimenting has proven. When the fruit is hot and the lid is screwed down the rubber becomes warm and adheres to the can. It stands to reason if this is broken when the fruit is cold it is likely to admit air. Another economical way to can fruit is to put it up in hot water. Many kinds of fruit keep better and have a fresher taste than canned in the old way. Fill your cans with fruit as it is prepared for ordinary canning. Place jar in pan of hot water and put a silver knife or spoon in the jar to keep it from breaking. Pour boiling water on the fruit and cover it lightly with the lid; after standing ten minutes pour this off and fill up the can again with boiling water, put on rubber and screw down top, and the work is done. Rhubarb, gooseberries, blackberries, raspberries, keep perfectly canned in this way, and with the two latter the flavor is better if the sugar is not cooked into the fruit when opened. It may be put in some little time before the meal so it will dissolve. If you have never tried this method, begin in a small way with gooseberries and rhubarb and see how easy it is and how good. It is almost impossible to tell it from the freshly gathered fruit.

Economy seems to be a much abused word, for what is true economy for one family is rank extravagance for another. On the face of it one would think it true economy for a woman to do her own sewing. Let us suppose a case. Mrs. Green has a family of five young children. Would it pay her to take her time and strength to do the family sewing, when she has little taste for that kind of work, and to add it to her already long list of duties would mean a nervous breakdown? No, it is wise economy for her to hire her sewing and take a little time each day for recreation, in the sense of "re-creation." Mrs. Brown has a small family and was trained from childhood to use the needle and sewing machine and it is wise for her to hire washing and ironing and do the family sewing.

One source of waste in the home is in feeding the family on left-overs that should go to the chickens or pigs. When good material is put with questionable left-overs to make it attractive it is not economy. On the farm, food is not wasted that is fed to the animals and often a much better table can be set with little added expense by avoiding this form of so-called saving. The French people may be able to concoct appetizing and attractive dishes out of mere nothings, but the art is in its infancy in America.

Town economy is a different proposition and consists largely in knowing where to buy as well as what to buy. It is not economy to buy cheap stuff with the idea that a little skill in its preparation will make it all right. Be sure the store is clean where butter is bought. See that vegetables are protected from dust and dirt of all kinds when you select your green grocer. When it comes to meats be your own "inspector" before deciding who shall furnish it for your household.

Housekeeping ought to be one of the fine arts, not drudgery, but it takes brains and their constant use to reach this desired end. When planning household economy don't leave yourself out of the proposition, but discard every plan that saves material things at the expense of your own life and happiness. "Better is a dinner of herbs and a cheerful woman therewith, than a banquet and dyspepsia thereafter." (After Solomon).

This is the time of year to take to heart Webster's last meaning of economy—"Disposition of things"—get rid of as many dust catchers and moth producers as possible and let the sunshine in on all you own. Let health saving be first and other things will take their logical places.

LAUNDRY HELPS.

BY CASSIE CRAIG.

Many women complain of being so tired on washday, from the housework and washing also. There is a plan that works admirably well. The day before wash day (though most women prefer to wash on Monday), bake your bread, make two or three pies, boil a pot of beans, fix some kind of salad, stew fruit, if you haven't any canned, boil up some kind of meat, if you haven't canned meat, soap your white clothes and put to soak, fill up the boiler with water and cover up.

Then, on wash day, before you sit down to breakfast, have "hubby" help put the boiler on to heat and when breakfast is over and the work done up in kitchen, (leaving other work go for awhile), your boiler of water is hot and you can begin your washing. Rinse clothes out of cold water and go ahead with white clothes as usual. After you finish up with the white clothes you can then sweep, make beds or anything most urgent. When dinner time comes have everything in readiness and lunch at the usual noon hour. After dinner, if you haven't finished washing yet, pile up your dishes, place in dish pan, cover with water and let stand until after you finish your washing. Of course, dishpan should be placed somewhere away from the files.

After washing is all out, rest yourself, and it won't be much disgrace if your beds do not get made until before going to bed.

If your neighbor ladies learn the day you always wash they are not purposely going to call on you. You will find this an enormous help.

HOME QUERIES.

Household Editor:—I found a real consolation in your article on keeping in pie juice, and to find that all the new kinks fall, like signs in dry weather. Even sticking pieces of macaroni into upper piecrust fails, which reminds me of one of my hobbies when but a little girl. I used to stick hen's feathers into the

ground, expecting to raise chickens. But to return to pie. I glaze upper and under crust with the white of an egg, on the inside, of course. In this way fruit pies will keep for days without soaking through crust. I always mix flour with the sugar in the bottom. Now comes the really hard part, the baking. If I can manage to have the oven just hot enough to bake the crust thoroughly before the filling begins to boil and then let the oven cool, or at least watch closely so the juice will cook very slowly. I have quite good success. I hope we may hear more on this subject.—Middleaged Cook.

Household Editor:—I inclose a recipe for buns which my friends think are very good: Three cups bread sponge, two tablespoons lard, three tablespoons sugar, mix and add flour enough to make like salt biscuit dough, grease over top and put in warm place to rise. When light, turn dough on floured board and mix just enough to prevent sticking to board, roll and cut with large cup. Let rise and bake in moderate oven a light brown. We like the Michigan Farmer very much, as it contains much valuable information.—M. B. C.

Household Editor:—I would like some of the readers of the Michigan Farmer to tell me what causes the cream from the separator to run thin. Since the frosts and wet weather my cream tests ten or more points lower than it did last summer, and the cream screw set just the same as when it tested 40 or more. I have tried tightening the screw and lowering it, but it seems to make little or no difference. Always put the screw back in same position as at first. Would the frost and wet feed make any difference? Last fall it acted just as it does now, but after awhile it was right again. Does anyone else have such trouble?—Subscriber.

SOME CLEANING HINTS FOR QUIET DAYS.

BY ANNA RUTHERFORD.

Everyone knows how "things will accumulate, for nearly everyone has the habit of putting away scraps, old hat and dress trimmings, bits of lace and embroidery and odds and ends of almost every kind of thing. Of course, they think at the time that they will some day have use for them. But much of the put-away stuff one never has need for, and the accumulation continues.

Sometimes one has need of something she has a faint recollection of having put away, but does not know where to find it and will not take the trouble to search for it. Possibly the put-away escapes her memory altogether and she goes to the expense of buying, when the needed article, as good, or better, than the newly bought, is already in her possession. Many a time has this been the case with myself or some one of our family. We would accidentally come across the needed, and maybe forgotten article after its place had been supplied.

Now I find a good plan is at the beginning of the spring and fall seasons, during rainy days, before the general housecleaning begins, to have a thorough over-look of closets, drawers, etc., and take inventory, as it were, of one's belongings, replace in order what may be of service and discard the rubbish. There will always be plenty of this. And many a stored-away thing that will never be of service to the owner, would be gladly received and made use of by some needy person. Poor children especially, always appreciate bright-colored scraps, old finery, and often one has hidden away many useful things that might be given them. Hence it is positively wrong to hoard things we do not need nor ever will.

Old hat trimmings, such as good velvet, ribbon, feathers, etc., should be cleaned and put by themselves, likewise dress scraps and remnants of good lace and embroidery. I find it convenient to put such things away in boxes and envelopes and label each. Have separate boxes for buttons, hooks and eyes, old whalebones, collar stays, etc., and one for odds.

Much valuable time as well as temper is often saved by keeping one's belongings in order, and as order is one of God's first laws, certainly orderliness must be akin to godliness.

BOOK NOTICE.

The Art of Writing English. By Rollo Walter Brown, Professor of Rhetoric and Composition, Wabash College; and Nathaniel Waring Barnes, Professor of English Composition, De Pauw University. In this book for college classes, the student is led at the outset to recognize that he must have something worth while to say when he writes; then he considers in turn the words he will use; the principles which will guide him in his expression; the several steps which he actually writes; and finally, the testing of his finished product. Cloth, 12mo, 332 pages. Price, \$1.20. American Cook Co., Chicago.



The Ham said: "I'm cured!" And meant it. Because the farmer—he was a wise one—always used Worcester Salt.

If your meats are in proper condition for curing, Worcester Salt will keep them in prime condition.

Worcester Salt always makes a pure crystal-clear brine, free from sediment. It is this sweet, savory brine that gives your meat a flavor which is as sweet-as-a-nut—the kind of flavor that puts your hams, bacon and salt pork in the "high grade" class.

WORCESTER SALT

The Salt with the Savor

You'll find that Worcester Salt is also the finest procurable for your butter-making. Its pure, even crystals and its freedom from all bitterness make it the perfect salt for all dairy uses.



For farm and dairy use, Worcester Salt is packed in 28 and 56 pound bags. Your wife will find many uses for the bags—they are made of the best quality of Irish linen. Smaller bags too, if desired. The new and enlarged edition of the booklet, "Curing Meats on the Farm" is now ready. A postal will bring it FREE to you.

WORCESTER SALT COMPANY
Largest Producers of High-Grade Salt in the World
NEW YORK

BETTER LIGHT from KEROSENE
Beats Electric or Gasoline **TEN DAYS FREE** SEND NO MONEY
Without sending a cent you can use this wonderful, economical light 10 days free, then return at our expense if not satisfied. Gives powerful white incandescent light, burns over 50 hours on one gallon kerosene (coal oil). No odor, smoke or noise, simple, clean, won't explode. Guaranteed. We want one person in each locality to refer customers to. Write for 10-DAY FREE TRIAL AGENTS OFFER—agents' wholesale prices and learn how to get ONE FREE. Make money evenings and spare time. One farmer cleared over \$500 in 6 weeks. Exclusive territory given.
MANTLE LAMP CO., 520 Aladdin Bldg., Chicago, Illinois

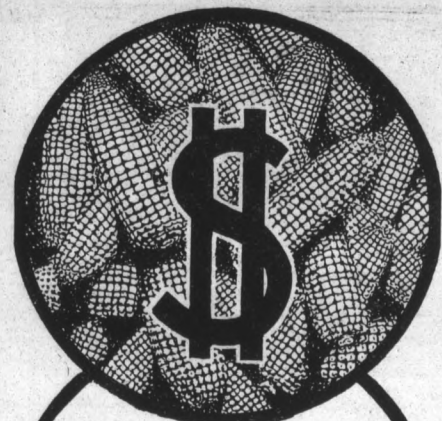
HARTSHORN
SHADE ROLLERS
Original and unequalled. Wood or tin rollers. Improved requires no tacks. Inventor's signature on genuine.
Stewart Hartshorn

Beacon FREE Burner
FITS YOUR OLD LAMP.
100 Candle Power Incandescent pure white light from (kerosene) coal oil. Beats either gas or electricity. COSTS ONLY 1 CENT FOR 6 HOURS. We want one person in each locality to whom we can refer new customers. Take advantage of our Special Offer to secure a Beacon Burner FREE. Write today. AGENTS WANTED.
HOME SUPPLY CO., 139 Home Bldg., Kansas City, Mo

If it is highest quality and lowest cost in light you want, you will have to get a KERO VAPOR. It's the only kerosene (coal oil) vapor lamp; will burn 12 hours absolutely uniform, better than gas, can't creep up, simple to care for, guaranteed never to clog or burn out. Agts. wanted. DOORENBOS BROS., 226 Bates Ct., Kalamazoo, Mich.

MEN WANTED
We positively teach you at home by mail to earn \$25 to \$50 weekly as Chauffeur or Repairman. Students advised to positions. Best system, lowest price. MODELS FURNISHED. Write for Free Book.
Practical Auto School, 66-W Beaver Street, New York

WANTED—Men and women for Government positions. Examinations soon. I conducted Government Examinations. Trial examination free. Write, OZMENT, 17 B. St. Louis.



**Make your corn
bring you twice
as many dollars**

Instead of 40 bushels of
corn per acre, get 80 to
100 bushels, by using

**Packer's Brand
Fertilizers**

The ears will be fuller,
the grain better devel-
oped, too.

Write for this Free Memo-
randum Book. A valuable
pocket note book. Contains
the latest information on sci-
entific fertilization. Get
your copy today.

PACKER'S FERTILIZER CO.
Station P, Cincinnati, O.

Agents wanted,
There's money
selling our Fertil-
izers. Write us.



Custom Fur Tanners

**HIGHEST
PRICES
FOR
FURS**

**WE SHARE OUR
PROFITS WITH YOU**
We pay highest prices and
remit promptly. Send for
Free copy for Co-operative
Raw Fur News—Explains how
you can get more money for
your furs. Forty years' ex-
perience and satisfied ship-
pers everywhere. Send a
postal NOW for your copy.
THE CO-OPERATIVE RAW FUR CO.
55 Jefferson Ave., DETROIT.

**FREE INFORMATION ON
HOW TO DO TANNING**

Send for our illustrated circulars,
on taxidermist work, custom
tanning and mfg. of ladies furs,
robes, coats, rugs, gloves and mit-
tens, from the trapper to the wearer.
W. W. WEAVER, READING, MICH.

Trappers

Write Us First Get our price list
and shipping tags.
Highest Prices for Furs

We buy any quantity—every kind. Send
today for prices and shipping tags sure.
McCullough & Tumbach, 124 N. Main St., St. Louis, Mo.

SHORES-MUELLER CO.
Wanted
Farmer or Farmer's Son
with rig in every County to intro-
duce and sell Family and Veteri-
nary Remedies, Extracts and Spices. Fine pay.
One man made \$90 one week. We mean busi-
ness and want a man in your County. Write us,
Shores-Mueller Co., Dept. 21, Cedar Rapids, Iowa

Farm Commerce.

The Requisites of Agricultural Co-operation.

IN taking up the work where he left off last week, Professor Hibbard reiterated the main thoughts in the ground already covered, and said in addition that:

Co-operative Companies Must Control Memberships.

It is necessary that the organization have control over its members to an extent where the members must bind themselves to bring all their products to the company. Without such an agreement, disruption is the usual result which is followed by failure, together with financial losses. Of course, in such companies as the telephone companies and mutual benefit insurance concerns the member-ships are not regulated to any great extent but inasmuch as this is true, one must consider that there is little co-op-eration involved and they do comparatively little business as compared with a fruit-selling organization or a creamery.

An incident which will illustrate the above principle may be mentioned in a case arising in one of the most successful fruit-selling companies of Wisconsin, which had a great many members. One community located back away from the others had a very good location and were enabled to raise the very first strawberries that were put on the market. Now for the first few crates they could get a higher price than could be gotten by the co-operative association so they sold the first crates to scalpers and then when this outlet became unreliable they took their product to the organization to sell. Now this worked all right the first season it was tried, but the following year the president of the main company found out that the people of this particular community were planning on selling their produce this way and forming a smaller company for themselves. So he hired a buyer to go into the community and take all their early berries, but to get out of the country before Saturday. Now all are aware of the fact that the Saturday market is a very important one for the berry grower, for on Saturday an especially close picking is made and the berries are gotten onto the market because there is no shipping on Sunday. When this community found that their buyer had gone, they could do nothing else but to load up their wagons and take their berries to the co-operative warehouse. In the meantime, the buyer had paid the growers by check and they had had these checks cashed and the checks were then turned over to the president of the co-operative company. There were in his possession when the farmers drove up with their loads of strawberries so when he asked about the berries they had produced prior to these, and upon being told that only a few had been produced, he had only to show them the paid checks to show them that he knew what they were doing. Then he formally notified them that they were suspended from the company; that is, the company did not agree to handle their products for a year. But the company was in the habit of buying from outsiders to a small extent and so the president bought these berries at a very much reduced cost. Now we can see that if the organization had not been a strong one and the president a very shrewd man, the whole plan would have been overturned by the balking of these few patrons. It would seem then, that a co-operative scheme should have its members bound by an iron-clad agreement to bring all their produce to be marketed through the central warehouse. This gives the business more stability for the company knows that it will have something to sell at all times and it also gives the member more security for he knows that he can always find a ready market for his surplus.

A Co-operative Cheese Factory.

In Sheboygan county, Wisconsin, there are 103 cheese factories with a yearly output of sixteen million pounds of cheese. All of the farmers keep Holstein cows and keep about as many of them as their land will support.

Conditions before Co-operation.

It will help us to judge the benefits of co-operative organization to see what was their condition before and after they were united. Before organization the patrons of a creamery would meet, say once per year, and hold a sort of business meeting

at which they made an agreement with a cheesemaker, often only verbal, to make their cheese for one year at a cost of one and a half or so cents a pound. The cheesemaker owned the factory and all the equipment. Now the peculiar thing about the situation was that the cheesemaker always sold the cheese, and his books were never audited. The patrons merely took their milk to the factory and in return received their checks each month, considering this their due return from the cheese.

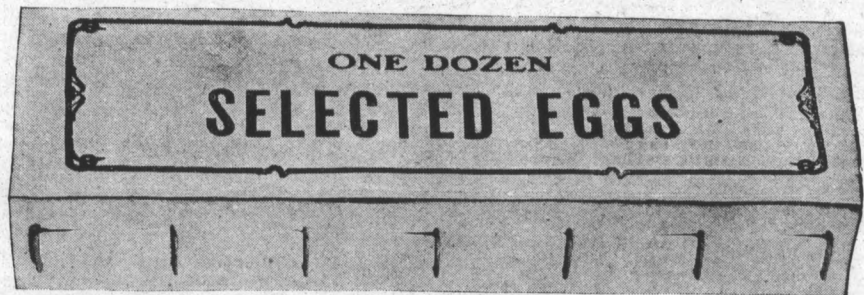
Of course, there were both good and unscrupulous cheesemakers, but the continuation of such a practice usually proved the downfall of the cheesemaker; that is, he did things in time that he would not have entertained when he first started in the work. Since the cheesemaker had agreed to give Plymouth prices for No. A cheese and to stand good for all cheese made that was not up to this grade, it developed that he never sold any cheese below No. A. The reason for this was that if he had a lot of cheese that was full of pinholes, air bubbles, or was otherwise of lower grade, the dealer took 110 pounds or so, (enough to make up the same price that a hundred pounds of No. A cheese would come to), and at the end of the month, he would remit for a stated number of pounds of standard cheese. The cheesemaker would simply apportion the amount and write out checks for his patrons.

"However, it soon became very noticeable that the cheesemaker and cheese

enough to start the fire blazing. When this manipulation of prices was coupled with the unbusiness-like methods of the cheesemakers, the milk producers were very indignant indeed.

Organization and Its Results.

Of course, all the farmers were inflamed at the manner in which they seemingly had been fleeced and in a short time they called a meeting at which some of the experts from the University at Madison were present. The meeting was held in a small opera house with a seating capacity of 7,000 and it was packed full and more than full. It was decided to organize. The following February, 43 of the individual creameries out of the original 103 had decided to form a federation of unorganized cheese factories and they thought they could be started into business by April 1, with a capital of \$7,000, which had been subscribed. When asked what they were going to do without a warehouse or cold storage, the farmers said the cold storage houses would just as soon store their cheese as that of the dealers and with this they let the matter drop. They had engaged a competent manager at \$2,500 a year and when he came on, the first question he asked was, "Where are your cold storage house and warehouse?" When told that they had none, he flatly refused to attempt anything until these buildings were provided for, he well knew that he must keep his cheeses for at least a week, and perhaps longer, until it could be sold in some distant markets, for the local dealers would not bid. They would only sit by and laugh while his cheeses were melting in the sun if he had no cold storage. Of course, these buildings had to be built and at the meeting for this consideration it was very noticeable that much of the enthusiasm formerly shown had waned. Fifteen thousand dollars were raised for the construction of suitable buildings and before they were completed it was



When sending products direct to consumers it pays to pack the products in neat, attractive parcels. Many farmers have extended their sales as far as they are able to supply products through the free advertising resulting from the use of appropriate wrappers and packages.

dealer were on very intimate terms and that it was the habit of the dealer to send the cheesemaker a Christmas present each month," said Professor Hibbard. This present took the form of a check with a note merely saying: "Please find enclosed our check for \$...." Of course, this money was not paid for cheese, so patrons of the factory had no right to share in it, but since they were sure that their products made it possible for the cheesemaker to have a "Merry Christmas" every month in the year, they became very dissatisfied.

Another factor which contributed its share to the discontent of the farmers was the action of the Plymouth Board. This board sets the prices on Cheddar cheese all through the west. It is made up of 15 to 30 cheese dealers who meet each Tuesday morning and bid on cheese, and when they are real competitors, one can see that their action in setting the price of cheese would be quite just, but it soon became evident that there were only two or three bids made and these were rarely ever raised by more than an eighth of a cent or so. All the cheese is supposed to be sold on the board, but as a matter of fact, only about one-tenth of the total product was sold in this way; the other nine-tenths was sold by the price brought by the one-tenth.

Now it happened one fine May morning in 1912, that the Plymouth Board met and fixed the price of cheese for that week at 12 cents per pound, while the average prices paid for cheese for months past had been about 15 cents a pound. There was no reason why there should be such a slump in the prices paid for this product at that particular season of the year and a few moments later when a milk seller was walking down the street with one of the dealers, the former casually remarked to the latter: "Why didn't you fellows reduce the price a little at a time instead of reducing it so much all at once?" The reply was: "That's what I told the fellows." Of course, this was

necessary to borrow \$7,000 more, making a total of \$22,000 invested. Now this company is well under way and managed by a competent man, it bids fair to be one of the most successful co-operative organizations in the field today. The patrons are bound to bring all their milk to the cheese factory for a term of one year, thus giving the business greater stability. These 43 creameries have a total annual output of 8,000,000 pounds, and this enables the organization to get customers in all the states of the union if they so desire.

Now one of the interesting phases of the situation is that the farmers thought that a single man or group of men were fleecing them and getting all the profits from the cheese manufactured. They said: "We only get 13 cents a pound for our cheese and when this same cheese is bought by the consumer, he has to pay about 25 cents a pound for it, and we want the scalp of the man who is getting that extra 12 cents." Investigations were conducted in which it developed that no one was getting rich at the cheese business. The dealers paid 12 to 15 cents a pound for the cheese, it was stored three or four months and this cost about an eighth of a cent a month, the cheese was then shipped to a commission man in Chicago and he made less than a cent a pound profit. In turn the product was shipped to wholesalers who made a profit of something less than a cent a pound and the retailer who finally sold the cheese to the consumer made something like five cents a pound profit, which would not be excessive pay for the trouble of cutting it and handing it out in small pieces. Also, the railroads had to be paid for transporting the cheeses and their rates were not excessive, so we see that there was no single man getting any great amount of profit when the cheese was sold through the regular channels of trade under the old system at 25 cents a pound.

It may easily be seen that under the



The General says:-

The roof goes on last—but think of it first. It's the final protection for buildings. This label stands for 15 years of guaranteed service at least—when you buy

Certain-teed

ROOFING

—and it means that the 3 biggest roofing mills in the world are behind the reliability of your purchase. There is no test by which you can judge roofing. The **Certain-teed** label is your protection.

Your dealer can furnish **Certain-teed** Roofing in rolls and shingles—made by the General Roofing Mfg. Co., world's largest roofing manufacturers. East St. Louis, Ill., Marseilles, Ill., York, Pa.

7 SIZES AND STYLES

Shall we send you free book about **APPLETON WOOD SAWS**

It shows pictures of all our buzz, drag, circular log saws and portable wood sawing rigs, with or without Appleton Gasoline Engines. Tells you straight facts which we guarantee our saws to back up. Opens a way for you to make money this winter sawing your own and your neighbors' wood. You want a saw to last—made strong—boxes that never heat—don't experiment with cheap saws then, buy an Appleton, 40 years the standard. Send for booklet to-day. **Batavia, Ill., U.S.A. APPLETON MFG. CO. 620 Fargo St.**

KITSELMAN FENCE

Get It From the Factory Direct

We make you the same price we would make the Dealer or Jobber. That is why we can save you money. Look at these very low prices.

14 CENTS A ROD for 26-in. hog fence
23 1/2 c. a rod for 49-in. farm fence
25 1/2 c. a rod for 60-in. poultry fence
\$1.40 for 80 rod spool of Ideal

Barbed Wire. Large free Catalog showing 100 styles of Farm, Poultry and Lawn Fence. **KITSELMAN BROS. Box 278 Muncie, Ind.**

All Big Wires

One Penny For a DOLLAR-SAVING Book

Gives valuable fence facts—shows how to get better quality at sensational direct-from-factory prices.

EMPIRE FENCE

is guaranteed to show the biggest saving on highest quality fence. Freight prepaid. All Big No. 9 wires. Open-Hearth steel, heavily galvanized, rust proof, pig tight, stock strong. Just a penny postal brings Free Book—NOW.

BOND STEEL POST CO., 16 E. Monroe St., Adrian, Mich.

BROWN FENCE

13 Cents Per Rod Up

Strongest, heaviest wire. Double galvanized. Outlasts others nearly 2 to 1. Low prices direct from factory. Over 150 styles for every purpose—hog, sheep, poultry, rabbit, horse, cattle. Also lawn fence and gates of all styles. Mail postal for catalog and sample to test and compare with others. Address **THE BROWN FENCE & WIRE CO., Department 49, Cleveland, Ohio**

MASON FENCE

FREE BARGAIN BOOK

Save 30 per cent buying direct from factory on 60 days' trial with money-back guarantee. Our FREE CATALOG proves it. **MASON FENCE CO. Box 63, Leesburg, O.**

Michigan White Cedar FENCE POSTS

GEORGE M. CHANDLER, Onaway, Mich.

When writing to advertisers please mention The Michigan Farmer.

above system of marketing, a higher price can hardly be paid for the raw product. The benefits of co-operation must largely accrue from the reduced cost of marketing which leads to the statement of Professor Hibbard that: "Co-operation is a means toward a phase of marketing." The co-operative companies can reduce the distance over which a product travels before it reaches the market and also reduce the number of hands through which the product must pass.

The professor concluded his remarks by saying that co-operation cannot be recommended without an understanding of the market conditions of the product, the character of the people and adequate facilities for competition with other companies of like interests. It is the conclusion of the specialist that with better methods of marketing at least one-half of one-third of the extra 12 cents made on the price of retail cheese may be saved for the producer.

This is given as an example but it is not to be inferred that an organization in one place and under a given set of conditions can follow to the letter the methods of another organization and be sure of success.

Ingham Co.

I. C. M.

GETTING NEXT TO THE RAILROADS.

What does it cost to ship a carload of live stock to Buffalo, or 100 bags of cloverseed to Toledo? In the columns of the Farm Commerce Department of the Michigan Farmer for January 10, directions will appear on the most reliable way of getting transportation information and the value it may be in marketing farm products.

Crop and Market Notes.

Michigan.

Livingston Co., Dec. 19.—The weather is certainly fine and farmers are improving it by cleaning up their yards, cutting brush and getting up their summer's wood supply. There has been considerable fall plowing done. Nearly all of the corn crop is secured. Stalks in very poor condition, owing to the continued wet weather this fall. More silos will go up next year because the fodder was so badly damaged this fall. Not much grain going to market. An unusually large number of light hogs have been marketed this fall. The open winter has been a boon to farmers with little feed as sheep can even at this date pick quite a large part of their living.

Cass Co., Dec. 10.—Back in November we had one of the worst storms experienced in years, about ten inches of snow falling. It has since gone off and the fields have dried up so that the farmers could start plowing on the 18th and the weather continued fine until the 7th of December, by which time the plowing was well along, many of the farmers having all their spring breaking done. They are now busy hauling stove wood, which is bringing \$6 a cord. The potato market is down and the demand is light. Hay is quoted at \$13.50 to \$15 per ton. Oats 55c; wheat 85c; rye 65c.

Southern Hillsdale Co., Dec. 4.—Farmers have had a satisfactory year. Crops have averaged good and are bringing good prices. The dry season cut the hay and corn crops short but there is plenty of hay to feed and some to sell, and a great deal more corn than was expected. Quotations: butter 25@35c; eggs 35c; milk 1.90 per cwt; hay \$10@12; hogs 7@7 1/4c; chickens 10@11c; milch cows are selling according to what they will produce the most common at from \$40@50, and good grades which are known to be good producers from \$80@150. Very few calves being raised except heifers from good stock.

New Jersey.

Morris Co.—Weather very warm. Crops for 1913 have not come up to the average of former years. Corn was poor, in fact, half a crop. Wheat was fair crop, as well as rye. Hay crop was short. Prices: Corn 80c per bu; hay \$15@20; rye 65c bu; wheat 90c; butter 35c; eggs 50c; middlings \$30; bran \$28; cob meal \$20 per cwt; farmers are not selling any grain. Most farmers are buying feed.

Pennsylvania.

Perry Co., Dec. 16.—We cannot say that the year 1913 was a successful year in this locality. The farmers are now selling some fat hogs at 11c per lb, dressed; sheep \$4.50 per head; turkeys 19c; chickens 11c; eggs 30c. Weather has been like April. Plowing is about one-fourth done for spring crops. Many farmers of this locality are selling chestnut wood from their woodlots at \$3.50 per cord. The wood is used for making a tanning extract. Millers here are having trouble to get wheat as the farmers are feeding the grain to their hogs.

New York.

Chautauqua Co., Dec. 18.—We have had fine weather recently and the roads are in such good shape that the dust is flying. Most of the farmers here are trimming their grape vines, that work being about one-quarter done at this date. The wood of the vines has ripened well and is much more plentiful than in 1912. At a recent meeting of the Chautauqua and Lake Erie fruit growers' association it was estimated that there were 6,300 acres of grapes in this locality that

ought to be dug out. There were not very many acres of new vineyards set last spring, but the indications now are that there will be a considerable number of acres set in 1914. Growers are holding meetings trying to get a fixed price set for the 1914 crop. Prices for farm products are: Corn \$1.55 per cwt; wheat \$1.05 per bu; potatoes 80c; apples 90c; eggs 40c; butter 36@37c; hogs 10c, dressed; veal 15c; chickens 12@13c; turkeys 22c. The price for good milch cows is out of reach. The mild weather has saved on the feed bills.

Ohio.

Logan Co.—We have been having fine open weather for the greater part of this month. Most of the corn is husked; lots of plowing being done. Wheat and rye are looking fine. Hogs are being marketed pretty freely now, clearing out ready for winter. Not very many lambs being sold just now; seems to be a lull between grassers and corn-fed lambs. Horse buyers beginning to get busy. Good drafters bringing good money, \$200@300. Prices are about as follows: Butter-fat 36c; eggs 30c; hogs 7c; lambs \$6@7 per cwt; fat cattle \$6@7c; hay \$10@12.

Homer Co., Dec. 23.—Nice winter weather is now prevailing. Fall work is unusually well along, there being no snow. Most stock is out on pasture yet. Wheat looks fine, being fully 100 per cent of a normal. The grain is selling here at 95c per bu. Hay was but 75 per cent of a normal crop and most of the crop remains in the hands of farmers. Average grade is being sold at \$10 per ton. Cloverseed was a good crop in this locality and the seed is being sold at \$8 per bu. Corn was about 95 per cent of a crop and is being sold now at 65c per bu. Stock is not very plentiful and the prices rule high. Cows are especially scarce. Farmers had a good year, but we do not see many of the city people coming back to the country to lower the cost of living.

Greene Co.—The past season has been generally successful to most of the farmers in this county. Hog cholera and a short corn crop caused some losses to the farmers. At the present time corn is most all husked and is selling at the elevators at 60c per bu. Wheat looks well and because of the warm damp weather of the past month it seems to be growing away from the Hessian fly. Some wheat is being marketed at 93c per bu. Cloverseed is selling at from \$7@7.50 per bu., according to grade. Some hogs are still on feed and they are quoted at \$7.25 per cwt. We shall have a local county agent here next year, the preliminary organization now being effected.

Ashtabula Co., Dec. 16.—Fine weather prevails. We have seen buttercups and strawberries in blossom, something unusual for this time of the year. Everything indicates a white Christmas. Farm work about done; farmers getting up wood and getting ready to sit by the fire. Withal this has been a prosperous year for the farmers in this section. Notwithstanding the drouth, the crops have yielded plentifully, and the prices have been fair. Surely we have no reason to complain of the high cost of living and the price of coal, and no doubt the following year we shall see many miles of macadamized market roads built in this section. We are all well satisfied, so let "Riley" worry.

Carroll Co., Dec. 15.—The year of 1913 was not a very successful year for the farmers down here. The hay crop was very short. Farmers are about done husking corn. Much of the corn on the bottom lands got frosted, hence there is lots of soft corn. Farmers have not much of anything to sell now. There has been but little snow. Eggs 24c; butter 26c.

Shelby Co., Dec. 15.—Have had very nice fall weather. Some fall plowing was done. The bulk of hogs sold off on account of cholera. Some cattle fed, few sold at present. Corn all husked, few are cutting fodder. As the past summer has been a fair season, the people have had a medium crop all through. Lots of public sales, some land is changing hands. Butchering is the present work. Hogs 7@7 1/4c; wheat 92c; oats 37c; corn 80c per cwt; chickens 9c; turkeys 14 1/2c; geese 9c; eggs 32c; butter 29c; cloverseed \$7@7.50.

Indiana.

Jay Co.—Weather conditions are excellent. Many think it too warm for wheat and expect it to die upon real winter weather appearing. Much fall plowing done, 100 per cent more than former years, due probably to institute work in the townships. Roads are full of autos and boys and girls are expecting Santa via automobile this year. Not much movement of grain to market. Some hay at \$11; wheat 95c; corn 75c; oats 36c; eggs 30c; butter 22c; lard 12c; potatoes \$1; hogs \$7.25; cows \$20@25; sheep 2@3 1/4c; coal retailing from \$4@7.50. Merchants are elated over trade prospects.

Allen Co., Dec. 18.—The farmers who raised onions this year were fortunate. The dealers are offering \$1 per bushel for them, and the farmers are reaping a harvest. Potatoes and other vegetables are plentiful, and the prices will hold unchanged it is believed. Grain prices remain firm. Millers are offering for wheat 95c; oats 38@50c; corn 50@56c. Poultry prices remain firm. The farmers are looking for better poultry prices before the holidays. Turkeys are now bringing 18@19c per lb, wholesale; chickens 12c.

Laporte Co., Dec. 20.—It has been fair and pleasant all the week past. Corn shredders have been running but up till a week ago the fodder was damp and the corn not very dry. Wheat is growing fine but is tender. The weather has been mild, but much fog and mist prevails. The conditions of the farming business here is much better than usual. Small farmers seem to be in a more advantageous position than the large farm-

(Continued on page 18).

STEEL Shingles or Wood???

Will you buy wood shingles, which burn and rot, or Edwards Steel Shingles, which are absolutely rot-proof and fire-proof?

Will you buy wood shingles, that have to be nailed on one at a time, or Edwards Steel Shingles, that go on in clusters of 100 or more?

Will you buy wood shingles at a big price from a retail dealer, or Edwards Steel Shingles at low prices, direct from the biggest maker of sheet metal products?

The time to decide is now—before you have invested your good money.

Edwards Steel Shingles

Factory Prices—Freight Paid

Don't judge Edwards Steel Shingles by common galvanized roofing—which always rusts. We have invented a method that absolutely prevents rust from getting a foothold, as 125,000 delighted owners of Edwards Roofs have found. It's the famous Edwards Tightcote Process.

No painting, no extras, no tools, no expert workmen needed. Hired man can do it with hammer and nails, in "jig time." Put 'em on right over old roof or on sheathing. Outlast four ordinary roofs. No dealer's profit to pay. Sold direct from factory to user. And we now pay the freight!

Send Coupon Below

Rush a letter or postal to us tonight. Give size of roof if you can. If you can't, simply send us the coupon below. Our Special Price Offer, Roof Book 167, will come "a-flying"—by return mail.

THE EDWARDS MFG. CO.

117-167 Lock St., Cincinnati, Ohio

This Brings Big Offer

The Edwards Mfg. Co.
 117-167 Lock Street, Cincinnati, Ohio
 Please send Book on your Steel Shingles, together with latest Freight-Paid prices.

Name _____
 Address _____

LET US TAN YOUR HIDE.

Cattle or Horse hide, Calf, Dog, Deer or any kind of skin with hair or fur on. We tan and finish them right; make them into coats (for men and women), robes, rugs or gloves when ordered. Your fur goods will cost you less than to buy them, and be worth more. Our illustrated catalog gives a lot of information which every stock raiser should have, but we never send out this valuable book except upon request. It tells how to take off and care for hides; how and when we pay the freight both ways; about our safe dyeing process which is a tremendous advantage to the customer, especially on horse hides and calf skins; about the fur goods and game trophies we sell, taxidermy, etc. If you want a copy send us your correct address.

The Crosby Frisian Fur Company,
 571 Lyell Ave., Rochester, N. Y.

RHODES DOUBLE OUT PRUNING SHEAR

Cuts from both sides of limb and does not bruise the bark. We pay Express charges on all orders. Write for circular and prices.

RHODES MFG. CO.
 615 S. Division Avenue, GRAND RAPIDS, MICH.

Alfalfa Book—FREE

We are in the center of the alfalfa district and are the largest handlers of alfalfa in the U. S. We sell best grade alfalfa at low price. Ask for Free Alfalfa Book—let it give complete instructions how to grow Alfalfa to insure enormous profits. Also big catalog of all Garden and Field Seeds Free.

Griswold Seed Co., 259 So. 10th St., Lincoln, Neb.

I X L THEM ALL. QUALITY TELLS. BEST STEEL MILL. I X L

STRONGEST STEEL TOWER. No long story here. Send for Catalogue and prices of our **POWER AND PUMPING MILLS.**

PHELPS & BIGELOW WIND MILL CO., Kalamazoo, Mich.

ICE PLOWS

6 sizes, prices \$10.72 to \$16.90 every plow warranted. Sent on trial. Also tools. Catalog **WM. H. PRAY, Verbank, N. Y.**

Markets.

GRAINS AND SEEDS.

December 30, 1913.

Wheat.—The usual holiday dullness now characterizes the grain trade. Farmers are delivering wheat in limited amounts, but just now there is no buying pressure and consequently prices range from steady to lower. Millers believe that a better demand for flour will rule in the near future which will improve the outlet for cash wheat. While favorable weather is reported in Australia, Argentina and India, news confirms the former estimates of shortages, especially from South America. The bulls do not seem to be discouraged by the depression and there is confidence that a stronger trade will prevail before the winter is over. One year ago the price of No. 2 red wheat here was \$1.11½ per bu. Quotations for the past week are:

	No. 2	No. 1	Dec.	May.
Wednesday	98½	98	98½	1.03½
Thursday	98½	98	98½	1.03½
Friday	98½	97½	98½	1.03½
Saturday	98	97½	98	1.03
Monday	98½	97½	98½	1.03½
Tuesday	98½	97½	98½	1.03½

Chicago, (Dec. 30).—No. 2 red wheat, 95½c; Dec., 88½c; May, 90½c per bu.

Corn.—There is confusion in the news of the corn situation. On Monday the Chicago market was up 2c and closed strong, while the Detroit trade was nearly 2c lower. The trend of these two markets in opposite directions is partially explained by the heavy receipts at Detroit and the restricted supplies arriving in Chicago. Much corn is said to be damaged by the fall rains. Argentine reports good prospects for its growing crop. Visible supply increased 3,307,000 bu. One year ago price for No. 2 corn was 48c per bu. Detroit quotations for past week are:

	No. 2	No. 2
	Mixed.	Yellow.
Wednesday	66	68
Thursday	66	68
Friday	65½	67½
Saturday	65½	67½
Monday	64	66
Tuesday	64	66

Chicago, (Dec. 30).—No. 2 corn, 69½c; Dec., 69½c; May, 68½c per bu.

Oats.—This grain has followed the course of corn and wheat. Prices are down a cent. There is a fair demand and moderate offerings. Visible supply shows small increase. One year ago the price for standard oats was 35½c per bu. Detroit quotations for past week are:

	Standard.	No. 3
	White.	White.
Wednesday	42	41½
Thursday	42	41½
Friday	41½	41
Saturday	41½	41
Monday	41	40½
Tuesday	41	40½

Chicago, (Dec. 30).—No. 3 white oats, 39c; Dec., 38½c; May, 40½c per bu.

Beans.—Although the demand for beans continues slow, there has been some improvement the past week and prices here are 5c higher. The local board of trade quotes immediate and December shipments at \$1.80; January \$1.85 per bu. Chicago reports a small trade. Pea beans, hand-picked, choice, are lower at \$1.90@1.95; common \$1.60@1.75; red kidney beans, choice, higher at \$2.82½@2.85 per bushel.

Rye.—This cereal rules steady. No. 2 is quoted at 67c per bu.

Barley.—At Chicago barley is quoted at 50@70c per bu., while Milwaukee quotes the malting grades at from 54@75c.

Cloverseed.—A brisk demand for seed holds prices on a firm basis. While there was a good crop, it is estimated that over 40 per cent of it was ruined by the rains. Prime spot is quoted at Detroit at \$9.35 per bu; March, \$9.45. Prime alsike steady at \$11.25 per bu. At Toledo December is quoted at \$9.40 and prime alsike at \$11.05.

FLOUR AND FEEDS.

Flour.—Jobbing lots in ½ paper sacks are selling on the Detroit market per 196 lbs. as follows: Best patent, \$5.30; second, \$4.80; straight, \$4.50; spring patent, \$5.15; rye flour, \$4.60 per bbl.

Feed.—In 100-lb. sacks, jobbing lots: Bran, \$22; coarse middlings, \$27; fine middlings, \$27; cracked corn, \$31; coarse corn meal \$30; corn and oat chop \$25.50 per ton.

Hay.—All grades are steady. Prices: Carlots on the track at Detroit are: No. 1 timothy, \$15@16; standard \$14@15; No. 3, \$12@14; light mixed \$14@14.50; No. 1 mixed \$13@13.50.

New York.—Hay market dull. No. 1 timothy, \$20.50@21.50; No. 3, \$15@20; clover, \$17@18 per ton for large bales.

Chicago.—Lower. Choice timothy is quoted at \$17.50@18.50 per ton; No. 1, \$15@16.50; No. 2, \$13@14.

Straw.—All grades rule steady. Rye \$8@9; oat straw \$7.50@8; wheat straw \$7@8 per ton.

Chicago.—Quotable as follows: Rye, \$7@7.50; oat \$7@7.50; wheat \$6.50@7. New York.—Rye straw, \$17@18 per ton; oat straw, \$12.

DAIRY AND POULTRY PRODUCTS.

Butter.—The local market continues firm for better grades which are scarce. Prices on better grades are higher but on common stuff it remains the same. Quotations are: Extra creamery 35c per lb; firsts 32c; dairy 21c; packing stock 18c per lb.

Chicago.—There is no change in the butter market. The trade is quiet and

it is exceedingly hard to get rid of the poorer grades which are held for most any kind of a bid. The prices are unchanged. Quotations are: Extra creamery 36c; extra firsts 34@34½c; firsts 26@30c; seconds 22c; ladies 20@21c; packing stock 12@20c per lb., according to quality.

Elgin.—Market firm at 35½c per lb. This advance is due to a change in the grading of butter here.

New York.—Market remains firm with prices about ½c higher. Quotations are: Creamery extras 36½@37½c; firsts 28@34½c; seconds 24@27c; packing stock 19@19½c as to quality.

Eggs.—The local egg market is steady with prices 1½c higher than last week. Current receipts of fresh stock is quotable at 32½c per dozen.

Chicago.—There is a more spirited trading in the market this week. This is due to the diminishing supply in storage and limited receipts of fresh stock. Consumers do not take kindly to the higher prices the traders find it necessary to ask. Refrigerator stock has advanced considerably in price, in other lines the advance is slight. Quotations: Miscellaneous lots, cases included 27@32c, according to quality; ordinary firsts 30@30½c; firsts 32½c; refrigerator stock is steady at 30@30½c for April firsts.

New York.—The egg market is firm, with prices about 3c higher than last week. Quotations: Fresh gathered extras 38½@39c; extra firsts 37@38c; firsts 36@36½c per dozen.

Poultry.—There is a good demand for chickens, but turkeys, ducks and geese have declined in price. The general tone of the market is firm. Quotations: Live.

—Springs, 15@15½c; hens 14@14½c; turkeys 20@21c; geese 14@15c; ducks 16@17c.

Chicago.—There has been a considerable decline in prices after Christmas on all kinds of poultry. The supply is liberal. However, the demand is expected to improve and good trade is looked for. Quotations on live are: Turkeys, good weights, 18c; others 12c; fowls, choice 15½c; spring chickens 14c; geese 11@14c, according to quality; ducks, choice 14½@15c.

FRUITS AND VEGETABLES.

Apples.—Prices are firm and without change. Market active. Quotations: No. 1, \$4@4.50; No. 2, \$2.25@3.50 per bbl. At Chicago there has been little improvement in the market. The demand is far from active and supply liberal. Open weather makes it easy to get storage stock out. There is no change in prices. Values for country packed range from \$3.50@5.50 per bbl. No. 1 Jonathan's are selling best; Spies are \$3.75@4.25; Baldwins are \$4@4.25.

Potatoes.—The local market is steady, with slight increase in price. Demand is fair. Quotations: In bulk 65@70c per bu; in sacks 70@75c per bu. for carlots. At Chicago prices are better, having made an advance of 5c and over. Demand is moderate and is in excess of supply available. Michigan stock is held at 63@70c.

Cabbage.—Steady at prices about 25c higher than last week. Good quality is quoted at \$2.25@2.50 per bbl. The demand is fair at Chicago with steady prices. Prices are unchanged. Quotations rule at \$1.75@1.85 per bbl. for Holland, and \$2@2.50 for red.

Onions.—On the local market prices are steady. Quoted at \$1.15 per bu. for yellow and \$1.40 per crate for Spanish. At Chicago domestic stock is meeting with fair sale. Sacks 65@70 lbs., Michigan grown, sell at \$1.40@1.50.

PRICES ON DETROIT EASTERN MARKET.

There was a good market Tuesday morning. Offerings were in fair supply and buyers' demands kept values on a satisfactory basis. A better class of apples is now coming in and the average values rule higher, the majority of the sales being closed at prices ranging from \$1.25@1.60. Cabbage is firm at 60@70c; potatoes easy at 75c; carrots 65c; onions 1.25@1.40; eggs 45c. Poultry was in fair supply and sold at good values; chickens, alive 16@18c; geese, alive 22.25@2.60 apiece; turkeys, dressed 26@29c; ducks, dressed 22c. Celery of fair quality, 50c per large bunch. Loose hay is slow at \$16@18 per ton.

GRAND RAPIDS.

December was a dull month for potatoes up to Christmas and since then there has been a better inquiry from outside. Local dealers are paying 40c at stations north of Cadillac and 45c at Cadillac and stations south. The future situation is not very encouraging in view of foreign importations and with large dealers letting go of their stock at this time, as some of them are known to be doing, the outlook for \$1 potatoes is not promising. The bean market is also in the dumps, records showing a decline of 35c in prices since the market opened in the fall. White pea beans are worth around \$1.60 now. Dressed hogs are bringing 9@9½c; live chickens 9½@10½c. Fresh eggs are worth 29@31c.

THE LIVE STOCK MARKETS.

Buffalo.

December 29, 1913. (Special Report of Dunning & Stevens, New York Central Stock Yards, East Buffalo, New York).

Receipts of stock here today as follows: Cattle, 110 cars; hogs, 90 double decks; sheep and lambs, 65 double decks; calves, 600 head.

With only 110 cars of cattle on our market here today, and Chicago reporting 22,000, our market was slow, but the prices were advanced from 15@25c per cwt. on all good quality fat stuff. At

the close everything was sold and the market closed steady. The weather here being crispy it made the demand better than last Monday, and we think, if receipts are not too heavy in the near future, our cattle market will now steady up and we will have better demand and strong prices from this time on. No eastern buyers here for milch cows or springers; market very slow on this kind.

Our hog trade was active and higher on all grades today, owing to light receipts here and at all other points. Early sales of everything, outside of pigs and roughs, were at \$8.30, and a few handy weight Yorkers at \$8.35; general run of pigs and lights around \$8.40. Roughs \$7.25@7.50; stags \$6@6.50. Closing trade was strong and looks like will have a good market the balance of the week.

The market was active today on handy lambs and sheep, but dull on heavy lambs. Prices quarter higher on handy lambs than the close of last week. Choice handy lambs selling mostly from \$8.40@8.50. Heavy lambs continue very dull, selling mostly at \$7.25. We look for slow trade on heavy lambs all the season. Most of the orders calling for lambs weighing from 75 to 80 lbs. Look for about steady prices on sheep and shade lower on lambs last of week, unless we have light receipts.

We quote: Choice lambs, \$8.40@8.50; heavy do, \$7@7.25; cull to fair do, \$5.50@8; yearlings, \$6@7.25; bucks, \$3.50@3.75; handy ewes, \$4.75@5; heavy ewes, \$4.50@4.75; wethers, \$5.25@5.50; cull sheep, \$3.50@4; veals, choice to extra, \$12@12.50; fair to good, \$10@11.75; heavy calves, \$5.50@8.

There will be no market here on Thursday, New Year's Day, and all stock received will be cared for as usual.

Chicago.

December 29, 1913.

Cattle. Hogs. Sheep. Receipts today 22,000 35,000 22,000 Same day last year 21,124 41,761 30,019 Receipts last week 30,542 120,103 73,311 Same week last year 24,516 102,890 74,609

Hogs open this week 10@15c higher, with a moderate Monday run and a brisk general demand, the eastern shippers being good customers, after their purchases of 30,376 hogs last week, these being larger than those made during the previous week, or the same week last year. Today's sales took place at \$7.60@8.15. Hogs marketed last week averaged in weight 208 lbs., comparing with 215 lbs. a week earlier, 219 lbs. one year ago, 212 lbs. two years ago, 224 lbs. three years ago and 214 lbs. four years ago. Cattle are selling briskly at strong prices, the run being small for a Monday. Sheep and lambs are in moderate supply and in strong demand, the choicer class being 10@15c or more higher, with a large percentage of the offerings comprising half-fat lambs from Iowa and Michigan. Prime lambs brought \$8.35, and some fat heavy ewes sold at \$5.25.

Last week was broken by the Christmas holiday, no business being carried on in the stock yards, and as poultry largely takes the place of beef and mutton at that time, country shippers shipped in cattle sparingly, fearing glutted markets and slumps in prices. But, as so often happens, they overdid it, and meagre runs of cattle resulted in a good advance in values for the greater part of the offerings. A good part of the beef steers went at \$7.65@8.90, the commoner light-weight, short-fed lots bringing \$6.60@7.75 and the better class of heavy long-fed cattle fetching \$8.65@9.25, with the best yearlings taken at \$9@9.30. Two exceptional sales took place, including 28 fat 1,350-lb. steers at \$9.50 and 18 fancy 1,207-lb. Angus yearlings at \$9.60, such offerings failing to show up most of the time. Pretty good steers of heavy weight sold at \$8.30@8.60, and a medium class of steers sold at \$7.80@8.25. Butchering lots of cows and heifers had a good outlet at \$4.75@8.50, few choice lots being offered, while canners went at \$3.25@4.10, cutters at \$4.15@4.70 and bulls at \$4.75@7.60. Calves sold briskly when desirable in quality, the better class of light vealers bringing \$10@11 and common to good heavy weights \$5@8.50. The trade in stockers and feeders fell off materially, with prices averaging higher for good cattle of this class. Stockers went at \$5@7.25 and feeders at \$6@7.50 for inferior to prime lots, while stock and feeding cows and heifers brought \$4.50@6.50. Milch cows had a small demand at lower average prices, sales ranging at \$5@8.50 per head. The prospects for the market for fat cattle appear bright, but it is known that stockmen have large numbers of warmed-up cattle they intend to ship in during the next few weeks, and these promise to go at relatively low values. The week's general advance in cattle averaged 15@25c.

Hogs were marketed last week in greatly reduced numbers, as was expected during the holidays, and prices underwent sharp advances, with a good demand, especially for the choicer consignments. As usual, the small percentage of nice heavy weights resulted in their selling at a good premium, while the better class of light-weights had to go at a discount, although the difference in values was smaller than some weeks ago. In fact, the extreme spread in prices for hogs is greatly narrowed as compared with the summer season, and a spreading out again is not expected, at least in the near future. The bane of the market is the persistence of stockmen in shipping in stock prematurely in order to avoid feeding unusually high-priced corn during the winter season. For the present winter packing season the western markets have received so far much larger supplies of hogs than for the corresponding period last year, and it does not require great foresight to look ahead and see that the future marketing of hogs will fall off correspondingly and force higher prices for well matured hogs. The consumption of fresh and cur-

ed hog products continues large. The week closed with hogs selling at \$7.50@8, compared with \$7.35@7.75 a week earlier, while pigs closed at \$6@7.50, throwout packing sows at \$7.20@7.60, stags at \$8@8.25 and boars at \$2@3.50. The best light hogs brought \$7.85.

Sheep and lambs joined the procession last week, advancing sharply along with cattle and hogs because of the greatly reduced receipts from all feeding districts. Fat handy lambs led off in activity and in the upward movement, selling at the highest figures recorded in a long time, but fat yearlings and sheep also moved up sharply, with an excellent demand. Feeders sold freely when any were to be had, most of these flocks consisting of warmed-up lots from near-by feeding districts. Recent returns on well finished live muttons have well repaid their owners, and it seems a great mistake for sheepmen to keep on returning so many half-fat flocks to market, thereby cheating themselves out of good profits. Most of the feeders offered consist of lambs. Prime lambs sold up to \$8.35, the highest price reached since July, and fed western ewes advanced to \$5.25 for the best, the highest price touched since in a long time, while prime wethers were the highest since June. A reaction left prices at the week's close as follows: Lambs, \$5.75@8.25; feeding lambs, \$6.35@7.10; yearlings, \$5.75@7; wethers, \$5.25@6; ewes \$3.50@5.25; bucks, \$3.50@4.

CROP AND MARKET NOTES.

(Continued from page 17).

ers since they have no labor expense to take margin of profit.

Illinois.

La Salle Co., Dec. 23.—We had a snow-fall last night about four inches deep. Some sleighs are out today, but going is not very good. The snow should be fine for the wheat and if it stays on should prove a blanket of protection against severe cold that might come and which would be injurious to the wheat if bare. Fruit buds are not hurt. There should be a good crop next season.

Iowa.

Osceola Co., Dec. 20.—In general 1913 has been a pretty good season. True enough, farmers lost mostly all their hogs and small grain crops were not as good as in former years, but the corn crop made up for it by its large yield, 40 to 60 bushels per acre, and good prices about 55c now; has been as high as 63c, and about one-quarter of it is marketed. Oats 32c; barley 50c; wheat 75c; potatoes 75c; eggs 24c; butter-fat 30c; chickens 10c. Public sales become quite frequent nowadays, and cattle and hogs being exceptionally good prices, especially hogs that have been double vaccinated. At one sale gilts brought 22c per lb. Horses do not bring the prices that they will toward spring. Machinery can be bought cheap.

Missouri.

Vernon Co., Dec. 19.—We are having a beautiful winter here thus far, with a good deal of cloudy weather and some rainfall. The wheat is in fine shape and making splendid winter pasture for the stock. Corn is 75@80c per bu; oats 50@55c; hay \$12@15; eggs 28c; butter 26c; cattle \$5@6; hogs \$6.50@7; sheep \$5.

Kansas.

Smith Co., Dec. 19.—It commenced to rain Thanksgiving eve, and continued cloudy with rain until Dec. 6, the amount falling being about 5.5 inches. This is the longest rainy season known for a long time. Winter wheat now looks the best in years. Weather is still warm and it is now raining again. Some wheat is being sold at 75c per bu. This year has been hard on those who did not plant wheat and who sold off their surplus corn of last season, but most have enough corn left over with a little to sell. Land to rent is scarce. Fat steers are \$8.25@8.50; hogs \$6.75@7.

Finney Co.—The year 1913 has been a poor crop year, but a fine year for stock raisers; cattle are still on the pastures. Have had very little snow. Alfalfa hay selling at \$13 per ton; prairie hay \$10@12; hogs 7c; butter 30c; eggs 40c; wheat 85c; turkeys 12c; most all the grain has been sold. Wheat fields are looking fine and green as we have had a wet fall; have had no zero weather.

Nebraska.

Pierce Co.—Crops were not of the best in this county the past season, weather being too dry. Farmers are conservative about selling themselves short of feed. Wheat is raised but little here and selling at 85c; oats a small crop and selling at 38c; corn also poor and quoted at 60c; butter 30c; cream 26c; what hogs have not been taken by the cholera are going at \$7 per cwt; cattle \$8, and but few being sold.

Colorado.

South Weld Co., Dec. 15.—November weather was fine for the farmers to finish harvesting their sugar beets, also for plowing and planting fall grain. Rye and wheat both got a good start. December began with a snow and snowed most of the first five days, 45.7 inches falling, blocking roads and fields. The ground was not frozen and the farmers are feeling pretty good for the prospects for another year's crop; soil and lakes will have plenty of water. The mail carriers have not been on their regular routes since Dec. 3. The year 1913 was a very good one for the farmers here, although prices are fixed by the factories. The yield was larger than for several years. Factories pay for tomatoes \$12 per ton; for green beans \$1.75 per cwt; sugar beets, by the test, \$5@6.75 per ton; cucumbers \$1.10 per cwt; peas \$42 per ton; cabbage 30c@2.50 per cwt. Local market: Eggs 40c; butter 35c; butter-fat 40c. Everything sold here now but the ¼ sugar beets which the farmers had to silo and which will be delivered as soon as roads will permit.

THIS IS THE LAST 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.

Thursday's Market.

January 1, 1914.

Cattle.

Receipts, 1366. Market steady at Wednesday and last week's prices.

We quote: Best steers and heifers, \$8@8.25; steers and heifers, 1000 to 1200, \$7.25@7.75; do 800 to 1000, \$6.50@7; do that are fat, 500 to 700, \$6@6.50; choice fat cows, \$6@6.25; good do, \$5.25@5.75; common cows, \$4.50@5; canners, \$3@4.25; choice heavy bulls, \$6.50@7; fair to good bolognas, bulls, \$6@6.25; stock bulls, \$5.25@5.75; choice feeding steers, 800 to 1000, \$6.75@7.25; fair do, 800 to 1000, \$6@6.50; choice stockers, 500 to 700, \$6@6.50; fair do, 500 to 700, \$5.50@6; stock heifers, \$5@5.75; milkers, large, young, medium age, \$7@90; common milkers, \$4@55.

Bishop, B. & H. sold Sullivan P. Co. 3 cows av 1033 at \$5, 3 heifers av 790 at \$6, 3 steers av 823 at \$7, 2 do av 1275 at \$8, 4 do av 887 at \$7.30, 1 cow wgh 1030 at \$5.25, 4 do av 990 at \$5.50; to Rattkowsky 5 do av 982 at \$5, 2 do av 1150 at \$6; to Newton B. Co. 6 steers av 1000 at \$7.50, 6 cows av 1050 at \$5.90, 2 do av 990 at \$4, 18 butchers av 880 at \$7.40, 5 do av 766 at \$6.75, 5 do av 995 at \$5.75, 2 heifers av 760 at \$4.75, 1 cow wgh 750 at \$4; to Kull 10 steers av 1026 at \$7.85, 6 cows av 986 at \$4.25, 8 butchers av 996 at \$6.25; to Sullivan P. Co. 6 cows av 983 at \$5.50, 6 do av 853 at \$4.25, 5 cows and bulls av 1012 at \$6.10, 3 cows av 903 at \$4.25, 5 steers av 994 at \$7.50, 7 cows av 1100 at \$5.75, 2 do av 815 at \$7, 8 do av 780 at \$6, 1 bull wgh 1180 at \$6.25, 4 canners av 812 at \$3.75, 8 butchers av 1018 at \$6.25, 4 do av 1005 at \$7.60, 7 do av 936 at \$7.50, 4 cows av 992 at \$5, 3 steers av 1073 at \$7.50, 9 butchers av 1118 at \$6.25; to Mich. B. Co. 7 cows av 911 at \$5.75, 2 heifers av 650 at \$4; to Kull 1 bull wgh 1700 at \$7.

Roe Com. Co. sold Sullivan P. Co. 1 cow wgh 840 at \$3.50, 1 do wgh 830 at \$4, 8 do av 1040 at \$5.25; to Applebaum 12 butchers av 360 at \$6, 1 cow wgh 1030 at \$5.25; to Kamman B. Co. 10 butchers av 751 at \$6.65, 1 heifer wgh 640 at \$6.50; to Kull 2 steers av 860 at \$6.40; to Rattkowsky 2 cows av 990 at \$5.65; to Goose 8 cows av 1056 at \$5.35; to Mich. B. Co. 3 heifers av 783 at \$6.25, 4 cows av 947 at \$5.35, 1 do wgh 1080 at \$6.50, 5 butchers av 810 at \$6.90, 1 bull wgh 1780 at \$6.50; to Kamman B. Co. 8 oxen av 1325 at \$6.85; to Bresnahan 2 canners av 835 at \$4.50, 1 do wgh 720 at \$3.75.

Haley & M. sold Hirschleman 3 heifers av 883 at \$6.60, 3 cows av 943 at \$5.50; to Applebaum 7 do av 971 at \$5.15; to Mich. B. Co. 3 steers av 1057 at \$7.25, 3 do av 843 at \$7.65, 13 cows av 1040 at \$5.75; to Austin 1 bull wgh 650 at \$5.75; to Goose 2 oxen av 1295 at \$6.25, 2 cows av 955 at \$4.65, 1 do wgh 920 at \$5.25, 2 bulls av 760 at \$5.75; to Breitenbeck 1 cow wgh 1030 at \$4.25, 5 do av 900 at \$4, 1 bull wgh 1020 at \$6; to Kull 12 steers av 908 at \$7, 5 do av 606 at \$6.60; to Newton B. Co. 5 do av 1096 at \$7.85, 1 cow wgh 1130 at \$5, 2 bulls av 1375 at \$6.25, 2 cows av 1000 at \$5.40, 5 butchers av 716 at \$6.85, 2 steers av 980 at \$7.40, 4 do av 715 at \$6.50; to Sullivan P. Co. 7 butchers av 970 at \$6.65; to Remick 2 cows av 1060 at \$5.10, 4 do av 1162 at \$5.80; to Lathrop 6 stockers av 611 at \$6.15, 6 feeders av 853 at \$7.

Spicer & R. sold Bresnahan 1 canner wgh 690 at \$3; to Mason B. Co. 5 butchers av 740 at \$6.25, 2 do av 755 at \$5.50, 4 steers av 845 at \$7, 1 cow wgh 910 at \$5.50, 1 do wgh 1080 at \$5, 6 do av 1150 at \$5.75, 14 butchers av 904 at \$6.90, 1 bull wgh 1740 at \$6.90, 1 steer wgh 1000 at \$7.50, 1 cow wgh 900 at \$5, 6 butchers av 711 at \$6.25, 2 do av 655 at \$6.50, 2 cows av 900 at \$4.50, 1 do wgh 880 at \$5; to Sullivan P. Co. 2 do av 1030 at \$4.25, 7 do av 1038 at \$5.75, 2 butchers av 1310 at \$6.25, 1 heifer wgh 650 at \$6.25; to Breitenbeck 29 butchers av 890 at \$6.40, 26 steers av 903 at \$7.35; to Kamman B. Co. 27 do av 981 at \$6.50; to Newton B. Co. 23 butchers av 864 at \$6.25; to Miller 10 stockers av 590 at \$6; to Rattkowsky 5 cows av 872 at \$5; to Bresnahan 8 do av 750 at \$3.75; to Newton B. Co. 4 butchers av 830 at \$6.75, 5 do av 838 at \$6, 4 cows av 950 at \$5.25, 6 heifers av 741 at \$6.75, 28 butchers av 726 at \$6.50, 3 do av 707 at \$6; to Hirschleman 21 do av 800 at \$6.40; to Fry 10 do av 790 at \$6.40; to Case 8 stockers av 526 at \$5.50.

Veal Calves.

Receipts, 582. Market steady. Best \$11.50@12; others, \$8@10.50.

Roe Com. Co. sold Mich. B. Co. 3 av 230 at \$10, 1 wgh 140 at \$11, 1 wgh 140 at \$11.50, 1 wgh 160 at \$8, 1 wgh 140 at \$11.50.

Bennett & S. sold Sullivan P. Co. 7 av 140 at \$11.60.

Sharp sold Mich. B. Co. 15 av 140 at \$10.75.

Sandall sold same 1 wgh 120 at \$8, 3 av 140 at \$10.50, 2 av 135 at \$11, 1 wgh 310 at \$8.

Sheep and Lambs.

Receipts, 7118. Market steady. Best lambs, \$8; fair to good do, \$7.60@7.85; light to common do, \$6.75@7.25; yearlings, \$6.25@6.50; fair to good sheep, \$4.50@4.75; culls and common, \$3@3.75.

Haley & M. sold Costello 39 lambs av 70 at \$7; to Levy 31 sheep av 125 at \$4.50; to Nagle P. Co. 289 lambs av 75 at \$8; to Parker, W. & Co. 163 do av 70 at \$7.90; to Nagle P. Co. 42 sheep av 95 at \$4.25, 30 lambs av 85 at \$7.50, 9 do av 105 at \$7.75, 30 do av 65 at \$7.50, 24 sheep av 100 at \$4.50.

Bennett & S. sold Sullivan P. Co. 28 lambs av 81 at \$8.

Bigelow sold same 49 lambs av 70 at \$7.80.

Roe Com. Co. sold Nagle P. Co. 76 lambs av 83 at \$8; to Hayes 34 do av 55 at \$7; to Newton B. Co. 38 do av 70 at \$7; to Sullivan P. Co. 15 sheep av 110 at \$4.25; to Barlage 43 sheep av 95 at \$4, 22 lambs av 73 at \$7.50.

Sharp sold Mich. B. Co. 90 lambs av 105 at \$7.65, 21 sheep av 90 at \$3.50, 78 do av 73 at \$4.60.

Hogs.

Receipts, 1225. Market steady at Wednesday's prices; all grades \$8.

Bishop, B. & H. sold Hammond, S. & Co., 4000 av 190 at \$8.

Roe Com. Co. sold Sullivan P. Co. 550 av 200 at \$8.

Haley & M. sold Parker, W. & Co. 310 av 195 at \$8.

Spicer & R. sold same 280 av 200 at \$8.

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.

Irritated Eye.—My six-year-old mare has been troubled with sore eye for some time on account of an oat chaff lodging in it. I am inclined to believe that the chaff is still in eye, for there is a watery mucous discharge coming from it. S. K. M., Vestaburg, Mich.—The chaff has perhaps left eye, but it yet remains irritated. Dissolve 20 grs. of acetate of lead, 2 grs. morphine in 4 ozs. of water and apply to eye twice a day; also blow a little calomel into eye every day or two.

Indigestion—Worms—Feeding Copperas.—I have a gelding six years old which appears to be in a run-down condition. He has a good appetite, almost an unnatural one; he seems never to get enough feed. His hair is rough and stands on end most of the time. He grinds his teeth a good deal, at times his kidneys seem most too free, moving five or six times a day, but they don't bother all the time. How much copperas can be fed to a horse safely and for how long? E. F. G., Thompsonville, Mich.—Mix together equal parts of ground gentian, ground nux vomica, ground wormseed and salt—give a tablespoonful at a dose in feed three times a day. The dose of copperas for a horse is from one-half to 2 drs., but 1 dr. is about right and it should be given in feed two or three times a day and it may be kept up for six or eight weeks, without doing any particular harm. It is not good practice to give any one drug for too great a length of time.

Blind Staggers.—I have a gelding 14 years old that has been in pasture nearly all summer; commenced working in October and in November, while plowing he had an attack of blind staggers, and a week later had another bad attack. I have owned him eight years and he never had a sick spell until these came on him. W. H. S., Ferry, Mich.—Your horse's liver and stomach may not be performing their normal function. Change his feed, keep bowels open and exercise him every day. Give 20 grs. of calomel and 1 dr. bromide potash at a dose in feed twice a day for three days, then give two tablespoonfuls of cooking soda, the same quantity of salt in feed twice a day. If his bowels are constive, you had better give him a cathartic; 7 drs. of aloes, 1 dr. ground ginger, ½ dr. ground nux vomica, one does only.

Rheumatism.—I have recently taken in trade a gelding 12 years old which appears somewhat stiff. He has no visible defects of limb, foot, wind, or fever so far as I can tell. Hard roads do not seem to affect him more than soft ones. He pulls well without urging and does not lumber up much from continuous exercise. R. G. B., Coloma, Mich.—Your horse has doubtless some soreness in joints and will be benefited by giving him 1 dr. salicylate of soda, ¼ dr. potassium iodide and ¼ dr. powdered colchicum at a dose in feed three times a day.

Loss of Appetite.—I have a heifer calf seven months old that appears to have no appetite and instead of growing, stands still. M. S. C. W., Montague, Mich.—Give your heifer a tablespoonful of fluid extract gentian, a dessertspoonful fluid extract cinchona and 2 drops fluid extract nux vomica at a dose and as a drench in some water three times a day. Give her any kind of food she craves.

Toothache.—Two weeks ago Holstein cow fed on clean corn fodder and ensilage, fell off in milk and refused to eat coarse fodder. She chews her tongue, slobbers and will thrust her nose out, open her mouth wide and hold it so for several seconds the lower jaw will quiver. Two different Vets. have examined her mouth and teeth and failed to

find anything wrong. At first she had two degrees of fever and rumen was hard. We gave epsom salts and medicine to reduce fever. Her bowels seem normal, fever has abated and aside from the uneasy mouth she appears comfortable, but eats almost nothing. Appears eager for food, will take a mouthful of hay, chew it a little and drop it out of mouth. Will eat a very little ensilage, but refuses ground feed. We are now giving tonic and using a medicine for her mouth. Is it possible there is something lodged in her mouth or throat that, while it cannot be found causes these symptoms? Could her teeth be ulcerated and still escape detection by the Vets? After two weeks on very little feed she does not appear emaciated or greatly weakened. A. L. L., Coldwater, Mich.—I am inclined to believe that one of her teeth pains her, either from decay or neuralgia. It is only by close observation that you will be able to locate the trouble right away. Hot applications have a tendency to soothe this ailment and by giving her warm food and tepid water, she will be relieved.

Nasal Catarrh.—My Barred Rock hens have a disease that affects the head. One side of the head would swell up, causing eye to close and they breathe as though they had cold in head, nostril on affected side runs a little watery fluid, but, after a week they get over it. They eat well and do not seem to be very sick. These chickens have free range in the daytime, with a warm, well ventilated coop free from draughts at night. They are fed wheat and corn, with mash and scrapings from table, and plenty of pure water. D. R. T., North Star, Mich.—Simple catarrh is one of the most common diseases of birds, and I do not believe that your poultry suffer from infectious catarrh. This ailment is best overcome in preventing birds to exposure or to cold and dampness or drafts of air. Mix together one part salicylate of soda, one part hypo-sulphite soda, two parts sulphate of iron, four parts ginger and four parts ground gentian root and give 4 grs. daily either in one dose or divided in two doses mixed with feed until they recover. It is needless for me to say that if the birds are well fed and kept in a vigorous condition, they will soon throw off this cold in the head.

J. A., Laingsburg, Mich.—For young pigs that have worms, give equal parts ground gentian and salt in their feed twice a day.

Tuberculosis of the Liver.—My hens take sick, set around, refuse to eat, combs turn purple color, and on examination after death I find the liver unusually large and full of white pus, and I would like to know what causes their death. We have been giving them sulphur, saltpeter, antimony and coal oil. J. G., Bay Port, Mich.—I am quite sure your chickens die of tuberculosis and as you know, it is a contagious disease; be-

(Continued on page 21).

Save \$50 to \$300

I absolutely guarantee to save you \$50 to \$300 on any Galloway gasoline engine. Made in sizes from 1 3/4 h. p. to 15 h. p. My famous 5 h. p. engine without an equal on the market—sell for \$99.50 for the next 60 days only! Buy now! Same size costs \$225 to \$300 through your dealer. Think of it! Over 30,000 Galloway engines in use today. All sold on same liberal, free 90 Day Trial Offer I make you—and all giving satisfaction. Isn't that proof enough?

Get My Catalog and Low Direct Prices

Write me before you buy any other style or make. Get my catalog and low, direct price on the famous Galloway line of frost-proof, water-cooled engines. Free Service Department at your disposal. My special 1914 offer will help you get an engine partly or wholly without cost to you. Write today. Do it now.

WILLIAM GALLOWAY COMPANY,
185 Galloway Station, Waterloo, Iowa

SAVE THE HOG

My "EXCELSIOR HOG TONIC" positively prevents Cholera, Cough, and other hog diseases. I sell the receipt (any druggist can fill it) with full instructions for \$1.00 and with it I give a little book of 50 pages containing 140 of the best tried and tested Stock Receipts for Horses, Cattle, Sheep, Hogs, and Chickens ever printed. I guaranteed this Tonic to prevent Cholera and other hog diseases. Money back if not entirely satisfactory. Keep hogs in healthy condition during winter and you will have no trouble next spring and summer. "An ounce of prevention is worth a pound of cure." Just enclose a dollar bill. I also publish Dr. Chase's Last and Complete Receipt Book, for which I want agents.

F. B. DICKERSON,

Desk. 2

Detroit, Michigan

We Want HAY & STRAW

We get the top price on consignments, make liberal advancements and prompt remittances.

Daniel McCaffrey's Sons Co.

PITTSBURG, PA.

Reference, Washington Trust Company, or any bank in city.

RABBITS

We will sell Rabbits for you to good advantage; also poultry, veal and general farm produce. Twenty-five years in Detroit, in the one store assures honest dealings.

CHAS. W. RUDD & SON, Detroit, Michigan.

FARMERS—We are paying 5 cents above the Official Detroit Market for new-laid eggs shipped direct to us by express. Write us for information. It will pay you. American Butter & Cheese Co., 31-33 Griswold St., Detroit, Mich.

Griggs, Fuller & Co., Wholesale Commission House, potatoes, poultry and rabbits. Quick returns.

GRIND 150 BU. PER HOUR LESS THAN 12 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) and Grind all kinds of small grains. Handy to operate. 10 sizes—2 to 25 H. P. Also sweep grinders. Send for folder on values of feeds and manures. FREE of feeds and manures. D.N.P. Bowsher Co., South Bend, Ind.

SAVE HALF THE LABOR

In sawing wood. You can do this and at the same time cut more wood in a given time than in any other way by using



THE IRELAND WOOD SAWING MACHINE
Table is mounted on grooved rolls, moves easily—cut of saw is down instead of against the operator as in old style machines. Must be seen to be appreciated. We also manufacture Drag Saws, Saw and Shingle Mills. Get our prices on Canvas Belting; they will surprise you. Send for prices and full information. "Ask about Hoists." IRELAND MACHINE & FOUNDRY CO., 33 State Street, Norwich, N. Y.

264 Page Book On Silos and Silage

1913 copyrighted edition now ready. Most complete work on this subject published. Used as textbook by many Agricultural Colleges. Gives the facts about Modern Silage Methods—tells just what you want to know. 264 pages—indexed—over 45 illustrations, a vast amount of useful information boiled down for the practical farmer. Tells "How to Make Silage"—"How to Feed Silage"—"How to Build Silos"—"Silage System and Soil Fertility"—"Silage Crops in Semi-Arid Regions." All about "Summer Silos" and the Use of Silage in Beef Production. Ninth Edition now ready. Send for your copy at once. Enclose 10c in coin or postage stamps and mention this paper. Silver Manufacturing Co., Salem, Ohio

Dickelman's Guaranteed METAL ROOFING and Shingles

Consist of 99.9% pure, open hearth iron. This, combined with perfect galvanizing, enables us to give you a roof that will last! Over a quarter century experience is back of all our products, which include corrugated, v-crimped and roll roofing besides shingles and other metal specialties.

Write for FREE CATALOG
Offers many valuable roofing suggestions. Explains "Dickelman Quality" and guarantee. Most good dealers sell "Dex" Roofing. Write us today. DICKELMAN ROOFING CO., Dept. 30 FOREST, OHIO

PUMP GRIND SAW Made for Hard Use.

Wood Mills are Best. Engines are Simple

Feed Grinders, Saw Frames, Steel Tanks

CATALOGUES FREE AGENTS WANTED

Perkins Wind Mill & Engine Co. Est. 1860

135 MAIN ST. Milwaukee, Ind.

BUSHEL CRATES—Reduced prices. Nailed up or knocked down. Write for sample and prices. O. S. BUSH, Mason, Mich.

Farms and Farm Lands For Sale

C. D. Rose Farm Agcy. SELL FARMS. Send State and Warren Sts., Trenton, N. J. Estb. 1908.

Fertile Farms and unimproved lands in Delaware, diversified farming, live stock, delicious fruits and ideal homes. For information address, State Board of Agriculture, Dover, Delaware.

FOR SALE OR RENT—60 Acres Northern Illinois black soil, prairie farm, comfortable buildings; price right, terms easy; for particulars address, FRANK P. CLEVELAND, Owner, Box 948, McCornell, Stephenson Co., Illinois.

NEW YORK FARMS

Are the best anywhere, and lowest priced. We show and sell them every day, winter and summer. Ask for list.

McBURNIE & CO., Fisher Bldg., Chicago, Ill.

MICHIGAN FARMING LANDS

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

Widow Must Sell This Money Maker

190 acres. Good house, two porches, fine water. Two barns, 40x60 ft., 20x40 ft.; silo 15x24 ft.; milk house, hog house, granary; ½ mile to school. Owner will include to quick buyer 14 young Holstein cows. A bargain for a hustler. Price \$7,000; cash \$3,000, balance time 5%.

Hall's Farm Agency, Owego, Tioga Co. N. Y.

Farms in New York

"THE EMPIRE STATE," pay larger dividends than others, because soil is good and improving. Unlimited markets are near, schools, villages, transportation, make life worth living. Wide selection of choice farms is described and priced in big illustrated catalog mailed free by Secretary No. 8, Farm Brokers' Association of New York State, Oneida, N. Y.



Don't Shoot Dollars Into the Strawstack

SAVE the grain. You worked hard to prepare the soil—to plant—to harvest. You wouldn't spill grain out of a sack or throw it out of a bin—why let it go into the stack?

Hire a Red River Special

It Saves the Farmer's Thresh Bill

Most all threshers depend upon grain to drop out. The Red River Special beats it out.

The Big Cylinder throws the straw, chaff and grain against the "Man Behind the Gun." This takes out 90% of the grain. The grain goes through the straw goes over, then shakers beat the straw.

Insist upon hiring a Red River Special.

Write us for "Thresher Facts"—mailed free.

Nichols & Shepard Company
(In continuous business since 1848)
Builders of Threshers, Feeders, Wind Stackers, Steam Engines and Gas-Oil Tractors
Battle Creek, Michigan



55 BREEDS

Pure-Bred Chickens, Ducks, Geese, Turkeys, also Incubators, Supplies, and Collie Dogs. Send 4c for large Poultry Incubator Catalog and Price List.
H. H. MINIKER, Box 56, Mankato, Minn.



56 BREEDS Chickens, Ducks, Geese and Turkeys. Hardy, northern raised, pure bred, of finest plumage. Fowls, eggs and incubators at lowest prices. America's greatest poultry farm. Send 4c for large, fine 19th Annual Catalog and Poultry Book.
R. F. NEUBERT CO., BOX 867 MANKATO, MINN.

POULTRY.

M. B. Turkeys—Large with fine plumage. Toms \$6, Hens \$4. Indian Runner ducks, a few choice Silver and Partridge Wyandotte cockerels. Collar Bros., Coopersville, Mich.

BARRED ROCK COCKERELS—\$2.00 each, two for \$3.00, pullets \$1.00 each.
A. A. WOOD & SON, Saline, Michigan.

BARRED ROCK COCKERELS—\$3 each, two for \$5. Large, farm raised. Winners for 10 years. J. A. Barnum, Union City, Mich.

Barred Rock Cockerels, Hens and Pullets.
W. C. COFFMAN, R. No. 6, Benton Harbor, Mich.

PLYMOUTH Rock cockerels 5 lb. to 11 lb., according to age. Price \$2 to \$8. Mammeth Bronze Tom Turkeys 8 lb. to 35 lb., according to age. Price \$3 to \$25. Eggs in season. A. E. CRAMTON, Vassar, Mich.

PRIZE WINNING Barred Rocks, B. I. Reds, High quality, low prices. 500 Indian Runner and Pekin ducks, \$5 per trio. circular free. EMWOOD FARM, R. R. No. 13, Grand Rapids, Mich.

COLUMBIA Wyandottes, Winners at Chicago, Grand Rapids, South Bend and St. Joseph. Stock and eggs. RICHARD SAWYER, Benton Harbor, Michigan.

LILLIE FARMSTEAD POULTRY
B. P. Rocks, R. I. Reds, and S. O. W. Leghorn eggs for sale. 15 for \$1.25 for \$1.50; 50 for \$2.50.
COLON C. LILLIE, Coopersville, Mich.

A FEW MORE of those pure bred Rose Comb White Leghorn Cockerels at \$1 each. Order quick. A. R. LEVEY, R. 23, Elsie, Michigan.

Full Blood, Rose Combed Rhode Island Red Cockerels \$2 each. Elmer Trim, Milan, Mich.

SILVER, GOLDEN and WHITE WYANDOTTES. White Stock Especially good, send for circular. Browning's Wyandotte Farm, R. 30, Portland, Mich.

S. L. WYANDOTTES—Bred from great laying strain of blue jibson birds. \$2 each. Satisfaction guaranteed. F. E. Cowdrey, Ithaca, Mich.

PINE CREST WHITE ORPINGTONS—Fifty early pullets from prize winning stock, excellent layers. Three and five dollars. MRS. WILLIS HOUGH, PINE CREST FARM, Royal Oak, Michigan.

WHITE WYANDOTTE COCKERELS from heavy layers and thoroughbred stock. \$2 up. Write wants. A. FRANKLIN SMITH, Ann Arbor, Mich.

WHITE LEGHORN COCKERELS—Wyckoff Strain. Maple City Poultry Plant, Box C., Charlotte, Mich.

DOGS AND FERRETS.

Fox and Wolf Hounds



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

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

COLLIE PUPS—Sable and white. Bright, active, intelligent, alert, natural heel drivers. G. A. WIGENT, Watervliet, Mich.

HOUNDS FOR HUNTING Fox, Coon, Skunk FERRETS and Rabbits. Send 2c stamp. W. E. LECKY, Holmesville, Ohio.

Poultry and Bees.

The Hen and the Substitute Sitter.

Hatching time will soon be here and the preparations for a new crop of chickens will have to be made. Before the incubators were in common use hatching time did not start until spring, or rather until the hen decided that it was time to get ready for a 21-day sit. But now we can set the starting time at a certain date, and all that we have to do to set the incubator is to scratch a match and light the lamp. This could be done any time we are of a mind to, and hatching now often starts when there is snow on the ground and when it is still quite frosty around the edges in the morning.

The above sounds quite easy, doesn't it? But, Mother Lamp has no instinct; she does not know when to get off from the eggs to give them an airing nor does she know how to regulate her feathers for the proper amount of heat and moisture. No incubator ever made is equal to the old hen. But—well, it is the two butts which we wish to discuss here.

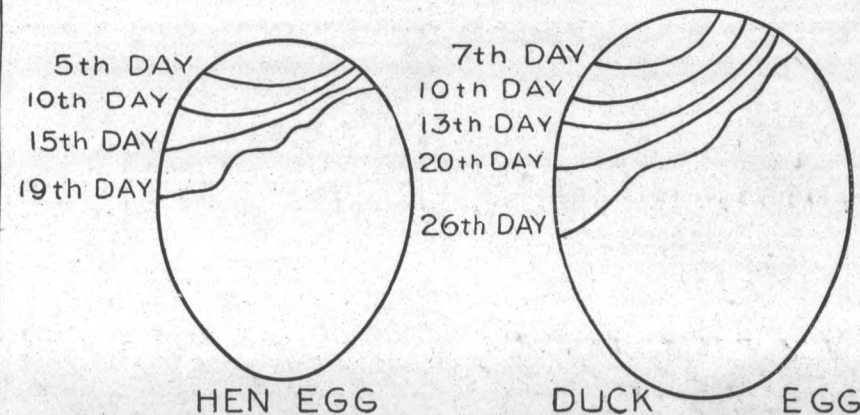
When conditions inside of the hen get in proper shape she comes to the conclusion that it is time to "set," that is, if she is of the "settin" kind. If she is not, it is supposed that conditions on the interior do not get in proper shape for the "setting" notion. We have not as yet found any system by which we can tell just when this "setting" notion is to take effect. When we see her on the job then we know it, but not until then, and even then we are not sure whether it is going to last the necessary length of time or not.

Hens, like people, are notional, and we can never tell whether Biddy is going to take a liking to a door knob and endeavor to bring it up as her own, or not. Even with the best care Biddy can give them, knobs never become a respectable flock

therefore something comparatively new.

While incubators are made according to the best of the present knowledge and will undoubtedly be improved as we learn more of the principles of incubation results in hatching will vary considerably. This is because the incubator has no instinct and the operator has to use his judgment instead. The differences in results are not due to the machine but to the differences in the judgment used by the operators. Instinct needs no knowledge to guide it but judgment does. Often the lack of judgment is due only to the fact that the operator does not follow explicitly the instructions of the manufacturer. Some little detail in the instructions is not given proper attention. The makers have given the matter much study and attention and know best how to run the machine they make. So, only those who know thoroughly the principles of incubation should deviate from the rules. There may be atmospheric conditions which would make it necessary to vary from the rules some. The running of incubators in high altitudes may differ slightly from that in low altitudes. If after following thoroughly the rules without success the operator should write the makers advising them of local conditions and they will give suggestions accordingly.

There are four things necessary for successful incubation; the proper regulation of heat, moisture and ventilation, and the proper amount of turning for the eggs. While essential, the turning of the eggs can easily be taken care of. The regulation of the heat, moisture and ventilation are the most serious problems to contend with. If there is not sufficient moisture the air space in the eggs will become too large and if a hatch results



of chickens. Also, some hens, like some people, are obstinate and would rather quit the job than be moved to a comfortable nest from a barn beam or some other slightly place. The whole trouble is, that all hens are not good sitting hens, and the joy of going around the neighborhood to buy good broody hens and then getting them used to a new nest is not one which is often sought. But a good sitting hen who will be put where you want her and will "stay put" is the best incubator to hatch a small lot of chickens some time in March or April. But if it is desired to hatch a large lot and early in the season it is almost necessary for a person's own well-being to save him work, to use an incubator. To produce early spring chickens or early winter layers the broody hen cannot be waited for.

Although the incubator people are not in the business for love, the poultry world owes them a debt of gratitude for the present progress in the poultry business would not be possible without their war. They have studied and planned and have, as a result, brought forth a machine which will carry on a natural process nearly as well as a living thing. Incubation has been brought down to a science.

Artificial incubation, although it has made its greatest development during the past few years, is not a thing that is new. It dates back as far as we have record of any human activities. In Egypt egg ovens were common and large numbers of eggs were hatched by them. But it has been the present generation which has thoroughly studied the principles of incubation and the present incubator is

at all the chicks will be weak. The accompanying illustration shows the amount of air space necessary at different periods of incubation for best results. Different makes of incubators have various methods of controlling these essentials of incubation and for that reason alone it is very necessary to follow the instructions going with them, to the letter.

Very often we become unduly discouraged with our results in incubator work. We feel that there has been a great waste when we find a fairly large percentage of the eggs unhatched, but we think nothing of it if we should find three or four of the 13 under the hen beyond recall. The per cent of unhatched eggs may be the same in both cases, but the large number in the case of the incubator makes the loss seem more serious.

As far as the individual chick is concerned, it does not care whether it has been hatched or incubated, as long as either process has been carried on properly. It seems as happy in the nursery tray as under Mother Hen, and if Mother Hen is lousy it may even seem happier in the nursery tray.

Now is the time to give this matter consideration. It takes considerable time to make a selection of the incubator desired. Catalogs of the various incubator manufacturers should be sent for and studied. Besides the descriptions of the incubators offered for sale, these catalogs contain valuable information on poultry raising. It never pays to wait until the last minute to do a thing, something is liable to cause a delay which would be disadvantageous. Now is the time to look into this incubator business if you are going to at all.

Most ACCIDENTS are Due to Carelessness



STATISTICS prove that the majority of accidents could have been prevented by a little forethought.

There is no longer any excuse for a horse floundering or falling on icy streets, sustaining sprains and bruises, perhaps becoming permanently or even fatally injured.

Red Tip Calks

present a safe, easy way of sharpening that assures absolute safety to horse and driver. They are easily and quickly adjusted and once in will stay in, wearing sharper with use.

Do not confuse RED TIP calks with imitations. Look for and insist upon the RED TIP and you will get the best. Booklet D tells why. Send for it.

NEVERSLIP MANUFACTURING CO.
NEW BRUNSWICK, N. J.

YOUR MONEY WILL NET 5%

if invested with this Society. Interest paid semi-annually. Let us have your name and address and we will tell you of the advantages offered by this Society which has been doing business for over twenty years.

The Industrial Savings Society,
219 Hammond Bldg., Detroit, Mich.
L. ROY WATERBURY, Pres. AUSTIN N. KIMMIS, Secy.

"Jimmy, Always Give 100 Cents' Worth for Every Dollar You Get"

That's what my father said to me when I was a kid—and that's what I'm doing when I send you my Belle City hatching outfit. 276,000 users will tell you so. I'm giving you more, when you compare my

8 Times World's Champion
with any other incubator, regardless of price. My Belle City has won Eight World's Championships. Thousands have made 100 per cent perfect hatches. Send for my New Book, "Hatching Facts." It tells of big money making successes. A postal brings it to you. My low price will surprise you.

Jim Rohan, Pres., Belle City Incubator Co., Box 14, Racine, Wis.



Cyphers Co's

Free Service

No matter what incubator you may be using, you are entitled to the Cyphers Co. Books on Poultry Free. Write at once for list. Also get

Free Personal Letters and 244-Page Catalog

Contains eight helpful Chapters—describes Cyphers Co. Specialties. Address
Cyphers Incubator Co., Dept. 35 Buffalo, N. Y.

130 Egg Mankato Incubator \$7.25

A high grade hatcher, direct from factory to user. Has red wood case, triple walls, asbestos lined, copper hot water tank, self regulator, nursery, high legs, safety lamp, etc. Safe, simple and sure. All set up ready for use. Money back guarantee. 18 years experience. Brooders for 120 chicks \$2.50. For 240 chicks \$4.00 and up. Write for big free catalogue.

Mankato Incubator Co., Box 727 Mankato, Minn.

112-PAGE POULTRY BOOK FREE

If you are thinking of buying an incubator or brooder you should send for our big 1914 catalog at once. Describes many new, exclusive improvements in this year's

PRAIRIE STATE Incubators and Brooders

Also contains about 60 pages of valuable poultry information—how to feed, rear and breed; treat diseases, poultry buildings, home grown winter feed, etc. Just out—a postal brings it FREE. Write today—now.

Prairie State Incubator Co., 123 Main St., Homer City, Pa.



130 Egg Incubator and Brooder \$10

Ordered Together. Freight paid east of Rockies. Hot water, copper tanks, double walls, dead air space, double glass doors, all set up complete, or 100 Egg Incubator and Brooder \$11.50. FREE Catalogue describes them. Send for it today or order direct.

WISCONSIN INCUBATOR CO., Box 148 Racine, Wis.

YOUR HENS YOUR FARM YOUR MONEY

Farmers and Fanciers should get the FREE POULTRY BOOK and Catalogue written by ROBERT ESSEX well known throughout America. After 25 Years With Poultry. It tells How to Make Most From Eggs and Hens for Market or Show, contains Pictures of 30 Poultry Houses; tells cost to build; describes AMERICA'S LARGEST LINE OF INCUBATORS AND BROODERS—\$2.25 to \$48 each. Write today. Robert Essex Incubator Co., 113 Henry St., Buffalo, N. Y.

(Continued from page 19.)

sides, the milk from a tubercular cow if fed to chickens or hogs is apt to give them tuberculosis. Besides, chickens that pick up excreted mucus from people may contract the disease. As the disease is incurable, it is needless for me to prescribe treatment.

Eczema.—I have a young Shepherd dog which became irritated in groin and the disease, whatever it is, seems to be spreading. O. O. Bailey, Mich.—Give your dog 10 drs. bicarbonate soda at a dose three times a day and dissolve 1/4 lb. hypo-sulphite of soda in a gallon of water and apply to sore parts two or three times a day.

Indigestion.—I have a horse that was in good condition until he was put in pasture early last fall; since then he has lost flesh and is very much out of condition. I. B. Remus, Mich.—Increase your horse's grain ration, feed four quarts of carrots once a day, instead of six quarts at a feed twice a day. Groom him well twice a day and give a tablespoonful of Fowler's solution, two tablespoonfuls of ground gentian and two tablespoonfuls of bicarbonate of soda at a dose in feed two or three times a day.

Eczema.—I have always received good advice from your veterinary column, I would like to have you prescribe for a puzzling ailment. My four-year-old mare injured pastern, the skin first became rough and cracked open, then I applied lard and gun powder, also gall cure; then I employed our local Vet. and he called it eczema and applied equal parts sulphate of zinc and boric acid lotion; later we applied blue vitriol and water, but none of these remedies seems to affect a cure. E. W. Yale, Mich.—Apply Peruvian balsam twice a day and give a tablespoonful of Donovan's solution at a dose in feed three times a day.

Lumbago.—I have a 12-year-old mare that has had a sort of soreness and stiffness in back for the past two years and I have thought that she might have rheumatism. Our local Vets. fail to do her much good. When down she gets up with some difficulty. W. E. Woodland, Mich.—Give your mare 2 drs. of sodium salicylate at a dose in feed three times a day; also give her a dessertspoonful of powdered nitrate of potash in feed once a day. Are you sure that she has not been foundered?

Chronic Navicular Disease.—I have a 12-year-old mare that has contracted fore feet, is quite lame in right and my horse-shoer tells me that she has coffin joint lameness. C. B. M., Lansing, Mich.—Apply lanolin to hoofs once a day and blister coronet every ten days, using either carate of cantharides or any of the blisters that are regularly advertised in this paper. The fore feet should be kept moist and she should have daily exercise.

Out of Condition.—I have a ten-year-old gelding whose water is thick, coat stands out straight; he is low in flesh and I have given him saltpeter without helping him. J. H. C., Mayville, Mich.—Groom your horse well twice a day, keep him warm, keep stable clean and well ventilated; also give him a teaspoonful of powdered sulphate iron, a dessertspoonful of powdered fenugreek, a tablespoonful of ground gentian and the same quantity of bicarbonate soda at a dose in feed three times a day. He should be fed some roots as well as plenty of nutritious other feed. One drake to each eight or ten ducks is about right.

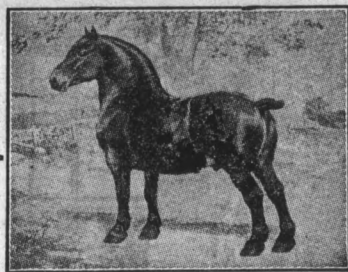
Fistula of Withers.—Last July a bunch appeared on withers of my eleven-year-old mare and later bunch was lanced, allowing pus to escape and this discharge has kept up ever since. My Vet. treats this ailment once in every five days by injecting a serum and we wash shoulder once a day. P. T. Grand Rapids, Mich.—I have considerable confidence in polyvalent bacterin treatment, for I have obtained fairly good results by its use; therefore, I advise you to let your Vet. continue the treatment. You may advise him to apply one part iodoform and ten parts boric acid and this medicine should be put in a gelatine capsule and forced to bottom of abscess and allowed to remain there.

Partial Dislocation of Stifle.—I have a three-year-old colt that has stifle trouble and occasionally his leg seems to stiffen so much that he drags toe on ground and is unable to raise foot. E. T. S., Emmett, Mich.—The patella (cap) slips out of position and while out it is impossible for colt to flex leg. Pull foot forward, push stifle back then push cap into position. Clip hair off and apply one part cantharides and eight parts lard which will blister. This blister should be repeated every ten days until the ligaments of stifle strengthen sufficient to hold cap in position. It is always good practice to stand a horse of this kind in a stall with fore feet three or four inches lower than hind ones; this assists in keeping the bone in its place.

Colts Cough.—Colts have a bad cough; what would be good for them? F. R. Traverse City, Mich.—Mix together equal parts muriate ammonia, ginger and licorice and give a dessertspoonful at a dose in feed three times a day. If their throats are swollen, apply one part turpentine, one part aqua ammonia and three parts olive oil, once a day for a few days.

Swollen Stifle.—Have a colt six months old that has a lump on stifle and I would like to know what to apply. I have been advised to blister, but as he is not lame or sore, I hesitate until hearing from you. H. W. M., Davison, Mich.—Apply equal parts tincture iodine and camphorated oil to bunch once a day.

W. H., Pearle, Mich.—Give your cow 1/2 oz. fluid extract gentian, 1/2 oz. fluid extract cinchona, a tablespoonful of salt and 1/2 oz. Fowler's solution at a dose as a drench in a quart of water three times a day. Feed her whatever kind of food she craves; however, clover, well cured corn fodder and roots are perhaps the best food you can feed her.



HEWO BELGIANS They Are Here!

H. & H. Wolf, importers of Belgian Horses exclusively, advise old and prospective patrons that their new 1913 importation is now in their barns. It is in all respects by far the most select lot of horses of this breed that have ever been stabled in their barns. Big, weighty, typey drafters of quality all through, that challenge comparison with the Best Anywhere. A select lot of mares, too. Get our terms and Guarantee. This will interest you as much as the horses.

Hewo Stock Farm
Wabash, Indiana
More than a quarter century with the breed.

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.

JACKS and MULES

Raise mules and get rich. 18 Jack and Mule farms under one management, where can be seen 40 head fine large Jacks, Jennys and Mules, 14 to 17 hands high. Good ones. Stock guaranteed. Write for prices today. Address

KREKLE'S JACK FARM
West Elkton, Ohio.
Branch barns, Clinton, Ind.



Try It
30 Days

at Our Risk
Buckeye
FEEDING
MOLASSES

W. H.
EDGAR & SON,
1232 Lafayette
Blvd., Detroit, Mich.

I have.....head of

cattle.....sheep.....hogs

and.....horses. Send me

your trial proposition to prove that

Buckeye Feeding Molasses will benefit

all of them.

Name.....R. F. D.....

P. O.....State.....

Mail this

Coupon

Today

Buckeye All Metal Hog Houses

make hog raising easy. They insure the litter against disease, are always dry and warm. Easily moved and kept clean. 6 1/2 feet long, 4 feet high, with many unique, patented features.

Least a
Life
Time

Write for Catalog Today

Fully describes complete line of metal

specialties. Sent free on request.

Thomas & Armstrong Co.,

15 Main St., London, Ohio

PUBLIC SALE OF MULE FOOT HOGS

Jan. 27, 1914, at Findlay, Ohio. 50 head of bred

sows and gilts selected from America's 1913 champion

show herd. For catalog and information, address:

LONG BROTHERS, ALVADA, OHIO.

BREEDERS' DIRECTORY.

CATTLE.

ABERDEEN-ANGUS

Herd, consisting of Trojan Ericas, Blackbirds, and Prides, only, headed by BLACK QUALITY TWO, a bull of exceptional individuality and merit. A few young bulls for sale.

WOODCOTE STOCK FARM, Ionia, Mich.

AYRSHIRES—One of the foremost dairy breeds, Bull calves for sale. Write for description. Michigan School of the Deaf, Flint, Mich.

GRADE GUERNSEYS FOR SALE.

2 half bloods, 5 years old, fresh, each giving over 30 lbs. \$75 each.
1 1/4 blood, 3 years old, giving 28 lbs. 5% 85
1 1/4 " 4 " 28 lbs. 5% 80
1 1/4 " 2 years old fresh in February 85
1 1/4 " 2 years old, fresh any day 100

A splendid opportunity to get a good cow at a price below real value. Inspection invited. Windermere Farms, Watervliet, Mich., Clint Bishop, Supt. Farm located 3 miles north, 1/4 mile west Watervliet. Further particulars from J. K. Blatchford, Auditorium Tower, Chicago, Ill.

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

GUERNSEYS—Reg. Tuberculin Tested. Windermere Farm, Watervliet, Mich. J. K. BLATCHFORD, Auditorium Tower, Chicago, Ill.

A VERY CHOICE HOLSTEIN BULL CALF for sale, from a 30 lb. bull and a 21 lb. dam that is from a sister of a 3240 lb. cow, and has produced an 1885 three-year-old heifer. Hillcrest Farm, Kalamazoo, Mich.

Holstein Bull Calves—Sired by Albina Bonte Butter Boy No. 93124, a double grandson of DeKol 2nd's Butter Boy 81. Choice stock with good A.R.O. backing. W. B. READER, Howell, Mich.

HOLSTEIN BULLS AT FARMERS PRICES—Sired by one of the best bulls of America. LONG BEACH FARM, Augusta, Kalamazoo Co., Mich.

REGISTERED HOLSTEIN Bull Calves, finest type and breeding. \$50 to \$100 delivered. Free safe arrival guaranteed. Write for pedigree. HOBART W. FAY, Mason, Michigan.

"Top-Notch" Holsteins.

Choice bull calves from 1 to 3 mo. old, of fashionable breeding and from dams with official milk and butter records for sale at reasonable prices.

McPHERSON FARMS CO., Howell, Michigan.

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

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.

3 FINE YEARLING BULLS!

1 Son of Sir Jolie Johanna, out of an 18th 3-year-old daughter of Sir May Hartog Posch.
2 Sons of Johanna DeColantha 5th and out of A. R. O. dams.
5 Bull Calves, by Johanna Concordia Champion, No. 60575. A copy of the 24th volume of the Holstein Friesian year book with each of these bulls.

Prices right to quick buyers.

L. E. CONNELL, Fayette, Ohio

IXI-ON FARMS offer choicely bred young Holstein sires, \$50 to \$75 each, with all papers. S. O. RATHFON & SON, R. F. D. 5, Ypsilanti, Mich.

KORN-EL STOCK FARM offers a Registered Holstein Bull 14 months old for \$100. E. R. CORNELL, Howell, Mich.

HOLSTEIN Urmagelscha was champion cow of Michigan. Her grandson, ready for service, \$100. James Martin, Howell, Mich.

Magnificent Holstein Bull Calf For Sale

Two months old. By 26 lbs. butter bull; dam, the A. R. O. Cow Houwte, by DeKol Albino. None finer. Seven-eighths white. Yellow skin. Only \$75.

ROUGEMONT FARMS, Detroit, Michigan.

Maple Lane Register of Merit Herd—Offers register of tuberculin tested Jersey Cattle of all ages for sale. IRVIN FOX, Prop., Allegan, Michigan.

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

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

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.

DAIRY BRED SHORTHORNS—of best bates Strains. 26 years a breeder of Shorthorns. J. B. HUMMEL, Mason, Michigan.

9 Shorthorns—Bulls from 8 to 12 months old. Best of breeding. Write for pedigrees. W. W. KNAPP, Howell, Mich.

SHEEP.

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

Three-Year-Old OXFORD and SHROPSHIRE Rams For sale cheap. Parkhurst Bros., Reed City, Mich.

IT PAYS TO BUY PURE BRED SHEEP OF PARSONS. "the sheep man of the east." Shropshires, Rambouillet, Polled Delaines and Parsons Oxfords. R. I. Grand Lodge, 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.

INGLESIDE FARM—Offers recorded SHROPSHIRE, ewes bred to choice rams for \$15.00 per head. HERBERT E. POWELL, Ionia, Michigan.

O. I. C.—two boars weighing 200 lbs. \$20 each. One extra fine boar \$30. C. J. THOMPSON, Rockford, Michigan.

HOGS.

DUROCS & VICTORIAS Prize winners at the large fairs. Choice stock for sale. STORY FARMS, Lowell, Mich. City Phone 55.

TWO YOUNG BOARS left that are ready for service at \$25 each to close them out. A. A. PATTULLO, Deckerville, Michigan.

O. I. C. SWINE—Bred gilts all sold. Pigs on hand. Will book orders for Sept. pigs, get my price on pairs and trios not at all. A. J. GORDON R. No. 2, Dor, Mich.

Chester Whites—Spring and summer pigs, write us your wants. Price and quality right. Meadow View Stock Farm, R. F. D. No. 5, Holland, Mich.

Improved Chesters I have a few choice young breeders of April farrow, either sex. Twenty years a breeder. W. O. Wilson, Okemos, Mich.

O. I. C.'s—Gilts bred for Mar. and Apr. farrow, Aug. pigs. All of right type. I pay express. GEO. P. ANDREWS, Dansville, Ingham Co., Mich.

O. I. C.—Spring boars all sold. Have a fine lot of spring gilts, Sept. pigs, ready to ship, not at all. Lengthy Prince No. 38161, head of herd, (will weigh 1/2 ton when mature.) A. Newman, R. 1, Marlette, Mich.

O. I. C.—Spring Boars all sold, fall pigs ready to ship, also a few choice red polled heifers. JOHN BERNER & SON, Grand Ledge, Mich.

O. I. C. Registered Boars—18, 6 and 4 months, for sale. Prices reasonable. Oak View Farm, N. H. Weber, Prop. Royal Oak, Mich.

O. I. C.'s.—Last spring boars all sold. A fine lot of gilts and fall pigs on hand. OTTO B. SCHULZE, One-half mile west of Depot, Nashville, Michigan.

WRITE US Your Wants For Reg. Chester White Swine, Holstein Bulls, Scotch Collie pups. Sept. pigs now ready for shipment. RAY B. PARHAM, Bronson, Michigan.

O. I. C.—Swine, Holstein Bull calf. Bf. R. and Fred Nickel R. No. 1, Monroe, Michigan.



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.

Duroc Jersey Boars For Sale, of the large growthy type, also 2 Reg. Percheron Stallions 1-yr.-old. M. A. BRAY, Okemos, Mich.

DUROCS—Spring pigs all sold. Fall pigs, either sex. Prices reasonable. S. C. STAHLMAN CHERRY LAWN FARM, R. 2, Shepherd, Michigan.

Fancy bred Duroc Jerseys—Boars & Gilts of spring & summer farrow. Good individuals at reasonable prices. John McNicoll, Station A, R. 4, Bay City, Mich.

DUROCS—36 High Class immuned boars ready for service. Special prices for 30 days. Write or come and see. J. O. BARNEY, Coldwater, Mich.

DUROC JERSEY BRED GILTS to farrow in March and April of the year. W. C. TAYLOR, Milan, Michigan.

BIG TYPE DUROCS—March and April Boars, ready for service. Pairs not at all. Also Shropshire rams for sale. F. J. DRODT, R. No. 1, Monroe, Mich.

DUROC JERSEYS—20 Bred Gilts for Sale. CAREY U. EDMONDS, Hastings, Michigan.

DUROCS—Fall yearling sows and spring gilts, bred for March and April farrow, bred to two of the best bred boars in the state. Also a few boars, (all are immune.) Come or write. H. G. KESLER, Cassopolis, Mich.

DUROCS, Good Enough to Ship Without the Money. KOPE KON FARM, Kinderhook, Michigan.

Duroc-Jerseys—Spring boars from prize-winning strains. Sows all ages. Brookwater Farm, R. F. D. No. 7, Ann Arbor, Mich.

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

LARGE TYPE P. C. A few boars left. Am booking orders for bred gilts, Bred to Young Hadley, Big A Wonder and Big Defender. H. O. SWARTZ, Schoolcraft, Michigan.

Poland Chinas and Single Comb White Leghorns. B. M. WING & SON, Sheridan, Michigan.

POLAND CHINA Bred sows and fall pigs prices right. G. W. HOLTON, R. No. 11, Kalamazoo, Mich.

Poland Chinas—The Large Prolific Kind. We have a nice lot of spring boars at farmers prices. ALLEN BROS, Paw Paw, Mich.

BUTLER'S Big Bred Prolific Poland Chinas. Grow big, keep easy, mature early, ready for market in 6 months. Why? Because we've bred them that way for 20 years. Buy a bred sow or some pigs now, and make more money. 50 bred sows, 100 fall pigs. Poland China history free. J. C. BUTLER, Portland, Mich.

Poland China—Sows bred, also summer and fall pigs, from large, prolific sows. Barred Rock cockerels, \$1 each. ROBERT NEVE, Pierson, Mich.

P. C. MARCH AND APRIL PIGS—The long bodied to please. R. W. MILLS, Saline, Michigan.

POLAND CHINAS—Choice lot of spring pigs, either sex. Prices right. L. W. BARNES & SON, Byron, Shiawassee Co., Mich.

30 Poland China Fall Pigs—Good ones from immune sows \$10 and \$15 each, while they last. Bred sow sale Feb. 28th, send your name for catalog if you want to buy Big Types with Quality. Wm. Waffle, Coldwater, Mich.

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

Large Type P. C. Largest in Mich. Boars all sold. Am booking orders for Bred Gilts. Come and see Big Desmonds, largest Boar in U. S. of age weighs 845 lbs. at 19 months. Expenses paid if not satisfied. Free Livery from Parma. W. E. Livingston, Parma, Mich.

Large Yorkshires—Pigs farrowed in August from prize winning stock, for sale. JONES & LUTZ, Oak Grove, Michigan.

MULEFOOT HOGS FOR SALE.

Both Sexes, all ages. C. F. BACON, Milan, Michigan.

Mule Foot Hogs—All ages for sale. Big growthy, prolific, profitable, healthy. Write for what you want. G. C. KREGLOW, Ada, Ohio.

350 BIG TYPE MULE FOOT HOGS—America's Champion Herd. Prolific, hardy. Best for Mich. Also Ponies. J. DUNLAP, Box M, Williamsport, Ohio.

FOR SALE YORKSHIRES

Boar pigs, Aug. farrowed, from large litters. MEADOWLAND FARM, Waterman & Waterman, Ann Arbor, Mich.

YORKSHIRE SWINE—A few choice boars left. Special prices for quick sale. OSTRANDER BROS, Morley, Mich.

YORKSHIRE SWINE—Boars and gilts all sold. Aug. farrowed pigs, pairs not at all, for sale. Special price on trios. Geo. L. McMullen, Grand Ledge, Mich.

YORKSHIRES

The large, long-bodied, heavy-boned prolific kind. Sows and gilts bred for spring farrow. 60 head of September, October and November pigs. Prices reasonable. W. C. COOK, R. 42, Ada, Michigan.

Lillie Farmstead Yorkshires
Spring gilts, splendid ones. Fall pigs, either sex. Gilts bred for spring farrow.
COLON C. LILLIE Coopersville, Michigan.

Practical Science.

THE PROBLEM OF SUPPLYING MILK TO THE CITY.

BY FLOYD W. ROBERTSON.

One of the most trying problems with which the dairymen have to deal is the supplying of market milk to the city. Not only is it trying from the commercial point of view, that is the various problems involved in the actual marketing of the milk, but it is also a very peculiar business because of the peculiarity of the market which they supply.

The Problems of City Life.

It cannot be maintained that the reason the commodity, milk, is so criticised by health officials and from a standpoint of cleanliness, that on this account the producers of milk have a second-rate appreciation of sanitary factors. It is true that the peculiarities surrounding farm life have not been such as to compel the forced attention to sanitary problems that has been necessary in the cities because of the exceedingly compact manner in which people live in the urban communities. When one stops to think of a condition where from 100,000 to 500,000 and to 1,000,000 people live together in the space of a very few square miles, it seems indeed strange that there are not more problems arising in the relationship of these individuals one to the other that makes such living almost impossible. It is by no means an unusual thing for rural inhabitants in communities in which there are only two or three families per square mile at times to find it exceedingly difficult to get along in their everyday affairs. If such a condition existed in the city it may be readily seen that urban life as it is understood now would be impossible.

It has been necessary for people to learn to get along with each other in the cities in order for community life to exist but it is no easy matter when one begins to realize the various problems involved in daily life in the city. Farmers are prone to complain of unfair treatment they get in the marketing of their products in town and particularly is this the case in the relations which exist between the producer of milk and the city consumer.

Producer and Consumer Must Learn to Get Along with Each Other.

Let us view for a moment some of the conditions that exist in the city. Little is gained by our banding ourselves together, producer against consumer—consumer against producer. A proper understanding of the difficulties as they appear to each party will do much towards prompting a spirit of co-operation which is absolutely necessary to the proper working out of any such problem. First of all, let us arrive at one basic, fundamental fact—this is, that as far as our dealings are concerned we must accord to the city man and the country man alike the same desire for just dealing and fair play. In the last few years, since so much has been done toward improving the quality of the food supply of the country, consumers have been too prone to reason and argue that a manufacturer whose products do not come up to a certain standard is himself wilfully guilty of misconduct, or at least some impropriety. My own observations in this matter have convinced me that manufacturers and producers of articles of food, as well as merchants generally, have in their ranks just as great a percentage of individuals who are striving to perform their duties in a righteous way as have individuals in other lines of endeavor.

An Illustration.

When first I visited a large city, Chicago, I became very much impressed with a condition which had never come to my attention before. It seemed to me that I had never seen so many cripples in my life as I saw every day in going to and from my work on the streets of Chicago, and I wondered if city life was responsible for this directly, or if crippled individuals made a special effort to get to the city to live. On thinking this matter over, another thought forced itself to my attention, namely, that perhaps I had never seen before so many people together in one comparatively small territory. The city of Chicago has nearly as many people living within its confines as are spread over the whole state of Michigan and when I began to wonder if perhaps there were not as many cripples in the whole state of Mich-

igan as I was seeing daily on the streets of Chicago, it then occurred to me that probably there was no greater percentage of cripples in the city's population than in the rural communities.

As Others See Us.

I have had many persons ask me why it is that manufacturers of food products seem to be so guilty of attempting to foist inferior and adulterated foods upon the public. At the same time many people in the cities have asked why it is that the "honest farmer," as he is frequently called, is guilty of being so dishonest in his transactions with city people. It seems to me that all of these questions and observations are parallel to my observations of the percentage of cripples in the city's population. We take our view of humanity from an exceedingly small number of examples which have been forced to our individual attention and consequently such observations are not reliable. We think and believe that there are just as large a percentage of honest, righteous manufacturers of food products as there are in any other walk of life, and we think the average would not be much different from the average in any other line of human endeavor; we think there are just as large a percentage of honest, reliable producers of milk and other farm commodities as there are in any other business of life, either in the country or in the city. The peculiarity of this observation is that the consumers in the city are more particularly interested in the shortcomings of the producer in the country because they are wholly interested in that particular and peculiar shortcoming; the same way with the farmer and the dairyman dealing with the consumer. He is interested not so much in his own end of the transaction as in the criticism which he feels is unjustly meted out to him when his product reaches the city.

Co-operation.

The proper way for regulating a condition which is necessary is for the producer and the consumer of milk to arrive at that same degree of understanding which exists among people generally in the city because without it city life is impossible. The consumer therefore must understand and be appreciative of the many problems confronting the dairyman in the production of a milk of a high degree of purity and excellence. The producer in the country at the same time should bear in mind, with an idea of perfecting his business thereby, the peculiar difficulties and problems which beset the consumer in using in their family the milk produced on the farm.

In the first place, producers are dealing with an exceedingly perishable article of food—perishable because of its composition and being exceedingly prone to contamination because of the manner in which it must be produced and the many difficulties involved in transportation of that article of food from the producer to the consumer.

The Transportation Period.

Milk is different from any other commodity marketed. There is probably no single article of food that is so necessary as milk, and used as it is, we will say, in the city of Detroit in over 100,000 families twice and three times per day, the exceedingly vital hold which it has on our homes is very readily apparent. Farmers have not realized that consumers are confronted with a problem in this manner. They say regarding any one sample of milk, "Why, my family has lived all its life on this milk. Why should it not be suitable for the families in the city?" They forget entirely that that milk as used on the farm is used within a comparatively short time indeed, from the time of its production, and that there have been no opportunities for the development of any contamination that might exist before it is consumed at the home. On the other hand, the city patron is at the end of a long line of transportation involving sometimes 18 or more hours before this product is given to their families.

Milk is Different.

If the product transported were potatoes or other farm products it would reach the consumer's home in a condition not greatly different from that in which it left the producer, but when the consumer's family attempts to use this commodity, milk, it is an entirely different (Continued on page 23).



The Threshold of Life

What are your boys going to do?

They will grow up to be either city or country boys. The chances of your boy *owning something* and being an independent man is the big hope of your heart. In Montana there are millions of acres of land waiting to yield thousands of dollars in profits to hustling, hard-working young men. Far better your boy be a successful farmer than one of the thousands of poor city clerks. Montana is your boys' opportunity for independence. Land that costs from one-half to a third less, yields double per acre than of Eastern and Middle-West land. Climate is delightful—there are good schools and churches and everything that makes for a happy community life.

Send for literature descriptive of this country and telling of the experiences of others who have taken advantage of the opportunities offered them—address

Chicago, Milwaukee & St. Paul Ry.

H. W. STEINHOFF, D. P. A.
212-Majestic Building, Detroit, Mich.
GEO. B. HAYNES
General Passenger Agent
Chicago
H. F. HUNTER, General Agent
613 Railway Exchange
Chicago

Run on Kerosene — 6c for 10 Hours

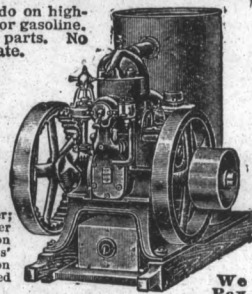
Ellis Engines develop more power on cheap lamp oil than other engines do on high-priced gasoline. Will also operate successfully on distillate, petrol, alcohol or gasoline. Strongest, simplest, most powerful engines made; only three working parts. No cranking, no excessive weight, no carbonizing, less vibration, easy to operate.

ELLIS

ENGINES

Have patent throttle, giving three engines in one; force-feed oiler; automobile type muffler; ball-bearing governor adjustable while running and other exclusive features. Run either way—reversible while running. Best engines for farm work, electric lighting, irrigation and light tractors. **MAKE US PROVE IT**—Every engine sent on 30 days' approval with freight paid. 10-year guarantee. Special factory prices now quoted on all sizes, single and double cylinder, mean a big saving to you. Thousands of satisfied users. Write for big new 1914 catalog and special discount prices.

ELLIS ENGINE CO., 110 Mullett Street, Detroit, Mich.



We Pay Freight



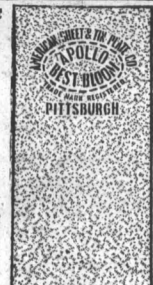
Fireproof—durable

Sold by Weight

APOLLO

ROOFING

Made from the well known APOLLO Best Bloom Galvanized Sheets, and specially adapted to all classes of farm buildings. APOLLO Roofing and Siding Products are highest quality, full weight, easily applied, and reasonable in cost. Sold by leading dealers everywhere. Send for free booklet "Better Buildings," giving plans and full information. AMERICAN SHEET AND TIN PLATE COMPANY, Pittsburgh, Pa.

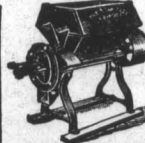


KELLY DUPLEX GRINDING MILLS

Easiest Running Mill Made. Fully Guaranteed



Grinds ear corn, shelled corn, oats, wheat, barley, rye, kafir corn, cotton seed, corn in shucks, alfalfa, sheaf oats, or any kind of grain. Bagger has a double spout attached to either side of mill. We furnish extra hopper for grinding small grain and ear corn at the same time. Only mill made with double set of grinders or burrs. Have a grinding surface of just double that of most mills of equal size, therefore, do twice as much work. Requires 25% less power. Especially adapted for gasoline engines. We make 7 sizes. Write for Free Catalog. DUPLEX MILL & MFG. CO., BOX 308 SPRINGFIELD, OHIO



Business Farmers

Know that it pays to grind the feed at home. There is a big profit in changing corn and grain into higher priced feed. After grinding your own supply, make money grinding for your neighbors. For thorough work get

★Star Feed Grinders★

Made in sizes and styles to suit every need and purpose. They do good work quickly. Built along simple lines for hard use. Each mill is fully guaranteed. Write Today for Free Booklet giving valuable hints on feeding & grinding.

The Star Manufacturing Co.
311 Depot St., New Lexington, Ohio

All Crops Thrive In Virginia

No excessive cold in winter or long dry spell in summer. Average rainfall 45 inches. 4 inches monthly in 1913. Average July temperature 76, December 36. Corn, wheat, oats and other cereals, all legumes, tobacco, alfalfa, large and small fruit and garden truck thrive equally well. Near to the big markets with quick transportation facilities. Write today for list of desirable farms which can be bought for \$10 an acre and up on easy payments. Maps, booklets, homeseekers' excursion rates, etc., on request.

F. H. LaBaume, Agr. & Ind. Agent, Norfolk & Western Railway
Room 221 N. & W. Railway Building
ROANOKE, VA.



Farmers' Clubs

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

SIDE LIGHTS ON FARM LIFE.

Paper read at the annual meeting of the State Association of Farmers' Clubs, by Mrs. W. H. Taylor, of the Ingham County Farmers' Club.

(Continued from last week.)

Great corporations are finding out that it pays to keep their employees in good spirits and some of them are making provision for the comfort of those working for them.

One of the great railroads of the country recently sent out this statement to its men: "Cultivate the art of living with yourself as you are and the world as it is."

This nation once had a strenuous president who always explained his good health by saying, "I like my job."

I am a firm believer in woman's rights—but not by way of the ballot.

The right I ask for our country housewives is that of conveniences. I believe if more attention was given to modern conveniences in our country homes, there would be less discontent among the family.

When the country woman visits her city cousin, she finds conveniences in her kitchen that, considered necessities, too often are unknown in the farmer's home. She then goes back to the farm thinking how much easier life is in the city.

But why not have those comforts in our homes?

I read a statement a short time ago—by the way, that was in the Michigan Farmer—that the farmer's wife lifts on an average the week through, a ton of water. This was called drudgery, and perhaps it is. But this part of our work could be made much easier by a little thoughtfulness.

When the water is piped to the barn to save the good man's steps, a few feet more of pipe and a little added expense, will bring it into the house; and if a water tank and faucet in the kitchen is not a thing of beauty, it certainly is a joy forever.

The country boy, as he comes in from a hard day's work in the dirt and dust of the field, will thoroughly enjoy the comforts of a bathroom, and think that life is really worth living on a farm. Country homes can be heated and lighted nearly as easily as the city ones; and everything that makes for comfort for the farmer and his family also makes for contentment, and we will have a happy company of people ready and willing to feed the whole world from the products of their brain and hands.

When we used to come to the old home in the country for a vacation of a week, or possibly ten days, we were the envy of our friends because the husband could leave the desk and get away for a few days. They seemed to think we were the only ones that ever had a vacation. But since living on a farm we have discovered that we have many more vacation days than when in the city, and do not have to ask someone if we may leave the place for a little while.

Do not think I am advocating the neglecting of the farm, for I know as well as you, that eternal vigilance is the price of success on the farm, as well as elsewhere; but we do not need to be slaves to our work and think we can never leave it.

That is one of the best things of our profession, crops will grow, after we have done our part, if we are not there to watch them every moment, and we can so arrange our work that we can take an occasional day or half-day and get away to enjoy something else.

THE PROBLEM OF SUPPLYING MILK TO THE CITY.

(Continued from page 22).

ent article than was consumed by the family of the producer. It is the same milk, it is true, but in spite of the very best methods of handling this product, whatever contamination it may have received at any time before transportation, and which was probably not at all apparent to the family of the producer has, through a period of incubation lasting during the entire time of transportation, changed entirely its nutritive character.

To show that there is no hostility between the consumer and the producer in this matter, we have simply to state that

A day in the city is a change, and change of work is a rest. One of the most helpful things to be said of our Farmers' Clubs is the chance it gives us of meeting people and exchanging ideas, and having a pleasant time. We cannot mingle with other people without having something new to think about, and a rested mind helps to give us a rested body.

Some time during the year we can leave the children to care for the farm and take a little vacation that will do us good for being away, and then good for having the responsibility of the home. Any farmer, if he will only think so, can have a week's vacation any year by taking it a little at a time and enjoying himself every time he has a few hours recreation.

Nothing pleases our city friends, when they visit us, so much as for us to say, "There is the horse and buggy, take it and go for a drive," but too often we, who can go more often than they, do not take advantage of our privileges, but sit at home and envy the man that has to ride on the street car. One of the farmer's best assets, and the one he values least, is the beauty we have all around us in our work.

We decorate our homes to make them attractive; our schoolhouses are hung with pictures of beautiful scenes, art and architecture vie with each other in producing the beautiful.

We stand enrapt before a wonderful painting where some artist has tried to put a bit of nature on canvas. But when we see the original every day, we take it like the air and the sunshine and do not realize our blessings.

From the first green in the spring, till winter covers the earth with her mantle of snow, there is a continuous panorama of beautiful pictures around us all the time, if we will only lift our eyes and look at them while we work.

Some people can only see so many days of hard work in a field of waving grain or blossoming clover. But there are beauties there that no artist can picture.

Have you ever tried, while riding through the country, to count the different colors and notice how each one blends with the others? Even a brown plowed field makes a pleasing background for the brighter colors of the fields and forest. A field of alfalfa that we have driven past many times the past summer has been as beautiful as a picture.

One of the prettiest sights we see in the early summer are the blossoming trees.

The pure white of the plum and cherry intermingle with the pink of the peach; and the apple orchards with their magnificent bouquets of varied colors form a picture fit to hang in memory's art gallery.

A story is told of two men meeting in the woods and one asked the other, "have you noticed the beautiful sunset?" The other replied, "o, I was looking for my cow."

I fear too many farmers in looking for the cow forget to see the beauties of the sunset.

We should teach our children to see the beauties all around us and help to create in them a love for nature.

A little garden of flowers is a pleasant change for the busy housewife and the child that loves the plants and blossoms has something to hold him to the farm.

The great throng of feathered songsters around our homes, form a choir invisible, whose sweet music soothes our tired nerves and gives to the people of the country a longer lease on life.

"God made the country, and man made the town;

What wonder, then, that health and virtue, gifts That can alone make sweet the bitter draught

That life holds out to all, Should most abound And least be threatened In the fields and groves."

it is an almost universal opinion of people living in the city that one of the desirable features of spending a vacation period in the country is that they may have the advantage of the pure milk, as they term it, that is produced on the farm. This milk is no purer than the same milk is when transported to the city, but by consuming it in a fresh condition the contamination is not so apparent and neither is it so objectionable as in this same milk which has been changed because of the activity of various organisms which, through the long period of transportation have been enabled to incubate and throw off their undesirable secretive excretive products into the milk

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, "Merrily Sing," No. 54, Grange Melodies.

Installation of officers.

Song, "Installation Ode," No. 29, Grange Melodies.

Reports of State Grange: 1. Statistics and work accomplished. 2. The open programs. 3. Decorations, hospitality of hosts, entertaining features, etc. 4. Grange plans for 1914.

Roll call, responded to by each naming, in one word, the thing he or she thinks the Granges of Michigan should work hardest for this year.

Song, "Parting Hymn," No. 22, in Grange Melodies.

THE STATE GRANGE MEETING.

It is customary, at a meeting of the State Grange, to receive the reports of the numerous standing committees on the closing day, thus making it, in reality, the most important of the entire meeting. This year several of the committees completed their work on the preceding day and their reports were received on Thursday afternoon before beginning the memorial exercises. Credit for being first to report belongs to the committee on public utilities, of which J. C. Stafford was chairman. It renewed the allegiance of the Grange to the principle of government ownership of public utilities, and repeated last year's endorsement of the work of the present railroad commission, recommending that its hands be upheld and that the widest publicity be given to all of its actions: In this connection the committee repeated last year's suggestion that the State Grange executive committee have made a digest of all of the rulings of the railroad commission and presented at the annual meetings of the Grange. It also recommended that the state constitution be amended to provide for municipal ownership of telephone service, and that the present Bayliss law be so amended as to facilitate the organization of co-operative telephone companies, all of which were concurred in by the delegates.

The committee on transportation offered no specific recommendations but suggested the need of better accommodations for waiting passengers along some of the electric and steam lines of the state.

Consolidation of schools, with the state adding in defraying the expense of consolidation, was favored by the committee on education. It also favored vocational training, the granting of teachers' certificates only to persons having at least six weeks' training in a normal school or similar institution, the opening of rural schoolhouses as social centers and larger appropriations for the Agricultural College.

The committee on temperance asked that the Grange get behind the movement to demand an amendment to the federal constitution providing for the prohibition of the manufacture and sale of intoxicating liquors, a hearing on which demand was conducted in Washington on Dec. 18. It also urged that subordinate Granges increase their activity in local option contests and endorsed the work of the Anti-Saloon League, pledging it the continued support of the Grange.

The work of the last day of the meeting opened with a report from that branch of the executive committee known as the sub-committee on legislation, of which H. F. Baker was chairman. This report briefly described the activity of the committee in support of desirable measures and in opposition to undesirable ones during the last session of the legislature. It recommended that this committee be instructed to employ assistance in preparing and presenting to the people, through the initiative, the following well-known Grange measures. 1. An amendment to the state constitution removing from the recall the exemption of judicial officers and changing the percentage requirement so that the legislature may fix it at less than 25 per cent. 2. A specific tonnage tax based on the output of mines. 3. The Torrens system of land transfers. This recommendation received the unanimous concurrence of the delegates.

The committee on home economics submitted but one recommendation. It was to the effect that the State Board of Agriculture be petitioned to establish at M. A. C. a woman's bureau of home management similar to that maintained by Cornell University.

Practical co-operation continues a very vexed problem and the committee having this matter in charge did not attempt to go farther than to offer a few suggestions. One of these was that a thorough campaign of education as to the nature and practicability of the so-called Rochdale system be inaugurated by the lecturers' department of the Grange; that meanwhile the subordinate Granges endeavor to evolve a workable plan of buying and selling co-operatively, and that the executive committee be empowered to employ whatever assistance is deemed necessary by the contract agent in the conduct of the Grange co-operative department, all of which received approval. The general report of the executive commit-

tee, which followed this, brought out the fact that a special deputy was appointed last summer to assist Granges desiring to organize co-operative associations. It appeared, however, that few Granges have, to date, taken advantage of the proffered assistance.

The committee on taxation asked the Grange to stand back of the State Tax Commission in its efforts to secure the assessment of all property at its true cash value. It favored the imposition of a tax on ore, graduated according to value; the continuation of the present law governing the taxation of motor-driven vehicles; the amendment of the laws providing a mill tax for the university and other state institutions to conform to the general increase in valuation, and a credit taxation law which shall be uniform and fair to all, as opposed to the present mortgage tax law. The last two propositions provoked some discussion but the report was adopted as presented.

The recommendations offered by the good roads committee awakened the keenest interest and some of these were discussed at length. A proposition to have county road commissioners elected by boards of supervisors, and to have all bills audited by the respective boards, was rejected by the delegates. The recommendations which were given approval were: That all roads built in any county under the state road system be equally apportioned among the several townships; that funds accruing from the present automobile tax be expended in building roads for general public utility rather than in the construction of trunk lines; that the bonding law of 1909 be so amended as to give supervisors authority in the matter of bonding; that the Grange be opposed to the state building roads and bonding for same, but this is not to be construed as opposition to state aid in road building, and that one member in each subordinate Grange be designated to study road problems under local conditions and report to the good roads committee at next meeting of the State Grange.

The committee on resolutions submitted a proposal that the interest rate on postal savings be increased to 3 per cent under condition that these funds be made available to farmers, in the form of long-term loans, at 3½ to 4 per cent. The Grange concurred. A resolution designed to prevent officials of the Grange from holding public office was declared out of order because in violation of the constitution of the Grange. The committee favored the encouragement of crop-growing contests for rural boys and girls, and the creation of a state agricultural commission.

The high cost of living, declared the committee on agriculture, is largely due to poor distribution of food products. It recommended that Granges and individuals make a greater effort to reach the consumer directly through the Housewives' League and similar agencies and that a close study be made of the most desirable methods of packing and grading; urged a wider use of the parcel post in marketing products; declared the big packers responsible for unstable conditions in the live stock markets and asked that Congress, through legislation, endeavor to cure the present indifference of the railroads in the matter of supplying cars to country shippers. The committee also asked the Grange to authorize the purchase, by the executive committee, of a suitable corn trophy to be annually competed for by subordinate Granges at the state show conducted by the Michigan Corn Improvement Association, and this also was given approval.

Endorsement of the Lever bill now before Congress, and of the proposition to establish a woman's bureau in M. A. C., practically sums up the work of the committee on agricultural college, while the report of the committee on forestry, which immediately followed, contained no specific recommendation.

A one-week school in each county for the benefit of farmers was thought desirable by the committee on agricultural extension. This report also strongly commended the present system of farmers' institutes and the work of the Agricultural College.

Several amendments submitted by the committee on State Grange by-laws were adopted. One of these provides that counties may select dates for holding annual county conventions provided date chosen is not earlier than August 15 nor later than the first Tuesday in October; another adds State Lecturer to the list of officers that are nominated by Grange primary, and the executive committee was instructed to have published, at earliest possible date following the primary, the names of candidates nominated.

The matter of representation in the National Grange was brought in by the committee on instructions to National Grange delegates and the former position of Michigan State Grange upon this important question was unanimously reaffirmed.

The work of the meeting closed with the report of the committee on legislative action which touched upon several questions which had already received consideration, notably the tonnage tax and the Torrens system. Other propositions given approval were: Favoring compulsory arbitration of labor disputes; employing short-term prisoners in preparing stone from state lands for highway building; compulsory spraying of fruit trees affected with San Jose scale or their destruction; compelling commission men to adopt a system of triple memoranda, and the granting of the right of franchise to women.

COMING EVENTS.

Pomona Meetings.

Wayne Co., with Harmony Grange, at Romulus, Saturday, Jan. 10. Dr. Eben Mumford, state speaker.

BUSTED PRICES!

Our Great 1914 Offer!!

BARGAIN!!

No Money Down

WIRE & FENCING PRICES

ROOFING PRICES

LUMBER PRICES

BUILDING MATERIAL PRICES

Here is the Greatest Sale ever advertised—the opportunity you have long sought for—a chance to buy staple lumber and building material—Roofing, Wire, Fencing, Furniture and Household Goods of every kind and description, in fact, Merchandise of every nature, at unheard of low prices.

We are determined that the Spring of 1914, will be the most successful in the history of this Great Company, and the Wise man will take early advantage of the great bargains shown in this advertisement.

You can order a complete carload of building material from us, including everything you need to construct and equip and we will ship it to you, without one cent cash in advance.

All we want to know is that the money will be paid up as soon as the material is received, unloaded and checked up.

Lumber Prices S-m-a-s-h-e-d

Yes, we mean smashed. Absolutely busted to pieces. That's our policy. We quote prices on lumber that will positively save you big money. If you will send your lumber bill we will send you a freight paid price that will mean a saving to you of from 30% to 50%. Every stick is absolutely first class, brand new and fully up-to-grade such as you would buy from any reputable house in the United States.

We have determined that the year of 1914 is going to be the Banner year in our great lumber department. We have on hand 20,000,000 feet of high-grade lumber suitable for the construction of Buildings, no matter for what purpose intended. Come to our great yards in Chicago and let us show you this stuff actually in stock. No other concern in the world has a more complete stock of everything needed to build, whether Lumber, Shingles, Structural Iron, Plumbing, Heating, Doors or anything else that you may need. Do you know that lumber is getting scarcer and scarcer every year? Yet our prices are lowest and will continue so until our stock is gone. WRITE TODAY.

Shingles At Big Saving

We have a special lot of 1,000,000 5 to 2 10 inch Clear Shingles on which we are making an exceptionally low price of \$2.80. Order by Lot No. MS-40.

This Door at 98c

Lot CD-39. Four panel painted door, size 2 ft. 6 in. x 6 ft. 6 in. 500 in stock. A high quality door for the price. This is only one of our many special bargains. Our grand Building Material Catalog and Bargain Sheets will show a full line of inside Mill-work of all kinds.

Free Building Book

A 200-page Book of Bargains in Millwork, Building material of all kinds, including Paints, Plumbing, Heating, Structural Iron, Metal and Composition Roofing, Hardware, Carpenter's and Blacksmith's Tools, Wire Fencing. No prospective builder should be without it. It is Free.



ROOFING PRICES SMASHED!

Galvanized Steel Roofing Is Fire, Water and Lightning Proof

We bought 20,000 squares of this Corrugated Iron Roofing, which we offer at this remarkably low price. It is new, perfect, and first-class, but light weight. The sheets are 22 x 24 in. x 1 1/2 in. corrugated. Our price of \$1.25 per sq. ft. is f. o. b. cars Chicago.

\$1.25
per 100 sq. ft.
buys best
steel roofing

When ordering this item, specify Lot No. CD-700. This is not galvanized, but black steel roofing. Write us today for our special FREIGHT PREPAID PRICES on new, galvanized roofing. We are offering prices lower than ever before offered in the roofing business. Galvanized roofing at \$2.75 per square and up. Ask for free samples. We can furnish anything needed in Roofing, Siding or Ceiling.

62c Per 108 Square Feet Buys Best Rubber Surfaced "Ajax" Roofing

Here again we show the lowest price ever known for roofing of quality. This smooth surfaced roofing we are offering is our one-ply "Ajax" brand, and the price includes necessary cement and caps to lay it; this price is f. o. b. Chicago; at 80c per square, we pay the freight in full to any point East of Kansas and Nebraska and North of the Ohio River, provided your order is for at least 3 squares. Prices to other points on application.



Roofing is guaranteed to wear as long and give as good service as any Ready Rubber Surfaced Roofing on the market. It is out in rolls of 108 square feet and contains 3 to 4 pieces to the roll. We have other grades of Ready Roofing, which we offer at prices easily 30 per cent below regular quotations. Write today for free samples and Roofing Catalog. Fill in the coupon.

Fill in This Coupon

HARRIS BROTHERS CO., Dept. C. D. 42 Chicago

Send me free of cost the following catalogs. (Place an X mark in square opposite the catalogs you wish)

- | | |
|--|--|
| <input type="checkbox"/> Catalog of 50,000 Bargains | <input type="checkbox"/> Building Material |
| <input type="checkbox"/> Plan Book of Houses & Barns | <input type="checkbox"/> Roofing, Siding and Ceiling |
| <input type="checkbox"/> Wire and Fencing | <input type="checkbox"/> Plumbing & Heating |
| <input type="checkbox"/> | <input type="checkbox"/> Paint |

My Name is.....

My Address is.....

County..... State.....

R. R..... P. O.....

CHICAGO HOUSE WRECKING CO.

Now operated under the name of

HARRIS BROTHERS COMPANY

FOR 22 years the CHICAGO HOUSE WRECKING COMPANY has been well and favorably known to the public. During all these years the four Harris Brothers have been the executive officers and owners and for that reason have finally decided to operate under the name of HARRIS BROTHERS COMPANY.

There is no change in our business, except that in the future the four Harris Brothers will advertise and sell their goods, heretofore advertised and sold under the name of the CHICAGO HOUSE WRECKING COMPANY, under the new name of HARRIS BROTHERS COMPANY.

Why We Are Called the Great Price Wreckers

Consider what becomes of the stock of goods, when a manufacturer or big retail merchant goes bankrupt or "busted" as the saying goes. It is estimated that about ten thousand merchants annually meet with business disaster—this is why our company exists. If the stocks are sufficiently large and the goods are new and desirable, they find their natural way to our great forty acre plant for distribution at a small added profit, to our thousands of customers, who in this way get the benefit of wonderful bargains. In many cases our prices do not even represent the original cost of production. We stand foremost in our line. We recognize no competition. That's why we are called "THE GREAT PRICE WRECKERS."

Our Binding Guarantee

We guarantee absolute and complete satisfaction. There is no half way about this guarantee. Every purchase you make from us will be exactly as represented and you will be satisfied in every way, or we will make such just amends as are within our power. We will take back any unsatisfactory article at our freight expense both ways and refund your purchase price. We refer as to our responsibility to the publisher of this or any other publication or any bank or express company and to the public at large.

We Sell Practically Everything

Our stock includes practically "everything under the sun." It's in truth, from a needle to a locomotive. No matter what your vocation, or what position in life you occupy, or what your business, or how great a merchant you are, you have use for us, and we have the goods that you can buy from us to a decided advantage. The quicker you learn to recognize this fact, the sooner you will be "putting money in your pocket."

Our stock includes Building Material, Lumber, Roofing, Sash, Doors, Millwork, Wire and Fencing, Hardware, Plumbing Material, Heating Apparatus and Supplies, Furniture, Household Goods, Rugs, Stoves and everything needed to furnish or equip your home, your club or hotel. It includes Groceries, Clothing, Dry Goods, Boots and Shoes, Furnishing Goods and every single article to clothe a man, woman or child. It includes Sporting Goods, Fishing Tackle, Hunting Outfits, Tents, Guns, Harness and Vehicles, Jewelry, Sewing Machines, Clocks; also structural iron needed in construction of buildings, bridges, etc. Machinery, gasoline, gas and electric power outfits. In fact you cannot think of a single manufactured article that we cannot supply you at a saving in price. Let us convince you—it means but little effort on your part to prove the truth of all we say. Write us today for our Catalogue and literature. Fill in the coupon shown below.

THE GREAT PRICE WRECKERS

LETTERS FROM CUSTOMERS

\$1,000.00 Saved

Everything arrived in good condition. I saved on the building; also heating plant and bathroom outfit about \$1,000.00 as this kind of lumber would be very dear here.

(Signed) LEWIS YOUNG, Pennsylvania.

\$700.00 Saved

I am perfectly satisfied. Don't be backward in referring to me, for you have done more than you agreed to. I saved \$700.00 and also got better material, and a better house.

(Signed) JOHN J. DUNN, Ohio.

Satisfied With Furnace

The furnace I got from you is perfect in every way. I would not be without it one winter for double its price. If farmers only knew how easy it is to install it, they would not be without it.

(Signed) HENRY D. CHARTER, Canada.

Used 12 Years and in Good Condition

Some 10 or 12 years ago, I bought quite a bill of Black Corrugated Roofing from you, and only painted it twice since I laid it, and it is in just as good condition today, as the day it was laid. Please send me your catalog, as I expect to put up a barn next Spring and am looking for something for a roof as good as that bought from you last time.

(Signed) W. W. STODDARD, Ohio.

Will Order More

Am pleased to say the roofing all here and in splendid shape. Allow me to congratulate you on prompt delivery. You will receive more orders from me.

(Signed) D. DUELLLO.

Recommends Our Paint

I have used your Premier Paint in this salt atmosphere for the past four years and find it better for this climate than any paint I can buy, no matter what the price. (Signed) W. A. WEIDE, Florida.

\$13 BUYS COMPLETE BATHTUB

This is a white enameled, cast iron, one-piece, heavy roll rim bathtub; fitted with the latest style nickel-plated trimmings, including Fuller double bath cocks for hot and cold water, nickel-plated connected waste and overflow and nickel-plated supply pipes. It is 5 ft. long and is good enough to answer the needs of any one. Lot 6CD-101.



Hot Water Heating Plants

We are headquarters for steam, hot water and warm air heating plants. They are suitable either for new or old homes. It is easy to install one of these plants in your old building. For this great Fall Sale of ours we are offering a warm air heating plant large enough for the ordinary 5 room house, with all necessary plans and complete instructions for installing, for \$45.00.

Iron Pipe and Fittings

Good iron pipe in random lengths complete with couplings, suitable for gas, oil, water and conveyance of all liquids; size 3-8 to 12 inches; our price on 1-in. per foot 3c; 1 1/2-in. at 4c per foot. Complete stock of valves and fittings. Send us your specifications.

AXMINSTER RUGS at 75c

We bought at New York Auction an enormous stock of high grade, brand new rugs and floor coverings. This is a sample of our money-saving bargains. Write for complete Free Rug Catalog, showing actual colors.

FURNITURE

We are the World's Bargain Headquarters for the outfitting of your home, club, lodge or hotel, from the very latest to the finest. An assortment of Household Goods and everything such as will be found in no other institution in the land. Write for free copy of our Furniture and Household Goods Catalog.

A THOUSAND PAGES OF BARGAINS

Write us today for a copy of our Great Big Spring Price Wrecker, now off the press. It is the most stupendous Book of Bargains ever produced. It contains a thousand pages of matter true to life and describes the merchandise we are offering for sale so plain and correct that you will experience no trouble in making your selections.

It is a wonderful book of Bargains and can be used every day of your Buying Life. You need it whether you are a customer of ours or not.

WRITE US TODAY.

\$759 Buys the Material to Build This House

This Is Our House, No. 6A
A beautiful up-to-date full 2 story, 7 rooms and bath, home. The biggest bargain in the world. Copied and imitated all over the U. S., but our price and quality cannot be equaled. The price is easily 25 to 50 per cent below local dealer's prices. Immediate shipment right from our Chicago stock, where you can come and see it loaded. NO MONEY DOWN. \$2.00 buys perfect Blue Print Plans, complete specifications and detailed descriptive material list, with a refund of \$1.50 if you do not like them.



Our House No. 6A

Original Methods

We are the originators of a system of selling practically complete Houses direct to the consumer, at a great saving. We eliminate all in-between profits. We sell and ship direct to you from our own stocks. Great care and study has been given all our Plans. Economy is the watch-word both in materials and construction.

No Worry No Loss No Waste

Our Binding Guarantee both as to quality and quantity goes with every sale. Write us for letters from people in your vicinity who have bought from us. We have thousands of unsolicited testimonials.

SPECIAL INFORMATION

If you intend building, you will lose money if you don't write us at once. Tell us what you want. We will answer you promptly and give you valuable information regarding building. Send rough pencil sketch showing the kind of house you want. We will make you a freight paid price that will save you big money on material necessary to build same. Every stick first class. If you intend to make improvements, write us what they are, and we will help you to save money on your purchases.

Our FREE BOOK OF PLANS

Our Book of Plans contains 120 pages of different kinds of buildings. Everything from a 2 room Portable House for \$147.50 to the finest kind of a residence. Houses are completely illustrated showing the floor plans, prices, etc. And it's free.



Wire and Fence Prices Smashed!

Barb Wire Less Than 2c Per Rod

New Galvanized, heavy weight barbwire, put up on reels about 100 lbs. to the reel. Lot 2-CD-36 per 100 lbs. \$1.95. Galvanized barb wire, Light weight, best grade, best made. Put up exactly 80 rods to reel, 2-point barbs. Lot 2-CD-28, per reel, \$1.40.



WIRE NAILS, Per Keg, \$1.28

5,000 kegs, put up 100 lbs. to the keg mixed, all kinds together, regular nails, such as made by nail factories. Lot 2-CD-33, price per keg, \$1.28. 1,000 kegs of 10 penny-weight regular new wire nails, 100 lbs. to the keg, while they last, per keg, \$1.85. Write for our free Wire and Fence Catalogue. Gives valuable information to any land owner. Fill in the coupon below.

Smooth Galvanized Wire Per 100 Lbs.

It is suitable for fences, stay wires, grape vines or for any ordinary purpose where wire is used. This galvanized wire is irregular in length—it ranges anywhere from 50 to 250 ft. \$1.13 is our price for No. 9 gauge. Other sizes in proportion.



15c per Rod Buys Heavy Hog Fencing

Here is another one of our remarkable bargains. A good heavy fence, bought from Ohio flooded factory, perfectly adapted for hogs and general farm purposes, 26 in. high, square mesh, put up in suitable size rolls. Lot 2-CD-31, price per rod 15c. Other heights in proportion. Staples, 100 lbs., \$1.75.

BEST QUALITY READY MIXED PAINT

Our paint department is under the personal supervision of Mr. V. Michaelson, for 30 years the foremost paint man in America. His picture has appeared on over 8,000,000 cans, and his name is known from ocean to ocean. Paint of quality is his specialty. Every gallon has our strongest guarantee. Our Ready Mixed Barn Paint at 66c a gallon will outlast any similar paint produced. If you want quality paint, write us or write to Mr. Michaelson if you prefer. Finest, most valuable paint book ever published sent FREE. Send coupon.

95c
Per Gal.

HARRIS BROTHERS CO. 35th and Iron Sts. Chicago