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Maintaining Farm Fertility--VII.

At the beginning I wish to warn against that unsound doctrine which urges the use of commercial fertilizers as a sufficient means of maintaining and increasing soil fertility. It is not sufficient. It is merely a part of a complex program which involves the use of manures, either barnyard or green, as its complement. Farming as a business is on a safer foundation when the bulk of all the field crops grown on the farm is fed to live stock and more than two-thirds of the plant food returned to the soil in the form of manure.

In some of the older agricultural sections of the east, as in the Chautauqua grape belt of New York, and the famous Aroostook potato county of Maine, manure is actually one of the chief ends of specialized farming. Chautauqua grape growers are beginning to use more chemical plant foods on their land and grow stock foods for the purpose of securing manure with which to maintain the productivity of their vineyard soils. The Aroostook potato growers who frequently use from 1,000 pounds to 2,000 pounds of high-grade complete fertilizer to the acre, find it necessary to plow under a crop of clover if they secure maximum results from the use of fertilizers. Similar systems of crop growing obtain in many other prosperous farming communities.

Commercial fertilizers increase the chemicals in the soil to the amount applied. To make gardens and lawns quickly we haul good soils and spread over them, but when it comes to the enrichment of a large field this would be more expensive than abandoning it and buying more land. It is also probable that if we would figure on the scheme of buying enough purchased chemicals to enrichen it you would find it a good business stroke to move away and leave it. Too heavy additions of chemical plant foods primarily to add to the store of plant

food in the soil is not the object in applying fertilizers, because the percentage of enrichment is too small to justify the expense. They should be put there to feed plants and incidentally to make the soil more productive in the future. In other words, to help grow material for fertilizing other crops. Has it ever occurred to you that it is possible to grow fertilizing material for future crops at the same time you are supplying the essential elements of fertility to grow large crops for market? How can we obtain humus and plant food with chemicals? There is no mystery about humus. Some may ask how about the first crop in a soil deficient in humus. This can be accomplished by securing a good catch of clover or grass or any other growth by the use of fertilizers. Some of the most unproductive land in the country has been made profitable farming land by liberal amounts of fertilizers. The humus material was secured from the fertilizer, the soil and the atmosphere. The chemicals of humus are all about us and all we need do to secure them is to use chemicals and tillage and get the balance from the air, then we will have the material of our own for more of them and if we secure one growth of humus-making material we can keep up the work until we have our soils in good productive condition. Farm manures contain large quantities of humus, but what difference does it make whether we grow it there or haul it. If we can grow some of it on the soil, why not grow it all there if we can not make a profit from harvesting it and feeding it to live stock on our farms. The question of profit is the only consideration worth while, since the man who grows grasses and clovers proves that he can secure humus that way.

One can take a pot of soil and burn it until every trace of the organic matter is gone, mix a complete fertilizer, place

a seed in it and grow a healthy plant. Sweet clover seed can be scattered along a creek or river in pure sand and grow three feet high in as many months and the roots will go deep down and appear as healthy as in a richer soil, which shows that humus can be had under adverse conditions.

This is the way nature first began. Seeds of low degree were planted, and when she had stored up a small amount of humus, plants came in until the surface soil was full of it. During all this time worms, insects and animals were living and dying in it, until the surface soil was a field of carnage, representing the death of plants and animals. Nature was slow but sure in her workings and we can adopt her methods and accomplish more in one year than she did in a century.

We can apply 40 loads of stable manure to an acre of land and let it decompose and we can fill the soil so full of grass and clover roots that they will hold the surface soil together in tough sods. It is possible to take almost any poor soil, of proper drainage, give it good tillage and ten dollars' worth of high-grade fertilizers and the right kind of grass seeds which are adapted to the locality, let it alone for a year and repeat the treatment, when in a year and a half from the time of beginning the whole surface soil to a depth of the furrow slice will be wrapped in a blanket of vegetable matter and the soil particles filled with tiny roots. In addition more than one-half of the chemicals will be there free to build more humus material in the future.

The question of the cost of improving such land comes up. It is large, but my point is to show that it can be done. To do it in the most practical and economical manner each farmer must lay out his own plan of management. The ques-

tion is can we afford to pay interest and taxes on land that shows a loss rather than a profit each year, when the investment of a little money for fertilizer would put it in shape to produce profitable crops. Cropping with chemicals requires skill and ability and for the farmer who is willing to deposit his surplus savings in the soil it is the best investment in the world.

The average farmer who uses commercial fertilizers on certain fields should make a careful study of his soil and try and discover the limiting element of fertility. There is always some one limiting element and it is important to find out just what it is. It may not be in the land at all, but in the methods of soil handling practiced by the man himself. Again, the limiting element may be the amount of moisture available to the plants. Sometimes the limiting element may be phosphoric acid. No matter how much nitrogen we have, if the soil is deficient in phosphoric acid, we cannot grow good, sound hay and grain, for the simple reason we do not have enough material in the soil. A chain is no stronger than its weakest link. If the weakest link is a scant supply of vegetable matter, then supply that. If, by field experiments and experience we find that it is phosphoric acid, then we should supply that. If we have a muck or peaty soil, and the grain will not grow or lodges, then we need potash. Always bear in mind that the crop is measured not by the total amount of plant food in the soil, not altogether by its physical condition, but by the one essential element that does not exist in the soil in sufficient amount to produce a maximum crop. We must know our farms and study their needs if we make a success with these purchased plant foods.

In regard to purchasing and home-mixing of fertilizers we should find out what



Scene Taken at a Recent Meeting of the North Grand Rapids Experiment Association. (For Description see Page 538).

we want, then buy it of responsible dealers. I mention responsible dealers because there are more crooked dealers selling fertilizers, than there are manufacturers making it. Always go at it in a business-like way and buy high-grade goods, and pay for them on the basis of the plant food they contain. The small farmer can hardly afford to buy chemicals and mix formulas at home. It takes too much time and he cannot do the work properly. The farmer who uses large quantities and has sufficient help and facilities may be able to save money by home-mixing, if he can buy chemicals at wholesale rates. If you use commercial fertilizers conduct experiments with them and let the crops and soil tell you when it pays to buy and what elements are needed. This will increase the purchasing power of your dollars.

We make a serious mistake when we apply commercial fertilizers too close to the soil's surface. My experience and observation shows that it is better to apply these fertilizers before the ground has been harrowed the last time and get them thoroughly incorporated with the soil and down where they belong before the crops are planted or sowed. Much of the complaint concerning crop failures, when these fertilizers are used can be traced to applying them to the surface of the soil where they encourage the growth of surface roots that perish as soon as the dry weather comes and shuts off their food supply.

Plant roots will grow toward their food supply and when potash and phosphoric acid becomes fixed in the surface soil there can be no other result than a vigorous system of surface roots. This is why so many farmers claim that it does not pay to use these chemicals during dry seasons. If the fertilizers are well mixed with the soil down to a depth of three or four inches there will be no complaint about the crops burning up as the dry weather comes in the summer. In applying chemicals to grass land it is better to apply large quantities of the mineral elements when seeding than to apply small amounts to the surface after the land is seeded. The nitrogen may safely be applied in the form of nitrate of soda sowed broadcast early in the spring.

New York. W. MILTON KELLY.

THE GRAND RAPIDS EXPERIMENT ASSOCIATION.

The Grand Rapids Experiment Association was organized in February, 1912. It is a local branch of the Michigan Experiment Association. It is intended to be just what its name implies; an experiment association. Each member is supposed to conduct some experiment along agricultural lines. The Department of Farm Crops of the Agricultural College assists in planning these experiments. Its agents inspect conditions of soil, furnish certain seed, etc.

Last year experiments were conducted in testing varieties of corn, oats and potatoes, and alfalfa plants for development of seed; also experiments with commercial fertilizers. At the end of the year each member is required to report the results of his experiment. This year experiments will cover about the same ground, but on a little larger scale.

The association meets monthly at the home of some member. Lunch is served. A program of music, recitations and talks or discussions of local farm problems is given.

The first page illustration represents the members of the association with the teacher and scholars of the local school, District No. 10, Grand Rapids Township. The meeting was at the home of Mr. T. H. Bacon, four miles north of the city.

At this meeting the experiments for the year were planned. Prof. Shoemith and County Agent Skinner were present to assist.

The dues are fifty cents yearly. Half of this goes to the state association. Each local member is a member of the state association. There is a good interest and meetings are well attended. The organization is a success from a social and business standpoint.—Secretary.

A FEW RULES SUGGESTED BY AN "AVERAGE" HIRED MAN.

In regard to Mr. Edward Hutchins' article in your issue of April 5, I would say that it leaves the impression that the hired man is entirely at fault. I have been an "average" hired man for several years and I cannot see that this is at all a one-sided question.

The hired man is not an infallible being,

of course. He makes mistakes; but so does his employer. I have performed work contrary to the wishes of my employer many times, simply because of a misunderstanding of orders or from having received no orders at all in regard to details and been censured because I unfortunately was not a mind reader.

Apropos of Mr. Hutchins' rules, I think a few could be written and posted by the hired man which would read something like this:

1. Never tell the hired man what to do; he might do it right, but cuss him anyway.
2. Have all tools used every day stored away. It gives the man exercise to get them and put them back.
3. If the hired man breaks anything or makes a mistake brood over it and attribute it to "cussedness."
4. Do not employ the golden rule in your dealings with a hired man. It won't work.
5. The hired man is of inferior clay and his wishes or advice should never, on any account, be consulted.
6. If the hired man loses any time charge him up for it, but don't say anything about the overtime he works.

If more men who say so much about the hired men and find fault with their way of doing, would take to treating them as equals and praise what they do well, there would be a great change in the help system which puzzles so many farmers today.

A. F. ROOT.

RIVER FLATS FOR PERMANENT MEADOW.

I have ten acres of river flats that I would like to seed for a permanent meadow. Soil a black clay loam, is tile drained but overflows badly in the spring. Would red-top be better than timothy? If so, how much would you sow per acre? Would it be possible to seed part of it with millet? If so, how would you sow it, alone or would it be better to seed it with oats?

E. J. H.

Probably a mixture of redtop and timothy would be as good a combination as you could get for these river flats. Timothy will stand a good deal of water when it comes to overflowing, that is, it can be covered for several days with overflow water if it finally drains off, but it won't do well when it has wet feet all the while. Of course, redtop will do better in a naturally wet soil than timothy, but you say this land is tile drained so I should think that timothy would probably stand it all right unless the water stood over it too long in the overflow and actually smothered it.

This would be a good place to raise millet, but millet doesn't have to be put in until late in the summer when your danger of high water is all over with. I have sown millet as late as the fourth of July and got a splendid crop. If the ground is moist so that it will come up quickly it will make splendid hay. You probably could sow it the last of June, anyway. Your high water would be over with by that time and there would not be any question on this rich land of getting a good crop of millet, which makes excellent hay if it is cut early enough and well cured.

You couldn't very well raise oats in this field because oats ought to be put in early in the spring. If you delay sowing oats till after the high water it will be too late to get a good crop. I know of many river flats that are planted to corn every year. The corn doesn't have to be put in until along the last of May or first of June. Usually the high water is over with by that time, but, of course, it is a little risky because sometimes the high water comes late, and makes it too late for corn, but with the millet this would be practically safe, and I should think would make a good permanent meadow.

COLON C. LILLIE.

SEEDING MUCK LAND TO TIMOTHY.

I have a piece of muck land that I wish to seed to timothy, but it is quite weedy and as I will be short of hay I thought to sow millet this spring and as soon as it is off the ground drag it well and sow the timothy. Will this be a good plan and if so when should I sow the millet and when could I expect to get the timothy sown? Would like to have the timothy get a good start this fall. What kind of millet would you advise sowing?

Eaton Co.

M. J. B.

As long as this land is quite weedy I think it would be an excellent practice to do as indicated, to first raise a crop of millet and then refit the ground and seed to timothy this fall. The weeds will not grow this fall to interfere with the timothy while if sown early this spring they probably will and it would have to

be clipped, and in spite of that would retard the growth of the timothy. There is plenty of time to grow a crop of millet and then get the land in condition to seed to timothy this fall. For this purpose I should sow the millet about the middle of May. That will be early enough. Millet can be sown from the middle of May to the first of July and make a crop. If you will sow it the middle of May you will get the millet off so that you can fit the ground and seed it to timothy the last of August or the first of September, which will be sufficiently early for the timothy to get a good growth this fall. In fact, that is about the very best time of the year to seed ground to timothy.

COLON C. LILLIE.

FARM NOTES.

The Barnyard Problem.

During the wet season last fall and the excessive rains this spring I think that most of the barnyards are in a bad mess, especially where there is a large stock. I must do something with my yard and am at a loss what to do with it. Will tell what I thought of doing and wish someone would tell me what they have done or what they think of the idea, through the Michigan Farmer. Thought of drawing off the soft stuff when it gets dry down to the solid soil, which is a foot and more in some places, then put a tile drain through it about two feet below the surface and fill the yard up with either coal cinders or gravel about eight or ten inches. Which would be best? Coal cinders would have to be drawn seven miles, gravel 3½ miles. The soil is a dark clay and when wet gets like putty. Ground is level, with a fall of about three feet to 80 rods.

Huron Co.

H. S. T.

The barnyard problem is a serious one upon clay soils, particularly in a season like the last. By removing the soft mud from the surface and filling in with gravel or cinders, whichever is more convenient, a much firmer bottom will be secured and there will be far less tendency for the surface to poach up and get muddy. It is doubtful whether a tile drain should be put through this yard or not, particularly if the trench were filled with gravel, for it would permit the leaching of plant food from the yard. If a tile drain is necessary it would be preferable, in the writer's opinion, to put it near the outside of the yard, which should not be too large, and then by directing the water from the barn roof away from the yard by the use of conductors and drains make it possible to keep the yard in reasonably good condition by the use of some bedding material, which will be found profitable if plenty of straw is available. A slight slope to one side will provide sufficient surface drainage to keep the yard in good condition, provided a solid foundation of gravel or cinders is laid.

Alfalfa on Heavy Clay.

I have six acres of heavy clay which is out of rotation. Sod was turned down for corn, followed with beans, part of which were plowed under, and then to oats, also seven acres which was sod to corn, which yielded 100 bu. per acre, followed by oats which yielded 65 bu.; then to beans which were plowed under and again sown to oats, which were a failure. Some manure has been added during this time. Could alfalfa be sown? Kindly advise me what would be best to do. These two parcels are in one field and would like to crop them alike.

Shiawassee Co.

L. W. D.

Alfalfa is well adapted to clay soils. In fact, the writer has seen fields which were seeded to alfalfa where the soil varied from sand to heavy clay and where the alfalfa made a much better stand on the heavy clay knolls than on the sandy portion of the field. Ordinarily a clay soil will contain a larger percentage of lime than a lighter soil and the only reason why alfalfa might not do well on this kind of land would be a possible lack of proper drainage, providing the land is level and good surface drainage is not afforded. It is also true that alfalfa ordinarily succeeds better on a soil which is well supplied with humus, and notwithstanding the fact that it has been repeatedly cropped the yields secured from this soil indicate that it is not seriously depleted in its content of vegetable matter, and this fact is further insured by the plowing down of beans and the addition of stable manure. There would, in the writer's opinion, be a good prospect of success with the alfalfa crop on this soil, provided drainage conditions are reasonably good.

Eradicating Dandelions from Lawns.

Our lawn is becoming covered with dandelions. I would like to know if there is anything that will kill them.

Monroe Co.

A. B.

About the only successful way to eradicate dandelions from lawns is to dig them out. Spraying with sulphate of iron will discourage their growth somewhat, but does not eradicate them.

TILE DRAINING A LANE.

Have a lane that has a quicksand bottom which cuts up very bad during wet seasons. Am thinking of tilling it crosswise, and would like to know whether you think it would pay. If so, state size of tile to use and how far apart to put each drain.

Sanilac Co.

SUBSCRIBER.

My idea would be that it would not pay to tile drain this lane. If it is piked up as you would a road by plowing a back furrow and then plowing again, or perhaps taking a road grader would be even better, and making a good pike and leaving a good ditch on both sides, would fix this lane so that it would not mud up in wet weather. If it did then a coat of gravel could be hauled on just as you would make a road. It would be quite expensive to tile drain it where it is to be used for this purpose. Of course, tile draining would fix it all right but it would cost much more, and even when it is tile drained it should be piked up and have ditches on the side so that the surface water could run off quickly to make a good lane or a good road. If you are going to tile drain it it would be better to drain it lengthways of the lane if you have got fall because it would not cost near as much. You would have to have several tile drains running crossways of the lane. They ought to be about four rods apart. Lengthways of the lane one on each side of the lane, would be sufficient and much more economical. For this purpose three-inch tile would be large enough.

COLON C. LILLIE.

TILE DRAINING IN QUICKSAND AND ON HILLSIDE.

I would like a little light on the subject of tile draining a piece of sandy land. This sand is not very poor or light and produces good crops in a normal year. It is quite level and through the center of it is a strip that seems to be cold and springy, and in a wet year this strip produces nothing. This strip is about ten rods wide and 40 rods long. Also on the north and west sides of this sandy field it slopes very abruptly towards a swamp. About half-way up this slope water is seeping through most all the time in a wet year and especially so in the spring, being too wet to put grain in, or anything else. How should this slope be tiled? Would concrete tile be all right; how far must they be apart to make a good job of it? The soil is a gravelly sand and produces well in rest of field.

St. Clair Co.

SUBSCRIBER.

Subscriber is silent on kinds of subsoil. Evidently on fairly level land four-inch tile running lengthwise, three feet deep, would repay the cost in one year, or perhaps two years. Being sandy, and conditions as stated, it should be done in a dry time, for there must be more or less quicksand. He does not state whether same can be drained down this slope or not, whether one drain or two. Tile may be laid tight and safe on quite a grade. Laterals may be put in to remove springy conditions. This drain should be laid out and targets used to insure proper tile laying in quicksand and caving conditions. Cement tile or soft tile may be durable or may not be. Glazed tile is considered permanent.

Lapeer Co.

DITCHER.

THE FUNCTION OF THREE ELEMENTS OF PLANT FOOD.

Does potash produce grain or straw? Does phosphoric acid produce straw? Ottawa Co.

J. B. F.

Nitrogen is the essential life principle of plants and is found in all the living cells of plants. Its function seems to be to produce new tissue, in other words, produce luxuriant foliage. Plants that are well supplied with nitrogen produce a vigorous growth and have a healthy green color. Phosphoric acid is found largely in the mature seeds of plants. Its function is to hasten maturity. Where plants are so long in growth, late maturing before seed production, it is a pretty good sign that the soil is deficient in phosphoric acid. Where the soil is well supplied with phosphoric acid there is abundant seed development. It tends to produce early development. Potash produces the fleshy part of fruits and of seeds and gives general stiffness to straw. If the wheat plant has a weak stem the probability is that there is a lack of sufficient potash in the soil.

Of these functions of the essential elements of plant food an eminent authority says: "Nitrogen gives the stalk or body of the growing plant, life, strength, and vigor; phosphoric acid gives vitality and health to the fruit of the plant, and potash gives body, tone, and strength to yielding."

COLON C. LILLIE.

How to Make A Lawn.

A LAWN is the most important element of a landscape. It is the basis on which all other effects are produced, whether natural beauty or architectural design. No home can be beautiful without a well-kept greensward. It matters not whether it be the country dooryard, the few square feet of soil in front of the city home, or the vast extent of the wealthy estates and city parks. The effect is the same. Green grass is of great esthetic value as well as of economic importance. It adds a finished effect to the home surroundings and produces a soothing effect on the mind. The farm home which is provided with a beautiful lawn on which its inhabitants can rest evenings has something of enviable value. Grass is nature's own remedy for all erosions. She abhors bare spots and hastens to cover them over with vegetation. If we assist her in so doing by proper preparation of the soil and sowing the right seeds, we are giving to our homes the first element of beauty.

Must Take Things as they Are.

An ideal soil is one which is seldom found where we want it. This is a factor which, to a large extent, we are unable to control. We have to make our lawns on the soil which is found in our doorways. Even where the soil is the kind wanted it often is modified by the operation of grading. For instance, in digging the basement the sub-soil is thrown up and mixed with surface soil. Therefore the problem before us is to convert not the ideal but an abnormal soil into a suitable place for growing grass. Perhaps the most important point to consider here is the matter of water supply. This is the most essential element of plant growth, for through it the grass will get its food supply of potassium, calcium, magnesium, phosphorus, nitrogen and other necessary elements. The soil should be able to take care of the excess moisture during wet seasons and also be able to supply stored up moisture from its depths during droughts. This factor is far more important than providing fertilizers of any kind.

Treatment for Different Soils.

Clay soils make very strong lawn soils, giving a dense sod and growing Kentucky bluegrass very well. Their principal objection is the difficulty in preparing them for lawn purposes and getting them in good physical condition for seeding. Liming will help to loosen these soils, and organic manures are almost a necessity. It is often advantageous to mix in a loam or sandy soil.

Clay loams, when well drained make a good soil on which to establish a lawn. They hold the moisture well. Silt loams are ideally adapted, but must also have good drainage and plenty of organic matter.

Sandy soils are unsuitable for lawn purposes. They require too much organic matter and other fertilizers, and besides will not hold water during dry periods. A sandy loam is very good when underlaid by a clay sub-soil. A sub-soil has a strong influence on maintaining a lawn. The soil cannot be judged by the visible surface only, for the depth of the surface soil is very important. Those soils with a strong clay sub-soil are better able to maintain a good lawn than those having sandy subsoils. The sub-soil must be at least six inches and preferably 12 inches below the surface of the ground.

Grass will not grow on a soil that is not well drained, for then the earth becomes waterlogged, producing a wet, cold soil, and the grass will die for lack of air at the roots. This condition can be eliminated by laying tile in the subsoil. Hardpan formations are hindrances to the movements of water and should be broken up by sub-soiling or other means, as good drainage, like a good water supply, is absolutely essential for a good greensward. Drainage allows a freer access of air to the roots and favors proper bacterial activity.

Grading.

Grading is the most expensive operation of landscape work, but is often necessary for a good effect. Have the grade incline away from the house to carry away surface water. The ground should have a slightly convex rolling surface from the base of the foundation to the road. This increases the apparent extent of the yard by bringing the whole surface into view from any one point. If there are any irregularities, hills, terraces, etc., the buildings will appear much nearer the

road. Do not attempt to build terraces on your lawn. They are expensive, hard to maintain, lessen the apparent extent, and destroy naturalness; you will have difficulty in sodding them, and rains will wash them down. Remember the best effect is always produced by having the grade slight and the surface smooth and rolling.

Just a word as to the operations of grading where cuts or fills are necessary. If a knoll is to be cut off, remove the top soil, cut down as far as desired, and then replace the top soil. Otherwise you are exposing the sub-soil on which grass cannot grow. The same principle applies to filling in. Remove the surface soil, make the fill, and then replace the top soil.

Preparing the Seed Bed.

Seeds should be planted to a depth of about twice their diameter. In sowing small seeds, like grass, they must be covered at an even depth and the surface must be smooth. The surface seed bed need not be more than an inch deep but must be very fine. However, as the plants send out long feeding roots the soil should be well cultivated to a depth of eight or ten inches. After plowing put on some straw or leaf mold to prevent baking. Then treat as you would a good garden soil. Finish by a very fine raking, before but not after seeding. A good time to seed is early in the morning or in the evening, as there is the least wind then. If possible, seed just before a shower; otherwise the ground must be rolled after seeding. Also, seeds will grow better just after turning the ground. An important point is to sow the seeds even. A good plan is to sow north and south and then sow east and west. This assures an even distribution of the seeds over all of the ground. Sow the seed in the spring and then re-seed about August 20. About 50 pounds of seed per acre will cover the ground well. It is always advisable to test the seed for germination before sowing.

Great care should be exercised in the use of fertilizers on a lawn. Ground bone is probably best, and ashes are good for they contain plenty of potash. Nitrate of soda is a good stimulant for the lawn but should not be used strong and must not come in contact with the foliage or roots.

Kinds of Grasses.

June grass or Kentucky bluegrass, known to seedsmen as *Poa pratensis*, is undoubtedly the great American lawn grass. It is adapted to all regions of the eastern and northern part of the country and west to the Mississippi, and thrives best on a strong retentive soil with an abundance but not an excessive amount of water. It has many of the characteristics desired in a good lawn grass: fine texture of leaves, grows close to the ground, will not winter-kill, will stand close clipping, spreads rapidly by underground rootstocks, will choke out most other weeds, and produces a permanent lawn. Its faults are slowness in starting, and the fact that it will not do well in shady places, on sandy soil, or poorly drained soil.

For the above reasons lawn mixtures are sold by most seedsmen. These contain seeds adapted for all purposes. For producing a quick effect other grasses are mixed with the Kentucky bluegrass. English rye grass will do this and then die out the second year. Redtop (*Agrostis alba*) will give a good effect the first year, is not so coarse as the rye grass, and will be smothered out the second or third year by the blue grass. One-half Kentucky blue grass, one-quarter redtop, and one-quarter rye grass is a good mixture to start a lawn with. This will result in a few years in a pure bed of Kentucky blue grass. For very shady places woodland meadow grass (*Poa nemoralis*) is advised, and for very sandy places Rhode Island bent grass (*Agrostis canina*). It has been the experience of the writer to use only Kentucky blue grass, if it will grow well where desired, for it produces a smooth velvety carpet of grass all the same color. It is poor practice to buy lawn mixtures from seedsmen. If necessary to use more than one grass a better practice is to buy the seeds pure and make your own mixtures in the proportions desired. White clover is used largely in these mixtures and it produces a spotted effect on the lawn. The same will be true of almost any mixture.

Ingham Co.

A. C. MASON.

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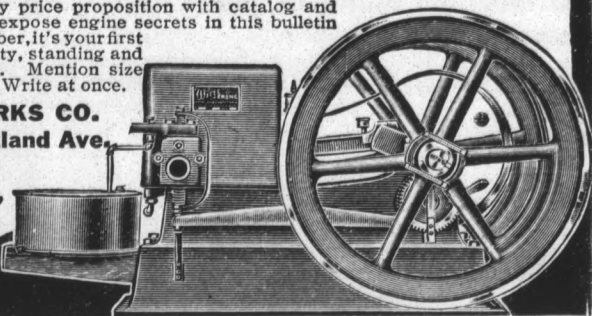
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Dairy.

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GROWING INTEREST IN DAIRYING.

Perhaps the most marked change that has taken place in the farming communities of this section, in recent months, may be found in the increased interest in the dairy business. Broadly speaking, the farmers of Hillsdale county have never shown much interest in dairying, although of late, a thriving dairy center has been established in Litchfield township. In the main, farmers have kept a few cows as a matter of course, and have treated the butter business as a sort of side issue. Milk and butter for family use was, of course, an important essential, but beyond that, the head of the house cherished some grave doubts as to the profitability of keeping cows. In recent months, however, there has been a rapidly growing tendency toward increasing the number of cows and making dairying a more prominent feature of farm work.

In attempting to analyze this innovation and discover the causes of the tendency, several factors stand out prominently. These factors may not apply in all cases, but in general, one or all of them may be considered as having had an influence in bringing about the change. A study of the question shows these agents to be as follows:

First. Probably more than any other one thing, the introduction of the silo has awakened interest in dairying. Owing to the fact that this section has engaged for years, in sheep feeding, the silo was slow in coming. But since its introduction, the erection of the silo has gone on apace, and now half the farms possess one or more of these structures. The feeding of ensilage has put a new face on dairying, and awakened a new interest in the industry.

Second. Without doubt, the success of the Litchfield co-operative creamery has done much to awaken interest in the business, throughout the county. The fine herds of Jerseys now owned in that township, and the splendid showing made have proved to farmers elsewhere, that there is good money in dairying. For example: When a patron of the co-operative creamery received a check for \$160, from a herd of 11 Jerseys, in a single month, the farmers of adjoining townships began to take notice. This herd produced 400 pounds of butter-fat which sold for 40 cents per pound, bringing the owner the sum stated. The quickest way to interest a man in any business, is to show him the profits, and the Litchfield dairymen have been producing the goods.

Third. Undoubtedly the introduction of the cream separator has been an important agent in the promotion of interest in dairying. The majority of farmers did not like to send the milk to the old-time creamery, and claimed that the waste product which was sent back was not good to feed to hogs and calves. With the coming of the separator, this was changed. The farmer can separate his own cream, and the product that remains can be used to advantage as in the days before creameries existed. Many farmers who could not be induced to patronize a creamery under the old method, look at the matter differently since the coming of the cream separator.

In addition to the factors mentioned, other minor agents have had an influence. In some cases, the annual ravages of hog cholera and other diseases among hogs, have been the means of turning the attention to dairying. This is true especially with the smaller farmers who are seeking to relieve the strain of uncertainty caused by frequent losses of hogs which had been depended on for the paying of obligations. They will keep hogs in connection with the cows, if they can; but if the hogs die, the cows will remain and help tide over the emergency. The uniformly high prices of dairy products of late, have also exerted an influence.

In regard to the effect of the new movement on the industries of this section, it is perhaps, too early to state with definiteness. Should the tendency to engage in dairying continue to grow, it seems likely that the industry will take the place of sheep feeding among the smaller farmers, although the large feeders who do not seem to be affected by the movement, will continue to feed their thousands of sheep as formerly. An im-

mediate result of the tendency may be seen in the unprecedented high prices paid for milk cows. At the auction sales of the winter and spring, \$75 has been the average price paid for cows, while in many instances the price has gone very close to the hundred dollar mark. As was stated in the beginning, the tendency to engage in dairying is the most marked change of recent months. Whether or not a reaction will set in, after the high tide of enthusiasm, remains to be seen.

A GOOD RATION FOR MILCH COWS.

I would like to know if my ration for milk cows is all right. I am feeding the following: Silage, 35 to 40 lbs. per cow; dry stalks, but no hay; for grain, 100 lbs. oil meal, 100 lbs. gluten feed, 100 lbs. corn meal, 100 lbs. bran, 250 lbs. brewers' grain, of which I feed each cow about 8 lbs. a day, 4 lbs. morning and 4 lbs. at night. Feed is mixed all together before feeding.

Lenawee Co.

J. V.

At first one would say that there was too much protein in this ration because nearly all of the grains used are rich in protein, with the exception of corn meal, but, on the other hand, when we consider the roughage, nothing but dry corn stalks and corn silage, then we must realize that more protein must be used in the grain than as though we had clover or alfalfa hay in the roughage. I think this is a pretty well balanced ration. Of course, I would like a little bit more variety in the roughage and if hay should be added to the ration then one could dispense with either the oil meal or the gluten feed.

THINK FARMERS THEMSELVES OUGHT TO TEST CREAM.

There is considerable dissatisfaction throughout the state with the tests of milk and cream given by the creameries and when the matter is entirely with the creameries and the farmer has absolutely no check or means of knowing that he is getting a square deal, as is almost universally the case at present, this is not to be wondered at.

What is the remedy for this state of affairs?

The average farmer probably does not feel himself competent for accurate testing, even if he goes to the three or four dollars' expense to procure a Babcock testing outfit, but if several could club together and get the outfit, and one practice until he gained the requisite skill for accurate work, and then he do all the testing, that would be a solution of the problem. Or if our state pure food authorities would test samples, they could now be sent by parcel post without very great expense, and a comparison of the tests would show if any unfairness was being practiced by the creameries.

I make no charge that dishonesty is rife in the land, in fact, as a class I think the creamery people will compare favorably with others, but if one does not know as is getting his honest dues, there is a chance for suspicion on his part.

It would certainly be for the interest of all concerned that confidence be established at once in the absolute accuracy of our creamery tests.

Barry Co.

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GRAIN RATION FOR THE FRESHENING COWS.

Now that dairymen have little or no fear of damage resulting from milk fever and that there is a general improvement in the feeding of cows during the "dry" period, the proper kind of grain feed to give the cows at such a time becomes an important matter to many cow owners. The following grain mixture contributes the desired ash and protein for the requirements of the developing foetus where a suitable roughage is fed and is sufficiently laxative to keep the cow in the best physical condition—one and one-half pounds each of bran and ground oats to one pound of linseed meal. The above amount makes a single day's ration for an average sized cow, when she is not supplied with an abundance of succulent and nutritious pasture.

The cow should have silage and good hay in connection with the grain. As intimated, an abundance of nutritious pasture alone will supply the cow's needs in most instances, but it should be remembered that the early growth of June grass meadows is not well supplied with food elements, being mostly water, and should be supplemented with a little grain and good hay until the grass has the required degree of substance to meet the food demands of the cow's body.

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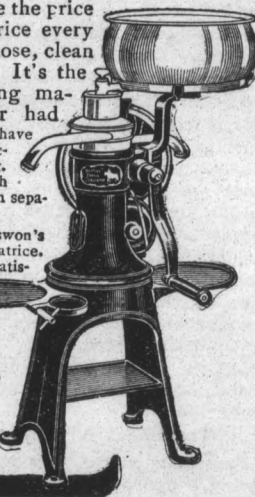
Why, I can clean the bowl and discs in less than 2 minutes, with the patented device furnished free with the separator. They come out as clean and as spotless as a new penny and as sweet as a nut.

I figure I save the price of my Beatrice every year by its close, clean skimming. It's the easiest-running machine I ever had.

My repair bills have amounted to practically nothing. It's a sure-enough built-to-last cream separator.

Take Farmer Onswon's advice. Get a Beatrice. Get on the list of satisfied separator users. See your dealer or write to

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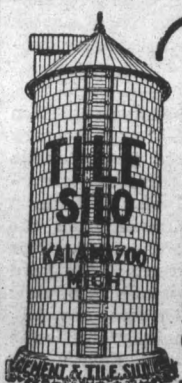
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WHAT IS ENSILAGE CORN?

I desire to plant some ensilage corn to mix with my common corn for growing silage. I am told that there is an ensilage corn that gets ripe as early as the common corn and that the chief objection to most of such kinds of corn is that they do not ripen early enough. Now will you kindly inform me if I am correct about there being such an early variety of ensilage corn and if so how could I secure seed of same?

Hillsdale Co.

E. C. S.

Any corn grown and finally put into the silo could be called ensilage corn. In other words, ensilage corn does not differ from any other corn and is called such only because it is finally put into the silo. The varieties of ensilage corn, so-called, are simply common corn that grows farther south of us where the seasons are longer. This corn has got in the habit of growing in those countries where there is a longer period for corn to mature in and is naturally more slow to mature. When we bring that corn north and plant it here before it becomes acclimated it doesn't get ripe. Sometimes the earliest ears will get ripe, and if we select these and plant them, in a short time it becomes acclimated and will then mature in our latitude. The best corn for ensilage is the variety that does the best in one's particular neighborhood. He wants corn for silage that will properly mature; that is, it must get mature enough so that the kernels are glazed and the most of them dented. Then it contains the largest per cent of digestible nutrients, and to make the best quality of ensilage corn it should not be put into the silo until it comes to this degree of maturity. If you send into Ohio after seed corn and plant it here you will have to have a very favorable season in order to have it get good and ripe. If you go south into Kentucky or Virginia and get seed corn and bring it up here and plant it it will not get ripe the first season. This corn grows larger than our native corn. Some people call this ensilage corn in distinction to other corn, when as a matter of fact it is no more ensilage corn than our corn is if we put our corn into the silo. I should say, go no farther south than northern Ohio for seed corn for ensilage. Be sure that it will get fairly mature in our season. A good variety of our native corn planted thickly makes the very best quality of ensilage.

HOW TO PREVENT A COW FROM SUCKING HERSELF.

What is the most effective method of preventing a cow from sucking herself? The cow in question is a good cow, one that the writer would like to keep, for awhile, at least.

Van Buren Co.

R. S. P.

The best way that I ever found to break a cow of this bad habit is to get what is known as a calf weaner. You can get it at the hardware store. It is inserted into the nose on the same principle as the old-fashioned bull ring, and this iron ring has great long sharp prongs on it that hang down over the nose. It doesn't trouble the cow in eating to any extent, but when she goes to suck herself these brads or prongs will hurt her so that she soon gives it up. Of course, you can have a halter made with brads in it, but it is not as good. Real long prongs are needed or else the cows will, if they are persistent, continue to suck themselves; but with these long brads they soon give it up.

WHAT TO USE WITH SKIM-MILK FOR CALVES.

Being desirous of raising some calves this season, and knowing the unsatisfactory results from trying to do so, on separated milk, alone, I wish to ask what I can best feed to get the best results and at the same time not so expensive as to make it unprofitable.

Lapeer Co.

L. C.

There is nothing better, that I ever found, to mix with skim-milk for calves, than flaxseed meal jelly. Get the ground flaxseed, not the oil meal, and then mix this flaxseed with water in the proportion of one part flaxseed meal to six parts of water and put it on the fire and let it come to a boil. This makes a jelly. Then every time you feed the calf skim-milk put in a little of this flaxseed jelly, which is very rich in fat and which will take the place, to a very satisfactory degree, of the butter-fat which has been taken out of the milk. Don't feed too much skim-milk. If the calf is one of the small dairy breeds don't feed over four or five pounds of skim-milk to a feed; if of the larger dairy breeds then you can increase this amount somewhat in proportion to the size of the calf. As the calf grows older don't keep increasing the amount of skim-milk. Encourage it

to eat ground oats or whole oats, shelled corn, and clover hay, and other roughage rather than increase the amount of skim-milk.

COW GIVES BUT LITTLE MILK.

I had a cow come in last Friday and she does not give but about a teacupful of milk to a milking. She eats and drinks good and seems in good health as far as I can see. What can I do to bring her to her milk?

Genesee Co.

H. J. S.

I can give but very little information upon this question. The cow may never come to her milk and nobody that I know of can tell you the reason why. Mr. S. does not say whether this is a two-year-old heifer or an older cow and whether she has done well formerly or not, but I think it makes but little difference. The best way that I know of is to leave the calf with the cow and let him suck the cow. If anything will bring a cow to her milk that will. Then, persistent milking and stripping and kneading of the udder, is the only possible way that an extra flow of milk can be secured. Of course, good liberal feeding of nutritious foods will aid but sometimes this does not work and the cow will not give enough milk to pay, and finally dries up.

Once I had a two-year-old heifer that was well-bred and she came in and we never could get her to give enough milk to pay for milking. I don't know what the trouble was. It probably was a case of atavism, or reversion, tracing back to a remote ancestor that didn't give any milk and it could not be overcome by manipulation of the udder. Such things rarely occur in young animals. If, in the instance of Mr. S., it is an older cow probably something has been done to injure the udder so that the glands do not secrete milk, or perhaps the cow has had fever, the udder has been chilled by lying on ice, in snow or on cold floors, or something of that sort.

BUTTERMILK TASTE IN BUTTER.

I have been having trouble with my butter and would like to ask you if you could help me out on it. I am milking but one cow, (Jersey, six years old), fresh one month ago. Every lot of butter I have churned has had a strong taste, something like buttermilk. I churn twice a week, skim the cream when it is two days old. Have been feeding the cow cut cornstalks. These stalks have not been heated, for roughage, corn and oats, half-and-half, for grain, about two quarts of feed.

Kent Co.

E. J. S.

It is extremely difficult to make gilt-edge butter from the milk of one cow. You can't churn often enough and you won't take proper care of the cream. I don't believe anybody ever yet succeeded in making a uniformly high-grade of butter where they only had one cow. Sometimes you get it all right, and then again there will be something the matter with the butter, and it almost invariably comes from the fact that you have such a small amount of cream to handle, have to wait so long before you churn, that it isn't done as it should be.

Now the probability is that if the butter has a buttermilk taste, the buttermilk is not all washed out of it, and it still contains some buttermilk and that is what gives it this taste. Cream should be churned at a temperature of 60 degrees or below, and it should be churned until it forms in granules about the size of kernels of wheat or a little smaller. Then the churn should be stopped and the buttermilk drawn off, after which cold water should be used to wash the butter. Put in some cold water—don't use tepid water, it wants to be just as cold well water as you can get. Otherwise, when you turn over the churn the butter will accumulate in large masses and you can't get the buttermilk all out. If you use cold water in washing it will remain in the granular form. Put in some cold water, turn the churn over once. Then draw off this water. Then put in some more water, turn the churn over again, and draw it off, and continue to do so until the water runs away clear. This washes out the buttermilk. Then salt your butter, using as much salt as you like or as your market demands. You can next take the butter out and leave it in the butter bowl and later re-work it. This will certainly get all of the buttermilk out of the butter and I think it will have no objectionable taste. Usually butter is not re-worked, but is taken, after being salted in the churn and packed directly. Butter so handled gives no buttermilk taste. But thorough and careful washing should be done in order to get all of the buttermilk out before it is salted.

A straight from the shoulder message to separator buyers

Beware of separator salesmen who claim that their machine is "just like the De Laval" or "as good as the De Laval".

Such claims are all absolutely false.

Such imitators juggle with words.

Instead of putting into their machine the experience and the workmanship and the material necessary to make a cream separator anything like as good as the De Laval, they find it cheaper and easier to "claim everything" and make a bugbear of "price" to keep the buyer from discovering the mechanical shortcomings of their machine.

They go on Barnum's theory that the people like to be fooled and they don't care how they get your money just so long as they get it.

It is unfortunate that the separator business should be burdened with such unfair business methods but since it is it behooves every prospective separator buyer to use care and good judgment in the selection he makes.

Look well to the demonstrated ability of the concern that makes the machine to build a good separator. Avoid buying a machine whose makers have had little separator experience, or who are constantly changing from one makeshift type to another.

Talk with separator users who have learned by experience.

The more you investigate the more you will find that there is one and only one separator that stands in a class all by itself.

It was the pioneer cream separator in 1878 and it has been first ever since.

You will find that more machines of this make are being sold than all other makes combined.

You will find that 98% of the world's creameries use it exclusively.

You will find that every user of this machine is a booster.

You will find that its makers are so confident of its superiority that you may have a free trial of it alongside any other machine and judge for yourself as to which machine will serve you best.

This machine has over 1,500,000 satisfied users.

It will serve you best, save you most and last the longest.

If you want to be sure of making a good bargain buy a

De Laval Cream Separator

THE DE LAVAL SEPARATOR CO.

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Never Clogs - Never Balks

PERFECT AND PERMANENT.

And the only enclosed track that automatically adjusts itself to lie close to the building.

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Cost no more than you are asked to pay for other kinds

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United States Pneumatic Tires are guaranteed when filled with air at the recommended pressure and attached to a rim bearing either one or both of the accompanying inspection stamps. When filled with any substitute for air or attached to any other rim than those specified, our guarantee is withdrawn.

Live Stock.

A CAMPAIGN AGAINST WARBLER.

Inquiries describing the presence of grubs or larvae in cattle have been more than ordinarily common in the veterinary department of the Michigan Farmer during recent weeks. The presence of this harmful insect pest is denoted by little bunches along the back and sides of the cattle just under the hide, generally with a small opening through the hide through which the larvae can be seen. It appears that this pest is on the increase, since its prevalence in Ohio has caused the Ohio Experiment Station authorities to start a campaign against this pest.

The efficacy of the remedy which is always suggested in reply to inquiry with regard to this pest will be better appreciated when the life history of the insect is understood. The mature insect or fly deposits its eggs on the hair of the cattle, particularly upon the legs just above the hoofs. A greater or less number of these eggs are licked off by the animal and taken into the alimentary tract from whence the minute grubs which hatch from the eggs burrow their way through animal tissue to a point near the back and just under the hide where the larvae stage is completed and the mature insect is again produced.

Obviously, if these grubs were all removed from the backs of the infested cattle by slightly enlarging the opening through the hide with a sharp knife, squeezing them out and killing them, the prevalence of this pest would be very greatly reduced, since the number of mature insects would be very much smaller.

This method has been successfully used by the Irish Department of Agriculture and has resulted in a very substantial reduction in the prevalence of ox warble flies in that country. Every farmer who has noted the presence of this pest should make a thorough and systematic effort to exterminate it. The campaign started in Ohio should be extended to adjoining states in a concerted effort to exterminate the pest, or at least reduce its prevalence as soon as practicable.

NATIONAL SOCIETY OF RECORD ASSOCIATIONS TAKES IMPORTANT ACTION.

At a meeting of the National Society of Record Associations, held April 5, 1913, at the Great Northern Hotel, Chicago, Ill., the following business of great interest to breeders generally was transacted:

First. A resolution protesting against the proposal to put meats on the free list in the forthcoming tariff bill was drafted, unanimously adopted, and copies of same were forwarded to President Wilson, Secretary of Agriculture Houston and Congressman Oscar W. Underwood, of the House of Representatives. Notices were also sent to live stock breeders throughout the United States, and an emphatic protest will be lodged against any such attempt to injure the live stock breeding interests of the United States.

The work which the National Society has been prosecuting to secure a more suitable adjustment of the shipment of pure-bred live stock in less than carload lots occupied most of the time of the committee. Traffic experts appeared and went into the existing railroad requirements relative to such shipments in detail, as a result of the investigation so far conducted. It was decided to appeal to the Uniform Classification Committee of Railroads, representing the roads in the Official, Southern and Western Classifications, for the following concessions:

First. That the minimum weight required by the railroads for the shipment of animals L. C. L. be left as it is in the western classification and that the minimum weight in the official and southern classifications be made uniform with that of the western classification. Present minimum weights, and exceptions in the Official and Southern classifications, make L. C. L. shipments cost shippers from two to three times as much as they would cost in the Western classification.

Second. That the railroads be requested to cease issuing exceptions to the classification, requiring attendants to be in charge of live stock in shipments L. C. L. and that no attendant be required on any of the railroads L. C. L. shipments.

Third. That the liability assumed by common carriers under their present limited liability live stock contracts, be increased in the case of registered animals shipped L. C. L. to \$200 on horses, \$150 on cattle, \$50 on hogs and \$50 on sheep, with the understanding that shippers must present registration papers before being permitted to ship live stock on this contract.

Fourth. That where shippers voluntarily desire to ship their animals at a higher valuation than specified in the regular limited liability live stock contract, that the increase in rate be made five per cent per each 100 per cent increase in valuation or fraction thereof, instead of 25 per cent increase in rate per each 100 per cent of increase in valuation or fraction thereof.

The reason for requesting that the present liability which the roads assume in shipment of live stock be raised is because of the fact that the existing liability amounts are far below the actual market value of the animals. Existing values are the same on the live stock contracts as 20 years ago and in the interval live stock has doubled in value. Shipments of cattle or horses are rarely, if ever, made in which the liability would fall within the present printed liability for which the roads assume responsibility.

The recent decision of the supreme court to the effect that the railroads could not be held liable for an amount in excess of that stated in the contract has made this a most extremely important question and it would appear that the valuations we ask in the case of shipment of live stock in L. C. L. are extremely conservative.

In regard to the last request made, would say that all the increase in rate amounts to, in the case of animals that are valued higher than the amount stated in the printed live stock contract, is insurance. The shippers are sending an animal that is of unusual value, do not feel warranted in bearing the risk, and accordingly desire to ship the animal at the actual valuation, and are willing to pay a fair increase in rate for the sake of the insurance which the road affords them in accepting the animal at the higher valuation. The experience of dozens of men who have been shipping live stock for more than 20 years can be obtained on this point. The general consensus of opinion is that the losses or claims for damage in the shipment of animals L. C. L. does not exceed one in one thousand. It accordingly appears that an increase of five per cent in the rate for each 100 per cent valuation in rate or fraction thereof is ample rate to permit the railroads to carry this insurance feature in the shipment of such animals.

The National Society of Record Associations furthermore decided, in the event that the Uniform Classification Committee could not make reasonable concessions on the points requested, to carry the case to the Interstate Commerce Commission, and appointed a committee with instructions to proceed immediately along this line.

WAYNE DINSMORE,
Secretary-Treasurer.

INDIANA CATTLE FEEDERS' CONVENTION.

The annual spring meeting of the Indiana Cattle Feeders' Association has been called to meet in Lafayette, Indiana, at 10:30 a. m., Friday, May 23, 1913. A program of special interest to cattle feeders has been prepared. Prof. W. A. Cochel, formerly at Purdue, but now at Manhattan, Kansas, will give the principal address. The experimental cattle now on feed at Purdue Experiment Station will be ready for market at the time the convention is held. These cattle have been fed on different rations since last November. A complete record of the cost of cattle, feed consumed, cost of gain, value of cattle, and profit or loss per head in the different lots, will be presented to the members of the convention. Every person interested in cattle feeding is invited to attend. Information can be secured from the secretary, F. G. King, at Lafayette, Indiana.

The demand in the Chicago market for some time past has ran strongly on fat little heifers, which usually sell much more readily than fat steers. Only a few years ago heifers were strongly discriminated against by the packers and small butchers, who refused to buy them except at discounts of from \$1@1.50 per 100 lbs. from prices paid for steers.

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THE PIG EATING HABIT.

Noticing an item in The Farmer last week where A. V., of Kalamazoo, has a sow that has this habit, will give my experience. I have had two different sows that would do this and one of them would eat a pig five weeks old. I did everything that was suggested by the Michigan Farmer and individuals. Everything failed until we used the knife. I am of the opinion, from my own experience, that there is no cure, and if A. V.'s case was mine that is what she would get.

The sow was a Jersey Red and ate \$25 worth of pig from one litter. She was an unprofitable servant. The sooner you kill her the less pigs she will eat.

Saginaw Co.

B. V. CHASE.

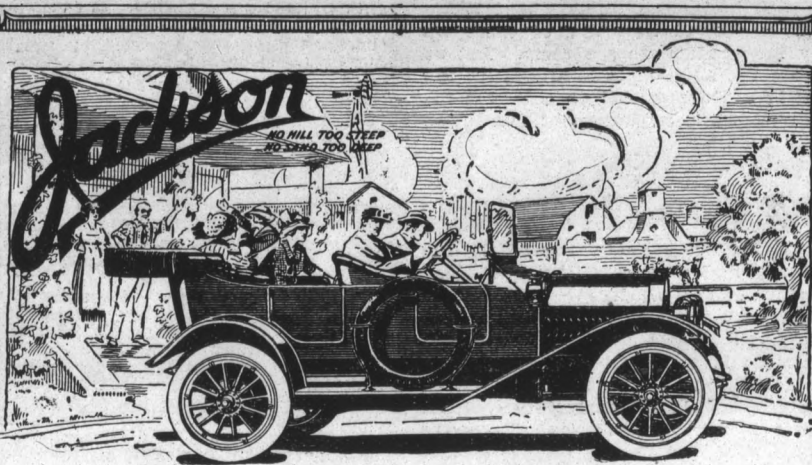
LIVE STOCK NEWS.

The hog market has experienced some recent bad set-backs, prices in Chicago breaking in one day as much as 20¢ per 100 lbs. It may be set down as an almost invariable rule that when such sudden big declines take place the cause will be found in a marked falling off in the purchases made by representatives of eastern packing plants, for there is always a very good understanding among the Chicago packers, who cease to be rivals when filling their orders for hogs. While the trust formed by holding companies has been broken up, rivalry between the former companies can hardly be said to exist when making purchases of live stock, and all stand firmly together in forcing down prices. It is ever the competition between Chicago packers and eastern shippers that makes things lively in the hog trade and sends prices whirling upward at a pace that delights owners of hogs. In behalf of the packers it may be said that hogs have advanced to levels that render corresponding advances in provisions a necessity in order to prevent actual losses, and this is actually one of the principal reasons why eastern buyers have been at times of late much smaller purchasers than heretofore. The little band of Chicago speculators who try to turn an honest penny by buying straight consignments of hogs and then reassembling them and selling them by a classification at advanced values have been hit hard by the sudden slumps in prices, suffering big losses. Their occupation is mainly a gamble, and in order to live, they must make large profits on advances, or the breaks would send them out of business. It may be said that the recent government report on the hog supply of the country and especially that part of it giving the supply of breeding sows in hog growing states has exerted a weakening influence on the hog market, although time is required to restore the swine population of the United States up to corresponding numbers with the human population. There are more meat-eaters than ever before, while the hog supply is much smaller than several years ago. Furthermore, there has been a serious falling off in the exports of provisions on account of the unusually high prices prevailing. However, there is nothing in the situation that need stand in the way of stockmen making their hogs first-class before shipping to market.

There have been three years of liquidation of sheep holdings in the United States feeding districts, started by the drought of 1909 and continued through the two following years, so that today the sheep supply of this country is seven millions smaller than in 1909. The world's sheep supply is gradually falling off, while the population and demand for mutton and wool in all civilized countries are increasing steadily. In this country the population has increased about an equal number of millions to the decrease in sheep holdings. With all descriptions of live stock scarce and dear, both at home and abroad, there is no danger of any over-supply of sheep and wool in the United States for several years at least.

Extremely high prices are paid all the time for well finished lambs and sheep, whether the market happens to be higher or lower for the time. It is a period of greatly inadequate mutton production throughout most of the country, Colorado being the principal exception, and meat eaters are forced to pay high prices for choice cuts of lamb or mutton. In fact, prices for beef, mutton and pork have risen to such extremely high levels that thousands of families are in great measure buying eggs as substitutes, the supply everywhere being liberal, while their choice quality, as well as cheapness, recommend them to general favor. Lamb is now classed among the luxuries, and no change is expected for months ahead.

Sheep and lambs have continued to sell at unusually high prices as compared with most past years, even at times when the market was breaking, and the very small proportion of sheep and yearlings sold extremely well instead of showing the former extraordinary discount from lamb prices. Lambs have had rallies from time to time because of inadequate offerings, but as a rule when they begin to sell for around \$9 or more a reaction takes place, for the dearth of lamb cuts in the retail markets of the country tends to lessen consumption. Supplies have been largely made up of Colorado-Mexican lambs of handy weights and they are great favorites with slaughterers. Feeding lambs are lower than they were recently, floods having checked shipments to Ohio and Indiana. The close of last week saw prices largely 50¢ higher than a week earlier, with woolled flocks selling as follows: Lambs, \$6.50@ \$9; yearlings, \$7.25@8.25; wethers, \$6.50@7; ewes, \$4.50@6.75; bucks, \$5@5.75. Feeder lambs brought \$5.85@8, and shorn lambs were quoted at \$6.50@8.



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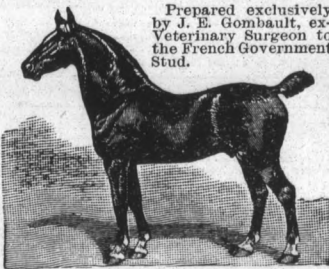
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DETROIT, MAY 3, 1913.

CURRENT COMMENT.

Arbor and Bird Day. Many years have been a fixed institution in Michigan, it having become the custom for the chief executive of the state to issue a proclamation setting aside one day for the planting of trees and for the suitable observance of the event in the schools of the state. Governor Ferris has sought to broaden the educational value of Arbor Day as an institution in the state by designating May 9 as Arbor and Bird Day in the following proclamation:

The tremendous commercial value of forests is fast coming to be appreciated. Effort is being made throughout the United States to conserve what remains and so far as possible, reforest large tracts of territory. Trees have a value other than commercial. They are friends to man and beast. Without friends man is a forlorn creature. Every choice tree that is planted not only blesses this generation, but graciously blesses coming generations.

Birds, too, have an economic value in the distribution of plant life and in the destruction of harmful insects. They also have a higher value. Literature abounds in allusions to birds, their nests, songs, food, flight, migrations, plumage and habits. On account of their beauty countless numbers of our winged friends have been killed to meet the ruthless demands of fashion. May the fathers and mothers and their children of today use their best efforts to preserve and perpetuate the lives of our useful and beautiful birds. Love for birds is akin to love for man.

Therefore, I, Woodbridge N. Ferris, Governor of the State of Michigan, do hereby designate Friday, May 9, A. D. 1913, as Arbor and Bird Day, and do request that this day be observed by all schools, public and private, and other educational institutions by the planting of trees for beautifying school grounds and parks, and by conducting suitable exercises for promoting the spirit of protection to trees and birds.

In this matter, in which Governor Ferris has taken the initiative, the co-operation of the people of the state, and particularly the country people, should be forthcoming. The economic value of birds to agriculture is becoming better understood each year and more and more species are included among those of economic value as their habits become better known. There is a strong sentiment for the more adequate protection of even game birds throughout the rural sections of Michigan. It is well that an appreciation of the economic as well as the sentimental value of birds should be called to the attention of all the people, and particularly the school children of the state.

An illustration of what a public spirited citizen can do toward educating the public in this direction has recently been afforded by Mr. Henry Ford, of Detroit, who has imported over 500 specimens of English song birds of economic as well as sentimental value and liberated them upon his Wayne county farm, with a view of establishing them here under natural conditions. We cannot know too much about our bird friends, and if we will just

take a little time to think about it we will be surprised how few of them we really know when we see them. Let us welcome the addition of Bird Day to the Arbor Day program and do our part toward making it a permanent institution in Michigan.

Comment was made
One Week Farmers' Schools. in these columns during the winter with regard to the popularity and success of the One Week Farmers' Schools which were held in connection with some eighteen of the high schools in the state in which a course in agriculture is given. Recent information from Ohio shows that similar week schools were held in nearly fifty counties in Ohio last winter and that they were well attended and proved very beneficial. These schools were not intended to take the place of Farmers' Institutes, but rather to add weight to the good work that is done in the institute.

Lasting from Monday until Friday, these schools give opportunity for a more complete discussion of principles of better farming than can be had in the one or two-day meetings. It is announced that provision was made by the Ohio Legislature for the holding of more week schools of this kind in that state during the coming winter. Undoubtedly this work will also be extended to Michigan, at least as rapidly as the number of high schools having courses in agriculture are increased, but it is probable that these week schools will also be inaugurated in other places should a general interest in them become apparent.

Corn Contests In recent issues of the Michigan Farmer notices of a number of corn contests being conducted in different parts of the state have been published. In addition to those being conducted by regularly organized Boys' Corn Clubs, by Farmers' Clubs and Granges, some of the county institute societies are promoting corn contests at the present time. In all of these liberal prizes are offered to the boys who grow and exhibit the best sample of corn.

The educational value of this work is far reaching and cannot be measured by results seen at these corn shows alone. The farm boy who is interested on his own account in a contest of this kind is bound to gain much in information and inspiration with regard to the possibilities which agriculture affords to him, not only from a material standpoint but as well from the standpoint of an interesting vocation. The success of the boys' and girls' clubs in the south is notorious and the future effect of this movement upon agriculture in that section of the country is bound to be great.

The popularity which this form of contest is attaining in Michigan speaks well for the future of our Michigan agriculture. So many people are taking the initiative in this work in different communities of the state that the general organization of the state along this line will be comparatively easy. Such an organization is planned to be directed by the Department of Agricultural Education at M. A. C. in co-operation with the county Commissioners of Schools throughout the state.

However, every community which on its own account promotes contests of this kind which will stimulate the interest of the boys and girls of that community in agriculture for its own sake is taking a step in the right direction toward conserving the future of Michigan's great and varied agricultural industry.

The Work of the As noted in last week's issue, the Legislature completed its active work on April 26, the final adjournment occurring one week later to permit time for the enrollment of bills passed during the last days of the session and their presentation to the Governor. Notwithstanding this comparatively early adjournment of the Legislature, very much important legislation has been enacted by this body, more than 200 bills of general importance to the people of the state having been enacted into law. It is impossible to review these in detail in the space at command in this issue. We must be content to touch upon a few of the most importance to country people, leaving the others for special comment in their proper classification during the 90-day interval which will elapse before they go into effect. The following are among the bills which will be of most immediate interest to our readers:

Requiring produce commission mer-

chants to secure a state license to do business and providing for the cancellation of licenses upon proof that they are not doing business on the square.

Making it unlawful to feed to animals or fowls flesh of any animal that has died of old age or sickness, or to feed diseased offal.

Providing that no calf under four weeks old can be sold for human consumption. Requiring shipments of table grapes to be securely packed in eight-pound baskets with the name of the grower and shipper marked thereon, so that deception in packing can be traced to its proper source.

Forbidding the owners of merchandise, securities, service or other commodities offering to sell the same by advertisements which they know to be untrue, deceptive or misleading, under pain of fine or imprisonment.

Providing for uniform prices for school books in all districts. Book publishers must file with the Superintendent of Public Instruction copies of all text books they intend to offer for sale in Michigan, together with the wholesale price for each book. In selling to dealers or to districts that have free text book laws they must not charge more than the list price at which the books are sold in other states.

Requiring candidates for certificates to teach in district schools to take an examination in agriculture as well as other subjects before the county board of school examiners.

Requiring that in every public school of the state not less than one-half hour of each week shall be devoted to teaching the pupils kindness and humane treatment toward animals and birds, and the important part they fill in the economy of nature.

Permitting boards of education to pay the transportation of pupils of the eighth and lower grades to near-by schools. Heretofore they have had this power to send pupils to high schools only.

Requiring railroads to transport live stock in car loads at an average speed of not less than ten miles per hour.

Giving the Railroad Commission greater power for the regulation of telephone service and rates, permitting no company to raise rates without showing to the Commission that a raise is necessary to produce a reasonable profit. Also requiring promoters of new companies to show that same would be a public convenience before they are given the authority to build.

To apply Interstate Commerce Commission requirements to state shipments and making the initial common carrier responsible for loss or damage to goods.

Revising the general primary act, abolishing the enrollment and the 15 per cent requirement and making primary and registration day the same.

Providing for the election of national committeemen and state committeemen of political parties at primaries.

Providing methods by which public officers may be recalled in accordance with the constitutional amendment adopted at the spring election.

To allow the formation of county agricultural departments and the employment of agricultural experts upon vote of a majority of the electors of the county.

Permitting boards of supervisors or the boards of several counties acting jointly to levy a special annual tax of not to exceed \$2,000 to advertise the agricultural advantages of the county, encourage immigration, etc.

Allowing townships upon referendum to return to the pathmaster system of caring for highways.

Providing for the organization of co-operative business organizations, on the plan recently described in these columns.

Authorizing a trunk line system of 4,000 miles of state roads with an initial appropriation of \$500,000.

Amending the good roads law providing for flexible standards of width and corresponding graduation of state rewards.

Many other acts of general importance and interest were passed which will be briefly reviewed in general classifications in future issues, as above noted.

HAPPENINGS OF THE WEEK.

National.

Fruit growers of Oceana county have completed the organization of a co-operative buying and selling association.

Missouri is having trouble with fire insurance companies doing business in that state. Recent legislative enactments have placed such obligations on insurance concerns that 182 companies have given notice that they will refuse to continue doing business within the commonwealth. Now the state supreme court has issued a temporary injunction restraining the company from terminating the contracts now in force and the companies have been asked to come into court and explain why the injunction should not be made permanent.

Final reports from the mine disaster near Finleyville, Pa., where a disastrous explosion occurred last Wednesday, was completed Monday morning and the fact is established that 97 persons were killed in the disaster.

The public schools of Pittsburgh are in chaos due to the strike of the children, who are protesting against the retention of S. L. Heeter as superintendent of the city schools. Recently a serious charge was made against the superintendent and now, because of this, 40,000 pupils are remaining away from school and declare they will continue to do so until the superintendent has been retired. The members of the board of public instruction are defiant in their attitude toward the public, declaring they will retain Heeter regardless of the public clamor.

An appeal is being made by the National Federation of Musical Clubs, in

convention at Chicago, for the general teaching of music in public schools. They believe this will have a refining influence on the moral tone of the rising generation and serve to eliminate much of the ragtime music that is now so popular.

A mistake that may have proved fatal to a number of congressmen and senators occurred at Judith Sound, 90 miles south of Washington, last Friday, when the officials stationed on the U. S. yacht Dolphin were fired upon by gunners on the Monitor Tallahassee, whose crew mistook the yacht for their target. A 12-inch shell passed over the stern of the yacht and cut one of the ropes of her rigging.

James Bryce, the retiring British ambassador to the United States, bid his American friends good-bye in New York last Friday night. Ambassador Bryce has done much to cement the friendship of England and the United States and is greatly loved by the American people.

Secretary Garrison is advising arrangements for more efficient training of the army in times of peace. He favors the concentration of troops at a few big posts in order to give them instructions in larger tactical measures and thereby to increase their efficiency.

During the first 27 days of April eight lives were lost in Detroit alone through automobile and motor cycle accidents.

Of the 219 candidates for entrance to the Naval Academy at Annapolis, only 46 are reported to have passed the entrance examinations. This is the smallest percentage to qualify in the history of the institution since the entrance examinations became obligatory.

Reports from New York state that Dr. Friedmann, the German investigator who has received much attention here because of his claim to having discovered a cure for tuberculosis, has sold the rights to private parties who, with himself, will provide for the establishment of several sanatoriums throughout the country.

The Fourth American Peace Conference begins at St. Louis on Thursday of this week.

Secretary of State Bryan has gone to California to present to the Legislature of that state the attitude of the federal government with regard to the alien land laws now being considered by the western commonwealth, the subject matter of which the federal official believes will conflict with the treaties between the United States and Japan.

Another break occurred in the levees of the Mississippi river at a point 12 miles north of Ferriday, La. The water pouring through the ruptured bank covered about 900 square miles of valuable farming land. Approximately 20,000 people were driven from their homes.

Foreign.

An earthquake shock was felt in eastern Ontario, at Montreal and in northern New York last Monday night. Although buildings were swayed and windows broken in many instances, there is no report of loss of life as a result of the disturbance.

Federal troops that were recently ordered to proceed to the state of Chihuahua, Mexico, to enter an active campaign against the insurgents there have mutinied and are reported as having taken their commander, General Salzar, prisoner. Traffic through the territory has been discontinued by the railroad companies for the time being.

A crisis is threatening in China as a result of the assassination recently of General Sung. The government of the Province of Kiang-Su has addressed to the government at Peking correspondence which seeks to show that the assassination was sanctioned by President Yuan Shi Kai. The correspondence also alleges that former provincial president Sung Yat Sen had a plan matured for making General Sung president of the republic.

In spite of the attempted coercion of Montenegro by the great powers of Europe, the little country has finally succeeded in capturing Scutari, an impregnable fortress belonging to the Turks. The occupation of this point by the Montenegrins is disadvantageous to Austria and now the ambassadorial conference has the delicate question before them of deciding whether the European powers shall coerce Montenegro into giving up her prize or whether Austria shall be left to act alone in compelling the evacuation of the fortress. The question requires to be decided during the current week.

A riot took place in Lisbon, Portugal, Sunday night. Several outbreaks were simultaneously precipitated in different parts of the city, but the disturbance having been anticipated, and the government was prepared to thwart the attempt.

It seems from reports received here that the Chinese parliament is hopelessly divided upon the question of making a \$125,000,000 loan according to the five-power plan. The body at present is in a complete deadlock over the question.

THE WEXFORD BOYS' CORN CONTEST.

The Wexford Boys' Agricultural Club has issued an announcement for the corn contest in 1913 to be conducted by that organization. Over \$200 in cash prizes will be given, aside from a number of special prizes which have been offered by public spirited citizens. The contest is open to any farmer boy not more than 18 years old, who must under the rules, plant an acre of corn, care for and harvest it himself and make his own selection of exhibit ears. He is not permitted to have any help except in plowing and must carefully follow all instructions and keep an accurate account of items of expense, observations on experiments in connection with his work, etc. He is also required to prepare a written account of his crop and make an exhibit at the annual corn show.

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 twice a month. Every article is written especially for it, and does not appear elsewhere

The Domestic Affairs of King Bubo.

SPRING promised an early arrival to the district about Reed's wood. This magnificent growth of beech and maple timber, known as the "sugar bush," was situated about a mile, as the crow flies, from the village of Millvale, and was one of many such forests which went far to enhance the value and beauty of the outlying farmland. The winter had been open, with little snow, and the feathered inhabitants of the woods, the ones that remained throughout the year, had decided that spring was coming earlier than usual. There were times, however, when she seemed to tarry on her journey, but the last day of January the weather was so warm that the snow had all thawed from the fields. Indeed, it was so mild that a painter in the village took advantage of the weather to prime over the woodwork on a little brick church then in the course of construction, a most unheard-of thing for the time of year. Towards noon, being an observing person, he glanced beyond the cornice he was painting and saw a Red-shouldered hawk sailing leisurely northward in the blue, probably bound for some distant woodland.

Old Bubo, the Great Horned owl, who was king of the forest, usually began his home-making about the middle of February. He had long held the scepter in the "sugar bush," and anyone living within the distance of a mile from the royal forest might have heard a commanding "Who-o who-o who-o-o" come through the frosty air as Bubo did sentinel duty all through the long winter nights. To the smaller feathered people of the forest his notes came as the voice of a terrible giant seeking their lives, and they stirred uneasily on their perches and cheeped and trembled with fear.

The very evening of the day the painter saw the Red-shoulder, Bubo and his mate chose for their domicile a nest in a large sugar maple that had been the home of a pair of hawks the year before. The following week Mrs. Bubo warmed up the nest for the reception of the eggs which, two in number, were almost the size and color of hens' eggs. They took turns on the nest, relieving each other at regular intervals, and when Bubo was off duty his hooted challenge fairly made the woods ring. But things did not go so smoothly for long. The weather, which up to this time had been very mild, became suddenly cold. Northwest winds that cut one's face like a knife and almost took the breath away, blew steadily for about two weeks, while the thermometer registered around zero most of the time. The owls huddled the nest desperately, flattening themselves so as to be exposed as little as possible to the biting wind, and only a pair of "horns" could be seen above the edge of the nest. Then came milder days, when the chickadees and nuthatches made cheerful music as they searched for insects, and the owls could relax a little from their vigil. But this did not last long. The sky soon became overcast, the temperature rose for a time, and it began to rain. It had not rained long, however, before the wind veered to the north and the rain changed to large, moist flakes of snow. These pelted steadily down for several hours, covering everything with a blanket of white. Then, the weather growing colder, the snow began to freeze on to everything it touched. Bubo sat stolidly through it all, and when the storm abated large pieces of frozen snow stuck to his feathers. Who could but admire the courage of these brave birds, who expose themselves almost unprotected to the rigors of the cold northern winter, at which time nature has decreed they shall begin their nests?

But better times were coming. Old Sol was climbing higher each day, and the

An Instructive Tale of the Great Horned Owl.

By L. CLAIRE HULBERT

light snows from the hillsides and unexpected places were quickly melted by his genial smile, raising high the hopes of the forest people, and especially of Bubo and his mate. A few days later, along about the first of March, the eggs hatched, and then there was much hooting and hunting on the part of the parents to supply fresh meat for the homely, fuzzy owlets. The baby owls were awkward and ungainly, with large heads and feet, and were covered with white down. Later this became thick and warm and took on buff-colored bars which made them appear somewhat like Barred Rock fowls. One evening shortly after dusk, when the sharp crescent of the new moon could be seen low in the west, Bubo sailed noiselessly through the woods and alighted on a tall stub at the edge of a brushy clearing. A short distance away sat a cotton-tail rabbit, leisurely stripping some tender bark from a small poplar, when the forest was startled by a loud "Who-o who-o who-o-o" which seemed to come from every direction at once. Bunny gave one nervous jump, and then "froze" in his tracks. Bubo was too quick for even the faintest sound or motion to escape him and the next instant his strong, sharp claws pierced the back of the hapless rabbit. Bunny gave one agonized squeal, and as he was borne swiftly away the cruel talons sank deeper into his body, causing him to cease his struggles long before the nest in the maple was reached. The baby owls were coaxed to eat small pieces of the rabbit's flesh at first, but soon they acquired such healthy appetites that they

would eat a mouse or a sparrow whole, afterward casting up the indigestible parts, as is the habit of these birds.

The smaller inhabitants had just cause to fear old Bubo who levied such a toll on their numbers to supply his family with fresh meat. Before the young owls had devoured all of one offering another was brought, until the nest showed the remains of two rabbits, a crow and a partridge, several sparrows and smaller birds, besides a dozen or so mice, some of which had fallen over the edge and lay about on the ground at the roots of the tree. The crows were louder in their resentment than any other birds of the forest, and whenever one of them spied old Bubo in one of their last year's nests, in which he usually spent the daylight hours, he immediately set up such a vociferous cawing that soon all the crows of the neighborhood were congregated at the spot. Lining the treetops at a respectful distance, they would berate him with the choicest invective in crow language. All this uproar, however, only caused Bubo to open his half-closed eyes and look about, as he well knew that not one craven crow in the lot dared come near him.

One fine sunshiny morning a pair of fat red squirrels that sat facing each other on the ventilator shaft of the sugar shanty, were startled by the rattle of wheels and the sound of approaching voices. There had been a light freeze during the night and the sun coming out warm and bright made ideal sugar weather, so the owner of the sugar bush had decided to begin tapping. Accompanied

by his son he soon appeared in the edge of the woods and drove up to the shanty. Opening the door which had been closed for a year, and scaring the red squirrels so that they disappeared within the roof with a chatter, they secured the necessary materials and were soon at work tapping the maples. Bubo watched them carefully as they came towards his home, but decided to quietly await developments. Soon a jar was felt in the nest as they tapped the tree and hung on a bucket, but Bubo stayed on the nest and soon the tappers passed on, so intent at their work that they did not see the home above their heads.

As days passed the weather became warmer, leaves appeared on the elms and maples, and the bluebirds, song sparrows and larks sang cheerily from every bush and fence post. The young owls had become nearly as large as their parents, and Bubo decided that they could leave the nest in a few days, which they no doubt would be glad to do. But

"The best laid plans 'o mice an' men

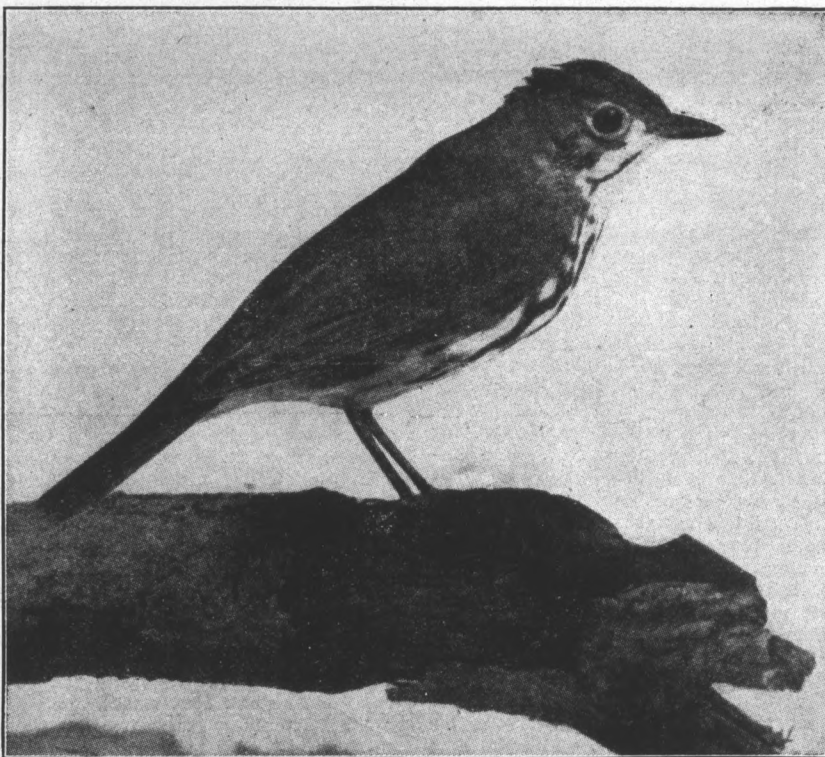
Gang oft a-gley,"

and they left sooner and in a different manner than their parents had planned.

A member of the Audubon Society of the distant metropolis had come to the village to study the habits and secure photographs of the bird life of the region. He was passing the "sugar bush" one day when the loud cawing of several crows attracted his attention. On entering the woods he found, as he had surmised, that Bubo was the cause of the uproar, and, looking about, soon discovered the nest. The young owls were so large now that they could be plainly seen from the ground, having badly outgrown their nest. After securing his camera and a helper, the bird man climbed to the nest, where he was greatly amused at the reception given him by the youngsters. They resented the intrusion by opening wide their mouths and hissing, then bringing their bills together with a snap that was very funny. They were quite droll and always faced the camera, thus making very good subjects, but they persisted in backing away, and several times nearly fell over the edge of the nest. Just as the bird man had finished taking their picture the largest of them did fall over the edge and dropped nearly to the ground, where he clutched a limb and hung, head downward, until rescued by the helper. Then as the bird man was removing his apparatus the other owl, evidently not wishing to remain alone, backed right off the nest and fell to the ground, where he was rescued and placed with the other owl upon a large stump. On reaching the ground the bird man laughed heartily at the half-sleepy, half-defiant look on the countenances of the young owls and decided to take another picture of them where they sat upon the stump. Having secured this, the disturbers started for home, leaving the funny baby owls staring sulkily at their strange surroundings.

At first Bubo and his mate hooted their disapproval of such proceedings from the nearby treetops and snapped their bills so vigorously that they could be heard a dozen rods; but after a while, seeing that they could not frighten these strange intruders away, they had flown to another part of the woods where soon a great uproar proclaimed the fact that they had been discovered by their enemies the crows. Returning at dusk Bubo found his babies sitting on the stump and concluded that the bird man had meant no harm; however, he did not like to have his family affairs meddled with, so that night he coaxed the young owls to fly, by easy stages, to a swamp in a distant part of the wood, and the place in which their first days were spent knew them no more.

OVENBIRD—A FAMILIAR WARBLER SOMETIMES CALLED "NIGHTINGALE."



The Ovenbird, or Teacher—sometimes also called Golden-crowned Thrush—is among the largest warblers found in Michigan. It is frequently mistaken for a thrush, this being due, in the opinion of the state's most careful bird student, Prof. Barrows, to its heavily spotted and streaked breast and sides, its golden-brown stripe through the middle of the crown, and to its terrestrial habits. The name Ovenbird is said to be derived from the dome-shaped nest which it builds late in May or early in June, the structure being sunken in the ground and carefully roofed over with leaves and grasses, in the manner of an old-fashioned oven. The nest is so cleverly concealed that it is seldom disturbed. Its ringing song of "teacher, teacher" has been well described by Burroughs, but aside from this it has a delightful carol which is frequently heard when the bird is descending rapidly from a considerable height, and a still more beautiful song which it sometimes utters at nightfall while coursing rapidly through the trees of the forest. The remarkable sweetness and power of this last mentioned song are believed to be responsible for the bird being called "nightingale" in some sections.

THE BOY'S PROTEST.

When a fellow knows every bird's nest
In the fields for miles around,
Where the squirrels play in the sunshine,
Where the prettiest flowers are found;
Where he knows a pair of robins
That will fly to his hand for crumbs,
He hates to be penned in a schoolroom,
And he's glad when Saturday comes.
There's a bee-tree on the hillside,
But I'll not tell anyone where;
There's a school of trout in the mill-
stream,
And I want to go fishing there.
I know where an oriole's building,
And a log where a partridge drums,
And I'm going to the woods to see them,
As soon as Saturday comes.
They shouldn't keep school in the spring-
time,
When the world is so fresh and bright,
When you want to be fishing and climb-
ing,
And playing from morn till night.
It's a shame to be kept in a schoolroom,
Writing and working out sums;
All week it's like being in prison,
And I'm glad when Saturday comes.

WHEN JENNIE SPENT THE SUMMER WITH US.

BY ORIN E. CROOKER.

With tail tipped up at a ridiculous angle and throat bursting from the flood of song that poured forth, Jennie hailed a cheerful welcome from the top of the back fence that made me pause in my work of planting the family garden. Jennie had just arrived from the south where she—or was it he?—had spent the winter. Apparently the new arrival came alone, but whether it was Mr. Wren or Mrs. Wren who first appeared upon the scene I have never been quite sure.

It required no further urging to remind me of the gourd that I had carefully put away in the barn the autumn before for Jennie's particular use. A few moments later I had brought it forth and fastened it in a convenient tree, where it looked so inviting that I felt certain I need not resort to the classified advertising columns to secure a tenant.

Before night Jennie discovered the empty domicile. With many bursts of song and impetuous quirkings of her tail she darted repeatedly in and out of the entrance, evidently entranced with the little bungalow she had found for rent on Cherry Tree Heights. But one lone wren in a gourd, situated even so delightfully as this, seemed altogether too lonesome a proposition, and Jennie began making little trips of inspection throughout the neighborhood in search of Mr. Wren or Mrs. Wren—as the case may have been—to share Love's sweet paradise.

In a day or two a mate was found and the task of furnishing the little home was begun. Innumerable small sticks and twigs were carried in—so many in fact, that a number of them remained projecting out the door. But even with a part of the furniture left standing on the front steps, housekeeping operations within were begun in earnest.

About this time Jennie discovered a pair of English sparrows to have taken possession of an abandoned woodpecker's hole in a neighboring tree. Evidently these new-comers were considered quite undesirable as neighbors, and a determined effort was made to induce them to cancel their lease. The method adopted to bring this to pass might well be copied in many of the affairs that annoy and perplex grown-up humans. There were no brick-bats or harsh words flung over the back fence. No warrants were served by bird policemen. No eviction proceedings were begun before Magistrate Owl. Instead of resorting to such violent means Mr. and Mrs. Wren simply took up positions before the front door of the neighboring habitation and deliberately sang Mr. and Mrs. Sparrow out of house and home!

In this little episode the power of song was amply illustrated. At first the sparrows tried to chase their annoyers away, but this was soon found to be ineffectual. The larger birds speedily put the trim little wrens to flight, but as soon as the sparrows returned to their nest Mr. and Mrs. Wren returned to their serenade. With tireless zeal Jennie and her mate delivered themselves of a burst of song about every fifteen seconds, which, after a time, must have become about as tiresome to Mr. and Mrs. Sparrow as the continuous operation of an organ grinder before one's own door.

Not being able to keep their serenaders at any effective distance Mr. and Mrs. Sparrow determined to go about their business of setting up housekeeping as though there wasn't a wren in the neighborhood. For a time they worked industriously, carrying straws and feathers into the woodpecker's hole. But the ev-

erlasting serenade was beginning to get upon their nerves and at length they ceased operations and sat about on the limbs of the tree, as dejected looking a pair of English sparrows as one ever saw. Two days more of constant serenading and the sparrows took their departure for other parts. Song had triumphed. The neighborhood was spared these undesirable citizens.

As soon as this victory for the community had been effected Jennie and her spouse went back to their own house-keeping affairs. The days lengthened out and summer came. Increased activity on the part of both birds indicated plainly the care of a growing family. Had one any doubt as to the efficiency of birds as insect destroyers one had only to keep count of the bugs and flies of various kinds that found their way—undoubtedly much against their will—into the gourd in the cherry tree.

In time the untiring zeal of Mr. and Mrs. Wren began to show results and little heads that seemed to be all open mouths ventured to peek out the door at the great, wonderful world. Then there came a day when Jennie and her spouse refused further to feed the full-grown babies in the gourd. All day long the parent birds flitted about a neighboring pear tree singing quite as busily as they did when they put the sparrows to rout. And all day long little wrens crowded to the door of the bungalow and poked their heads out the entrance, begging for a bug or two to appease their gnawing appetite. But Mr. and Mrs. Wren were obdurate. Not another bug or fly would they catch for anyone but themselves. Their sons and daughters must make a start for themselves in the world. So

they sang and sang from the nearby tree and let the pangs of hunger induce the members of their family to venture forth into the world.

It was six o'clock next morning that the exodus began. The eager, struggling youngsters finally pushed the one of their number nearest the door out into the world. A few strokes of his untried wings and he had scrambled up the side of the gourd and perched himself on the top. A moment more he was climbing up the trunk of the tree—using both wings and feet in his undignified effort to get a start in life. Almost sooner than it takes to tell, he had found his footing on a twig, and next was flitting from limb to limb, his little bill snapping viciously at such flies as he found in his path. The eldest son of Mr. and Mrs. Wren was already making his way in the world.

By seven o'clock the bungalow on Cherry Tree Heights was empty, nine young birds having ventured out the open door to life in the great cruel world. For a day the trees about the yard were filled with little wrens trying to get their bearings. Then we saw them no more. Before night, however, two of them met tragic fates. One fluttered into the poultry yard where an old mother hen pounced upon it and tore it to pieces. Another was captured by a Blue Jay, that blue-coated pirate of the air, and its head torn from its body with one swift stroke. It is to be hoped fate was more kind to the rest.

As for Mr. and Mrs. Wren, they loitered around the place for a few days; then, finding time hanging heavily upon their hands, they moved some new furniture into the woodpecker's hole and began the task of rearing another family.

Jane Hepburn's Legacy

By CHARLOTTE BIRD.

THE word had gone the rounds of the house that Mr. Galpin, the lawyer, had arrived from his office in Holbrook to read the will and that the heirs of the late Jane Hepburn were to assemble in the back parlor of the desolated home. Accordingly, the little company were filing solemnly in and ranging themselves stiffly on the green plush upholstered chairs and sofa. Here only a few hours earlier the mistress' body had lain in state, and with long faces these same people had sat in a group near the casket, while the clergyman read the burial service.

But now the casket was gone and the furniture had been pushed back into the usual places and the room had been thoroughly ventilated. Only the big bunch of carnations in the glass vase on the piano was left to suggest that anything out of the ordinary had taken place. Out of their stiff walnut frames on the walls the enlarged photographs of other departed Hepburn connections looked down benignly upon the scene as if they loved it.

The bereaved heirs of the late Jane Hepburn were not unconscious of the cheerful reflex from funereal depression to considerations relative to the well-being of ordinary life. One cannot always mourn, and the taking away of even a beloved sister would make no vital change in the even tenor of their daily existence.

"With all her good qualities, Sister Jane had her peculiarities," impartially reminded the plain-spoken Mrs. Stowe in a low voice to her sister, Mrs. Lake. They were just entering through the wide double door. "In some ways she was about as queer as they make them. I wonder who is goin' to git the pyanah."

"Sister Jane had a heart of gold," championed the brown-eyed, meek-aided Mrs. Lake. "She was always a good sister to me. And she was tenderness itself to anything in distress."

"Oh, she was good-hearted, —'s far as that goes," agreed the wiry and plainly dressed first speaker. Then, noticing the lawyer, she gave a solicitous dab of her hand at smoothing her faded brown hair, drawn tightly back in a little knot from her sharp-featured face. By now the two had reached the sofa and seated themselves side by side near Mrs. Bates, the third sister. Mrs. Lake lifted her two-year-old boy, the youngest of five, to her lap.

"I'll be plagued to goodness, if there ain't that cat agin'—a nosin' around in here as big as if it was folks too. Sca-a-at there!" In her fidgety, housewifely efforts to eject the black and white

feline intruder Mrs. Stowe held out her skirts and continued to shoo. "There, Alice, the critter has gone under your chair."

Mrs. Bates sprang to her feet and the united efforts of the two soon frightened the animal out of the front door.

"I've put her out a dozen times if I've put her out once," informed Mrs. Stowe generally as she returned triumphantly to the sofa.

"It seems as if the poor thing almost understands," reflected Mrs. Lake in a pitying tone.

"She's got a litter of kittens out in the woodshed. Jane had her good points, as I have said, but her foolishness about cats I never could abide. Such a hand as she was for the critters! Why, the first time I come to see her after she took down sick, if she didn't have them cats in her bedroom closet—and folks a comin' in all the while. Well, I soon fixed that; I hiked 'em straight out into the woodshed, where they belonged," and Mrs. Stowe's thin jaws snapped together.

"Pretty cold out there for tender young kittens, isn't it?" tentatively suggested Mrs. Lake with a shiver.

"'Twon't hurt 'em any, I guess—just a lot of cats. So what's the odds?"

"Cats can feel as well as people," reminded Mrs. Lake, rather pointedly for her. But in the family Mrs. Lake's opinions were not too seriously regarded. She was the poor member of the Hepburn family, the one to whom the other more prosperous sisters gave their cast-off clothing and nicked dishes. Her husband was the pastor of a struggling church in Holbrook whose salary was as limited as his children were numerous. On the contrary, Mrs. Stowe's husband was the working owner of many broad and fertile acres, while Mrs. Bates's position as wife of the leading dry-goods merchant in the town made her the aristocrat of the family.

Mr. Galpin, meanwhile, stood waiting with one hand thrust deep down in the pocket of his sacque coat and the other braced on the oak center table on which lay the Battenburg centerpiece under the big Bible. His face wore a quizzical, amused expression. The unassuming Mrs. Stowe had certainly not aimed to attract the notice of an auditor. Yet Mr. Galpin appeared to find her remarks interesting if not illuminating. But that may have been because her talkativeness was delaying the purpose of the meeting.

"Are all the heirs here?" The lawyer looked questioningly at the brother, Ezra Hepburn, who had just slipped in and taken a chair near Mrs. Bates. It was the instinctive tribute to the only other

OLD MAY-DAY CUSTOMS.

BY MRS. M. B. RANDOLPH.

Way back in merry England,
Long, long, Mays ago,
Kings and queens and lords and ladies
Made a jolly show,
Prancing through the prettiest places
Round and round they flew,
Scrubbing off their royal faces
In the early dew;
Let's hope they got them good and
clean—
Lord and lady, king and queen.

Then just before the May day,
Thirty yoke, or forty, strong,
Soft-eyed oxen come a-wending
Woodland ways along,
Hauling in their forest plunder—
May-pole, smooth and straight and
high;
Loud cheers rent the air asunder
When the village green drew nigh;
Wide horns hung with fragrant blossoms,
Glossy necks with garlands gay,
Picturesque the long procession
Winding through the sunny day.
Long outgrown the ancient custom,
Years ago quite obsolete,
But in candor you'll allow it
'Twas a fair one hard to beat.

Again, before the May day
Merry strollers came
From the woodland, bearing branches
For the damsel and the dame;
O'er the doorway of the vixen—
Though just why I cannot say—
An alder bough must be suspended,
For a hint, it seems, intended
To suggest more gracious way.

O'er the sloven's lintel,
Branch of nut-tree must be hung;
Maybe cause the careless squirrels
In the autumn days had flung
Husks and shells and little twiglets
Most untidily around,
Making messes most unsightly
On the fragrant ground;
This hint was read by passer-by,
And made, no doubt, some brooms to fly.

O'er little sweetheart's doorway
A birchen bough was seen,
Just why, again, I cannot tell you
Unless 'twas fresh—and green—
Like her suitor blushing
Along the village street;
Now wasn't this neat notice
Something dainty and complete?
Telling swains who stopped to read it
They might as well pass on,
For another lad had entered
May-day race and won.

man present. Receiving an affirmative reply, with his strong white fingers Mr. Galpin drew the wings of the sliding door together.

A solemn stillness fell upon the little company. "Ahem!" was the official preliminary to speech befitting such an important occasion. "By the reading of the will on the afternoon of the funeral itself, we do not wish to seem in irreverent haste. But some of the heirs live at considerable distance and their return in a week or two, perhaps through unpleasant weather, might work them hardship." Here the united glance of the three sisters rested on Ezra who had driven thirty miles to the funeral. "To me," Mr. Galpin went on, "this has appealed as desirable, especially, since the will of the late Miss Jane Hepburn has some—peculiarities, whose adjustment may well require time and a second calling together of the witnesses."

A sigh passed through the group of listeners.

"With these preliminary remarks I shall now pass to the reading of the will."

A thin sunbeam broke through the west window and fell upon the golden hair of the minister's wife and revealed the soft cowlick on the left side of her forehead. Her little boy had dropped to sleep and she shifted his position so that he might lie comfortably in her arms. The succeeding stillness was broken by the rattle of stiff paper, as the lawyer deliberately drew the important document out of an official looking envelope and unfolded its impressive length.

Presently upon straining ears fell the reader's even, sonorous voice as he read the following:

I, Jane Hepburn, of Holbrook, in the County of Trent and in the State of Michigan, being of sound mind and memory, do make, publish and declare this to be my Last Will and Testament, in manner following, viz:

First. I direct that all my just debts and funeral expenses be paid in full.

Second. I give, devise, bequeath to my sister, Mary Stowe, wife of Matthew Stowe, my horse and carriage and two thousand dollars in money.

Third. Likewise I give to my sister, Eliza Lake, wife of Andrew Lake, my home, except the furniture.

Mrs. Stowe glanced meaningfully at Mrs. Lake. There were compensations even in the removal of a beloved if eccentric sister. Now they were both safe.

Fourth. To my sister, Alice Bates, wife of James Bates, I will my household effects and two thousand dollars in money.

"So, Alice, you are a goin' to git the

(Continued on page 548).

From Latex to Motor Truck Tire.

CENTURIES ago, long before the discovery of America by Columbus, rubber or caoutchouc was known to the South American Indian. As far back as 1500, Pincon, the Spanish explorer, told of these Indians, of the dense forests bordering the banks of the great Amazon, who tapped the caoutchouc trees and extracted a milky fluid. He did not explain its use. Columbus noticed natives playing ball with a curious substance grown in the primeval forests and prepared according to native ways. Little did the Spanish explorer of the sixteenth century dream what an important part these immense forests were to play in twentieth century commercialism.

In 1770, Priestly, an Englishman, found that this milky white fluid, when hardened, could be used in effacing pencil marks, and in the early part of the nineteenth century Hancock discovered that caoutchouc could be used in the manufacture of articles of dress. A few years later Charles Mackintosh, a Scotchman, rendered two fabrics waterproof by uniting them with a solution of rubber in coal naphtha, hence the name "mackintosh" for the waterproof coat.

Discovery of Vulcanization.

Not until about 1839, however, 10 years after the advent of the mackintosh, did Charles Goodyear, an American, discover the method of vulcanization and make rubber fit to take its place among the most important commercial products of the world.

The recent increase of rubber-tired vehicles, and the introduction and development of the automobile for pleasure and the motor truck for commercial uses, have increased enormously the market for crude rubber.

In 1898 the price of crude rubber, owing to the demand created, suddenly advanced. Some years before, it had been foreseen that possibly the supply of South American gum would run out, and through the efforts of American and English planters, seeds were shipped to almost every tropical climate, and cultivated rubber trees were grown with success. The best rubber, however, still grows wild in the forests on the Amazon and, according to experts who have investigated the matter, the supply will more than equal the demand for some years to come. In the meantime, rubber plantations are springing up in many tropical countries. Some of these are already large producers of high-grade gum, and the future of the supply of raw material seems assured.

The number of vehicle tires manufactured annually is increasing by leaps and



Crude Rubber as it comes to the factory.

1. Ceylon Crepe.
2. Manihot Biscuit.
3. Soudan.
4. Fine Para.
5. Ceylon Biscuits and Sheets.
6. Cameroon.
7. Massai Strings.

pose, these grooves being cut in herring-bone fashion diagonally around the tree, with one main groove cut vertically down the center like the main vein in a leaf. The latex (sap or juice) of the tree, from which the rubber is taken, flows from these veins and down the central one into a little cup at the bottom of the main vein.

When the cups are filled they are collected and brought into the rubber camp, where the latex is coagulated by means of smoke. This is done by the use of a paddle which is alternately dipped into a bowl of the latex and then revolved in the smoke from a wood or palm-nut fire. This smoke seems to have a preservative

machine called a "cracker." The cracker consists of two large rolls covered with pyramidal projections which revolve very close together, at different surface speeds. It is a powerful machine, and as the gum is fed between the rolls the projections tear it to pieces. During this process a continual flow of water from perforated pipes plays on the rubber, and as it goes through these rolls repeatedly the water gradually washes away most of the foreign substances.

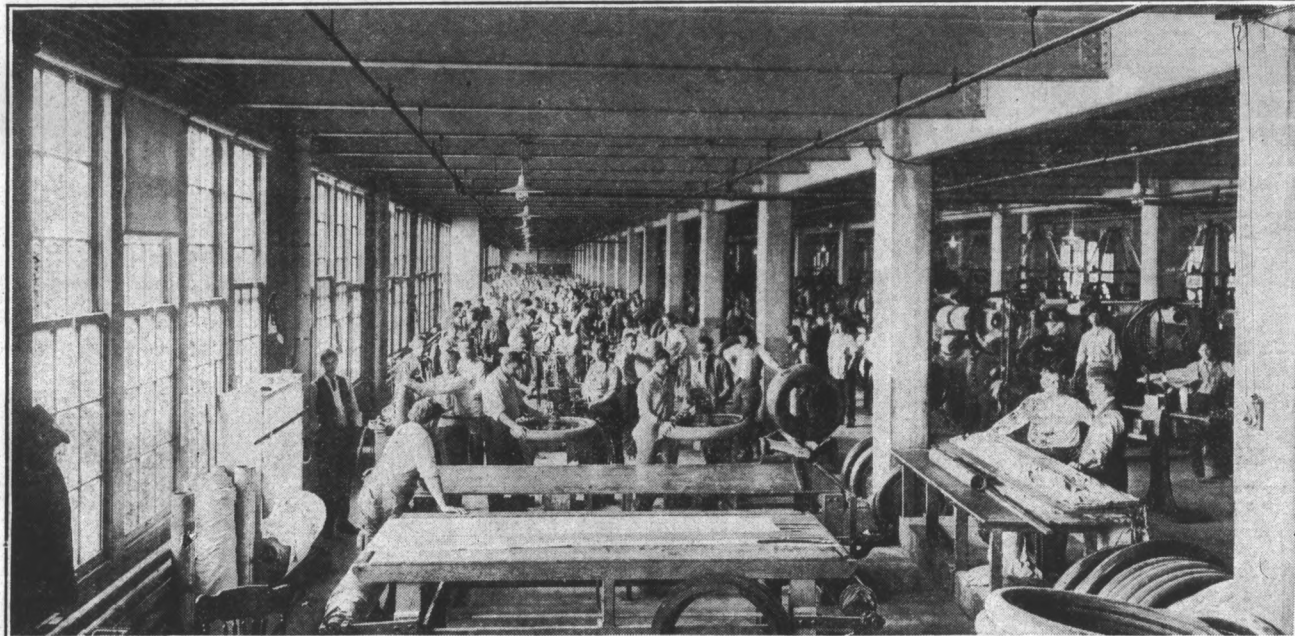
This gum is shoveled into boxes and taken to what is known as a "washer." This also consists of rolls, but the projections are relatively small and the rolls are nearer together. The work of removing the foreign matter is completed here, and in addition the gum is "sheeted out." Sheetting is accomplished by using warm water as the washing finishes. The heat is just enough to make the gum sticky so that from 15 to 25 pounds of rubber a sheet 18 inches wide, several feet long and 3-16 inch thick results. These sheets are then dried for from three to four weeks.

Mixing the Ingredients.

Mixing the crude rubber with the compounding ingredients is the next step. Each of the constituents of a 100-pound "batch" is carefully weighed and taken to the milling room. Here the rubber is warmed and softened, before the compound is added, by passing it between the warm rolls of a machine similar in design to the washer, but much larger and with highly polished walls. The front roll revolves more slowly than the back one and the gum soon forms an envelope around this. The compound is sprinkled on the gum, a little at a time, and is gradually worked in by the constant kneading effect of the rolls on the softened gum. Finally, the rolls are opened a little and the stock cut away in slabs about one-half inch thick.

Once again it is allowed to rest—this time 48 hours—when it is ready to be shaped for the rolls. In the case of rubber heels, pieces of suitable size are cut from the milled stock, but, in making solid tires, where the length is many times the other dimensions, it is necessary to make use of what is known as a tubing machine. This resembles a meat chopper on a large scale, with a die opening in place of the small holes. This turns out a continuous length of rubber of proper cross-section as long as the milled stock is fed into the other end. Then follows the weighing of each tire, cementing to the base band, laying in the mold, solting the mold, and placing the whole in a boiler heater where the heat for curing is supplied by steam.

The length of time required to "cure" or "vulcanize" a tire of medium size is about three hours. Taken from the heat-



The Finishing Room in one of the large Modern Manufactories of Pneumatic Tires.

bounds, and just now rubber men are watching the development of the commercial truck, confident that in the next few years it will be fully as spectacular as has been that of the pleasure type of automobile.

Para is Finest Quality.

Rubber-producing trees, shrubs, etc., are found mostly in northern South America, Central America, Mexico, Central Africa and Borneo.

The finest rubber obtained is fine Para, gathered in the Amazon regions of South America. Selecting a rubber tree, the natives cut V-shaped grooves in the bark with a special knife made for the pur-

effect on the rubber, as well as drying it out and causing it to harden on the paddle, each successive layer of the latex causing the size of the rubber ball or biscuit to increase. When a biscuit of sufficient size has been thus coagulated, it is removed from the paddle and is ready for shipment to various countries where rubber products are manufactured.

Crude rubber, as it is received at the factory, is more or less dirty, sand, leaves and twigs sometimes constituting as high as 40 or 50 per cent of the weight. These foreign substances are removed by washing the gum, one or two tons being soaked in warm water and then taken to a

er it is cooled, removed from the mold, trimmed of the rim at the line of contact of the halves of the mold, and the tire is ready for shipment.

Chemistry Plays Its Part.

Tire manufacturers have had to be chemists, inventors, analysts and keen observers of conditions as well as mere craftsmen. They have had to establish their own precedents, to solve problems of construction and service that men have never faced before. It is a long step from the Amazon jungle, where natives slash trees and gather the sap, with chattering monkeys and brilliant parrots as an audience, to the sturdy rumbling

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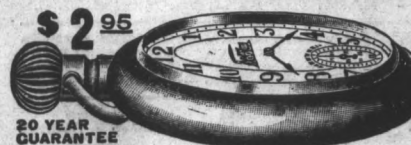
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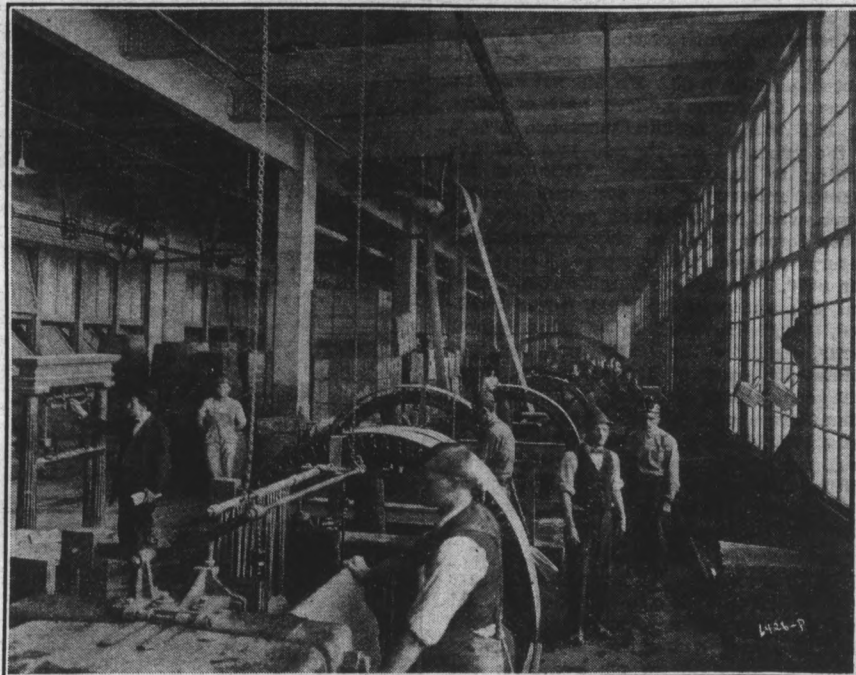
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therefore practical) only because the rub-
ber tree, grown in the tropics, and its

into the room, the excited cavalcade
mingled with the grown people.

"Mother, see what we have found in
Aunt Jane's woodshed," and Edwin Lake
held up a frantically crying kitten.
"There is a whole nestful of the softest,
fuzziest little things. I am going to take
this maltese, and Erma wants the white
one, and Jimmie says he'll take the



Equipment for Washing Raw Rubber before entering Processes of Manufacture.

blood, congealed and compounded, finally
makes a cushion for wheel rims thou-
sands of miles away.

JANE HEPBURN'S LEGACY.

(Continued from page 546).

pyanah," reminded Mrs. Stowe in a stage
whisper. "I had an idea all along you
would be the lucky one!"

Fifth. To my brother, Ezra Hepburn,
I bequeath my lot on Main street.

Lastly. I hereby revoke all former
wills by me at any time.

Upon deaf ears fell the closing of the
will. Mrs. Stowe and Mrs. Bates ex-
changed satisfied glances. Regarding this
will they had shared each other's confi-
dences and each was well acquainted with
the other's anxieties.

As Mr. Galpin ceased reading, almost
as one person the company heaved a
sigh and shifted their positions to relieve
strained muscles. In short, everybody
was pleased. Sister Jane had made as
sensible a will as anybody need wish—
except that Mrs. Bates would a little
rather have had the horse and carriage,
while Mrs. Stowe would have appreciated
the silver coffee pot, her mother's set of
old china, and she could not help regret-
ting the piano.

But the placid-spirited Mrs. Lake would
have changed nothing. She felt the grati-
tude which saw in her gift only her
first choice. She now had a home in her
own right and, for the time at least,
that was heaven enough.

Yet Mr. Galpin made no move to go
away. Neither did he sit down. To make
his voice carry above the babble of eag-
er, contented chat he had to raise it. "I
stated in the beginning, you recall," he
succeeded at length in making himself
heard, "that there was some—ah—pecu-
liarity about this will. In fact, it has a
codicil, and for the reading of this codi-
cil the time does not seem—ah—ripe."

"A codicil!" and Ezra Hepburn turned
pale.

"Now isn't that for all the world like
Jane!" fidgeted Mrs. Stowe. "Just like
a cow that gives down a pail of nice rich
milk and then ups and kicks it over."

"Jane never did do anything that was
expected of her," complained Mrs. Bates.
"Why couldn't she let well enough alone?"

"You—you c-couldn't give us any sort
of a hint—so that we could arrange our
business accordingly?" suggested Ezra
Hepburn as he moistened his dry lips.

"That would certainly be contrary to
the wishes of the legator, and I must
comply with the conditions." Mr. Galpin
appeared quite sociable; he even took a
chair as if in a visiting mood.

A restless air prevailed which made one
or two look upon the rest with something
bordering upon envious suspicion. But
happily this did not last long. The strain
was relieved by the merry shout of chil-
dren's voices and the sound of little feet
scurrying over the carpet in the adjoining
room. Mrs. Stowe again heard one of
those troublesome kittens. Then the slid-
ing doors were thrust back and, bursting

tiger." Edwin thus called attention to
the other children who were in possession
of the rest of the kittens.

"Say, mother, shan't we take them
home with us?" persisted Edwin.
"P-le-a-s-e!"

"Hus-s-s-h, dears!" and Mrs. Lake held
up a restraining hand. She was visibly
embarrassed. The assembled uncles and
aunts clearly betrayed their disapproval
of such noisy, ill-trained preacher's chil-
dren. Their own children were so dif-
ferent.

"Say, mother, shan't we take them all
home and have them for our kitties?"
repeated the boy. "See how beau-u-uti-
ful they are!"

Mr. Galpin alone appeared to enjoy
the scene and he chuckled with delight.
But it was a well-known fact that his
boys ran all over him.

The flushed Mrs. Lake reminded: "Have
you thought, dears, that maybe someone
else might like Aunt Jane's kittens?
Maybe your cousin Lettie Hepburn there
would like to take one home with her,
or your cousin Ruth Stowe."

But Lettie shared the family indiffer-
ence toward the feline tribe. Her nose
went up as she replied, "I can't bear
cats." And Ruth was equally cold to the
proposition.

Lettie's father sustained her, laughingly:
"We don't go much on cats at our
house. When the rats and mice get too
thick, I put out a little rough on rats and
that fixes them."

"Aw, Eliza, if your children want them
kittens, for pity's sake, take 'em right
along," spoke Mrs. Stowe for the rest.
"It'll save killin' 'em most likely, for I
guess Alice feels about cats a good bit
as I do."

"I would rather give my time to some
homeless child," replied Mrs. Bates with
a virtuous air.

"La, Alice, I never had an idea that
you had any liking for children," said
Mrs. Lake with a pleased look. "I know
of a little darling that you could get. And
the good that you could do that child!"

But apparently Mrs. Bates did not hear.

Mrs. Lake flushed warmly. This lack
of response threw her back upon the old
subject: "If somebody doesn't look after
these friendless animals, they will perish.
Since no one else will do it, I will. I
don't know that we shall be much
poorer."

Mr. Galpin's eyes twinkled but no one
noticed. As no one found it worth while
to answer, Mrs. Lake resumed: "Sister
Jane loved her cats almost as if they had
been human. We take her other property
willingly enough, even if her pets are
left to starve. Yes, Edwin dear, see if
you can't find a basket somewhere and
make a nice nest in it. We shall take
all the kitties, for we must not separate
the little ones from their mother."

Again with a glad shout the children
scuttled out and their voices echoed from
the direction of the woodshed.

"Dear me, Eliza," remarked Mrs.
Stowe, "you are about as bad about cats
as Jane herself."

The amused expression on Mr. Galpin's face melted into that of his official dignity. Again he arose to his feet. With his soberest look he inquired: "Do I understand correctly, Mrs. Lake, that you voluntarily assume the care of the late Miss Jane Hepburn's cats?"

She saw his gray compelling eyes fastened upon her. "I have just said so," she agreed.

"Mrs. Lake, you testify in the presence of these assembled witnesses your voluntary intention to adopt and care for the late Miss Jane Hepburn's cats?"

Each pair of eyes was strained on the lawyer's face; each pair of ears heard his words. But no brain took in their meaning.

Mrs. Lake, already nettled by the coldness of the rest toward her departed sister's favorites, resented this solemn treatment of a perfectly trivial matter. She did not like Mr. Galpin's making sport of her. "I have said that I mean to take them and give them a good home," she incisively agreed. "I have no objection to the rest hearing the statement."

"That being the case, the obstacle is removed from the immediate reading of the codicil." While the company stared, again Mr. Galpin solemnly unfolded the legal document and stood up before the company. "I shall now read the codicil in the will," he began.

To the person, or persons, who volunteer to give a home to my cats, to feed and comfort and cherish them, I bequeath the afore-mentioned cats. As compensation for the time, trouble and expense involved, I bequeath to such person, or persons, my home and three thousand dollars in money, this amount to be deducted equally from the bequests of the afore-mentioned Mary Stowe, Eliza Lake, Alice Bates and Ezra Hepburn.

If more than one person shall thus volunteer to give a good home to my cats, let the bequest be divided among such volunteers in proportion to the number of cats each person, not knowing of this codicil, has agreed to adopt.

In witness whereof I have hereunto set my hand and seal on this twenty-fourth day of March in the year of our Lord one thousand nine hundred and ten.

Jane Hepburn.

Mr. Galpin then read the testimony of the witnesses to this extraordinary instrument. But before he had finished, the babel of discussion broke out.

"Well, wouldn't that take you!" exclaimed Ezra Hepburn in an incredulous voice.

"I am ashamed of her," snorted Mrs. Bates. "She has made a regular laughing stock of herself—and of us."

"Like her, though, for all the world," declared Mrs. Stowe. "That's the old maid of her. Well, the horse and buggy will come in handy when I want to drive to town and Matthew is usin' the other horses."

"It looks like a case of love me, love my cats," laughed Mr. Galpin, good-naturedly. "Her idea was that those who really cared for her, would consider her cats." With this he escaped from an atmosphere which had become charged.

Mrs. Lake shrank into the corner of the sofa with an air of one who had been caught at something mean. Yet how could she help her sister's peculiarities?

Something like this question must have passed through Ezra's mind, for before he departed he said kindly, "I expect the next time I come to Holbrook, you and Andrew will be living here."

"Very likely," replied Mrs. Lake, gratefully. "It is so near the church. Then the rent of the parsonage will help us considerably."

The sisters, too, started home. "There's no use in layin' up anything against you for what Jane has done," added Mrs. Stowe bluntly to her adieux. "I'll be in one of these days to help you get straightened up. There will be a heap of work to do."

"Let me know and I'll come too," suggested Mrs. Bates. "Maybe you will have some sewing for the children."

Mrs. Lake's face beamed her heartiest thanks at the real generosity of her sisters.

As she closed the door behind the last departing one she went to pet the cats which, after all, were not to be deprived of their good home.

BOOK NOTICE.

Ceresota Cook Book, published by the Northwestern Consolidated Milling Co., Minneapolis, Minn., is a 32-page pamphlet with an indexed list of recipes for the making of all kinds of appetizing pastry, as well as bread, and in fact everything of which flour is an ingredient. It also has space for the writing or pasting in of other recipes so as to make a complete reference book. In addition it contains valuable cooking suggestions. Write for a copy of this valuable household book, mentioning the Michigan Farmer.

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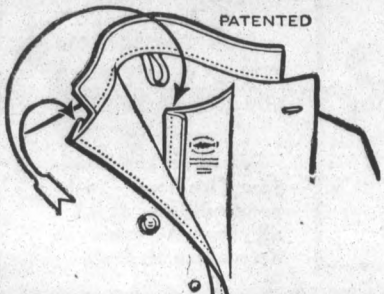
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Woman and Her Needs At Home and Elsewhere

Don't Take Yourself too Seriously.

WOMEN are so constantly accused of a lack of humor that I suppose a fresh mention of the fact in this column will fail to provoke a glimmer of interest. But really, the more I study the hurried, worried, nervous women, including myself, about me, the more I come to the conclusion that a large part of the trouble comes because we all take ourselves and life too seriously. Life is a serious thing, in a way, but to the average person who reads these lines it isn't such a tremendous thing that we can't afford to stop and laugh as we go along. There are very few of us who have such an important mission in life that we must make all things bend to it, as we are told the few great ones have to do. Most of us have accomplished our life's work if we earn an honest living, do our duty by ourselves and friends, and keep smiling.

Why, then, does it seem such hard work for the average woman to take life easily? We all seem to be imbued with the idea that the things of our little sphere are of such vast importance that the whole universe waits upon our accomplishments. To get the washing out on Monday is of so great importance that we can't put it over to go on a picnic with the children. If a thunder storm comes up just as we get the clothes ready to carry out to the line, we burst into tears, when the same thing would be to laugh at the joke old Jupiter Pluvius has played upon us.

The things in which we are interested, they are of such vital importance to us. We fail to see that they scarcely even interest anyone else. We forget that there are billions of "us" in the world and that each one of us is firmly convinced that we are the center of the whole thing. If we sat down occasionally and looked at it in that way, wouldn't it tickle our sense of humor? When we stop to think how we must look to the One looking down on all of us, doesn't it seem a joke to be so intensely serious about the business of living?

I have two neighbors who perfectly illustrate the beauty of making a joke of things. Both have been recently widowed, and neither has any too much money nor too good health. One makes light of her misfortunes and refuses to talk about them. If you even hint at sympathy she tells you a good joke she just read in the paper and gets up a hearty laugh some way. If she has a twinge of rheumatism she laughingly says she has been living too high, and makes light of the whole thing. To her there is enough sorrow in life without dwelling upon it, so she makes as little of everything as possible, and laughs herself out of her ills and blues.

The other woman wraps her troubles about her and refuses to be seen without them. She is always just a little more widowed than anyone else, just a little sicker than you could ever have been, just a bit harder used by Fate. She thinks it is wicked to make a joke of your troubles, but can see no sin in making other people unhappy by mourning. If she could take herself less seriously and look for something to smile at, her health would be better and everybody about her happier.

Most of the tragedies in all our lives are imaginary ones, for real misfortunes seldom come to the folks who honestly and patiently do their best. Why not, then, laugh at those things that seem mountains? From the other fellow's viewpoint our path may lie level and clear. When the fire doesn't burn, and the bread refuses to rise, and the baby knocks the milk pitcher over and Johnnie tracks in mud, things do look blue, I'll admit. But they won't change color if you treat them as dire calamities, while treating them as a joke just naturally makes them fade away completely. Besides, husband and children are so much happier when you laugh than when you cry that their happiness alone should repay you for your forced mirth.

It would be a good thing for the av-

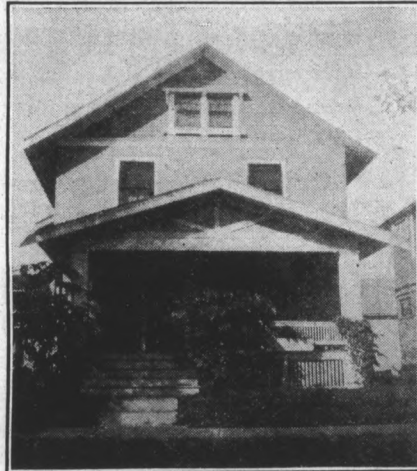
erage woman to copy after the men of the family. Life is never so serious to a man that he can't stop long enough to laugh and have a good time. Why should women be so convinced that the world would stop moving if they stopped to play? Let us do our work with a conscience, but with a conscience that understands there is a time to laugh as well as to weep.

DEBORAH.

MAKING ORNAMENTAL USE OF THE HUMBLE CASTOR BEAN.

BY MAE Y. MAHAFFY.

By all too many the humble castor bean is considered quite too plebeian to deserve so prominent a place as it fills in the accompanying illustration. However, the writer has always admired its luxuriant foliage, and when moving late in the spring into a new, barren looking home, with no hopes of starting a majority of



the popular shrubs or vines, this old-fashioned plant was relied upon to fill the breach, and by its rapid growth and richness attracted a great deal of favorable notice. It requires but little attention if the seeds are given a warm spot in reasonably rich soil. The porch in this instance faces east. Anyone who has little time to devote to plants and shrubs cannot do better than to invest in the castor bean seeds if they desire splendid and speedy results. A hedge of these plants forms one of the most charming shields or breaks, too.

BEAUTIFYING WASTE PLACES.

BY CHARLOTTE BIRD.

The grounds surrounding nearly every home have some unsightly spot which requires special thought to make wholesome and presentable. Especially, when winter yields place to spring, do we find the earth littered with wreckage from cold and storm. One can but wonder where all the trash has come from.

Usually the most considerable unsightly spot is the back yard. In shameless frankness the ash heap flaunts its ugliness with old tin cans and bits of paper. These must be promptly hauled away. Then the whole premises must be carefully raked, if not actually swept, and still there will be things in plenty to do.

Nature appears to feel the injury wrought to the earth's beauty by winter and it hurries to cover up all signs. It quickly carpets the ground with grass, conceals plowed rough places with weeds and trains vines over old fences and buildings. For these purposes nature uses the best material at hand. But nature's material is not always the best.

If nature is helped in the beneficent process of beautifying the earth, the good work can be done far more efficiently. There is no convincing reason why the back yard of one's home should not be as clean and attractive as the front one. The cost is too little to be considered. The seeds need not cost more than 25 or 50 cents and woodbine may be found free in our woods. The government supplies

flower and vegetable seeds for the mere asking and its aim is to supply only the best. Yet, of course, the more money is spent, the rarer will be the flower display.

Though it may not be necessary, the back yard can be enclosed with a bolt of chicken wire netting which will keep out all the chickens. It is a fact only too well known that flowers and chickens cannot live in the same enclosure. Or perhaps the netting might be used to confine the chickens within their own limits. Beside this wire netting flower beds may be made and over them a luxuriant growth of nasturtiums or sweet peas could be trained and thus the place be transformed into a scene of rare beauty. The world is a busy place for most of us, but a plenty of enthusiasm will find time and means to carry out some such measure.

Permanent vines like the rambler rose-bush or the clematis paniculata should be trained over the porches. As such vines give shade and privacy, they vastly enhance the attractiveness of the porch as a place for rest or social chat in the afternoons or evenings.

The posts for the clothes line may just as easily be made to support an ornamental vine as to be allowed to stand in their naked ugliness. If nothing finer is available, then the common morning glory vine should be made to cover old buildings and unsightly fences or be trained over wire netting as a screen. Even the stable yard can thus be screened off. Then, when the blossom season comes with all their varying beautiful colors, these morning glory vines will be glorious. And every morning for a long time their cheering beauty will repeat itself.

The letter box, a particularly naked looking object somewhere near the front of the house, should be beautified with vines, perhaps nasturtiums, while a woodbine planted at the foot of a dead tree will transform it into a thing delightful to see. An old stone pile with earth scattered freely among the stones is an ideal spot for a nasturtium bed. Plant the seeds on the east side and the vines will run all over the stones. And, if the flowers are regularly picked, their bright sunshine colors will be a mass of glory all the days till frost comes.

A mass of bushes, surrounded every summer by a ring of straggling weeds, is never a cheering sight. Instead of the weeds, it might be encircled with a bed of sultana or nicotiana, both of which if well watered, will do well almost anywhere. They are both almost perpetual bloomers, the sultana bearing pink, red or white flowers and the nicotiana white trumpet-shaped blooms. The latter, especially in the evening, has a fine rich perfume which makes it desirable as a flower near the porch to be enjoyed most in the evening.

Thus, if one has a genuine love for flowers, with a labor which will come as almost play, the home grounds may be turned into a scene of joy and beauty, and at the same time, of bodily health and spiritual uplift. But the influence does not end with the home. Even those who merely pass by are helped and go on their ways with a healthier and more moral life. We can never really benefit ourselves without at the same time helping others. The moral and spiritual worth of beautiful flowers belongs to the things which we cannot measure. Thus whoever beautifies his home grounds, is a public benefactor, perhaps a more effective one than if he should perform some deep of fame.

HOME-MADE FLY TRAPS.

BY ELLA E. ROCKWOOD.

Of fly traps there are several varieties now on the market. One of these which any handy man can make is of fine wire screen about the shape and size of a nail keg. It is braced with four wooden strips which serve as supports. At the bottom these extend an inch or so to form legs which hold it up from the floor. Inside at the lower edge is fastened a cone made of the wire, fitting neatly all around the circumference of

the trap. The tip of this cone is cut off leaving a small hole at its extremity. Over the top of the trap a tight-fitting cover is placed, something that will prevent the flies from getting out once they are safely inside. Place this arrangement near the back door, scatter some sugar or other attraction underneath and leave it to do its work.

This device is not patented and is very effective. On a smaller scale these may be used in the kitchen or elsewhere about the house.

KEEPING THE FAMILY WELL.

BY E. M. KIES.

One of the wisest things I have been able to do as head of the household "in doors," is to watch for the first symptoms of illness, and take measures for relief before the disease became seated.

I had a home-made bath cabinet constructed with clothes bars, covered with blankets, that I placed the patient in when la grippe or pneumonia threatened. With the feet in a pan of hot water and an oil heater burning, the temperature would run very high and with the head above the opening in the blankets, the entire body would soon be drenched in sweat and the head cool. After a hot bath the body was sponged quickly with cool water and the patient went to bed, to awaken well on the road to recovery. One shivery patient stuck his head under the blankets to warm himself more quickly, and as my back was turned on the scene of action he fainted and fell off the chair. I presume it was a hotter place than he dreamed of inside the cabinet, but no bad results followed.

Another member of the household, who had developed catarrh away from home sleeping in an unventilated room, was soon restored by a change to a diet of fruit and fruit juices, once a day, and sleeping in a large room with open windows, well covered and with soapstones at his feet.

There is an old saying that at 45, one is either a fool or a doctor. And there are several grains of truth in this. After an attack of illness one can sum up with comparative accuracy the causes that lead up to the attack even if they cannot tell what is the matter. One member had something much like a stroke of apoplexy after a day of exposure, following several days of heavy working and careless eating. We drew the line on similar circumstances, and insisted on an enema of hot water from a fountain syringe, to clear the bowels, and resting quietly, with very light diet for a few days.

Hired help often have ailments that can be cured in a single night, which, if allowed to work their course would cause suffering and loss of valuable time when help is sorely needed. One man ate peaches for an entire day, while helping me peel for canning and then after supper took a cold bath. If I had stopped the bath or given an emetic promptly I could have saved a week's sickness and a doctor's bill. Another man who worked by the day and boarded at home was prone to have evening attacks of "heart trouble" that frightened the family and sent me many a hurried mile after a doctor. That was before the days of telephones. Finally learning from the doctor that there was no organic trouble I bought a few cents worth of bromide of potassa and when an attack came on, administered small doses occasionally for an hour, when all would be well. When the good wife was told that an overcrowded stomach was pressing the heart, she cooked lighter suppers and health became the rule.

Life has become so complicated that without a knowledge of sanitation and hygiene one can unconsciously run tremendous risks. A neighbor living in town had a farm in the country, from which she had daily supplies of milk, eggs, fruit, butter, etc. The tenant had typhoid. The milk was divided somewhere in the tenant house, and a part taken to town for the neighbor's use. She made a dainty custard of junket tablets. One condition of its being a success was that the milk should be only just warm, never scalded. The family partook as had been their wont. Some days later the married daughter, a college graduate and a professional vocalist, became very ill with typhoid, and died. Her husband was also taken ill, but survived. The hired girl had a hard time, but lived. A younger son lingered for weeks, finally recovered, to succumb to consumption a little later as a result of the fever. Yet if this mother had understood the danger and acted upon it all this might have been spared.

It is utter folly to laugh at the germ theory, as many do, and any head of a household who neglects to take a good health magazine and profit by the hints she may gain, may pay the price in sorrow.

More is required of the home-maker than of any college professor if she lives up to all that she might in shaping home conditions, so that the best thing, and the best only, come into the lives of her dear ones. Anything that makes her life broader and acquaints her with the latest results in science and health, is cheap at any price.

The location of the outhouse may spell disaster to the household, and yet with a few large galvanized pails and a barrel of road dust it may be made safe, if cleaned frequently. The well may tap a stream that drains the barnyard and yet be as clear and sparkling as nectar, and as cold as ice and taste fine, too. But a still that costs a few dollars may stand on the kitchen range and turn to steam and condense to water again, all these impurities being left out. Or the water can be tested by a simple chemical process that will show the organic matter and reveal danger. Truly, "we are living, we are dwelling in a grand and awful time," and the house mother must measure up to the times if she would do all she wishes for her family.

HOME QUERIES.

Household Editor:—What is the cause of heavy bread?—Young Cook.

Heavy bread may be caused by using too much water for the flour, poor yeast, or not enough of it, or by not kneading the bread enough or giving it enough time to rise and bake. Think over how you made your bread, and decide which of these things makes your bread sour. Bread should be allowed to rise until it has doubled its bulk, and should be baked for nearly an hour, or until the loaf gives out a hollow sound when tapped lightly on the top.

Household Editor:—In boiling meat should it be cooked fast or slow?—A. B.

Boiled meat is usually best simmered. Put the kettle on the back of the stove and cook gently for a long time. In this way the meat becomes tender and there is not so much change nor loss. In boiling rapidly the water passes away in steam and much of the good of the meat is lost, which in slow cooking is retained in the stock.

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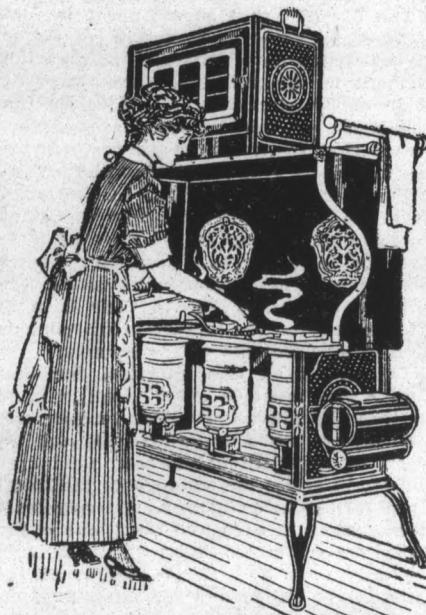
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Distributing Food Products.

By PROF. CLYDE L. KING.

TRANSPORTATION facilities alone will not grow farm produce; yet it avails little to grow farm products without having the facilities for marketing them. It is the purpose of this series of articles to discuss the means by which food products are taken from the farmer to the consumer, and the cost and effects of each step in the distribution of farm produce, in order to get a picture of what adaptations the middle eastern farmers and the eastern cities will have to make in order to meet existing conditions and methods.

The big fact that should never be lost sight of by those interested in farms or in consuming farm products is that the farmers in the Atlantic states have at their doors practically one-third of the population of the United States. This means that there should accrue to farmers in these states certain definite advantages over farmers farther to the west. It is the purpose of this paper to get at some of the factors in the price of farm produce in order to determine whether steps can be taken that will secure a reasonable advantage due to their location at the door of the largest urban population of any sections of the country.

In getting at this question, the first factor that must be clearly kept in mind is that the prevailing prices on all farm produce are made by nation-wide and, indeed, by international forces. So far as wholesale prices are concerned, the Michigan farmer is competing, not only with the farmers in each and every one of the other eastern states, but with the farmers of the newer and richer regions in the Mississippi Valley and far west, and, indeed, with the farmers in Argentina, South Africa, Europe, Asia, and in all parts of the world. The place that the Michigan farmer takes or can take in shaping wholesale prices for farm produce is indeed very small. The forces by which prices on farm products are thus kept practically uniform throughout the United States and the commercial world are fourfold: First, the practice known as diversion of shipments; second, the comparatively low cost of trans-continental and oceanic transportation; third, the use of cold storage; and fourth, the methods used in arriving at market quotations on farm products.

Influence of Diversion of Shipments.

The large place that interstate freight transportation plays in mobility of transportation of food stuffs and in getting articles from all states and all parts of the world to places where there is the greatest local demand for them is revealed by the fact that the receipts from freight transportation in the year 1910 alone totaled \$1,418,000,000. The grand total is due, not to the fact that the rate of transportation on any given product is relatively high (for a bushel of wheat may be sent from Chicago to New York by lake or by canal for a little over five cents, and by all rail for but a fraction over nine cents), but to the vast amount of freight transported. This development of intra-state, inter-state and transcontinental freight has placed the Kansas or Colorado farmer much nearer to Philadelphia than the farmers of Harrisburg were a quarter of a century ago.

Moreover, a custom has arisen whereby the advantage that might otherwise come to the local eastern farmer, due to increased demand or shortage of supply in the neighboring farms, is overcome by the facility with which farm products from any section of the country may be sent, even after transit has started to a point offering a more favorable market. This method is called diversion of shipment or selling in transit. If a car of cattle, for instance, is consigned from a Kansas shipping point to Chicago, it may, by telegram, be unloaded and placed on sale at Kansas City or at Omaha, should prices at either of these places indicate greater returns from the probable price upon arrival at Chicago. Grain billed through from the Nebraska or Minnesota farm to points in the middle west or to Philadelphia and other coastwise points may be, by telegram, diverted on almost any day, to any other point in the United States. Thus, should prices be higher for any reason in Pittsburgh or in Harrisburg or in Philadelphia, the car would be directed to that point in lieu of going on to Chicago or to New York or to Boston or other points where the local prices were not so high. That is, in the days of the telegram the Pennsylvania producer,

because of his location near the larger cities, or because of a local stringency in supply, would have little advantage over the Kansas producer, so far as the wholesale price is concerned.

The selling in transit plan is used in shipping fruit by rail from California or other southern or southwestern points. Two of the diversion points most frequently used are Council Bluffs, Ia., and a point known as Minnesota Transfer, a freight yard between St. Paul and Minneapolis. A car of fruit or vegetables en route from a southern state may be sent on order, to Potomac Yard, a freight transfer point on the Potomac River, opposite Washington, D. C., or at some other diversion point. At each of these diversion points, a representative of the commission firm, be the firm a New York, a Chicago or a Pittsburgh firm, opens the cars, inspects the contents, and reports the results by telegraph or telephone to the commission office which, in the meantime, is keeping itself well informed of market conditions in all of the different cities of the United States. The agent at the diversion point then receives orders as to the final destination of the car. Typical diversion points for such shipments are Kansas City, St. Louis and Chicago. Hence, if there is a scarcity of fruit and vegetables in any city in Pennsylvania, and prices there seem most favorable, the car is ordered to that point, and any advantage that might accrue to the local farmer due to his location is largely, if not wholly, lost.

A similar method is used in diverting trans-oceanic shipments to points where higher wholesale prices may be secured. For instance, a cargo of wheat, corn, barley or other farm produce is thus consigned "for orders" to some port in the British Isles, such as Queenstown or Plymouth. After the vessel starts, the exporter tries to secure a purchaser at the best available market. Upon arrival at port of first destination, the vessel receives orders to embark at once for a given port where sale has been made. When it is remembered that the United States exports yearly from seven to 28 per cent of its domestic grown wheat (on an average 25 per cent), and two to 10 per cent (on an average of five per cent) of its domestic grown corn, it will be seen what this method means in the way of securing the most favorable price for farm produce and in making the price on foodstuffs practically a world price. This method applied to incoming fruits from our southern ports will deprive the local eastern fruit or produce grower of any advantage that may accrue to him as a result of greater local demand or a decreased local supply.

High Local and Low Interstate Freight Rates.

A second factor in fixing a nation-wide price on farm products is the relatively small cost of interstate transportation as compared with the high cost of local transportation. It costs the United States seventy-three million dollars annually to haul its produce for only 12 of its main crops from farm to shipping point. The average cost of hauling a ton of farm produce per mile is from 25 cents up. That is, if the Michigan farmer has to haul a great distance, or does not have at hand adequate transportation facilities, his transportation charges will readily amount to more than the total rail transportation charges of the Kansas or Colorado farmer who sells in the same market. The average cost of hauling produce from farms to shipping points in the United States as a whole ranges from seven to 44 cents per 100 pounds, with an average of 11 cents. The mean rate on grain, flour and provisions, through from Chicago to Liverpool by all rail to seaboard, and thence by steamer, is 19 cents per 100 pounds, and if brought by lake and canal to the seaboard, and thence to Liverpool by steamer, the rate is not far from 15 cents per 100 pounds. That is, it costs but four cents per cwt. more to get farm produce from Chicago to Liverpool than it does to get it from the farm to the shipping point. In other words, in fixing nation-wide market quotations on farm produce, this disadvantage of the western farmer because of his distance from the market is slight, indeed, so far as transportation from a shipping point to market is concerned. In this field, the only advantage that the eastern farmer can secure over his western competitor, therefore, is in decreasing

BREEDERS' DIRECTORY.

CATTLE.

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

Aberdeen-Angus.

Herd, consisting of Trojan Erics, Blackbirds and Prides, only, is headed by Egerton W. the GRAND CHAMPION bull at the State, West Michigan and Bay City Fairs of 1912 and the sire of winners at these fairs and at THE INTERNATIONAL, Chicago, of 1912. WOODCOTE STOCK FARM, Ionia, Mich.

GUERNSEY BULL CALVES, YORKSHIRE PIGS. Good Stock.

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

GUERNSEY BULL CALF—Six dams have yearly records of 845, 722, 604, 518, 441, 418 lbs. of butter respectively. Bargain prices. G. A. WIGENT, Watervliet, Mich.

10 Reg. Guernsey Bulls, ready for service. Large Yorkshire hogs, the best yet. Come or write. JOHN EBELS, R. 10, Holland, Mich.

GUERNSEYS—Bull calves, reg., tuberculin tested. Splendid breeding. Moderate prices. Windemere Farm, Watervliet, Mich. J. K. Blatchford, Auditorium Tower, Chicago, Ill.

HEREFORD BULLS FOR SALE Also Poland China Hogs. ALLEN BROS., Paw Paw, Michigan.

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

CHOICE Bull Calves from A. R. O. dams. Sired by our herd sire whose dam and sire's dam each made over 30 lbs. in 7 days. E. R. Cornell, Howell, Mich.

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

FOR SALE—HOLSTEIN BULL CALF

Born June 5, 1912, sire a son of the King of the Pontiacs from a daughter of Hengerveld De Kol. Dam of calf, an A. R. O. daughter of Sadie Vale Concordia's Paul De Kol, her dam a 20 lb. imported cow. ED. S. LEWIS, Marshall, Mich.

HOLSTEIN BULLS—well bred, at reasonable prices. Barred Rock Chickens from 15 years breeding. Good layers eggs 15 for \$1. W. B. Jones, Oak Grove, Mich.

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

"Top-Notch" Holsteins.

Yearling bulls all sold. Choice bull calves from 2 to 7 mo. old, of fashionable breeding and from dams with official milk and butter records for sale at reasonable prices. McPHERSON FARMS CO., Howell, Michigan.

Holstein Bulls

3 to 8 months old,

\$75 to \$300

Don't buy until you get our pedigrees and prices.

LONG BEACH FARMS,

Augusta, Kalamazoo Co., Mich.

Service Bulls and Bull Calves

Sired by Johanna Corcordia Champion,

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

L. E. CONNELL, Fayette, Ohio.

Bigelow's Holstein Farms

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Holstein Friesian Bull Prince Sarcastic—

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REED & KNOWLES, Howell, Mich.

REGISTERED HOLSTEINS—ROBERT W. FAY, Mason, Michigan. Farm right in the City. Only few minutes from Jackson and Lansing, electric cars from both Cities every hour.



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THE JERSEY

excels in beauty of dairy type. She is a persistent milker. Jerseys are easily acclimated. They live long and keep healthy. They mean steady butter profits. Write now for Jersey facts. Free for the asking. AMERICAN JERSEY CATTLE CLUB 324 W. 23d St., New York

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

(Continued on next page.)

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Explains how to safely and profitably use Red Cross Dynamite for blasting stumps and boulders, tree planting, ditching, subsoiling, excavating, road-building, etc. Write for name of nearest dealer, or expert blaster, and Farmers' Handbook No. 100.

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"BETTER BUILDINGS" contains valuable plans and information relative to all classes of farm buildings. It tells you how to secure the lowest rates of insurance, and construct good durable buildings at low cost, by using

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A better conductor than required by Insurance Companies. System complete with full directions for installing. No agents. You get wholesale price.

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Pay after you are satisfied. Our Rods are securely protecting thousands of farm homes and will protect yours. Write postal for FREE book on lightning protection. Tells plainly just the facts you will be interested in. Ask for it today.

The J. A. Scott Company
Dept. J, Detroit, Mich.

his cost of hauling to a shipping point and in more skillfully sorting and otherwise adapting his output to peculiar local needs.

Effect of Cold Storage.

The third factor in making for a nation-wide wholesale price on farm produce is cold storage. The butter produced in June and July is held for sale during January and February. Eggs laid during the early spring months are held for sale during the winter months of the year following. The risk in cold storage is due to the fact that the period of greatest scarcity, January and February, is followed so closely and abruptly by the period of maximum supply, and by the uncertainty of the time of this change owing to the influence of the weather. This makes for stability of prices not only for one locality as compared with another, but for one season as compared with another, and hence again the natural advantage of the eastern farmer is counterbalanced by the greater fertility and productiveness in other regions. Eggs can, under proper refrigeration, be brought from a farm six days distant by fast freight to a city in better condition than the eggs brought in on a warm day from a farm six or ten miles from the city. From November to February is the period of short supply and high prices. Without cold storage the dairy business would have to be recognized.

Influence of Crop Reports.

The fourth factor making for fluidity and acceleration, and thus for nation-wide stability in market prices for farm products, is the method by which crop reports are issued. It is upon the basis of these reports that the produce exchanges in the primary markets of the United States base their prices, both on current productions and on futures. Information as to crop conditions is secured by the Bureau of Statistics of the United States Department of Agriculture—the most highly organized crop reporting department in the world. This Bureau has about 50 statisticians and clerks in the city of Washington, 15 to 20 special traveling reporting agents outside of Washington, a state agent paid for part of his time in each state of the Union, 3,000 county correspondents, and 30,000 township and voluntary correspondents, giving voluntary service as crop reporters. The Bureau thus secures at least four classes of reports as to acreage, conditions, etc., of each group.

The reports by the state agents and by the special traveling agents are sent directly to the Secretary of Agriculture, and deposited in a safe until the crop-reporting board meets on a stated crop-reporting day. The reports from county and township correspondents are sent to the Statistical Bureau, where they are assembled and averaged. The summarized results are placed in the secretary's safe until the crop-reporting board is in session. On what is known as report day, the statistician, with four assistant statisticians and agents, receives the four classes of reports in a meeting behind closed doors. From these four classes of reports, the board arrives at state averages and totals, and national averages and totals as to crop conditions, including the leading facts as to acreage and condition of each crop in each and every locality. At a stated hour, this report is sent world-wide by telegraph and telephone. The primary markets, such as New York, Chicago and New Orleans, use these reports as a basis for market prices. To this national crop reporting agency is now being added an international crop reporting agency. It is proposed that this agency have headquarters at Rome, in the new International Institute of Agriculture, which has already a Bureau of Agricultural Statistics collecting world-wide data and supplying these facts to the 49 adhering countries. This would make a world-round stable price for all farm products.

Each of the great produce exchange concerns has also its own crop reporting agents at work, not only in this country but in all other countries as well. Thus prices of farm products are based on crop conditions, not only in every section of the United States, but in every section of the world. The influence of local production in any given state in the Union, that is, in fixing prices, is relatively small.

It would be difficult to over-emphasize the far-reaching effect of these four agencies of food distribution upon the value of Michigan farms, upon the output of these farms, upon the prices received by Michigan farmers and upon the prices paid by the city consumer. It is their perfection and extensive use that have made it possible for Iowa farms to

increase \$2,600,000,000 in value, from 1890 to 1910, while Pennsylvania farms, in the same period, increased but \$200,000,000. Through their development and use, the western farmers and the farmers of South America and Russia have been made as potent a factor in fixing the price of farm products in Michigan as are the Michigan farmers themselves. Of the potatoes eaten in Philadelphia, more are grown in Russia than in Pennsylvania. This is brought about by the development of oceanic shipments. By the time the output in Pennsylvania orchards, gardens and farm is marketable, the city consumers throughout the Commonwealth have long been supplied with exactly those articles, at relatively slight transportation costs, and with little deterioration, from Texas, Florida and other southern fields, orchards and gardens, and Pennsylvania farmers do not get, as they once did, "early market" prices.

There have been two unfortunate effects from this national development: (1) the city consumer has lost sight of the value of a prosperous surrounding agricultural community, and (2) means of local distribution have been over-emphasized. The last half of the nineteenth century has been characterized by a phenomenal perfection of national agencies for distributing farm products economically and directly to the best wholesale markets. Can the early twentieth century perfect a system of local distribution at all comparable in its effectiveness to this national system?

(The above is the first of a series of articles by Prof. King based largely upon a study of controllable factors in the distribution of farm produce, made under the direction of Mayor Blankenburg, of Philadelphia. It is the good fortune of our readers to have the privilege of carefully reading these contributions which should aid in getting men to view the problems of marketing with greater intelligence and broader sympathies.—Eds.)

APPLE PUBLICITY CAMPAIGN.

A movement is on for the general advertising of apples as a fruit that should enter more largely into consumption by the American people. Apple distributors from all parts of the country are participating in the scheme. They feel confident that the work will be of value not only to the trade, but also to the producer inasmuch as agitation should perhaps even double the quantity of apples used in the country. The promoters of the scheme point to the advantages gained to the citrus fruit business by a well planned advertising program, and they are confident that under proper management a similar scheme fitted to the merits of the apple should bring equally as desirable results to the latter fruit.

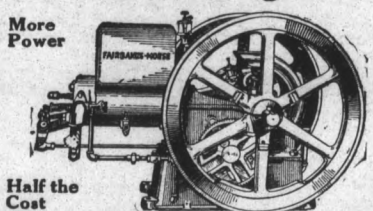
CROP AND MARKET NOTES.

Ottawa Co., April 21.—For the past week the weather has been dry, and so cold that ice has formed on water every night, this proving a setback to wheat and clover. A number of acres of oats have already been sown, and during the coming week, a good share of them will be sown in this section, if dry enough to work. The disk harrow is coming into favor more every year, so that now but little plowing is done for oats on corn stubble land. A good warm rain at the present time would start everything growing in fine shape. The agitation of the tariff has caused wool to drop to 15c per pound. This will discourage many farmers, so that they will go out of the sheep business, because wool cannot be grown for 15c on land that is as valuable as it is in this section. Young pigs four and five weeks old are selling for \$4 each, and breeding sows from \$25 to \$35.

Livingston Co., April 20.—The weather has been very favorable of late and farmers are pushing their work along rapidly. Not many oats sown yet, but the next few days will see them go in rapidly. This being a dairy section farmers are beginning to realize the necessity of a succulent feed in the ration for their cows and as a result there will be more silos erected this year than ever before. Help is very scarce and wages asked are almost prohibitive and as a result farmers are investing more and more in labor saving tools. Horses are higher than ever, good ones bringing from \$200 to \$300. Not much produce going to market at present.

Wayne Co., April 21.—The spring has been very cold and wet. It began raining on March 23 and rained for three days and nights, causing a great flood in all low lands, and drizzled on for three weeks with but little sunshine. The flood caused a great deal of damage, driving some people out of their homes. At this writing the weather has moderated somewhat and farmers are busy with plowing and some sowing oats. The ground is still pretty heavy and soggy. Wheat looking fair. New seeding has stood the winter good. Pasture is growing slow, it not being in condition for stock to be turned on yet. Stock in general came through the winter in good shape. Eggs, 15c.

Jack of All Trades Kerosene Engines



Kerosene (Coal Oil) can usually be bought for less than half the price of gasoline and a Jack of All Trades Engine will develop as much power on a gallon of kerosene as on a gallon of gasoline.

Why Buy Gasoline?

Besides their great economy these engines are easy to handle, safe, strong, durable. Always ready for service. Every one guaranteed. Sold at remarkably low prices for high grade engines.

2, 4 and 6 h. p. Horizontal; also 2, 4 and 6 h. p. Vertical. Other types up to 500 h. p. Write for Catalog No. DT 601

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Fairbanks Scales, Oil and Gasoline Engines, Pumps, Water Systems, Electric Light Plants, Windmills, Feed Grinders



KRAUS PIVOT AXLE CULTIVATOR

moves both wheels and shovels instantly to the right or left. Is guided and held in position entirely by the two foot levers attached to the pivotal axles making it unequalled for working in crooked rows, and avoiding end hills. Cultivates on hillsides as easy as on level ground.

Width between gangs and depth of shovels regulated without stopping. The KRAUS cultivates thoroughly where rigid axle cultivators cannot be used. Operates easily. The horses furnish the power—all the driver needs to do is to steer.



Built for Wear and Work. Made in high and low wheel and Kraus Pivot gang. Also Clipper Hammer Seat. Steel frame. Malleable iron castings. Simple in construction, least number of parts and all easy to get at. Nothing to get out of order. Ask for the KRAUS, accept no other. Write us for free catalogue. AKRON CULTIVATOR CO. Dept. 65 AKRON, OHIO

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Send for amazing low factory-price on genuine Edwards Steel Shingles. They beat wood shingles and prepared roofing a MILE, yet cost much less. And we pay freight!

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Engines deliver 100% service. Useful in more ways than any other engine. Gilson Engines range from 1 to 27 h.p.—cost \$32.50 up. Write for particulars. Gilson Mfg. Co., 64 Park St., Port Washington, Wis.

For Sale—Black grade Percheron Stallion will be three years old in June, in thrifty growing condition and now weighs 1700. Will make a ton horse. KARL WOHLBERG, Port Huron, Mich.

Breeders' Directory—Continued.

FOR SALE—JERSEY BULL CALF, high class ancestry. WATERMAN & WATERMAN, Meadowland Farm, R.F.D. 6, Ann Arbor, Mich.

For Sale—Registered Jersey Cattle, tuberculin tested: bulls and bull calves; heifer and heifer calves; cows with Register of Merit and Cow Testing Association records. IRVIN FOX, Allegan, 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.

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

Scotch & Scotch Top Bull calves 4 to 7 months old, also young cows and heifers bred to Bright Sultan. W. B. McQUILLAN, Chilson, Mich., 1/2 mile E. of Davis Crossing on A. A. R. R.

Dairy Bred Shorthorns—No stock for sale at present. J. B. HUMMEL, Mason, Michigan.

Dairy Shorthorns—Large Cattle—Heavy Milkers. No stock for sale at present. W. W. KNAPP, R. No. 4, Watervliet, Mich.

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

SHEEP.

7 REGISTERED HAMPSHIRE MILKERS \$50
1 fine Ram, 3 Ewes & 3 Lambs, all for C. D. WOODBURY, Lansing, Mich.

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

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

SHROPSHIRE & DUROCS

KOPE-KON FARM, Kinderhook, Michigan.

HOGS.

Durocs & Victorias—A Desirable Bunch of Sows of M. T. Story, R. R. 48 Lowell, Mich. City Phone 55.

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

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

BERKSHIRE BOAR PIGS

Short of room and will sell fall boars at \$15 to \$25 for quick action. J. W. CLAPP, Novi, Michigan.

CHESTER WHITES—SONS AND ERS OF CHAMPIONS AND GRAND CHAMPIONS. Spring pigs now weaned and ready for shipment. BONNIE BRAE FARM, Algonac, Michigan.

For Sale—Essex pigs, 6 to 8 months old, from Michigan's oldest herd. Save money by buying while young. Send for catalog and low prices. E. F. OLIVER, 804 Oak St., Flint, Mich.

O. I. C.—Big growthy type, last fall gilts and this spring farrow to offer. Very good stock. Scott No. 1 head of herd. Farm 1/2 mile west of depot, OTTO B. SCHULZE, Nashville, Mich.

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

THIS

O.I.C.

SOW WEIGHED 932 LBS.
AT 23 MONTHS OLD

IONIA GIRL

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

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

O. I. C's—all sold. Orders booked for April and May pigs of the choicest breeding. C. J. THOMPSON, Rockford, Michigan.

O. I. C's—All sold, will book orders for March pigs. ALBERT NEWMAN, Marlette, Michigan.

O. I. C's—Bred sows, March pigs pairs and trios. Buff Rock Eggs \$150 per 15. FRED NICKEL R. 1, Monroe, Michigan.

O. I. C.—Registered Boar, 225 lbs. A few bred gilts of extra quality. GEO. P. ANDREWS, Danville, Ingham Co., Mich.

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

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

MALES ALL SOLD BUT ONE—Fancy fall gilts for sale. JOHN MCNICOLL, Station A, Bay City, Mich. Route 4, Box 81.

DUROCS BRED SOWS all sold. Service Boars \$40 to \$50. January pigs \$12 to \$15, either sex. Satisfaction guaranteed. F. B. COOK, Route 2, Stanwood, Mich.

DUROC JERSEYS—BRED GILTS FOR SALE. CAREY U. EDMONDS, Hastings, Michigan.

DUROC JERSEY GILTS—Bred for July and August farrow. Write for prices. I pay the express. J. H. BANGHART, Lansing, Mich.

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

Butler's Big Bone Poland Chinas

We have a few nice fall boars, also some big sows bred for fall farrow. Our hogs are all cholera proof. J. C. BUTLER, Portland, Michigan.

Big Type Poland China Pigs at close prices. Eggs \$1 per 15. ROBERT NEVE, Pierson, Mich.

Large Type P. C.—Largest in Michigan. Bred gilts and Oct. pigs that have size, bone and quality. Write your wants or come and see. Expenses paid if not as represented. Free delivery. W. E. LIVINGSTON, Parma, Mich.

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

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

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

MAMMOTH YORKSHIRES—Increase Bank Accounts. Alfalfa fed. Pedigrees furnished. CRIBBS BROS. Watervliet, Michigan.

Lillie Farmstead YORKSHIRES

Spring bred gilts all sold. Gilts bred for next August farrow. September pigs either sex, pairs and trios not akin. Orders booked for spring pigs. COLON C. LILLIE, Coopersville, Mich.

Markets.

GRAINS AND SEEDS.

April 30, 1913.

Wheat.—Although prices have been depressed somewhat during the past week, the conditions influencing the wheat market are essentially the same as seven days ago. The bearish news comes largely from this side, while the strong features of the market are supported from abroad. Reports of crop conditions in the states continue very flattering and promise a record breaking crop. The only disturbing element at the present time is a few minor reports of the Hessian fly and chinch bug in the far southwest. It must be remembered, however, that much damage can come to the growing crop between now and harvest time. In fact, the depredations of insect pests usually show up more prominently a little later in the season than at present. This possibility, with the strong foreign position of the market, makes holders of wheat hopeful of the immediate future trend of the market being favorable to sellers. The foreign strength is due to the competition of England and the continent for cargoes from the western hemisphere, the probability of war between Austria and Montenegro, the reduction of the exports from Argentina and to the imminence of a general strike in the South American country which is likely to tie up transportation facilities there. No. 2 red wheat was sold on the local market a year ago at \$1.18 per bu. Detroit quotations for the past week are as follows:

	No. 2	No. 1	Red.	White.	May.	July.
Thursday	1.09	1.08	1.09	1.09	94%	94%
Friday	1.09	1.08	1.09	1.09	94%	94%
Saturday	1.08	1.07	1.08	1.08	94	94
Monday	1.08	1.07	1.08	1.08	94	94
Tuesday	1.07%	1.06%	1.07%	1.07%	93%	93%
Wednesday	1.07%	1.06%	1.07%	1.07%	93%	93%

Chicago, (April 29).—No. 2 red wheat, \$1.07%; May, 98%; July, 92% per bu.

New York, (April 29).—No. 2 red wheat \$1.13 f. o. b. afloat; May, \$1.00%; July, \$1.00%; Sept., 99c per bu.

Corn.—This deal is slightly weaker than seven days ago and quotations show a fractional decline. The influence of wheat was undoubtedly the greatest factor in effecting the change since there exists a normal demand and the receipts at primary elevators are very light, due to the busy season on the farms which prevents farmers drawing grain to the market. On Tuesday, Liverpool showed strength and helped support the bull side of the trade. One year ago the local price for No. 2 corn was 82c per bu. Detroit quotations for the past week are as follows:

	No. 3	No. 3	Yellow.
	Corn.	Corn.	
Thursday	57	58	58
Friday	57	58	58
Saturday	56½	57½	57½
Monday	56½	57½	57½
Tuesday	56½	57½	57½
Wednesday	57	58	58

Chicago, (April 29).—May, 55c; July, 55c; Sept., 56½c per bu.

Oats.—This grain rules about steady with last week, the quotations on Tuesday being identical with those on the same day of the previous week. Locally there is only a small volume of oats changing hands and the elevators here report only 28,330 bu., Tuesday as compared with 82,065 bu. on the same day a year ago. The delayed seeding is a bullish factor. The price for standard oats for this date in 1912 was 63c per bu. Quotations for the past week are as follows:

	Standard.	No. 3	White.
Thursday	38½	37½	37½
Friday	38½	37½	37½
Saturday	38	37	37
Monday	38	37	37
Tuesday	38	37	37
Wednesday	38½	37½	37½

Chicago, (April 29).—May oats, 34½c; July, 34½c; Sept., 34½c per bu.

Beans.—Bean values have advanced another 5c during the past week. There is scarcely anything doing in the deal, no reports of transactions being noted on the local market. Immediate, prompt and May shipments are now quoted at \$2.10 per bu. at country points.

Chicago, (April 29).—The margin of bean values has narrowed down during the past week. The best grades have declined slightly, while the poorer kinds are up a little. Pea beans, hand-picked, fancy, are quoted at \$2.35@2.40; choice, \$2.30@2.35; prime, \$2.20@2.25; red kidneys, \$1.90@2; white kidneys, \$2.50 per bushel.

Clover Seed.—The demand for seed from country places has subsided and there is practically nothing doing upon this market. Values are maintained at last week's level. Cash seed, spot is quoted at \$13.25 and prime alsike at \$13 per bushel.

Toledo, (April 29).—Spot clover has been marked up 5c the past week, the present quotation being \$13.45; October is quoted at \$7.50; alsike is 10c higher at \$13.20 per bu.

Timothy Seed.—The only change in the quotation for prime timothy seed that has occurred in some time happened this week when an advance of 5c was noted, 30 bags having sold at \$1.75 per bu.

Rye.—The demand for rye from country loading points and distilleries continue and the price shows an advance for the week of 1½c; No. 2 rye now being quoted at 64½c per bu.

Barley.—(Milwaukee).—Malting brand is selling on the local market here at \$2@70c per bu., as to quality.

FLOUR AND FEEDS.

Flour.—Jobbing lots in ¼ paper sacks lbs. as follows: Best patent, \$5.50; sec. are selling on the Detroit market per 196 ond, \$5.20; straight, \$5; spring patent, \$5.10; rye flour, \$4.60 per bbl.

Feed.—Detroit jobbing prices in 100-lb. sacks are as follows: Bran, \$21; coarse middlings, \$21; fine middlings, \$27; cracked corn, \$22.50; coarse corn meal, \$22.50; corn and oat chop, \$21 per ton.

Hay.—Choice grades higher; others are steady. Carlots on track at Detroit are: No. 1 timothy, \$14.50@15; No. 2, \$12@13; light mixed, \$13.50@14; No. 1 mixed, \$12@13 per ton.

Chicago.—Prices are off since a week ago. Choice timothy, \$16@17.50 per ton; No. 1, \$14@15; No. 2 and No. 1 mixed, \$12.50@13.50; No. 3 and No. 2 mixed, \$10@12; clover, \$7.50@12.50.

Straw.—Steady. Carlot prices on wheat and oat straw on Detroit market are \$8.50 per ton, rye straw, \$9@10 per ton.

Chicago.—All grades steady with last week. Rye, \$8.50@9; wheat, straw, \$6.50@7; oat straw, \$7@7.50 per ton.

DAIRY AND POULTRY PRODUCTS.

Butter.—The break in values which has been expected for some time came at this week's opening when Elgin declined 3c. While at most points receipts show some increase they are not in excess of those for same period a year ago, and the sharp decline is in part ascribed to the large proportion of under-grade product incident to the "between hay and grass" season. Dairies and packing goods are unchanged in the local market. Detroit jobbing prices rule as follows: Fancy creamery, 31c per lb; firsts, 29½c; dairy, 24c; packing stock, 22c.

Elgin.—Market firm at 30c.

Chicago.—Creameries here went off 4c on Monday and everything seemed to favor buyers. However, a steady feeling now exists with dairies and packing stock showing a tendency to recover losses. Quotations are: Extra creamery, 29½@30c; extra firsts, 29c; firsts, 27½@28c; seconds, 26@26½c; dairy extras, 29c; firsts 27c; seconds, 25c; packing stock, 12@24½c as to quality.

New York.—Steady with values about on a par with other markets. Quotations: Creamery extras, 30½@31c; firsts, 30@30½c; seconds, 29@29½c; state dairy, finest, 30½c; good to prime, 29@30c; common to fair, 27@28c; packing, 22@25c as to quality.

Eggs.—The demand for good stock for storage is taking care of the choicest of the current heavy receipts, and holding markets firm all around. At Detroit current offerings, candled, and cases included, are quoted at 18½c per dozen.

Chicago.—Offerings here are not up to those of a year ago and, with a considerable proportion of these going into storage direct, this market is very firm and prices are fractionally higher. Miscellaneous receipts, cases included, are quoted at 17½@17¾c; do., cases returned 16½@17¼c; ordinary firsts, 16@17c; firsts 17½@18c; storage packed, firsts, 18½@19c per dozen.

New York.—Firm with values showing slight advances. Fresh gathered extras, 21@21½c; fresh gathered storage packed, firsts, 20@21c; western gathered, whites, 20@21½c.

Poultry.—No change this week. Offerings so light that prime stock would probably command a slight premium over the quotations. Quotations are: Live.—Spring chickens, 17½@18c; hens, 17½@18c; No. 2 hens, 12@13c; old roosters, 12c; turkeys, 19@20c; geese, 15@15½c; ducks, 18@20c per lb.

Chicago.—Generally quiet with tendency in direction of lower values. Ducks and geese both quoted lower. The quotations on live are: Turkeys, good weight, 15c; others, 10c; fowls, good, 16½c; broilers, \$3.50@7 per dozen; ducks, 16c; geese, full feathered, 10c; do., plucked, 7@8c per lb; guinea hens, \$4 per dozen.

Cheese.—New York flats and brick are quoted lower. Wholesale lots, Michigan flats, new, 13½@14c; old, 16½@17c; New York flats, new, 14½@15c; old, 17@17½c; brick cream, 13½@14c; Limburger 18@19c.

Veal.—In small supply and stronger. Fancy, 12@12½c; common, 9@10c.

Chicago.—Market recovering from the slump under light supplies. Prices have regained last week's loss. Fair to choice 80@110-lbs., 12@13c; extra fancy stock, 13½c; fair to good chunky, 11½@12c.

FRUITS AND VEGETABLES.

Apples.—This fruit is steady with the movement fairly satisfactory. Detroit quotations now are: Fancy, per bbl., \$2.50@3; ordinary, 75c@1.50 per bbl.

Chicago.—The best grades of apples are firm at the recent range of values. Common kinds move slowly and are hard to place. Standard winter varieties, \$2@4 per bbl. for the best grades.

Potatoes.—Potatoes show a little more life in that there is a better demand but the market is notably unchanged. Michigan stock in car lots, 40@42c per bu.

Chicago.—With receipts cut down to a reasonable volume, in fact, below what they were last year and two years ago, and with the offerings of new potatoes rather light, the local market for potatoes showed a better tone and sales were made at values above those quoted last week. Fancy Michigan stock, 35@40c per bu; best Wisconsin, 33@42c; Minnesota, 30@38c per bu.

WOOL.

Boston.—Although it is approaching the season of the year when dealers prepare for the incoming clip of wool there is scarcely nothing in the line of wool trading going on, the old clip being practically sold out except for a few grades, and the new crop is not finding dealers out seeking it. A few transactions have been made, both in the west and in the

fleece states, but the exchange prices are unreported, leaving one at a loss to know what the range of values are. Anticipating the passage of the free-wool schedule wool buyers are putting foreign wools in bond to be taken out when the duty is off. Users of wool in England are careful not to run short of raw material because of an increased American demand which has made London sales active at firm prices.

RETAIL QUOTATIONS.

Detroit Eastern Market.—About the usual amount of business for the season was being transacted on this market Tuesday morning, although the variety of offerings was quite limited. Potatoes constituted the bulk of the produce and were moving only fairly well with the best grade selling at 55c per bu. Onions have advanced because of a decrease in number of loads and are now selling from 70 to 85c. Lettuce is coming a little more freely and finds buyers at 75 to 85c per basket. Radishes of undesirable quality were offered at 5c per bunch. Beets (old) 25@35c per bu; eggs, 22c per doz. Loose hay is steady at \$16@18 per ton.

GRAND RAPIDS.

About 50 loads of farm and garden produce were offered on the city market Tuesday morning and prices were as follows: Lettuce, 11c; cabbage, 30c per bu; parsnips, 35c; apples, 90c; potatoes, 45c; pieplant, 40@45c; asparagus, \$1; spinach, \$1 per dozen bunches. Hay is \$1 per ton higher, selling at \$11@14. The egg market is steady at 17½c to the country trade. Veal calves are worth 10½@13c; dressed hogs, 11@11½c.

THE LIVE STOCK MARKETS.

Buffalo.

April 28, 1913.

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

Receipts of live stock here today as follows: Cattle, 170 cars; hogs, 100 double decks; sheep and lambs, 70 double decks; calves, 2500 head.

With 170 cars of cattle on the market here today, and 31,000 reported in Chicago, we have to quote our market from 25 @40c per cwt. lower than last Monday, and, in fact, in some instances we saw cattle sold fully 50c per cwt. lower than last week. At the close of the market there are at least 30 loads of cattle unsold, weighing from 1150 to 1350 lbs. average.

We quote: best 1350 to 1500-lb. steers, \$8.50@8.75; good to prime 1200 to 1300-lb. do., \$8@8.40; good to prime 1100 to 1200-lb. do., \$7.85@8.25; coarse plainish 1100 to 1200-lb. do., \$7.25@7.75; medium butcher steers, 1000 to 1100, \$7@7.50; light do., \$6.75@7.25; best fat cows, \$6@7; butcher cows, \$5@5.75; light do., \$4.25@4.75; trimmers, \$3.25@4; best fat heifers, \$7.25@7.75; medium butcher heifers, \$6.50@7.25; light do., \$6.25@6.75; stock heifers, \$5.50@6.25; best feeding steers, dehorned, \$7.25@7.75; light common stockers, \$5.50@6; prime export bulls, \$7.25@7.50; best butcher bulls, \$6.75@7.25; bologna bulls, \$6@6.50; stock bulls, \$5@5.75; best milkers and springers, \$6.50@8; common kind do., \$3.50@5.

We had a liberal supply of hogs today, footing up 100 double decks and with 60,000 reported in Chicago, our market was much lower. Mixed hogs sold at \$9.15 generally; yorkers, \$9.15@9.20; pigs, \$9.25@9.30; some heavy weights down as low as 9c; roughs, \$8@8.10; stags, \$7@7.75. Trade slow throughout the day, and the close was easy with some unsold. Chicago prices very low, and if we have anything like fair run here tomorrow, looks much like lower prices.

The sheep and lamb market was slow today, with prices about 15c higher than the close of last week; most of the choice lambs selling for \$8@8.15; sheep, \$6.25@6.50. Look for about steady prices the balance of the week.

We quote: Choice lambs, \$8@8.15; cull to fair do., \$5@5.75; yearlings, \$7@7.25; bucks, \$4@4.75; wethers, \$6.25@6.50; handy ewes, \$5.75@6; heavy ewes, \$5.50@5.75; cull sheep, \$3@4.50; veals, choice to extra, \$9.50@10; fair to good, \$7.50@9.25; heavy calves, \$4.50@6.

Chicago.

April 28, 1913.

Received today 30,000 58,000 25,000
Same day last year: 24,817 57,429 13,937
Received last week: 48,422 118,661 80,651
Same week last year: 49,086 146,621 71,124

Another week opens with extremely large live stock offerings, and at a late hour only a few steers had changed ownership, sellers quoting reductions of from 15@25c, while butcher stock was called only fairly animated at declines of 10@15c. Hogs experienced an average decline of 25c, with slow sales at \$8.25@8.75 for inferior heavy packing hogs to prime light shipping lots, these being the lowest prices recorded in a long period. Sheep and lambs were slow in finding an outlet, and sales were largely about 10c lower, some lots being off 15c, while some prime flocks went at steady prices.

Hogs marketed last week averaged 244 lbs., compared with 230 lbs. one year ago, 246 lbs. two years ago and 228 lbs. three years ago.

Cattle sold extremely well during the first part of last week, the receipts being unusually small on Monday, but weakness set in on Wednesday, when 22,441 head arrived, and further declines occurred on Thursday, despite a small run. However, sellers did not do so bad as might be supposed, provided their cattle came in before the big drop, and the bulk of the week's transactions in beef steers took place at a range of \$7.90@8.90, with lots of Monday sales at \$9 and several lots bringing \$9.25. The common to fair light-weight steers sold at \$7.25@8.25, with

good to prime little yearling steers taken at \$8.50@9 and a free trading in butchering cows and heifers at \$5.15@8.75, with sales of cutters at \$4.60@5.10, of canners at \$3.30@4.55 and of bulls at \$5.50@7.85. There was no large showing of heavy beefs, and all accounts agree that no large numbers are left in feeding districts, most stockmen having taken advantage of the high prices to get them marketed before the usual summer discrimination against heavy steers starts in. Neither has there been any large supply of fat cows and heifers, and it is becoming clear that most farmers are adopting the sensible policy of retaining their good breeders with a view of raising cattle for the market. The stocker and feeder traffic was only moderate at best, the general activity of farmers in their spring work, together with the dearth of such cattle, combining to limit the demand. Stockers brought \$6.50@8.10, with very few going around top figures, while most of the feeders with heavy weight brought \$7.25@8.25. Little could be done in stock and feeding heifers because of the meager offerings, prices ruling at \$6@6.75. Liberal supplies of calves were shipped in from the dairy districts, as usual every spring, and there was a good demand on the basis of \$4.75@9.25 per 100 lbs. for coarse heavy to prime light vealers. Milch cows sold sparingly at \$55@85 each.

Hogs have had rallies in prices on some days during the past week, but the prevailing tone of the market lacked firmness as a general rule, as is very apt to be the case in periods when the eastern shipping demand is lacking. However, this outlet was very good at times, and then prices moved up. Local packers took a bearish attitude, as usual, and on days when prices were headed in an upward direction several of them stayed out of the market. Prime light hogs continued to sell the highest, as they were the favorites with shippers, with butcher weights ranking next in prices and extremely heavy packing hogs going lowest of all. The offerings usually averaged satisfactorily in quality, with average weights much heavier than early in the year. Corn is plentiful and cheap, and owners of thrifty young hogs can make no better use of their corn than by converting it into pork and lard. In spite of the declines in prices for hogs in recent weeks, they are still selling much higher than in former years at corresponding dates, 1910 excepted, while corn is much cheaper than it has been in most former years. In Iowa great things are expected from the appropriation of the legislature for stamping out hog cholera. At the close of the week hogs brought \$8.50@9, with only one top sale, while pigs went at \$7@8.90 and throw-out packing sows at \$8.10@8.35. A week earlier the best hogs went at \$9.30.

Sheep and lambs show great rallying power as a rule after considerable breaks in prices, although it has been found impossible to put values for prime lambs up to the highest point of the season, as there are limits for prices for lamb meats in the retail markets of the country. Warm weather has been responsible for bringing about a complete change in relation to the desirability of clipped flocks, and whereas a few weeks ago the packers were discriminating against such consignments, now they greatly prefer them to woolled lots. Lambs are comprising the great bulk of the receipts, and fat yearlings, wethers and ewes sell extremely well. There are no large supplies of live muttons in sight, and high prices seem assured for months ahead. The past week was a good one for sellers on the whole, the shipping demand being better, and sheep and lambs were largely 15@25c higher, woolled stock closing as follows: Lambs, \$6.50@8.90; yearlings, \$7.15@7.90; wethers, \$6.25@7.35; ewes, \$6@7; bucks, \$5.25@6.25; feeder and shearing lambs, \$6.25@8. A few spring lambs brought \$12 per 100 lbs.

Horses had a good demand last week, there being a large attendance of buyers from various points, and farm chunks sold freely on a basis of \$140 to \$215 per head, with desirable pairs of such animals weighing from 2,400 to 2,550 lbs. wanted at \$250 to \$425, while good farm breedy mares sold freely at \$235 to 285 per head, their weights ranging from 1,350 to 1,550 lbs. Inferior to fair horses brought \$85 to \$125, and sales took place of saddlers at \$125 to \$275, while drafters were salable anywhere from \$235 to \$275 for desirable ones, with extra heavy fancy ones worth \$300 to \$350. Chunks weighing from 1,250 to 1,350 lbs. were salable at \$185 to \$250.

Up in South Dakota cattle have been pretty extensively shipped to market, and many feed lots are empty. Stockers are held at from \$6@7 per 100 lbs. and feeders at \$7@8.

On the Kansas City cattle market in the first quarter of the present year Kansas bought 500 cars of feeders more than in the same period last year; Missouri 400 cars more and Iowa and Illinois each about 300 cars more. All former price records were broken in March, when stock cattle both below and above 900 lbs. in weight brought \$8.50 per 100 lbs.

The provision by the Iowa legislature of \$35,000 for use immediately in the manufacture of serum and for prevention of hog cholera is expected to accomplish great things in that important hog-growing state. Iowa has a good-sized spring pig crop this year, and it is believed that such ravages of hog plague as those suffered last year will cease.

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We will send the Michigan Farmer every week from the time order is received to Jan. 1, 1914, for only 25 cents. If you can secure four or more of these 25 cent subscriptions write us for list of valuable articles we give you for your trouble.

THIS IS THE FIRST EDITION.

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

DETROIT LIVE STOCK MARKETS.

Thursday's Market.

April 24, 1913.

Cattle.

Receipts, 1545. Bulls steady; all other grades dull and 10@15c lower than last week.

We quote: Best steers, \$8@8.50; steers and heifers, 1000 to 1200, \$7@7.50; do. 800 to 1000, \$6.75@7.25; do that are fat, 500 to 700, \$6@7; choice fat cows, \$6.50@6.75; good do., \$5.75@6.10; common do., \$4.50@5.10; canners, \$3.75@4.15; choice heavy bulls, \$7@7.25; fair to good bolognas, bulls, \$6@6.50; stock bulls, \$5@5.75; choice feeding steers, 800 to 1000, \$7@7.25; fair do., 800 to 1000, \$6.25@6.50; choice stockers, 500 to 700, \$6@6.35; fair stockers, 500 to 700, \$5.50@6; stock heifers, \$5@5.50; milkers, large, young, medium age, \$65@75; common do., \$35@50.

Spicer & R. sold Sullivan P. Co. 3 cows av 1043 at \$6.25, 3 do av 1117 at \$6.90, 3 do av 1073 at \$6.60, 6 do av 1028 at \$6, 2 bulls av 1370 at \$6.50, 11 steers av 868 at \$7.60, 3 heifers av 753 at \$7, 11 butchers av 936 at \$7.25, 4 heifers av 680 at \$6.25; to Breitenbeck 14 butchers av 1017 at \$7.60; to Nagle P. Co. 2 bulls av 1675 at \$7; to Hammond, S. & Co. 2 do av 1210 at \$6.75, 4 heifers av 700 at \$7; to Hall 8 stockers av 762 at \$6.50; to Nagle P. Co. 1 bull weighing 1280 at \$7; to Hammond, S. & Co. 1 do weighing 1240 at \$6.75, 1 do weighing 1050 at \$6.50; to Mason B. Co. 15 butchers av 921 at \$7.65, 1 steer weighing 800 at \$7, 2 do av 975 at \$7.75; to Kamman B. Co. 8 steers av 790 at \$7.35; to Heinrich 8 do av 1104 at \$7.80; to Newton B. Co. 2 do av 1160 at \$8.25, 7 cows av 900 at \$6.50, 1 heifer weighing 850 at \$7.25.

Haley & M. sold Newton B. Co. 5 steers av 814 at \$7.15, 1 cow weighing 1010 at \$6.50, 1 do weighing 780 at \$5, 4 do av 780 at \$4, 1 bull weighing 800 at \$6, 1 steer weighing 910 at \$7, 7 do av 1090 at \$8, 5 do av 732 at \$7.75, 3 cows av 1083 at \$6, 2 cow and bull av 1010 at \$6; to Sullivan P. Co. 6 steers av 908 at \$7.30, 2 bulls av 740 at \$6.75, 2 heifers av 665 at \$6.25, 4 steers av 855 at \$7.25, 2 cows av 830 at \$5.25, 1 heifer weighing 610 at \$6.50, 7 steers av 973 at \$7.75; to Nagle P. Co. 2 cows av 1100 at \$6.25; to Kamman B. Co. 13 steers av 970 at \$7.65; to Bresnahan 4 stockers av 443 at \$5.80, 1 heifer weighing 750 at \$7; to Breitenbeck 1 cow weighing 880 at \$5, 4 cows av 810 at \$4.30, 1 do weighing 1040 at \$5.50, 1 do weighing 890 at \$5; to Nagle P. Co. 2 cows av 1080 at \$6.25, 1 do weighing 840 at \$5.75, 2 do av 1130 at \$6.25, 2 steers av 1085 at \$7.60, 2 do av 1140 at \$8; to Schuman 16 butchers av 903 at \$7.50; to Breitenbeck 3 do av 810 at \$7, 5 cows av 960 at \$5.25; to Sullivan P. Co. 2 do av 1130 at \$6, 2 do av 835 at \$3.75, 1 heifer weighing 760 at \$5, 1 do weighing 720 at \$6, 8 butchers av 861 at \$7.25; to Mich. B. Co. 2 steers av 1200 at \$8.35.

Bishop B. & H. sold Sullivan P. Co. 3 cows av 1077 at \$6.50, 11 steers av 662 at \$7, 4 cows av 880 at \$5, 8 do av 1041 at \$6.75, 3 do av 717 at \$6, 1 bull weighing 1300 at \$7; to Thompson Bros 1 canner weighing 740 at \$3.75; to Hammond, S. & Co. 1 cow weighing 690 at \$3.50, 4 cows and bulls av 927 at \$5.75; to Casey 3 cows av 866 at \$4.50; to Parker, W. & Co. 23 butchers av 772 at \$7.40, 22 do av 935 at \$7.75, 20 do av 769 at \$7.40, 4 steers av 807 at \$7, 4 heifers av 785 at \$6.50, 1 bull weighing 1200 at \$6.75, 2 cows av 1085 at \$5.50, 2 heifers av 785 at \$7.25, 3 bulls av 1197 at \$6.75, 21 butchers av 791 at \$7.10; to Hammond, S. & Co. 6 do av 820 at \$7.35, 3 do av 610 at \$6.50, 1 bull weighing 1320 at \$6.75, 2 cows av 1170 at \$5.50, 8 do av 1106 at \$6.50, 3 do av 1073 at \$4.50, 5 do av 1012 at \$6, 2 do av 920 at \$4, 1 bull weighing 1160 at \$6.75, 1 ox weighing 1580 at \$7.25, 7 cows av 1034 at \$5.50; to Nagle P. Co. 19 butchers av 987 at \$7.85; to Sullivan P. Co. 3 cows av 900 at \$6.25, 1 do weighing 940 at \$4.50, 1 bull weighing 1160 at \$6.75; to Breitenbeck 20 steers av 980 at \$7.50; to Hammond, S. & Co. 2 cows av 1060 at \$6.75, 1 heifer weighing 920 at \$6.

Roe Com. Co. sold Nagle P. Co. 10 cows av 1130 at \$6.75, 3 steers av 1266 at \$8.50; to Wyness 1 cow weighing 1010 at \$5.50; to Kull 6 steers av 771 at \$7.85; to Breitenbeck 6 cows av 1005 at \$5, 1 do weighing 930 at \$4; to Newton B. Co. 11 heifers av 756 at \$7.25, 4 cows av 1022 at \$5.25, 4 steers av 870 at \$7.25, 25 butchers av 920 at \$7.60; to Bresnahan 1 cow weighing 860 at \$4.50; to Nagle P. Co. 1 bull weighing 1200 at \$7.25; to Sullivan P. Co. 12 cows av 1105 at \$6; to Thompson Bros. 2 do av 825 at \$4, 12 do av 1010 at \$6.25, 2 do av 1125 at \$6; to Sullivan P. Co. 1 bull weighing 1250 at \$6.75; to Newton B. Co. 20 butchers av 733 at \$7; to Kamman B. Co. 12 do av 812 at \$7.50, 4 do av 750 at \$7.25, 3 steers av 900 at \$7.35; to Nagle P. Co. 5 cows av 1196 at \$7; to Hammond, S. & Co. 1 bull weighing 1040 at \$6.50, 1 do weighing 1080 at \$6.50; to Bresnahan 2 cows av 920 at \$4, 2 bulls av 490 at \$5, 3 cows av 775 at \$4, 6 butchers av 576 at \$5.75; to Hammond, S. & Co. 1 bull weighing 1080 at \$6.50, 3 cows av 860 at \$5.35, 8 steers av 806 at \$7.50, 28 do av 760 at \$7.25; to Hall 4 feeders av 795 at \$7.25; to Sullivan P. Co. 13 steers av 1025 at \$7.75; to Rattkowsky 7 cows av 977 at \$6.10, 1 bull weighing 1000 at \$7.25; to

Nagle P. Co. 3 steers av 1183 at \$8.15, 3 do av 990 at \$7.65.

Veal Calves.

Receipts, 855. Good grades 50c higher than last week; others steady. Best, \$9 @9.50; others, \$5.50@7; milch cows and springers steady.

Roe Com. Co. sold Mich. B. Co. 8 av 125 at \$8.50; to Nagle P. Co. 3 av 155 at \$9; to Sullivan P. Co. 1 weighing 140 at \$7, 4 av 145 at \$9; to Nagle P. Co. 8 av 125 at \$8.50, 3 av 170 at \$6.50, 4 av 145 at \$8.50, 8 av 120 at \$7.50, 24 av 135 at \$8.50, 5 av 125 at \$7, 15 av 135 at \$9.25. Sandall sold Nagle P. Co. 10 av 132 at \$8.75.

Spicer & R. sold Nagle P. Co. 3 av 145 at \$9.25, 9 av 140 at \$9.50, 1 weighing 110 at \$8, 1 weighing 140 at \$9, 50 av 145 at \$8.75; to Goose 3 av 140 at \$9.25, 1 weighing 110 at \$8; to Newton B. Co. 7 av 140 at \$9.

Bishop, B. & H. sold Thompson Bros. 27 av 130 at \$8; to Sullivan P. Co. 10 av 130 at \$9, 5 av 125 at \$8; to Goose 35 av 128 at \$7.50, 20 av 130 at \$7.50; to Nagle P. Co. 5 av 125 at \$8.50, 9 av 138 at \$8.75, 3 av 150 at \$9.25; to Parker, W. & Co. 6 av 130 at \$9, 2 av 125 at \$8.50, 2 av 120 at \$9, 4 av 145 at \$9.25, 1 weighing 130 at \$9.50, 4 av 145 at \$9.50, 3 av 120 at \$9, 6 av 135 at \$9.25; to McGuire 6 av 135 at \$8.75, 12 av 120 at \$8; to Hammond, S. & Co. 8 av 110 at \$7, 19 av 125 at \$9.50; to Newton B. Co. 44 av 135 at \$9.25; to Sullivan P. Co. 5 av 125 at \$8, 12 av 130 at \$8, 17 av 135 at \$9; to McGuire 6 av 165 at \$9, 6 av 140 at \$8.75.

Sheep and Lambs.

Receipts, 4204. Market steady at Wednesday and last week's prices. Best lambs, \$7.50@7.75; fair to good lambs, \$6.75@7.25; light to common lambs, \$5.50@6.50; yearlings, \$6.75@7; fair to good sheep, \$6.25@6.50; culls and common, \$3.50@4.50.

Haley & M. sold Nagle P. Co. 200 lambs av 65 at \$7.25, 72 do av 85 at \$7.60. Vaughan Bros. sold Sullivan P. Co. 26 lambs av 60 at \$6.

Bishop, B. & H. sold Hammond, S. & Co. 14 lambs av 60 at \$6.75, 13 sheep av 105 at \$6; to Sullivan P. Co. 12 lambs av 65 at \$7.50, 17 do av 67 at \$7.50, 73 do av 58 at \$5.50, 11 spring lambs av 48 at \$10; to Mich. B. Co. 54 sheep av 90 at \$5, 42 do av 95 at \$5.25, 14 do av 120 at \$5.50; to Nagle P. Co. 31 lambs av 70 at \$7, 80 do av 75 at \$7.35, 162 do av 67 at \$7.30; to Bray 176 do av 73 at \$7.25, 49 do av 48 at \$4.50, 63 do av 55 at \$5.50; to Thompson Bros. 30 lambs av 55 at \$7.25; to Hayes 27 do av 45 at \$4.50; to Swift & Co. 260 lambs av 78 at \$7.75; to Hammond, S. & Co. 14 sheep av 115 at \$4.50, 4 do av 120 at \$6; to Sullivan P. Co. 10 lambs av 61 at \$6.50, 40 do av 55 at \$6.25, 39 do av 53 at \$6.25, 10 do av 48 at \$5; to Young 48 do av 68 at \$7.35, 13 sheep av 100 at \$5.50.

Roe Com. Co. sold Nagle P. Co. 56 lambs av 65 at \$7.50, 4 sheep av 155 at \$5.50; to Barlage 31 lambs av 55 at \$6, 8 sheep av 80 at \$5; to Hayes 39 lambs av 50 at \$7.

Spicer & R. sold Mich. B. Co. 31 sheep av 92 at \$5.10, 7 do av 140 at \$6, 5 lambs av 75 at \$8, 9 do av 60 at \$7, 39 do av 50 at \$8, 5 sheep av 70 at \$4, 85 lambs av 60 at \$6.75, 50 do av 55 at \$6, 51 do av 60 at \$5.75, 183 mixed av 53 at \$4.85.

Hogs.

Receipts, 4805. No hogs sold up to noon; packers bidding steady to 5c higher; looks as below:

Range of prices: Light to good butchers, \$8.90@8.95; pigs, \$9; mixed, \$8.90@8.95; stags one-third off.

Bishop, B. & H. sold Hammond, S. & Co. 2110 av 180 at \$9, 670 av 250 at \$8.95.

Roe Com. Co. sold Sullivan P. Co. 425 av 190 at \$9, 75 av 220 at \$8.95.

Haley & M. sold Parker, W. & Co. 450 av 180 at \$9.

Spicer & R. sold same 360 av 185 at \$9.

Friday's Market.

April 25, 1913.

Cattle.

Receipts this week, 1743; last week, 1816. Market steady at Thursday's prices. Best steers, \$8@8.50; steers and heifers, 1000 to 1200, \$7.50@8; do. 800 to 1000, \$7.25@7.75; do. that are fat, 500 to 700, \$6@7; choice fat cows, \$6.50@7; good do., \$5.50@6.25; common cows, \$4.50@5; canners, \$3.50@4.25; choice heavy bulls, \$7@7.25; fair to good bolognas, bulls, \$6.50@6.75; stock bulls, \$5.50@6.25; choice feeding steers, 800 to 1000, \$6.75@7.50; fair do., 800 to 1000, \$6.25@7; choice stockers, 500 to 700, \$6.50@7; fair do., 500 to 700, \$5.65@6.25; stock heifers, \$4@5; milkers, large, young, medium age, \$65@80; common milkers, \$35@50.

Veal Calves.

Receipts this week, 1064; last week, 1206. Market strong at Thursday's prices. Best, \$9@9.50; others, \$5@8.50. Milch cows and springers steady.

Sheep and Lambs.

Receipts this week, 4850; last week, 4367. Market steady at Thursday's close. Best lambs, \$7.50@7.75; fair to good lambs, \$6.50@7.25; light to common lambs, \$5.25@6.25; yearlings, \$6.75@7; fair to good sheep, \$5.75@6.25; culls and common, \$3@4.25; spring lambs, \$10@11.

Hogs.

Receipts this week, 6132; last week, 8148. Market 5c higher than on Thursday. Light to good butchers, \$9.05; pigs \$9.05; mixed, \$9; stags one-third off.

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nothing better for making a big lot of feed. Also Soya, Vetch, Rape, Reid's Yellow Dent Corn, etc., and the best Alfalfa that you ever saw. Write for samples. O. M. SCOTT & SON, 166 Main St., Marysville, Ohio.

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is what we try to furnish our customers. Free samples will show that we come pretty near doing it. All other field seeds. Also Field Peas, Soya, Vetch, Rape, Pasture Mixture, Reid's Yellow Dent Corn, etc. O. M. SCOTT & SON, 66 Main St., Marysville, Ohio.

REGENERATED Swedish Select Re-cleaned Oats at 75c bu. Fine yellow dent seed corn \$2 bu. Bags Free. JOHN LOHMAN, Sr., Hamilton, Michigan.

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FOR SALE—Choice dairy or general farming proposition; 268 acres; 3 miles east on Williamsburg road, 20 minutes from the capitol. Well improved. Plenty water, wood, fruit and 3 dwellings, 200 acres cultivation and pasture. Safe investment. Owner's address, H. D. Johnston & Sons, Richmond, Va. R. 2.

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ALBERTA—217 ACRES, 6 miles Botha, beautifully situated on lake, 18 acres cultivated. All tillable. Black loam, fenced, crossfenced. Excellent water, 2 miles school, house, stable 12, hen-house, granary, etc. Snap \$17 per acre. \$1500 cash, balance arranged. About this and other bargains write George Grant, Herald Block, Calgary, Alberta.

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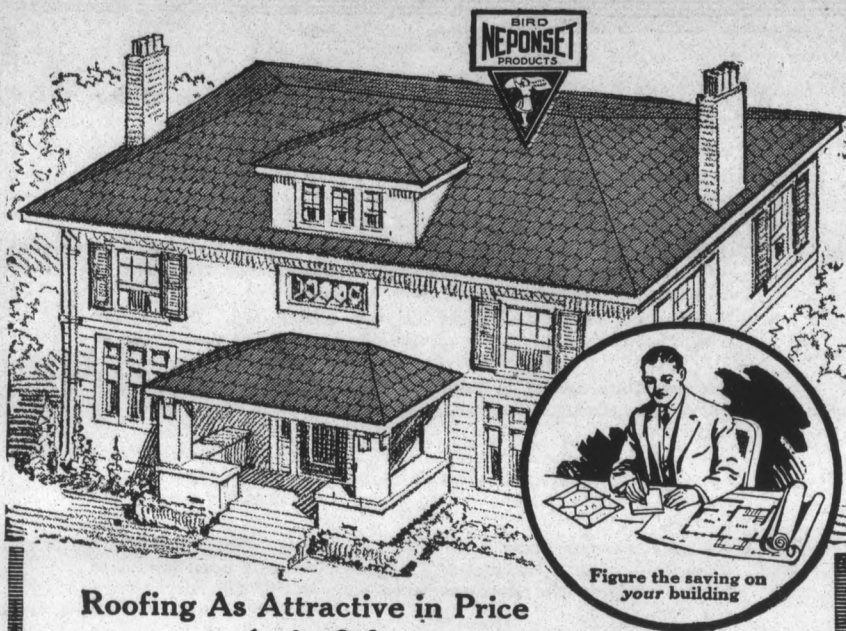
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in Virginia, North and South Carolina, Georgia, Alabama and Florida, write to WILBUR MCCOY, A. & I. Agt. for Florida, Jacksonville, Fla. E. N. CLARK, A. & I. Agt. for Virginia and the Carolinas, Wilmington, N. C.



Roofing As Attractive in Price —As in Color

You'll admit this roof looks attractive—in distinctive colors of red or green. But for most home builders its chief attraction lies in its remarkable economies. Let's begin with its first cost. **NEPONSET Proslate Roofing** costs less to buy than good shingles. Greatly reduces the cost of repairs. No shingles to split, crack or "curl up." Remember, the shingles of today aren't the shingles of 20 years ago. **NEPONSET Proslate Roofing** makes a water-tight blanket. And best of all, resists fire—is "spark-proof." Its protection from fire-hazard alone is worth all its cost. Its first cost is its only cost, too. Can you afford NOT to have **NEPONSET Proslate Roofing** on your roof?

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This household paint is specially prepared for the painting of cupboards, shelves, woodwork, kitchen chairs, tables and other furniture. It produces a durable oil-gloss finish that can be washed without injury. And it is all ready for use. The woman who goes over her house with this paint after spring clean-

ing is going to have an easy time keeping things spick and span for the rest of the year.

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SPICES—(Continued).

BY FLOYD W. ROBISON.

Nutmegs and Mace.

As is the case with a great many other food products and particularly some so-called accessories to food products, nutmegs are adulterated chiefly with a low-grade and inferior product which, so far as identity is concerned, is in reality a product of the nutmeg tree. The nutmeg is native to the islands of the Malay group. It is the fruit of a tree which grows from 20 to 35 feet in height. The fruit itself is globe-shaped and consists of two nearly equal halves covered with a somewhat fleshy crimson colored membrane. This membrane, when properly cured, is known as mace, and the spherical fruit underneath constitutes the nutmeg of commerce.

Why Nutmegs are White.

It has been the practice for a great many years to coat the nutmeg with lime, which process is known as liming the nutmeg. Just the exact reason for this is not apparent, except that the claim has been made that liming the nutmeg prevents the activity of insects. However, at the present time there is quite a quantity of the true nutmeg on the market that is not coated with lime. These, therefore, are quite brown in appearance, and should one be given brown nutmeg when buying from the grocer, he should remember that they are really purer than the ordinary nutmeg which is white in appearance, due to a coating of lime.

Nutmeg contains a peculiar volatile oil which gives the aroma and flavor to it. The chief adulterant of nutmeg is the substitution of the so-called Macassar nutmeg. It is, in truth, a variety of nutmeg, but it lacks very much the agreeable flavor and aroma and much of the pungency of the regular nutmeg. So common has become the substitution of Macassar nutmeg that we may, we believe, quite properly style this as adulteration, though the chief consideration in buying whole nutmeg is the detection of wormy and mouldy fruit. Buying nutmeg whole instead of ground, one may be able to detect the presence of wormy and mouldy fruit, but this assurance is not so easy with the ground product unless one has full confidence in the source of the product.

Nutmegs Contain Starch.

Leach states that in Massachusetts, wheat and coconut shells have been used as adulterants of nutmeg. One characteristic of nutmeg is the presence of starch, and this finding is of value to the analyst in differentiating the ground product from mace. Mace contains no starch when in the mature state. It has, however, a dextrine-like product which, when treated with iodine, colors similar to the products containing dextrine, while the characteristic reaction of nutmeg when treated with iodine is the blue coloration for starch.

Standards.

The standard adopted by the Association of Official Chemists for nutmeg is as follows:

Total mineral matter, not more than five per cent; crude fiber, not more than 10 per cent; non-volatile ether extract, not less than 25 per cent; insoluble mineral matter, not more than 0.5 per cent.

The standard for mace is: Mineral matter, not more than three per cent; crude fiber, not more than 10 per cent; non-volatile ether extract, between 20 and 30 per cent.

The chief adulterant of mace is what is known as Bombay mace, which again is a species of mace, sometimes called wild mace, but it lacks nearly all of the characteristic valuable properties of the true mace.

The detection of adulterants, such as re-inforcing of these products with fixed oils is not an easy determination, but requires some considerable technical laboratory skill. The chemist relies on the iodine number and the refractometer largely in identifying the use of foreign oils. (Continued next week).

TUBERCULOSIS.

Tuberculosis affects practically all domestic animals, and wild animals in captivity. Among domestic animals it is most prevalent in the following order: Cattle, hogs, horses; very rare among

sheep. Chickens are also very susceptible and the disease is becoming serious among poultry in some sections.

Tuberculosis prevails very extensively among pure-bred cattle and city dairy herds, to much less extent among ordinary farm cattle, and is rare among range cattle. Statistics show that the disease has greater prevalence with poor conditions of stable sanitation.

Structure Affected.

This disease may affect practically any portion of the animal's body except the horns, the hoofs and the hair. It is a very common error to think of tuberculosis only as a disease of the lungs. It may occur in the interior of the bones, at joints, in the brain, the spinal cord, and in a great variety of inaccessible and unexpected places.

Tuberculin Test.

The only accurate means of detecting tuberculosis is by the tuberculin test. This test is very reliable, but not infallible, when good tuberculin is honestly and intelligently used. When animals are tested and react, but show no evidence of tuberculosis on examination of the carcass, there are always two possible explanations. (1) the disease may exist to a very slight extent, or may exist in remote parts, like bones, bone marrow, or joints, or in the spinal cord, which are not ordinarily examined. (2) an animal might develop a fever on the second day of the test, due to other causes, and this fever might be mistaken for a tuberculin reaction. With the possible failures all considered, we can still count on correct results in more than 96 per cent of the properly made tests.

The Tuberculin Cow in Relation to Human Health.

Three things have become quite plain in the course of a world-wide study of the relation between human and bovine tuberculosis. (1) that tuberculosis is a common disease among cattle. (2) that there are constant opportunities for transfer of any possible infection from cattle to people. (3) that man is at least susceptible to bovine infection.

There can be no question but that tuberculosis is a very common disease among cattle of all breeds and all classes excepting range cattle. Neither can there be any question but that wherever tuberculosis exists among cattle on a farm it also, as a rule, exists among the hogs on the same farm. A few years ago, the chief of our Federal Bureau of Animal Industry reported 400,000 accepted tuberculin tests collected during a period of 15 years from all over the United States, with an average percentage of reactions of 9.25 per cent. If all the cattle of the United States could have been tested at that time the average percentage would have been lower because no range cattle were included in those figures, and they probably did not include a fair proportion of common grade farm cattle.

It is well known that tuberculous cattle may have the lungs affected in such a way that the diseased areas connect with the bronchial tubes and windpipe; also that the udder may have diseased areas communicating with the milk ducts. It is also well known that such cattle may have tuberculous ulcers upon the lining membrane of the intestines and that they may swallow material coughed up from the lungs, and thus easily infect the bowel contents.

There are, then, at least three ways in which a tuberculous cow may give off tuberculous germs; in the spray that is thrown out in coughing, in milk and in the manure. Such contamination of milk is a disagreeable thing to think about, but it is, nevertheless too important to be ignored. It is evidently possible that the milk can be contaminated with bovine tubercle germs either from within the udder or from dried manure on the udder, flank or tail.

There can be no reasonable question now that the most serious source of human tuberculosis, particularly for older children and adults, is the advanced case of human tuberculosis in the home: It has been satisfactorily shown, however, that man is at least susceptible to tuberculous infection from cattle, and that tuberculosis among young children, due to germs from cows, is sufficiently common and serious to make it necessary to recognize the tuberculous cow as an important element of danger.—Minnesota Extension Bulletin No. 32—Reynolds.

Poultry.

TIMELY FEEDING SUGGESTIONS.

During the first 24 to 36 hours newly hatched chicks do not require food. At that time warmth is of greater importance.

When feeding has been begun give a little food every two hours during the first week. After that time feed every four hours until they are a month old, then three times a day. Chicks do not eat much at a time but they eat often. Feed them at regular times, and do not omit a meal.

Keep a box of fine charcoal, small grit and dry bran before them all the time, and upon the floor of the coop sprinkle fine sand, in cut clover and alfalfa leaves. Give them fresh water in something that will allow only the beak of the chicken to become wet. Do not let the chicks walk in the water. Keep the coop and yards dry.

A prepared chick feed, if properly balanced, contains bone, muscle and feather-making properties, and can be fed for the first two or three weeks with splendid results. Just give them what they will clean up nicely.

Stale bread that has been dried in the oven and then rolled fine and moistened with milk or water—enough to make the mixture crumbly—is good.

Hard-boiled eggs are good if you let them cook long enough. Sprinkle a little fine sand on the eggs before feeding.

Never feed raw corn meal stirred into water or milk. It causes bowel trouble and usually considerable loss. Corn bread dried and rolled fine, is a good change. Never feed sloppy food. Have it dry and crumbly.

After the third week any wholesome food can be given with good results.

Be sure to keep all feeding and drinking dishes clean. Wash and scald them, keep coops and yards dry, warm and clean, and you will have no trouble.

When you see the chicks busy and scratching it is a sign they are happy and thriving.

You can't neglect the chicks while they are growing and get good breeding stock by feeding them well a month or so before laying. Give them plenty of feed, good care and clean houses and yards at all times.

Do not put chickens hatched at different times together. The older ones will crowd out the younger.

Give the chicks plenty of shade on warm days.

Chicks hatched this month will lay in November if you care for them right.

Spray the coops often and the henhouse once a week, and continue to do so through the warm weather. Dissolve 1/4 oz. of corrosive sublimate in a pint of hot water, then add 1 oz. of carbolic acid. Stir this into two gallons of kerosene. Keep it well stirred and spray coops, roosts and houses with it several times during the summer, using it generously.

IN ANSWER TO INQUIRIES.

Hatching Geese.

I would like information about the hatching of geese in an incubator, especially with regard to temperature, time and moisture required.

Newaygo Co.

O. G. W.

You can hatch goose eggs in the same way you can hens' eggs. All they require is a uniform temperature of about 102 or 103 degrees. Any common incubator that will hatch the one will hatch the other, but it takes 35 days for the eggs of geese to hatch, or, in other words, that is the period of incubation. As is well known, hens' eggs require only 21 days. Handle them just the same as you would hens' eggs with the exception that they must be kept in the incubator 35 days.

Hens Roost on Nests.

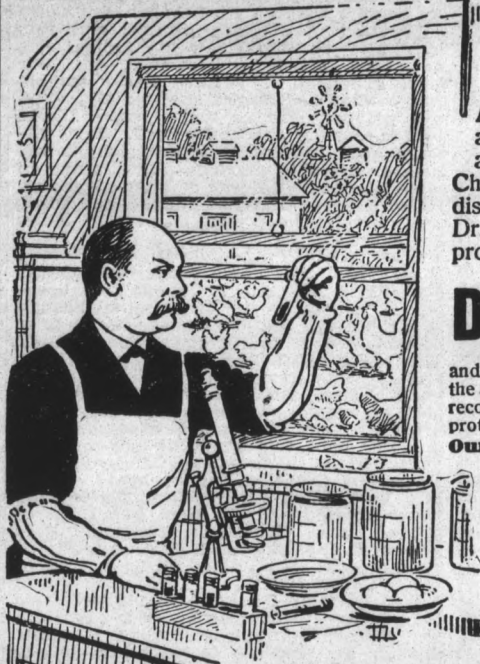
My hens seem bound to perch on top of the nest boxes in daytime. Is there any way to prevent this?

Allegan Co.

J. H.

You can easily keep the hens from roosting on the nests in day time by building a cover over the nests and having it so sloping or slanting so that they can't stand on it. If this cover prevents the hens from going on the nest to lay, you can fix the nests so they must be entered from the side or front, putting a walking board up in front and having a slanting board with cleats on leading up to the walking board.

COLON C. LILLIE.



Young Chicks

At this time, when millions and millions of little chicks, turkeys and ducks will be incubated into the world, every available human agency will be employed to combat the deadly influences of Gapes, Cholera, Indigestion, Legweariness and hundreds of other fatal poultry diseases. Success depends upon your ability to conquer these diseases. Dr. Hess (M.D., D.V.S.), just twenty years ago, was puzzling over this same proposition and the prescription shown herewith is his solution. It represents

DR. HESS POULTRY PAN-A-CE-A

and no one can dispute the absolute, positive value of the remedy for the above-named poultry diseases, because the best authority on earth recommends them. Don't lose your flock after it arrives—insure and protect the lives of your little chicks with poultry Pan-a-ce-a.

Our Proposition. Feed Poultry Pan-a-ce-a all spring and summer. If you are not satisfied beyond a shadow of doubt that it has cured your chicks of gapes, cholera, legweariness and the like, the dealer is required to refund your money. 1 1/2 lbs. 25c. (mail or express prepaid, 40c); 5 lbs. 60c; 12 lbs. \$1.25; 25-lb. pail \$2.50. Except in Canada and the extreme West.

DR. HESS & CLARK
Ashland, Ohio

Dr. Hess Stock Tonic puts horses, cattle, hogs and sheep in the pink of condition. After the long winter on dry feed stock need a tonic. Besides, Dr. Hess Stock Tonic saves feed by increasing digestion. By the old methods of feeding stockmen had to let the hogs follow the steers in order to save some of the grain wasted through non-digestion. It is possible to save a part of this by strengthening the digestive organs. Sold on a liberal money-back guarantee. 100 lbs. \$5.00; 25-lb. pail \$1.60 (except in Canada and extreme West and South). Send 2c for Dr. Hess Stock Book.

FREE. Dr. Hess (M.D., D.V.S.) will at any time prescribe for your ailing animals free of charge if you will send him full details. Mention this paper and send 2c stamp, 96-page Veterinary Book also free.

Dr. Hess Poultry Pan-a-ce-a contains:
Potassium Nitrate. An Eliminant.
Nux Vomica. A Nerve Tonic.
Quassia. A Bitter Stomachic and Appetizer.
Hypo-phosphite of Soda. An Internal Antiseptic.
Iron (Sulphate). A Blood Builder.
Iron (Red Oxide). A Blood Builder.
Carbonate of Lime. An Antacid and shell forming.
Sodium Chloride. An Appetizer and Cleanser.
Under the supervision of Dr. Hess (M.D., D.V.S.) the above is carefully compounded and blended with just enough cereal meal to make a perfect mixture.

INSTANT LOUSE KILLER KILLS LICE

Feed Growing Chicks Right

They must be furnished with the right kind of material if they are to make satisfactory growth of muscle, bone and feather. Profitable in quick growth and early maturity. Rush those cockerels to marketable size and turn them into cash before prices fall. Get the pullets completely developed and ready to fill the nests with fall and winter eggs.

Pratts Baby Chick Food

contains just the necessary ingredients to give them during the first three weeks the best possible start, at a cost of 1c per chick. In boxes and bags, 25c, 50c, \$1 up. After the third week mix

Pratts Poultry Regulator

in the ration to aid digestion and make the greatest gain for every pound of feed consumed. 25c, 50c, \$1, 25-lb. Pail. \$2.50.

"Your money back if it fails."

Our products are sold by dealers everywhere, or

PRATT FOOD COMPANY
Philadelphia Chicago



Alvin V. Rowe, Pres.

"Can't-Sag" Gates Save You

Cost only one-third as much as ordinary iron, wire or gas pipe gates, but last twice as long. Nest in appearance—best and strongest gate made—light, easy to handle, opens both ways. Boards are double bolted between eight angle steel uprights and double truss braces, guaranteed never to sag.

Cost Less Than All Wood Gates—Last 5 Times as Long

Can't-Sag Gates are furnished complete, ready to hang, or just the Gate Steels which include everything except the boards. Patent self-locking hinge features—reinforced two piece malleable hinges. Six Triangular Truss Braces make gates extra strong.

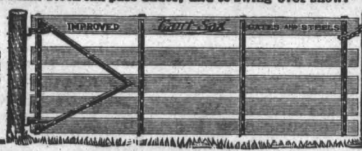
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"Can't-Sag" Gates & Steels

\$1.90 FOR THIS DANDY GATE

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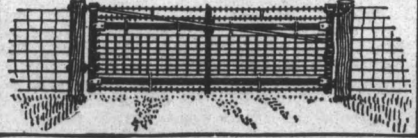
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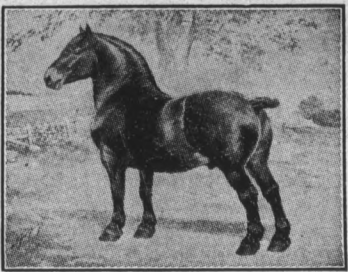
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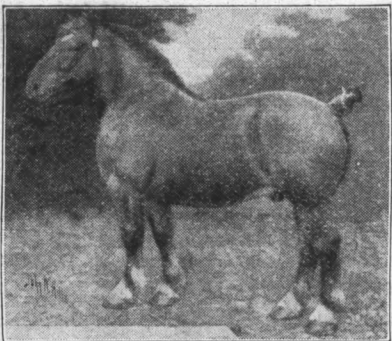
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Advice through this department is free to our subscribers. Each communication should state history and symptoms of the case in full; also name and address of writer. Initials only will be published. Many queries are answered that apply to the same 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.

Closure of the Milk Duct.—I have several cows that seem to have teat trouble, one teat becoming infected after another; both old and new milkers seem to be affected. J. M. G., Reed City, Mich.—Your cows suffer from an inflammation of the mucus membrane of the milk duct and the disease first starts at external opening and may gradually work up to udder, causing a narrowing of the milk canal through teat. If the constriction is only at the outlet, it may be opened with a teat opener or sharp pen knife, cutting, of course, in two directions. The opening may be kept from closing by using a teat plug or by a spring dilator. Inject the following solution into teat, which is made by dissolving 2 grs. permanganate of potash in half a pint of clean boiled water. In my practice I frequently dilate teat with a sound and this seems to work very well. The hand of milker should be immersed in a two per cent solution of carbolic acid; besides, the udders of cows and teats should be washed with the same lotion. Kindly understand the milker usually spreads this infection from one cow to the other.

Worms.—I have some pigs that root a great deal, standing on their heads, and I think worms are the cause of this trouble. W. C., Cassopolis, Mich.—Give your pigs fluid extract of spigelia and fluid extract of senna, equal parts, and twice a day until they purge, then the worms will be pretty much killed. One-half ounce is a dose for a pig that will weigh from 100 to 200 lbs.

Navel Infection.—There is a great loss in this locality by little pigs dying. Whole litters of them die when only a few days old. Could you give me any light as to the cause of this trouble, and suggest treatment for sows that are due to farrow in a short time? E. F., Birmingham, Mich.—As you doubtless know, pigs are usually kept in very filthy places; everything being favorable for a young pig to absorb infective germs through the navel opening and that is why I think the young pigs are dying. If the navels of young pigs are not treated after birth, the pen and bedding should be as clean as possible. Paint the navels of every young pig with iodine, then apply one part iodoform and 20 parts boracic acid once a day until their navels are healed. The sow should be kept clean.

Rheumatism—Leg Weakness.—I would like to know what is wrong with my hens; they show lameness, first in one foot then in the other; finally they are unable to walk and soon die. The trouble seems to be in the bottom of foot. Mrs. M. B., Waterloo, Mich.—It is possible that your chickens injure their feet on roosting pole or the coop yard may be filthy, and infect them. Dip the foot in one part chinosol and 250 parts water two or three times a day and give each chicken one-eighth of a grain of salicylate of soda at a dose three times daily.

Partial Paralysis.—Three weeks ago I went to feed my cows, I found one of them down and unable to get up, but with assistance we put her on foot; since then she has not been down or if she did lie down has gotten up without assistance. Her appetite is very poor. W. E. N., Leetsville, Mich.—Give your cow 1 dr. potassium iodide, 1 dr. fluid extract nuxvomica and 1 oz. fluid extract gentian at a dose as a drench three times a day.

Mare Does Not Come in Heat.—I have a seven-year-old mare that raised colts before I bought her; bred her last spring, but she failed to get with foal. What can I give her to bring her in heat? I also have a brood sow that does not come in heat. R. L., Snow Hill, Md.—Give your mare 1 dr. ground nuxvomica, 15 grs. powdered cantharides and a teaspoonful of powdered capsicum at a dose in damp feed three times a day. Give your sow a teaspoonful of powdered capsicum at a dose in feed three times a day. Both the mare and sow will perhaps come in heat as soon as the warm weather sets in.

Apoplexy—Paralysis of Lips.—While pulling a load in a snow drift one of my horses seemed to stagger and fall, after that the lips appeared to hang as if they were paralyzed. He seems to have partially recovered, but when walking staggers and wobbles considerable. This horse is also blind and wind-broken. I have owned him three years and he has been a very good worker. J. H. H., Alanson, Mich.—Give your horse 2 drs. potassium iodide, 1 dr. potassium bromide and 1 dr. ground nuxvomica at a dose in soft feed three times a day. He should be fed no clover or dusty, musty, badly cured fodder of any kind.

Pigs Have Thumps.—I have a sow with a litter of pigs and one of the litter took thumps when only a week old and died and since then one more died from the same disease. I have been feeding the sow skim-milk and corn; now I would like to know what causes thumps and what will cure it. C. C. V., Niles, Mich.—Thumps is frequently the result of indigestion or due to a diseased condition of the heart, a spasm of the diaphragm

is sometimes confounded with palpitation or organic disease of the heart. Acute indigestion may cause thumps and this form may develop when the animal has not been exerted. However, in your pigs, I believe they have heart trouble and cannot be treated successfully. You will perhaps lose no more, but I advise you to change the sow's feed. It is always good treatment to give stimulants, such as alcohol, whiskey, digitalis and in some cases small doses of nitro-glycerine. I also suggest that you change this sow's food supply, keep her clean and make her exercise.

Obstructed Teat—Caked Quarter.—I have a cow that came fresh two months ago that has a growth in one teat making it impossible to draw milk through it without the use of a tube. The quarter of udder seems quite hard. Mrs. M. S., Montague, Mich.—Apply one part iodine and 20 parts fresh lard to udder and teat once a day. Give her 2 drs. potassium iodide at a dose three times a day.

Heifer Fails to Come in Heat.—I have a heifer past two years of age that has never been in season. Can you give treatment to bring her in heat? G. A. W., Watervliet, Mich.—Your heifer may never come in heat. Give her 1 dr. of ground nuxvomica, a teaspoonful of powdered capsicum and 15 grs. powdered cantharides at a dose in feed two or three times a day.

Weak Back.—I have a cow 13 years old that I have to help up twice a day. After she is up, she seems to be quite strong, but appears to be some sore in feet and back. J. A. R., Allegan, Mich.—Give your cow 1½ drs. ground nuxvomica and 4 drs. acetate of potash at a dose in feed or water as a drench three times a day. Apply one part turpentine, one part aqua ammonia and four parts olive oil to back twice a day.

Sprained Stifle Ligaments.—Some three months ago my mare strained stifle, causing great lameness and after blistering with cantharides and lard once a week for four weeks she is some better, but not able to work. What can be done to make her improve faster? T. H. L., Coopersville, Mich.—Apply one part red iodine mercury and ten parts cerate of cantharides to stifle once a week.

Heaves—Bruised Hip.—My 14-year-old mare has heaves and is much distressed when working. After jumping a fence and falling my mare has been lame, after working all day she holds leg up as if suffering pain, but after a night rest she comes out next morning sound. J. S., Memphis, Mich.—Feed her no clover or musty fodder, very little bulky food and give her ¼ oz. Fowler's solution at a dose in feed three times a day. Your other mare bruised her hip and will be benefited by being rubbed with equal parts spirits of camphor and alcohol twice a day.

Cough—Rheumatism.—I have a 12-year-old mare that has been troubled with a cough for several months; has some discharge from nostrils; she is also sore and stiff and her joints crack whenever she starts to walk. J. H., Yale, Mich.—Give her ½ oz. licorice and ½ oz. ginger at a dose in feed three times a day; also give her 1 dr. sodium salicylate at a dose in feed three times a day.

Scrotal Tumor.—I have a two-year-old colt that has a bunch in scrotum and our local Vet. tells me he is not ruptured. This bunch decreased in size during cold weather, but lately it enlarges. M. L. M., Nashville, Mich.—When he was castrated the cord united to skin of scrotum and a tumor has grown on end of cord. The only remedy is to cut off end of cord and wound will soon heal. This is not a dangerous operation, but it should be done before hot weather sets in.

Chronic Muscular Weakness—Chorea.—I have a nine-year-old mare due to foal in a few days which appears to have a weakness of muscles of fore arms. After a heavy pull her muscles jerk and tremble considerably; this trouble has existed for several years. E. A., Reed City, Mich.—Rubbing her fore leg with alcohol two or three times a day will palliate this ailment, but she will never get well.

Bog Spavin—Thoroughpin.—Two months ago my horse went lame, at which time a puffy swelling appeared on fore leg and outside of hock joint. Have applied blister, but neither lameness or swelling has disappeared. S. M., Grand Haven, Mich.—Apply equal parts tincture iodine and spirits of camphor to bunch once a day; or apply one part red iodine mercury and eight parts cerate of cantharides once a week. There are also reliable advertised remedies for this trouble.

Infectious Abortion.—I have a cow that has calved twice since Christmas and her last calf soon died. My other cows on same amount of food are doing well. The teeth of this cow are all loose, and our neighbor told me to split her tail, put salt and pepper in it, then wrap it up with a cloth and if she continued to get worse to bore holes in her horn and put turpentine in it. F. B., Freesoil, Mich.—Wet the hind parts of your cow with one part coal tar disinfectant and 20 parts water—or apply one part bichloride mercury and 1,000 parts water—or one part carbolic acid and 49 parts water daily. Give her 1 oz. fluid extract gentian, 1 dr. fluid extract nuxvomica and ½ oz. fluid extract cinchona at a dose in feed or as a drench three times a day.

Infected Udder.—I have a nine-year-old Jersey cow that dropped her calf April 3, which has a whole lot of udder trouble. One-quarter of the bag is very much inflamed and enlarged. W. C., Three Rivers, Mich.—Give her ½ oz. fluid extract of phytolacca at a dose three times a day. Also apply one part fluid extract of phytolacca and five parts glycerine to bag twice a day. If her bowels are constive, give epsom salts.

Indigestion.—Have a calf seven weeks old that bloats after eating or drinking separator milk. I put a little lime water with each meal. N. B., Mt. Clemens, Mich.—Put a teaspoonful of bicarbonate soda in his milk with each meal. Or give 15 grs. salicylic acid with each meal.



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

Associational Motto:

The skillful hand, with cultured mind, is the farmer's most valuable asset.

Associational Sentiment:

The farmer, he garners from the soil the primal wealth of nations.

WHAT THE LOCAL CLUBS ARE DOING.

The Rives and Eaast Tompkins Club, of Jackson County.—This Club holds 12 meetings during the year at the homes of the members. An August picnic is the special feature. The Club numbers about 70 members. The entertainment committee is among the standing committees of the Club and the social feature of the organization is emphasized. The November meeting is a benefit for the chaplain, who is the local pastor. This Club holds a Club fair in October which is always a successful event. This is held in the town hall and the proceeds from same are used for charitable purposes, having for some years been donated to the Friendly Home of Jackson. The Club is growing, due to the efforts of the young people who are a special committee to solicit members. Outside speakers are secured upon some occasions, and altogether, the Club is in a prosperous condition.

The Progressive Farmers Club of Hillsdale County.—This is a new Club, organized in January, 1912, the membership being made up of former Ohio farmers now living in the vicinity of Litchfield, Hillsdale county. This organization works hand in hand with the Jersey Cattle Club of that section, and the Litchfield Farmers' Club. The membership is limited to 25 families. Twelve meetings are held during the year, while once a year all three of the above mentioned Clubs hold a common meeting.

WILL PROMOTE CORN CONTEST.

At its last meeting the Tuscola County Association of Farmers' Clubs decided to promote a corn growing contest for the boys of the county and have the corn on exhibition at the Round-Up of Farmers' Institutes next January. A committee of three, consisting of F. A. Turner, Godfrey Montel and C. W. Smith, was appointed to supervise the work and make all arrangements for the contest. This is a most practical special feature of Club work and one which should tend to promote the interest of the young people in the organization throughout the county. The outcome of this movement will be watched with interest by all who are interested in the Farmers' Club movement of the state.

CLUB DISCUSSIONS.

A Good Life the Best Memorial.—The Odessa Farmers' Club met Saturday afternoon, April 12, at the home of Mr. and Mrs. Charles Begerow, northeast of town. It was well attended considering the bad roads. A good program was carried out. The president, M. L. Foght, had charge of the meeting. The roll call was responded to with answers to the question, "How I may help the Farmers?" The first subject discussed was "In what way can a public spirited citizen leave the best memorial to his town?" The most essential thing is to live a pure, upright Christian, making no wilful mistakes; "Put into practice the Golden Rule;" "One ounce of respect is worth more than a pound of friendship;" "Since Ionia county has gone dry several public spirited citizens talk of going out of business, their closed doors would be the best memorial they could leave to their town;" "A good name is better to be chosen than great riches;" "Applying our finances to public libraries and schools is a good memorial;" "Serving the people through public office for private gain is not a memorial of good." The next subject was, "Which furnishes the greater inspiration, looking backward or looking forward," and was ably discussed. "Looking backward or forward depends largely upon the age of the individual and what the past life has been;" "If in looking backward we find we have failed it inspires us to do better and press on toward the mark;" "Hope in the future is a great inspiration;" "Looking back over a life of usefulness is an inspiration to do more in the future." A song, "Heavenly Sunlight," was sung and the meeting adjourned. A bountiful supper was served and everyone felt well repaid for being present.—Reporter.

Grange.

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

THE MAY PROGRAMS.

Suggestions for Second Meeting.

A story, read or told.
Improved Methods of delivering milk, by a man and woman.
Character song.
Work of the Travelers' Aid Society and similar organizations for assisting strangers, a paper.
Ought we to use lime on our soils? If so, how much? Where get it? Answered by three men.
Humorous recitation.
Roll call responded to by each giving experience with an unpleasant piece of work.
Self-serve refreshments in charge of men named S—.

OCEANA PATRONS HEAR HELPFUL PAPERS AND TALKS.

Oceana Pomona met with Sylvan Grange on Saturday, April 19, and probably no previous meeting of the organization was more successful or more highly enjoyed. The weather was just a bit too fine to insure a large crowd, as the spring here is very backward. However, the attendance was fairly good.

"Agricultural Education" was discussed in three excellent numbers, Miss Nettie Burke, who furnished one of these papers, delighting the audience by a recital of the progress of her pupils in elementary agriculture during the present school year. She told how they had begun by studying the simpler forms of life, and gradually step by step moved forward. She told of a series of experiments, easy but very interesting, by which she had taught the pupils how water rises in the soil, how plants obtain food and moisture, and the importance of seed testing. The story of the propagation of plant life on the earth and the perfection of color and flavor of fruit through ages of evolution was extremely interesting. The boys and girls in her classes had been taught grafting and had produced some very good specimens of this work. They had found time during the year to study the types and breeds of farm animals, and animated discussions had arisen from time to time, in class, as to the comparative merits of the pure-bred and the "scrub." She said, "Nothing that I have ever done in the way of teaching, in other lines, has proven so interesting as this new work in agriculture." We can but wish that Miss Burke's excellent address might have been heard by every school commissioner and every rural teacher in the state.

Bro. E. Long told us how to produce cheap pork. Bro. Long is a very successful hog man and he has found out how to feed cull beans to the best advantage, mixing them in just the right proportion with other grain. He says he has produced hogs the past winter at practically three cents per pound alive. Of course, we must remember that there has not been a time in many years when cull beans were to be had at the exceedingly low price for which they could be bought this winter, and probably the time will not soon come again.

Brother Frank Evans is "a live wire" in the Grange. He always fills his place full. On this occasion he took us to some points of interest in the west. We went with him through Yellowstone Park and he made it all so real that we could almost see and hear the wonderful geysers play, and feel the boiling water sprinkling our faces. While he told us of the thinness of the crust of the earth in places, and the danger of going through and being roasted alive if one attempted to travel without a guide, we actually pressed the floor hard with our feet to assure ourselves that we were in the pleasant church, in one of the finest locations in Oceana county, and not out in "The Yellowstone" treading on dangerous ground. We went with him next to the great lumber region, and as he told how they move those wonderful trees, and of the man who mops the track with oil in order that it be as slippery as it can be made, the hair would have stood up on the head of the writer, if there had been hair to stand. This is a great fruit county, but Bro. Evans's story of the prune industry in the Santa Clara Valley makes us feel rather small.

And finally, I would tell of Sister Woodman's address which followed, but one should hear her in order to feel and know the value of her addresses. She has a message. Get her, and give her time to speak to the minds and hearts in your Pomona and in the community outside the order.

A delightful contribution to the program was furnished by the children of the school in the community, consisting of recitations, songs, and a flag drill. This is the first time that the children have been invited to participate in our Pomona programs, but it will not be the last. The coming of the children into our open meetings interests those in the neighborhood who are as yet outside the order, and the plan should be tried in many other places.

Oceana Pomona will hold a big rally at Hart in August, and Past Master Hull will be asked to deliver the address.

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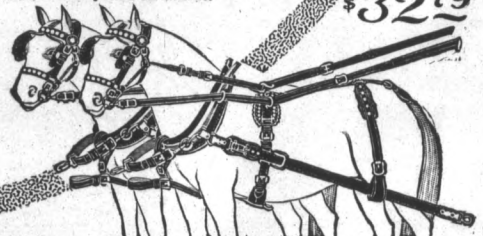
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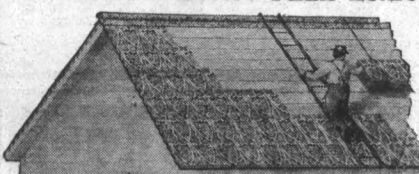
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