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LEASING ORCHARDS AS A BUSINESS.

ONLY a few years ago the leasing of orchards was uncommon; now nearly every community has one or more persons who make a business of leasing orchards. Why this change? Briefly we shall try to explain.

Owners desire to lease orchards. (1). Because of a lack of time to care for the orchards themselves. The owner may be a general farmer with plenty of other work to do, or he may be a retired farmer who has leased the farm to a tenant who does not desire to take care of the orchard, or again he may have other business and hold the orchard only as an investment.

(2). The owner may not have the disposition to care for the orchard even if he has the time. He may not like to prune or spray or pick apples, but prefers to do general farm work. His usual excuse for desiring to lease is a lack of time, a very convenient excuse when no other is available.

(3). In some cases the owner really lacks the ability to care for his orchard so as to make it bring good returns, and instead of learning how to do this work he prefers to lease the orchard to some one who is qualified to care for it properly.

(4). The San Jose scale has come to be an important factor in the leasing business. The little scale has stepped in to say that the owner must spray his orchard himself, lease it to some one who will, or let it die.

The renter desires to lease because he is often a person who has little capital and cannot purchase an orchard of his own. His capital is the ability and energy required to make a success of apple growing if he can only get the material to work with. It takes money to buy a good orchard and both time and money to grow one, but the renter can take up the business of leasing orchards with a very small cash outlay. It also enables him to realize on his labor quickly as compared with growing an orchard, and if he is a beginner and desires to plant orchards of his own when able it gives him valuable experience as to varieties, soils and care.

Finally the leasing of orchards is generally an advantage to both parties. This is the only true measure of a legitimate and satisfactory business transaction. Both parties should be benefited. In this business labor and ability are joined with capital and equipment, which makes an excellent partnership. Orchards which were dying with scale have been reclaimed and placed in a thrifty condition, thus greatly enhancing their value without cost to the owner who has also realized more from the orchard than he did before it was leased. At the same time the renter has established a profitable business with little cash outlay, and has the pleasure of having enhanced the productivity of the leased orchards and made them more valuable to the owner, the community and himself. These are among the reasons why the practice of leasing orchards has assumed such proportions in our state in the last few years.

We should also give due credit to the horticultural department of our agricultural college, and to Mr. Farrand and other pioneer orchard renters, who by their advice and example have done much to induce those qualified to take up this excellent work of saving the orchards of our state and placing Michigan again in the front rank as a producer of choice fruit.

With these introductory remarks on the necessity for and growth of the orchard leasing business, I wish to treat the subject proper under the following heads: 1. The parties to the transaction. 2. The orchard. 3. The contract. 4. The financial prospect. Each of these divisions will be considered from the standpoint of both owner and renter. Of the parties to the transaction we will first consider the renter.

(1). First of all he should have ability. He must be familiar with the principles of orchard operations, and able and willing to profit by experience.

(2). He should have a love for the work

wagon, and sufficient capital to secure labor until a crop is grown and marketed, which may not be the first season.

(6). He must have plenty of faith and staying qualities, and not be discouraged at an apparent failure. Success comes in this work as in any other by sticking right by the proposition.

(7). He must be fair and honest in his dealings, both with the owner of the orchard and his customers, otherwise he will sooner or later come to grief.

There are also a few qualities which should be possessed by the owner of the orchard. He should be reasonable and fair-minded, otherwise it will be difficult

sires, or can be persuaded to lease the orchard the proposition is then up to the renter.

From the renter's standpoint the orchard should be of fair size. A small orchard, unless conveniently located near another leased orchard will hardly pay for the time lost in getting to and from it. It should also be located near a market or station if possible and near the home of the renter. Time consumed on the road is time lost. I would give a good rental for an orchard near home and near a market, when the same orchard might be worth very little to me if eight or ten miles distant. Again, the orchard should have good varieties. Winter apples are generally preferred, but often summer or fall apples may pay better if there are enough of them to pay for marketing. It costs too much to gather and market a few barrels of fruit at a time from orchards away from home. A few standard varieties of good quality, such as Spy, Baldwin, Jonathan, and Greening, are much better than orchards of many varieties such as are generally found in orchards outside of fruit districts.

The accessibility of the orchard for spraying and harvesting should also be considered. The ground should be comparatively smooth, and not too hilly, water convenient and plentiful, fences good, buildings for team and barrels accessible, trees low and not too crowded, nor too far exhausted by scale. Thickness of branches is not so detrimental as they can be thinned out, neither is age a great disadvantage if the trees have low heads, with trunks and framework capable of holding a good load of fruit. About the worst class of trees, we find, are those that have had the lower framework removed by the tree butcher for convenience in working beneath them, or those whose lower branches are dead or lost from scale or crowding. It is difficult and expensive to care for a crop in these high tops, and it takes longer than the ordinary lease to grow a new head beneath them.

This brings us to the most vital part of the leasing business, namely, the contract. All contracts for the lease of orchards should be in writing. It may seem unnecessary at the time to both parties, but neither can anticipate the changes that may take place before the expiration of a verbal contract that may terminate it or render it of little account. I speak from experience on this point for I have in mind two orchards where a written contract was not considered necessary by the owner and we did not demand it. Both of these orchards have turned out unsatisfactory. In another instance a written contract is all that held an orchard and prevented trouble. If the orchard pays the renter well some owners are bound to be dissatisfied, if it does not pay, the renter may be the quitter. The only safe way is to have a written contract sufficiently explicit to cover all conditions that may arise. Some of the provisions which such a contract should include are:

(1). The definition, addresses and signatures of all parties to the contract, including the owner or owners, the renter, and the tenant, if there is one. We have found the signature of the tenant especially desirable, as the renter will be likely to have as much dealing with him as with the owner, and his rights and agreements should be carefully defined in the contract. In one instance trouble

(Continued on page 230).



Harvest Scenes in the 35-Acre Spy Orchard of N. B. Hayes, of Ionia County.

Mr. Hayes sold his 1911 crop for \$9,000 on the packing table. This orchard was sprayed the first time with one part lime-sulphur to 10 parts of water. The other three sprays were one and one-half parts lime-sulphur to 50 parts water, with three pounds of arsenate of lead added for each 50 gals. of the mixture.



and a natural adaptability to it. If the work is distasteful to him he will slight it, and orcharding is no business for the careless man.

(3). He should have time to attend to the work. The man who leases orchards must not be tied down to other work too closely if he would make a success in this line, for his operations must be performed on time.

(4). He must have energy. Orcharding is no vocation for the shirk.

(5). He must have good equipment or sufficient capital to procure same. A power sprayer is very desirable but a good hand pump will answer for limited operations. Then he must have good pruning ladders, packages, team and

to make a fair bargain with him as he will be too exacting and distrustful. He should also be honest and reliable, willing to carry out to the letter any bargain he has made. An owner who will break as readily as he will make an agreement should care for his own orchard. Furthermore, he should be careful and accommodating. Many conditions will arise not expressly covered by the contract in which case each party should be ready and willing to do the fair thing.

Let us now turn from the parties to the orchard in question. The owner, of course, has no choice of orchards. If the orchard is of good size and in good condition he is probably caring for it himself and will continue to do so. If he de-

FARM NOTES.

Seeding Alfalfa in Wheat.

I have been a reader of your paper for many years and like it very much. I wish to get some alfalfa growing. I have a small piece of ground seeded to wheat. It was oats after corn on sod well manured and is a clay loam. The insects were in the wheat when winter began, so that we expect it to be very poor. We are top-dressing it with stable manure, eight loads to the acre. Now, will I stand a chance of getting a seeding on this ground? I intend to drag it. What time would be best to seed, and had I better mix any other grass with it? I put some lime on this ground after the wheat was put in.

Ingham Co.

E. B. T.

As before noted in these columns, it has not yet been fully determined whether alfalfa can be seeded in wheat with success in an ordinary season, but there is probably no question that with the preparation which has been given to the soil, if it is harrowed up thoroughly and the alfalfa sown and covered as early in the spring as practicable after danger from hard freezing is past, that a successful stand will follow. There is apparently only one thing lacking, and that may not be necessary upon this soil, viz., inoculation. If the bacteria peculiar to the alfalfa plant is not present in the soil, it will not thrive, but inoculation could be used at the time of sowing, either by inoculating the seed with a pure culture of this bacteria, or by sowing some soil from a successful alfalfa field and harrowing it in with the seed. The application of the stable manure and the lime will furnish desirable results in the success of this seeding and, with inoculation to make sure of the presence of the bacteria, we believe there would be no difficulty in getting a good stand of alfalfa.

Regarding the mixing of other grass seed with alfalfa, this is a matter upon which opinions differ. Although most growers favor sowing the alfalfa alone, some mix it with alsike clover, orchard grass, and with other grasses such as meadow fescue, which do not form a turf and are, properly speaking, bunch grasses. As this is somewhat in the nature of an experiment, it might not be a bad plan to sow a little orchard grass and some alsike clover with the alfalfa, which would insure a stand in case the alfalfa seeding is not a success.

Rape and Spurry as Crops for Green Manure.

Is rape any good for cow pasture and does it live through the winter? Would it be of much value to the soil if I sow it early in the spring and plow it under in the fall for corn the next spring? Also, would like to know about giant spurry. Is it good for land or not?

Newaygo Co.

SUBSCRIBER.

Rape does not make a good cow pasture for two reasons. First, it will taint the milk, giving it a disagreeable odor and flavor; and second, it is inclined to produce hoven, or bloat, if pastured when wet, although where some other feed is available young cattle can be run on it with comparative safety after they have been accustomed to it. The dwarf Essex rape, which is the variety always used for forage crops, is a biennial, but it does not live through the winter in our climate unless especially well protected with snow. The second year it simply sends up a seed stalk and produces seed, but does not make any forage of value.

Now, regarding the use of rape as a soil renovator, it should be understood that it does not add any plant food to the soil that it did not take from it, and its use in this connection would not be of any benefit, except where it is used as a catch crop. It can be sown in oats at seeding time and will make a good growth after harvest. It can also be sown in corn at the last cultivation where moisture conditions are favorable, or stubble ground can be disked up after harvest and rape sown on same as a catch crop to good advantage. In this way it will conserve soil fertility by appropriating available plant food and also by adding vegetable matter to the soil when plowed down to improve its mechanical condition and content of humus. In Michigan agriculture, however, rape has the well defined limitation of being a crop suitable only for green forage for sheep and hogs, with a possible value for young cattle, and as a catch crop to be sown in midsummer as a cover crop or late pasture, as above advised.

Spurry has not been grown to any extent in Michigan, and its place in Michigan agriculture is doubtful for the reason that on good soils it is very much inclined to become a weed. On very light, sandy soils, however, it has been found of value as a means of producing

some forage and adding vegetable matter to the soil as it stands drouth well. It should, however, be experimented with on a small scale by those who are not familiar with its habits. About six quarts of seed are sown per acre and the crop matures in about eight weeks from the time of sowing. For this reason it is of limited value for pasture and, if one would avoid the seed being scattered upon the land, it must be disposed of before they mature.

Seeding Pasture Grasses on Light Soil.

I have a field of loose, sandy soil that had a June grass sod plowed under last year and was planted to beans and kept clean of grass and weeds. I would like to get this field seeded and use it for pasture for two or three years. Clover would be good for the land and for pasture while it lasted but in this locality on this kind of soil is very uncertain about getting a stand on account of sand blowing and cutting the young clover, and for several years we have had too many grasshoppers to get a stand of clover on this kind of soil, drouth also makes getting a clover sod uncertain. Can you tell me of any grasses that would be good to use on this field in connection with clover, that would make a stand or seeding more certain than clover alone or clover and timothy, and that would not be difficult to kill out when I would again like to cultivate. Bromus inermis makes good pasture but is about the same as quack grass to get rid of. In putting in a crop this spring would it be better to plow this field or just work it up with a harrow? It is clean and it seems to me loose enough. Is it better to turn the partly decomposed sod to the surface or leave it where it is? I would be pleased to learn through your paper what is the best plan to follow in handling this class of soil to bring it up to a profitable state of fertility.

Grand Traverse Co.

H. T.

In seeding a light soil of this kind where there is trouble from the blowing sand cutting the young plants, it would be better to plow the land, turning the partly decomposed June grass sod to the surface, as this would be a protection against the blowing of the sand. It would probably be better to seed this field alone or with only a light nurse crop if it is in a low condition of fertility, as would be inferred from this inquiry. But the land should be well compacted so as to form a firm seed bed after plowing and before the seed is sown. Repeated rolling and harrowing will insure this condition, but the land should not be rolled after the seed is sown, as this aggravates the blowing of the sand, and there will be less trouble from this source if the surface is left rather rough after the seed is sown. If the old sod is turned to the top and finely broken up, and the seed is lightly covered with a harrow, or better still, if it can be sown shallow with a drill, this trouble will be largely obviated.

It is difficult to advise other grasses to sow on this land, aside from those enumerated, that will produce good pasture on this light soil. Bromus inermis is a dry land grass, with great drought resisting power and, although somewhat persistent and hard to kill out, these are the essential qualities which make it a valuable pasture grass on thin land. Where the grasshoppers are very prevalent, some alsike clover should be sown with the red clover, as it seems to withstand their ravages better. Some timothy, and perhaps a little orchard grass, should be sown with the clovers, although if the land is very thin the latter grass would not make a big growth. Still it starts early in the spring and might improve the quality and productivity of the pasture.

As to the best method of handling this kind of soil to bring it up to a profitable state of fertility, it is the writer's opinion that any method which will quickly replenish the supply of vegetable matter in the soil will be more effective than getting it into pasture grasses to be pastured two or three years. If a stand of clover can be secured and this pastured for a single year and turned down the following year, the land to be again reseeded after growing a single crop, such as corn or potatoes, this result will be more quickly attained than by using it for pasture for a longer period. If the seeding fails from any one of the causes mentioned, the land could be sown to rye and sand vetch in the late summer or early fall, and this plowed down the following year to add vegetable matter to the soil, which must be the first step, and is the most important step in building up its fertility. Of course, the method taken to accomplish this result must depend upon the local conditions with which the owner is confronted, and the plan outlined in the above inquiry would be a step in the right direction. Yet, where the land is pastured for two or three years the clovers will have about disappeared before it is again plowed, and the

other grasses will have made use of the nitrogen which is stored in the soil, while the grasses will be grazed off and there will not be a large amount of vegetable matter to be added to the soil by the plowing down of the sod which is secured on this light land. It is true that the droppings of the stock will add some humus and conserve some of the plant food for future crops, but these droppings will be unevenly distributed, and as good results will not be secured as would be the case if vegetable matter could be added to the soil more rapidly, as would be the case by pasturing the seeding but a single year and then employing a short rotation of crops and getting the land into clover or some other legume if clover cannot be depended on, at the earliest possible opportunity. The rehabilitation of these light sandy soils and the problem of keeping them in a fertile condition are difficult phases of farm management, and no set rule can be laid down for their accomplishment. It is an individual problem on each farm, but the underlying principle of success is the addition of vegetable matter to the soil as rapidly as possible, until it becomes more retentive of moisture, less inclined to drift or blow and higher in its content of available plant food.

Seedings Failed.

I have five acres which I plowed three years ago, seeding to June clover, with oats, getting a good catch over all. I intended to plow clover under the next June and sow to wheat in the fall. Could not plow until August when first growth was ripe and there was a good second growth to turn under. Sowed to wheat, using 200 lbs. of commercial fertilizer per acre on upland. Sowed clover and timothy last spring but seeding failed on whole field. This field is clay, light sand and black low ground, with generally a gravelly sub-soil. Would it be best to re-plow in spring and seed again, with or without a nurse crop? Or would it be better to top-dress with a manure spreader, disk in spring and seed with or without a nurse crop? If a nurse crop is desirable, what kind and why prefer it?

Hillsdale Co.

C. J. H.

Either of the methods noted would doubtless succeed in establishing clover upon this land. There is a possibility that the land may be in a somewhat acid condition and needs lime. However, this is probably not the case as the season last year was so dry that clover failed for want of moisture in many localities. There would be just one object in plowing and that would be that the weeds would not be so troublesome as would be the case if the land was disked and top-dressed with stable manure. However, this top-dressing would increase the prospects of getting a seeding, and if this plan is employed it would be proper to sow a light nurse crop of oats or beardless barley to be cut for hay as a means of keeping down the weeds until the clover got a good start. Or the weeds could be clipped back with a mower if desired.

It is quite possible that if this clover seeding which was plowed down at the last plowing was again turned to the top, that you would get some results from it, although it would not be safe to depend upon this prospect, for which reason it would not pay to plow on that account alone. If you keep sheep, a good nurse crop would be Dwarf Essex rape, which could be lightly pastured in midsummer. It is cheaply seeded and the forage secured will more than pay for the cost of seeding and such light pasturing would not injure the stand of clover to any extent, for the reason that rape is a very palatable and succulent feed. However, if the clover is sown alone without a nurse crop and the season is a favorable one sometimes a fair crop of hay can be secured the first year, which is an argument in favor of this method of seeding.

POTATO EXPERIMENTS.

The Department of Agriculture has received a report of some potato experiments recently conducted in England. In the first test the use of seed of sizes ranging from 1 1/4 to 1 1/2 inches resulted in crops varying directly in total weight with the size and weight of the sets planted, but more than twice as great a weight of diseased potatoes resulted from the planting of the largest sets. In the following two years sets between 1 1/4 and 1 3/4 inches and those between 1 3/4 and 2 1/4 inches yielded crops averaging 11 tons and 12 tons and three hundred weight per acre respectively, but the weights of marketable produce yielded were practically equal.

Potatoes which had sprouted badly and from which the sprouts were removed before planting, produced somewhat higher yields in four tests conducted in three different years than did sound unsprouted potatoes.

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LOST OPPORTUNITIES IN GROWING SUGAR BEETS.

Not long ago passed through the sugar beet district near the Owosso sugar factory and noticed that the farmers that grew beets had thrown away—or, in other words, had not saved—the beet tops for feed. I immediately made up my mind that farmers of that kind probably grew their beets year after year upon the same fields and expressed my thought aloud to my seatmate on the train. He assured me that I was correct, in the main, and he knew what he was talking about, because he is one of the directors of the sugar company. He, himself, recognized the danger of the practice and admitted that there was grave danger of a shortage of beets in the future due to the lack of profit there would be for the farmer if the present course is continued.

The Menominee Sugar Co., until this season, gave away their beet pulp, and could not get the farmers in general to take it then. This year they charged only fifty cents a ton for it, loaded on cars. I tried a car load of it on Hemlock Hill Farm and kept close tab on the expense and found that the pulp cost fifty cents a ton at Menominee. Freight was one dollar and thirty cents and it cost fifty cents a ton to dig the pit, haul it from the car and pit it, a total of two dollars and thirty cents a ton covered it. After tramping thoroughly we covered the pit of pulp with old sacks and the like, then threw the clay loam we had taken from the pit over that. We dug the pit six feet wide, about three feet deep and forty feet long, walled it up roughly and put in a floor of odds and ends of boards on poles. Drainage room was left underneath. At this time, February 1, we are feeding it to the milk cows and they are eating about forty pounds a day of it. We are also feeding it to our bred Oxford and Shropshire ewes and it is really amusing to see them eat it up. They go after it like the boys go after candy. It is not as valuable as corn silage, in fact, it is hardly worth two-thirds as much for feed but it certainly is great feed and I can't see how the farmers who get it can do without it.

It is a destruction of soil fertility to grow beets, or any other crop, year after year, in the same fields without rotation, and at the same time fail to use the beet tops and pulp for feed, returning the manure to the land. That part of it is bad enough, but there is another side to this method also. In addition to losing this fertility of soil there is a loss to the farmer of additional productiveness of soil that can be had by growing sugar beets properly. A century ago Europe was producing such poor crops on an average, especially France, that it looked like eventual starvation for the masses. Napoleon and others helped establish the sugar beet industry at that time throughout Europe, and the results that are claimed are remarkable. By using beets in the rotation better crops were grown afterwards until they will now grow sugar beets in European countries even when the farmer obtains no direct profit from the beets themselves. Whereas, the production per acre of all Europe was on the decline one hundred years ago it has steadily risen until it is twice the production of the farms of this country today. Do not overlook the fact that this increase was accomplished on soils that had been cropped for a thousand years. Since the commencement of the up-building of European soils was coincident with the rise of the sugar beet industry it is probably fair to assume that it had something to do with this added production per acre. Our soils are very largely virgin soils yet, comparatively speaking, and it would seem as though with care we can reap some of the added harvest that France and Germany have found in growing beets. Experiments in our own state have proven, beyond a doubt, that the sugar beet properly used is the forerunner of increased crops. Mr. Ira Carley, of Menominee county, in the Upper Peninsula, has produced two crops of corn and two of oats of over one hundred bushels per acre, after sugar beets, and his alfalfa fields, planted after beets, produce three heavy cuttings each year. One farmer at Nadeau produced on a single acre, over twenty-one tons of beets for which he received \$128.40. As the cost was probably about \$28.40 to grow the beets he apparently had \$100 an acre profit. In addition he had several tons of beet tops for feed and if he had his pulp, sent back he also had a carload of pulp, enough of that part of the ration at about two dollars a ton, to feed half a

dozen milk cows. As I write this the thought strikes me that our American farmers fail to follow things through to their ultimate conclusion, in that way losing some of the legitimate profits of the game. They do this in all their transactions with the middle man, so-called, for instance. Some of the estates in Hungary, for instance, raise their own grains and have breweries of their own to work them up, returning the refuse to their stables for feed. Some have beet sugar factories of their own to work up their beets and those of their neighbors and the pulp and tops are fed to their own cattle. A system of rotation is followed and instead of growing poorer and poorer each year in fertility these farms grow richer each year. Why will our American farmers refuse to listen, refuse to take the profits rightly theirs?

Ontonagon Co.

T. A. GREEN.

WHAT MAKES SOILS PRODUCTIVE?

"Any soil which was once rich can again be made rich," is the declaration made by Professor Alfred Vivian, acting dean of the College of Agriculture, Ohio State University, in a recent address. The principal factor concerned in the restoration of soil fertility, according to Prof. Vivian, is organic matter. "The destruction of organic matter, by cultivation and otherwise, is largely responsible for the depletion of our soils," said he. "This organic matter must be restored if we expect our farms to be productive. What does organic matter do? It increases the power of the soil to absorb and retain moisture; improves the physical or mechanical condition of the soil; helps to control soil temperature; and is a storehouse of plant food. How can organic matter be restored to the soil? By saving all animal manures and putting them onto the land; by making use of all crop residues, that is, putting back into the soil everything not used for feed; by turning under green manuring and catch crops." Prof. Vivian pointed out the loss sustained by burning straw stacks and other crop residues and declared that the difference between the careful saving of this plant food and its wanton destruction was "the difference between the salvation and damnation of our soils."

GOOD ROADS FOR GENESEE COUNTY.

By resolution of the board of supervisors, approved February 9, to submit the question of bonding the county for \$500,000 for the purpose of building county roads is to be decided by the citizens of the county on April 1 next.

This measure has been long very earnestly advocated by the chamber of commerce of the city of Flint and championed by the Daily Journal, Flint's leading newspaper. The deplorable condition of the roads of the county has been set forth to such an extent as to almost cast a reflection upon the county, especially the farmers who up to this time have built and maintained the roads of the county.

We have been led to believe that the county is one of the most progressive of the state. A drive through the county in any direction would be conclusive proof that the owners of the good farms and good buildings show a degree of enterprise not excelled in the state. While the roads, as a whole, are not in keeping with other things there are many miles of fairly good roads in the county. These roads have been built to the outlying villages that have become the farmers' market towns to the neglect of those leading to the county seat. When it is set forth to the outlying townships that the city pays 50 per cent of the tax and the incorporated villages six per cent, leaving but 38 per cent to be paid by the townships, the appropriation would readily be approved. Yet when the farmer taxpayer is confronted with the fact that it will require \$25,000 annually to pay the interest at five per cent and the expense of the department \$10,000 more, making \$35,000, which will never reach the roadbed, the farmer is asking himself, "how shall I vote?" The outcome will be watched with great interest as Genesee has already adopted the county road system, the good roads will surely come, whether built by borrowing money or by means of appropriations made by the board of supervisors.

Genesee Co.

S. C. GOODYEAR.

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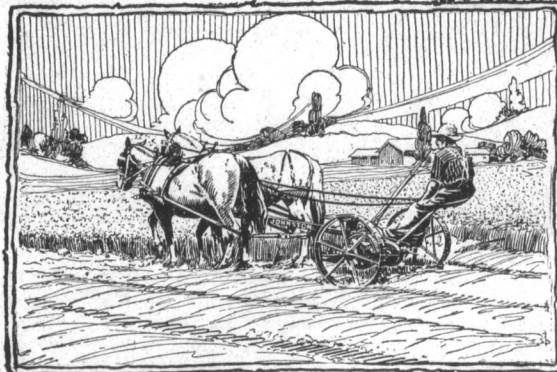
In almost every civilized country you will find Johnston Mowers at work; they are suited to all countries, all soils and all crop conditions. You need not hesitate to buy a Johnston Mower.

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—Joseph E. Wing
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Corn Yield Increased 100 Per Cent

Fred Bossen, Platte, S. D., writing Nov. 7, 1911, says Spalding tilled ground doubled yield of corn. McP. Leavens, Kaycee, Wyo., wrote Sept. 24, 1911: "Oats on Spalding tilled ground will go 100 bu. to acre and wheat 50 bu." Fred Ladage, Auburn, Ill., harvested 807 bushels of wheat from 20 acres of Spalding tilled land. **Write for free books on deep tillage.**

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WHICH CLASS IS RIGHT?

When different classes of wise men disagree on important problems, it is well to stop and consider and see if we can conclude which class, if either, is right. There seems to be at present in this country two classes of economists, both of which claim they reach their conclusions in a logical manner, and yet the lines of their arguments are diverging, and the ultimate conclusions a long way apart. The statements and conclusions brought forward by one class tends to engender envy toward the producers of food stuff in our country, while the other class makes an appeal for a just remuneration for the toil bestowed by the husbandman.

Each of these classes we will give a number. One we will designate class number one, and the other class number two. We will say that class number one studies statistics and draws the conclusion that at the rate of increase of population, and the rapid rate of increase of food consumption, the consumption will soon overtake the production of food stuff in this country, and that arrangements should be made by which the products of the soil of other lands, especially wheat, can be secured at an advantage. Because the percentage of the wheat crop exported in 1910 was only about 12 per cent of the whole crop and the percentage of the crop of 1908 was 25 per cent, or one-fourth of the whole crop, they seem to see causes for alarm.

Class number two declares that there is no necessity for preparing to cross a bridge until we come to it, and that it is unwise to prepare to build a bridge until necessity calls for it. The figures presented are not disputed, but the fact must be kept in mind that the amount of wheat exported depends largely on the conditions throughout the civilized world. In 1906 when the crop of wheat in the United States was as large in proportion to our population as at present, only 14 per cent of the crop was exported. The difference is not sufficient to cause alarm.

Class number one seem to see the way out of the difficulty which their vision has unveiled to them, by making it easier to secure supplies from new and undeveloped fields outside of our own country. It is the way our forefathers did, and why should we not profit by their example? When the supply was not sufficient to meet the home demands, they sent away and secured it where they could get it at the least cost and best immediate advantage to themselves.

Class number two takes pride in increasing the production of wheat in our own country. They contend that it is wiser and better to increase the number of acres producing wheat by clearing and utilizing much land that is still untouched in our own country. And further, it will be vastly better to be more thorough in tilling the acres now under cultivation and secure an increase in the yield, thereby meeting the requirements for consumption from our own fields, and retain the money required to pay for the same in our own country. The possibilities of production from our own soil have not been nearly approached. By studying the requirements of the wheat crop, the total annual yield, and the yield per acre, can be greatly increased, as has been the case with our corn crop.

It will be wise if we study this matter and consider who is right in their contentions. If we look at the matter from the standpoint of class number two, we will see the necessity of making greater effort to return to the soil the plant foods taken away when the wheat crop is sold. The one that is likely to be exhausted first is phosphoric acid. This plant food can be secured from the bones of animals and phosphate rock. It may be well to ask the government to withdraw the phosphate beds from sale to foreigners, and prohibit the exportation of phosphate rock and phosphoric acid. Canada seems to have been more considerate of her future needs than the United States, for the government holds the phosphate beds of that country, and they are not for sale to people of other countries. That seems to be a wise course. When it is too late the people of this country may awaken to the fact that this government has been unwise in letting the people of foreign countries take away our raw phosphate rock. We get rid of the phosphoric acid fast enough when we sell wheat and our animals from our farms.

It seems as though we should cultivate a more patriotic sentiment in regard to maintaining our soil fertility and increasing the yield of our staple crops than exists at the present time. It would be

well if in every community farmers would organize to study soils and soil requirements in order to produce better crops. A few leaders are required in each community to start such organizations and keep them at work on these important matters. Such a scheme would benefit the individuals engaged in it, and if universally adapted would be a blessing to the whole nation.

Wayne Co.

N. A. CLAPP.

GRASS INVESTIGATIONS.

The Bureau of Plant Industry of the Department of Agriculture has been making experiments at Blacksburg, Va., in co-operation with the Virginia Experiment Station in the grazing of pastures. These experiments have shown definitely that continued light grazing is a detriment to pasture grasses, and under such conditions noxious weeds are very likely to encroach rapidly. It has been found that in many cases grazing which is too light is as harmful as heavy grazing. Experiments similar to those at Blacksburg are also being conducted in Maine, Massachusetts and New York.

In the course of the tests it has been found that Sudan grass is valuable both as an annual and as a perennial. It closely resembles Johnson grass, but does not possess underground rootstocks and therefore is not difficult to eradicate. With sufficient moisture it will give two or three different cuttings in one season.

Washington, D. C.

G. E. M.

ORCHARD GRASS.

I have a piece of orchard grass sown three years ago which is not thick. If you can tell me of anything, grass or clover, that would grow so as to increase the pasture if sown on the ground next month, please inform me.

St. Joseph Co.

S. F. C.

Of course, the nature of orchard grass is to grow in bunches. It will not cover the entire surface of the ground like timothy or June grass. Consequently, orchard grass should never be sown alone but with a mixture of other grasses, so that they will fill in between the bunches of orchard grass. For one of the grasses in a mixed pasture or permanent meadow, I know of nothing any better, or one that will produce a heavier yield of short hay, than orchard grass, but it will not cover the entire surface of the ground and make a heavy sod. Now you should have sown a little timothy, red clover, alsike clover, and meadow fescue with the orchard grass, and at the same time. Then these other grasses would have filled in between the bunches or stools of orchard grass and given you a sod. If you undertake now to sow this grass seed on this meadow I am afraid that the orchard grass will come up so quickly in the spring and shade the land so much that these seeds will not germinate and grow to any great extent. They wouldn't have much of a show. You might try a portion of the field but I wouldn't expect very good results.

COLON C. LILLIE.

POTASH FOR MUCK SOIL.

Have about 15 acres of black muck truck garden soil that will grow three tons of timothy hay per acre and large tops on sugar beets and chickory, but does not produce very large bottoms. Ground was well covered with stable manure last year. Have been told that it lacked potash. What would you suggest? If potash is needed, in what form and what amount would you apply it? I want to grow chickory on the ground this year.

Tuscola Co.

M. D. S.

Very much muck is deficient in potash, also in phosphoric acid. Some muck is especially deficient in potash. The fact that this field grows crops with large, thrifty tops, indicates that there is a sufficient amount of available nitrogen. I think it would be better to use fertilizer containing both phosphoric acid and potash than it would to use the potash alone, still no one can tell without a trial. If you want to use the potash alone I would use the muriate of potash and use 300 or 400 lbs. per acre, distributed broadcast and thoroughly harrowed into the soil. My opinion is, however, that you will get better results if you will use a fertilizer containing 10 per cent of phosphoric acid and eight per cent potash and use 400 or 500 lbs. of this per acre. You could tell readily enough if you tried that on a part of the land and potash on another. But the probability is that you will have trouble in growing chickory or beets with a high per cent of sugar for a few years at least, as your soil contains an abundance of nitrogen.

COLON C. LILLIE.

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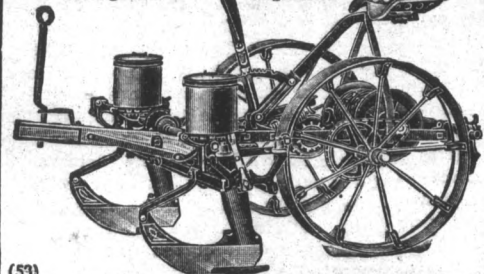
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LILLIE FARMTEAD NOTES.

Beet Top Ensilage.

I think beet tops are a good cow feed well worth saving and feeding, and I have been experimenting to find out the best way to preserve them and feed them. Like corn, they are good when the beets are first topped, the cows like them, and you can get them in no better shape, but the trouble of it is they won't stay in this shape. If the weather is bad it is a job to go into the field after them every day to feed the cows, and they will freeze and finally rot. So we have to figure in some way to preserve them, just as we do the corn silage.

I ran the beet tops through an ensilage cutter into my silo on top of the corn silage after we tread it down in the fall. They kept nicely. They did not waste at all. The cows ate them all clean, and they liked them, too. This was the old-fashioned elevator carrier. It was hard on the machine. Then I built a silo on purpose to preserve beet tops in. I built it close to the drive bridge into the barn so that we could drive up onto this bridge and pitch the beet tops in. The silo is 18 feet high, and standing in the wagon on the bridge we can pitch clear to the top of it. The great trouble was, I didn't get this silo big enough. It wouldn't hold all of the beet tops and consequently I had to extend it on up higher and make it 36 feet high, and then we couldn't pitch them up. Last year I rigged up an old carrier that could run with a gasoline engine and we elevated the beet tops with this. It was rather slow work but we got them all up there. Then I got a carload of fresh beet pulp from the beet factory and ran that up on top. This sealed up the silo so that there was absolutely no waste, on top. The beet tops all settled down, heat up, and made good ensilage. When we filled in the beet tops we put in a layer of oat straw and then a layer of beet tops, another layer of oat straw, and so on. The beet tops are very moist and the straw helps absorb some of the moisture. The cattle ate the oat straw almost as readily as they did the beet tops, after it was saturated with the juice from the tops.

Beet Tops with Cornstalks for Ensilage.

This year I tried another experiment. The corn was so wet that I did not husk it with a shredder and so I husked it by hand. We were very late with husking and very late with the beets and so I got a man to see if he couldn't cut the beet tops and the cornstalks together and run them into the silo. He did it, and we have the regular beet top silo brim full of cornstalks and beet tops all chopped up together, and we have several feet of beet tops and cornstalks in one of the regular corn silage silos. We are feeding this ensilage at the present time. The cows eat it all up, and like it, stalks, beet tops, and all. Now I believe this was a good way to take care of the cornstalks. I don't imagine that these corn stalks are as valuable as they would be if they had been cut up when they were just at the proper stage of ripening as we do the ensilage corn. Some of the starch and sugar has turned to woody fiber and become indigestible, if the cows do eat them. While they are a filler, they are not very valuable as a food, and yet they don't waste any part of them. The cows relish the whole mess and are doing fairly well on them. I don't see but what they are doing just as well as they would on corn silage.

Now, if it wasn't for husking corn by hand I would say that this was just the way to dispose of the cornstalks, which I have on the corn where I want to save the ear corn. If I could only have a husker with a blower attachment that would blow the cornstalks and beet pulp into the silo I would husk the corn with a husker and run the beet tops into the silo at the same time. This, I believe, would reduce the harvesting and disposition of the corn crop and would save this feed at a minimum cost and a least possible loss. The cornstalks being dry would absorb some of the juice from the beet tops and would make a valuable cow feed, which would be cheap. But I don't like the idea of husking corn by hand. And, whether I do this again or not will all depend upon the fall. If the corn gets dry enough so that we can husk and shred it I think I shall do it that way, just because it is almost impossible to get it husked by hand. One has to vary his plans to suit the seasons and conditions with which he is confronted.

COLON C. LILLIE.

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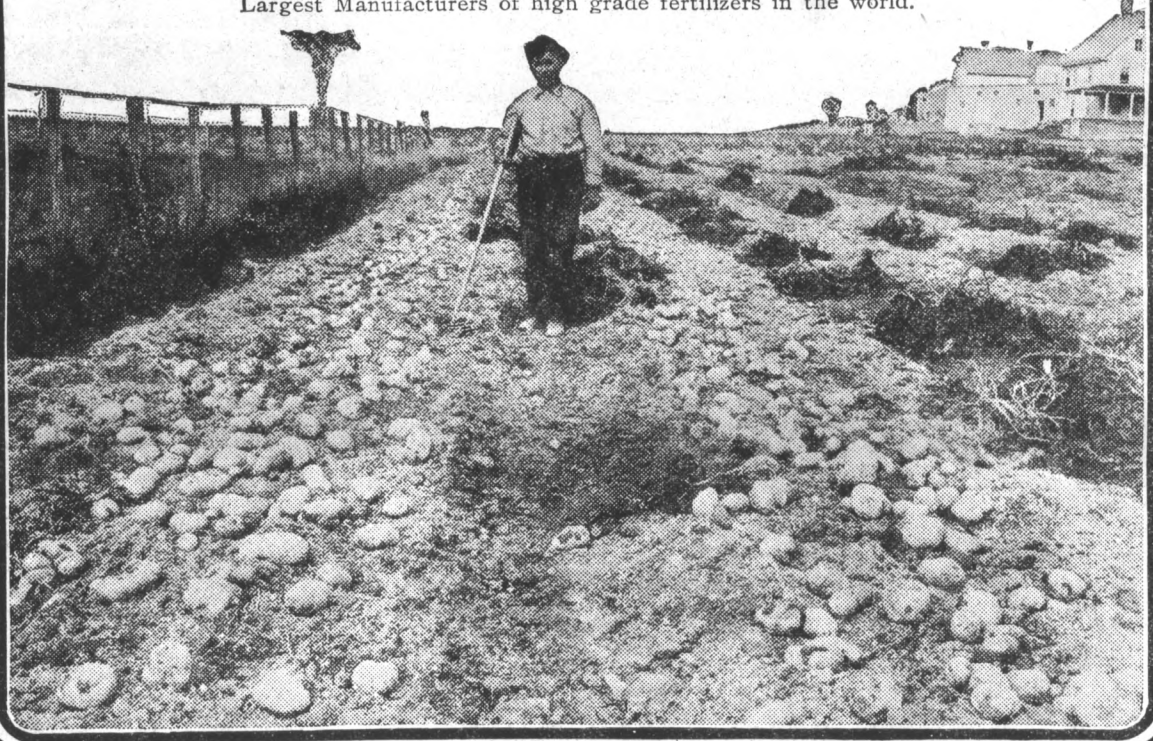
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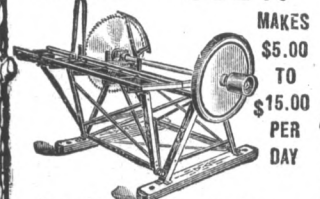
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TAX DISCUSSIONS.

In the December 30 issue of the Michigan Farmer, I contributed a brief article on phases of the new mortgage tax law, which has been pertinently criticised by C. A. Jewell, in the February 10 issue of your valuable paper. While I do not wish to be personal or enter into any lengthy argument in regard to this law, I am not desirous of being misunderstood in regard to the position I have taken.

I do not deny the fact, that under the old law we had, in a measure, double taxation, the nearest satisfactory solution of the mortgage tax, to my mind, was the law enacted, in session 1890, under the provisions of which, mortgaged property was exempted from taxation the full amount of the incumbrance thereon, each party paying their respective share of the tax. This law, evidently, did not please the money lenders of the state, so what did they do but get busy right away, and when the next legislature convened they were primed and loaded and brought such pressure to bear upon that august body that the law was repealed at that session. Mortgages having always been and, I might say, justly considered, taxable property, were kept on the tax rolls, while the mortgaged real estate holder was, and has been, compelled to pay taxes on property he does not own. Hence resulted what Mr. Jewell pleases to call double taxation—the mortgaged farmer to the amount of his incumbrance always being the "double."

I am accused, in this article of being selfish, in that I wish to impose upon my neighbors double taxation, that my own taxes may thereby be lessened. This, of course, is absurd and unworthy of notice, as my own valuations were raised last year through my personal effort. I think all candid and honest thinking people will agree with me in the statement that there would be more justice in so-called double taxation than in compelling the mortgaged farmer to pay more than his just share of the tax and then practically exempt another class of property. It would be just as consistent for our state tax commissioners to instruct the assessors of this state to assess all cows at cash value and exempt all horses.

This is class legislation pure and simple. Why should our lawmakers place a premium on mortgages? For instance, A. holds a \$1,000 mortgage against B. A. also holds C's note for \$1,000—with the present law, the note is assessable in full, the mortgage practically exempt after paying the small registration fee. A woman recently came into the office of the county treasurer in the city of Jackson with a long list of mortgages, no doubt many of them long timers, for the purpose of having them registered. After having explained to her the small amount of the fee she joyfully exclaimed, "this is too good to be true." A taxpayer residing in my own township, a keen, brainy, shrewd business man, whose property consists principally in gilt edged mortgages, came to me a short time ago and, after explaining his opinion of the injustice of the present mortgage tax exemption law, said he did not think he would take advantage of it, "it is an unfair deal to the land owners of Michigan and I am willing to pay my share of the tax."

What has this new law done for us already—this, the first year when the registration fees will, undoubtedly, double any succeeding year? The county treasurers throughout the state have collected something like \$165,000 as a revenue from these mortgages. On the other hand, what would the amount have been from these same mortgages under the former system of taxation? A trifle over \$700,000. Where, then, shall we look for that \$535,000? "Oh, well," quotes the Jewell from Washtenaw county, "no double taxation for me, saddle it onto the mortgaged land owners of Michigan, they can hump their backs a few notches more and make up the deficiency somehow."

At the recent meeting of the state association of supervisors held in Lansing, Auditor General Fuller, who is awake to the taxation situation, in an address said: "The people of Michigan are not satisfied with the operation of the present mortgage tax law." It is an easy matter for us to settle down and try to console ourselves with the idea that it will work out all right, but one thing is very evident—the side with the "pull" always carries away the "plum." When I hear or read of a man who upholds this new law, the thought naturally, unsought for, comes to me—that individual has an axe of his own to grind, perhaps, in the form of a long time mortgage and he is

perfectly oblivious to the burden he is willing to place upon his neighbor, and which reminds me of that parable where a man who once went down from Jerusalem to Jericho and fell among thieves and was ill treated, by chance, there came down a certain priest; that way, also a certain Levite, and when they had looked upon this poor man, half dead from abuse, they folded their cloaks closer about them and passed by on the other side. What Michigan needs today is not so many priests and Levites, but a few more good Samaritans.

O! consistency thou art a "Jewell."
Jackson Co. C. J. REED.

THE CREDIT SYSTEM.

We hear and read much these days about the high cost of living. No doubt the principal causes are the great cost of distribution and the greater increase in consumers than producers. But, there is at least one more cause, and that is the credit system. Let me illustrate: I have in mind the proprietors of two meat markets located in a small village. They are not doing a very extensive business, and yet they claim that the one has \$8,000 on his books, and the other \$5,000. Now, quite a large amount of these outstanding accounts can never be collected. Who makes up for these losses in the end? Evidently those of us who are strictly honest and pay as we go, or as nearly as possible. Is it any wonder that there is too much difference between the selling and the buying prices? These conditions exist to a greater or smaller degree, with all dealers who do a credit business. This system encourages dishonesty in those who are already dishonest. Others it makes dishonest against their own wills, for when circumstances tend toward adversity they cannot meet their financial obligations, because they have not the wherewith to pay.

The object of this article is not to upbraid anyone. On the contrary, it is intended to stimulate certain ones to make little sacrifices, to economize somewhat, to lay by something every week. Have a nice little bank account. Pay as you go, if possible. Surely this "from hand to mouth" way of living, or what is far worse, to mouth regardless of whether the price for those things ever reach any one's hand, is a shiftless, dangerous way of doing business.

"In times of prosperity, prepare for adversity."

Dealers could do much by joining hands to encourage the adoption of a cash system if they would give a liberal discount for cash. When we buy on credit, we ought to be willing to pay a little more. The terms of sales usually are discount for cash, interest on credit accounts. Then, too, if dealers would trust no one unless they were quite sure of their pay sooner or later, they would reduce their losses materially; and in consequence be able to make lower prices on their commodities.

Another shameful waste of money, to those who make purchases in this way, is buying on the installment plan. They pay very dearly for that privilege. It would be much better, and a saving, too, for them to lay aside what they could from time to time until they have saved enough to buy a certain article, and then pay the cash. This would often prevent serious trouble.

The cash system is the system. It is good enough for the post office, department, the railway companies, the express companies and most of the mail order houses; then why not good enough for us? New York. W. D. KORB.

VARIETIES OF CANADA PEAS.

I notice you recommend the use of peas and oats as hay. As there are several kinds of peas, may I ask you to kindly give me your opinion of the best one to sow with oats?

Muskegon Co. J. A.
Of course, there must be different varieties of Canada field peas, but I do not know of any, and all of the dealers that I ever purchased seed of knew no distinction. They are simply called common Canada field peas, and they all look alike, at least all that I ever purchased. As I say, if there are different varieties I know nothing about them. I simply order common Canada field peas. If there are different varieties, and there must be, and one is better than another, I certainly would like to know it because I would like to get the best.

COLON C. LILLIE.

Gluten feed as applied to distillers' grains is a misnomer.

1500 successful farmers now bear testimony to the unexcelled soil, climate, water supply, health, educational and social advantages offered by the

Pecos Valley

New Mexico-Texas.

There is room for other thousands on the land where water has been developed. Take advantage of this opportunity.

Go down at once and buy before the normal increase in population sends the price of land up.

Get this profit for yourself.

The soil and climate are all that can be desired, water for irrigation is assured and abundant, the home market, *i. e.*, New Mexico and Texas, takes all the crops produced at good prices. The schools are unexcelled anywhere, while clubs, churches, etc., are there for your enjoyment.

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Manson Campbell,
Father of the Chatham
System of Breeding
Big Crops and
Inventor of the
Chatham Mill.

You just pick out, from my catalogue, whichever size of Chatham Grain Grader, Cleaner and Separator you want me to loan you and I'll promptly ship it, freight prepaid—free. I don't want any money! It's a real free trial. Clean and grade all your seed grain. Keep the machine a month, if you please. Then return machine at my expense or buy it on my

Low-Price Credit Offer

My price is positively the lowest ever made on a reliable grain grader and cleaner. Plenty of time to pay. Don't pay cash unless you want to.

Wonderful Machine

The Chatham handles over 70 seed mixtures—wheat, oats, corn, barley, flax, clover, timothy, etc. Takes cockle, wild oats, tame oats, smut, etc., from seed wheat; any mixture from flax; buckhorn from clover; sorts corn for drop planter. Removes foul weed seed and all shrunken, cracked or sickly grains. Takes out all dust, dirt and chaff. Handles up to 80 bushels per hour. Gas power or hand power. Easiest running mill on earth. Over 250,000 in use in U. S. and Canada.

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By H. O. Gilgore, Swayzee, Ind.
"Separated 162 bushels of wheat from 294 bushels of oats. Am not half done yet. Have already made enough to pay for the mill and am \$38.16 to the good, besides."

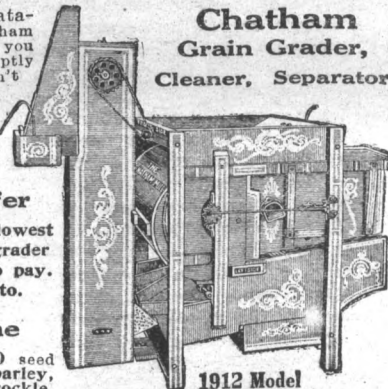
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LIVE STOCK

FEEDERS' PROBLEMS.

Silage for Beef Cattle.

More cattle feeders are this year appreciating the fact that the silo would be a profitable adjunct to their business than ever before. In a year of short forage, like the present, the additional saving in feeding the corn crop from the silo is a more important factor in successful cattle feeding than in an ordinary year. Those who read the report of the recent live stock meeting, as published in these columns, will remember that Prof. Skinner, of Purdue University, showed that cattle could be fed more profitably when silage formed a large factor in their ration than with any other combination of feeds, and that where the profit was all credited to the silage it was found to have a value of something like \$6.20 per ton for cattle feeding.

Those who are feeding silage to cattle this winter for the first time, however, especially to beef cattle, are finding some difficulty with frozen silage, due to the severe cold weather which has prevailed for the last two months. This matter came up at the live stock meeting, and the question was asked of Prof. Skinner whether silage could be safely fed to beef cattle in an open yard during the severe cold weather, such as has recently prevailed. He replied that their cattle at the Indiana station were eating silage from racks in the yard right along, notwithstanding the severe cold weather, and without any deleterious effects whatever.

He warned his hearers, however, that frozen silage must not be fed, as it invariably produces scours in the cattle, with the result of getting them off feed and the probability of making the feeding venture unprofitable if the practice of feeding frozen silage was persisted in. Prof. J. L. Tormey, of the Wisconsin Station, has recently issued a warning on this same subject. There has evidently been more general trouble resulting from the feeding of frozen silage than ever before, caused by the unusually cold weather which has frozen more or less ensilage in practically every silo.

Sheep fall victims to the feeding of frozen silage even more often than cattle, but no bad results follow the feeding of this ensilage if it has been thawed out, to either sheep or cattle. The last authority mentioned, however, calls attention to the fact that it must be remembered that after thawing, the silage will mold readily, and so should be fed immediately. A good way to thaw the frozen silage is to cover it with the ensilage that is not frozen, and if need be with a canvas or blanket in order that it may be more quickly thawed. Whatever method is taken of overcoming this difficulty, however, it should always be remembered that it is not a safe practice to feed the silage in a frozen condition, whether fed in the open or in the stable, and also that it should be fed before it is molded after it has been thawed out or deleterious results will follow its use.

These precautions will prevent many a man who is feeding ensilage for the first time from condemning this feed, and with the coming of warmer weather it is important that the matter of getting the frozen silage thawed out and fed out before it spoils should be given attention.

Feeding Frozen Carrots.

Will you kindly inform me through your paper as to whether frozen carrots, after being properly thawed out, may be fed to horses and cows?

Benzie Co.

R. M.

This is a question which has attracted a good deal of general interest this winter, on account of the unusually cold weather following a late fall and a consequently large amount of frozen roots. A variety of experiences have been reported regarding the feeding of frozen beets in the early winter issues of the Michigan Farmer. Some of these experiences have been unfavorable and others have noted no deleterious results from such feeding. Whether this was due to a difference in the amounts fed or the manner of feeding, or to a difference in the chemical changes which had taken place in the roots themselves as a result of freezing and thawing is, of course, difficult to determine. There are some reasons, however, for believing that the trouble was due to some extent, at least, to the method of feeding, as will appear from the following facts:

Last season a good deal of trouble was reported from the feeding of frozen beets in Wisconsin. In one case reported hogs that had been fed frozen beets that had

been cooked, died soon after from paralysis of heart action. An investigation was made by Dr. Hadley, of the Wisconsin Station, and a general warning was issued against the feeding of beets that had been frozen, on the ground that the chemical changes brought about in the beets from freezing and thawing developed properties which were deleterious to live stock and in some cases actively poisonous to them. In a past issue of the Michigan Farmer one Michigan farmer who had had unfavorable experience in feeding cooked beets that had been frozen, to hogs, told about investigating on his own account to try and find the reason, with the result that he found the water in which they had been cooked, and which had been used for successive batches, to have become fermented, with the result that he was feeding a strong beet vinegar to his hogs. He changed his methods and had no further trouble after he began using fresh water in which to cook each batch of beets. Others have reported that they have had no deleterious results whatever from feeding a moderate quantity of roots which had been frozen but which had not spoiled at all after thawing out.

From these experiences, and from the writer's experience in feeding roots that had been touched with frost, it is his opinion that such roots can be fed in moderate quantities without deleterious effects. However, in the light of the unfavorable experiences recounted, and the scientific authority as to the danger in feeding such roots, one cannot ignore the fact that there is sometimes danger in

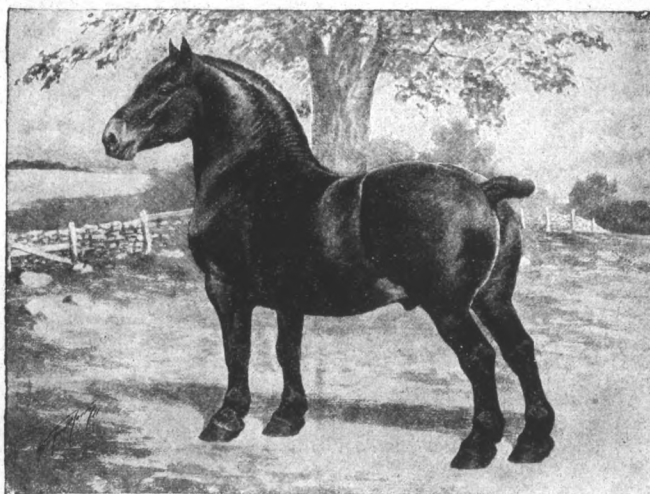
ceiving dressed beef from the United States and Argentina and, in former years, as follows in cwt.s.:

	United States.	Argentina.
1911	174,350	6,176,503
1910	477,147	5,041,130
1909	856,216	4,336,079
1908	1,432,142	3,756,965
1907	2,417,604	2,756,965
1906	2,426,644	2,811,493
1905	2,232,206	2,580,152

GROWING HEALTHY LAMBS.

The flock owner who maintains sheep for profit and pleasure is always anxious to have his lambs dropped strong and healthy and suckle well throughout the nursing period. Lambs dropped with plenty of vitality invariably grow rapidly, while those that come weak and puny give immeasurable trouble and are ultimately unprofitable. Lambs to make rapid gains both in flesh and bone must come into the world equipped with the essential facilities for economic utilization of nutritious food. Lambs possessed of low vitality, weak inactive digestive organs and an insufficient supply of blood are improperly qualified for the struggle of profitable mutton production.

Growing healthy lambs depends upon innumerable details concerned in the management of breeding ewes that demand careful thought and attention, especially during the pregnant period. The time to begin feeding to grow healthy lambs is long before they are dropped. Seldom, indeed, does a lamb of low vitality at birth mature into a strong, robust sheep. The purpose for which the ewes



"Prince de la Happe," Belgian Stallion Imported by H. & H. Wolf, of Indiana; a Prize Winner at the Indiana State Fair in 1911 and at the International in 1910.

feeding frozen roots, and that where they are fed one should at least proceed with caution. Something would doubtless depend upon how hard they are frozen and whether there had been any continued freezing and thawing. Also, of course, they should never be fed in a frozen condition, nor be allowed to remain long after thawing before being fed, if they are fed at all.

OUR MEAT TRADE WITH ENGLAND.

Vistors from this country to England who have investigated the meat markets have found that all shipments of American beef are sold as home-grown beef, the product of English or Scotch farms. Our exports of live cattle to the United Kingdom are a small affair compared with what they used to be in past years, when prices were much lower, such shipments in 1911 aggregating 155,816 head, compared with 138,387 in 1910, 205,449 in 1909 and 414,906 in 1905. Canada exported to the same country last year, 42,239 cattle, compared with 78,691 a year earlier and 160,689 in 1906. There has also been a great falling off in our sheep exports to the United Kingdom, these amounting last year to 42,805 head, compared with 150,095 in 1905, while Canada sent over only 4,868 head, compared with 28,240 in 1905. All these years Argentina has been making enormous gains in its shipments of meats to England and Scotland, and it now furnishes the United Kingdom with nearly 84 per cent of the beef imported. During the last year British imports of dressed beef from the United States showed a falling off of 64 per cent, while Argentina increased its shipments 23 per cent of the frozen article and five per cent of chilled beef. Australia and New Zealand furnish considerable quantities of beef and liberal amounts of mutton, British imports of mutton last year showing more than 61 per cent from Australia and nearly 34 per cent from Argentina. Last year the United Kingdom re-

are kept should be first determined and then fed and cared for to attain that end. Pregnant ewes should not in any manner be handled like fattening sheep. On the contrary they should be handled entirely different. They should be well fed, but never overfed. Highly fat forming feeds should not be included in the daily ration. Pregnant ewes, in order to grow healthy inborn lambs, require a strong nourishing ration possessed of blood making, flesh forming and tissue building ingredients.

Pregnant ewes should not be allowed to become reduced in flesh during the time they are nourishing their inborn young. Better by far have them a little thick in flesh than too thin. At this time the ewes have work to accomplish, and how well it is done will largely depend upon their surplus vitality. Ewes low in physical strength cannot transmit to their progeny their strong and most desirable characteristics. Some flock owners consider it good evidence of prepotency if the eyes gradually grow thin in flesh condition as lambing approaches, but I have never been fully convinced of this fact and much prefer to have my ewes in good flesh right up to lambing time.

A common mistake made by many flock owners is endeavoring to grow healthy lambs by feeding the ewes on a ration almost exclusively composed of roughage. Farched, unnutritious roughage, such as timothy hay, corn stover and wheat straw are unsuitable for pregnant ewes not only deficient in essential ingredients but produce congestion of the digestive system and general disorder. While such roughage is useful when properly compounded into the ration it is extremely dangerous and injurious when fed alone in excessive amounts. When such coarse feeds as above must be fed they should be supplied in conjunction with some succulent food such as ensilage, roots or while the ewes have access to pasture.

It is not only desirable, but absolutely

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For the Human Body

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REMOVES THE SORENESS—STRENGTHENS MUSCLES
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Price \$1.50 per bottle. Sold by druggists, or sent by us express prepaid. Write for Booklet R.
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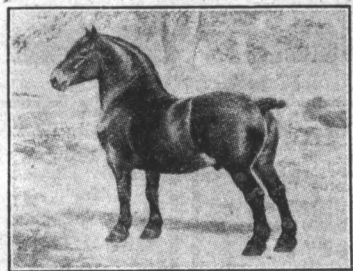
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This announcement is for the men who know a horse, who need a horse, and who are familiar with values when they find something suitable. Have you, Mr. Stallioner, spent dollars uselessly searching for a first-class Belgian stallion or a No. 1 Belgian mare for a price at which you could afford to own same? Have you, Mr. Prospective Purchaser, decided where you are going to find what you want?

We want to state here, and to state most emphatically, that our twenty-five years' buying experience in Belgium, and our selling system (all stock sold at the farm), places us in a position to sell a good stallion or a good mare at prices beyond competition.

We are talking of good horses, not the mediocre kind, and we are in position to sell this good kind at lesser figures than are demanded by some firms for the ordinary sort. If you are in the market for an extra good imported Belgian stallion or mare, come to Hewo and save all these useless side trips, secure a horse that represents every dollar that is demanded for same, and be a gainer of several hundred dollars on account of "the difference in price."

We have a number of home bred colts at extremely reasonable prices.

"Remember, Nothing but Belgians."

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Write about them.

It Will Save You Money.

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We have a fine lot of imported and American bred

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PERCHERON, BELGIAN, SHIRE, HACKNEY STALLIONS & MARES.

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vital in growing healthy lambs to cause the ewes to take plenty of exercise. A goodly number of flock owners still carry the impression that if they feed well they are reasonably sure of a high per cent of strong lambs. This has many times been proven a mistake. Exercise is a vital factor in growing healthy lambs. During favorable weather, regardless of temperature, the ewes should be permitted to graze on a meadow pasture. The food they secure is of minor consideration providing sufficient nutrition is properly compounded into the ration, but the physical exertion of roaming the fields stimulate muscular action throughout the entire body and strengthens the working of both the digestive and circulatory systems. Pregnant ewes if allowed to hang around the sheep shed day after day soon become sluggish and inactive.

As the ewes approach the lambing time they should be given the best of attention. If in good flesh condition a grain ration of oats and bran will be found a splendid system toner and also start the milking system to work. Nothing is more discouraging to a flock owner at lambing time than to find the ewes without milk for the newly born young. It is common even among good fleshed ewes to be deficient in milk flow at lambing, due largely to feeding an improperly balanced ration previous to parturition. Oats are especially good feed for pregnant animals and even at the present high price can be very profitably fed to breeding ewes.

Shiawassee Co. **LEO C. REYNOLDS.**

SOME FACTORS IN PROFITABLE PORK PRODUCTION.

The hog should be an important factor in the production of every farm. As a matter of fact, hogs are found on nearly every farm, but on many farms they are not a source of great profit, simply because they are not given sufficient attention and suitable feed to make profitable returns. Perhaps more farmers are debating with themselves whether pork production is profitable this winter than in most seasons, since there is a shortage of grain feeds upon most farms, and when one purchases high-priced feed it is apt to be fed with a sparing hand and the results are not generally as good as would be attained if home-grown feeds were available in sufficient quantities. It's a fact, however, that it does not pay to keep any kind of live stock without it can be well fed and well cared for in such a way as to make a maximum growth on a given amount of feed.

A certain portion of the ration fed must go for the maintenance of the bodily functions, and only the balance over the amount required for such maintenance will go into the growth or flesh. Consequently if an insufficient ration is fed, the margin of profit will be correspondingly less, owing to this inevitable law of nature. Then a good deal of profit is lost upon the average farm by the feeding of an unbalanced ration to hogs, which necessitates a waste of some elements of nutrition through a lack of proper digestion and assimilation of the whole. Then again, the matter of proper forage for the hogs is one which is not given the consideration which it demands, and in many cases the matter of exercise is also neglected, both of which are important factors in the making of a profit from the hogs kept upon the farm.

Where the pigs are raised upon the farm it is essential that some skim-milk be available for compounding a suitable ration for the very best results during their early growing period. However, where skim-milk is not available the nutrients required to balance up the ration can be supplied in other ways in a very satisfactory manner so that a profitable degree of growth and development will be secured, although the results will not be quite as good as though the milk were available. But these details, as well as other details essential to the health of the hogs, such as a dry and clean nest in which to sleep, plenty of charcoal, perhaps some air-slaked lime and vermifuges are supplied, where the same are required to counteract the presence of internal parasites, the hogs kept upon the average farm may be made a source of considerable profit, not alone in consuming feed which would otherwise go to waste, but as well in turning good grain and forage into marketable form and at the same time retaining the bulk of fertility represented in these feeds upon the farm.

We find, however, many extremes of opinion with regard to the profit in hog growing upon the average farm. Some keep an overstock of hogs and do not

give them sufficiently good feed and care so that a maximum profit is realized. Generally where such a condition is found the other extreme will follow it, as such a farmer is bound to come to the conclusion that hog growing is unprofitable, after which the entire stock of hogs will be sold and perhaps none will be kept for some years. The writer knows farmers who have not a single hog upon the farm, and yet who are feeding shocked corn and other unground grain to their live stock in sufficient quantities so that several hogs could be maintained, at practically no cost whatever, in the yards during the winter season, and thus a profit be derived from feeds that are now entirely wasted. As in most other phases of good farming, a middle-of-the-road course between these extremes will be the most profitable for the average farmer.

It is needless to say that where hogs are grown upon the farm good breeding stock is essential for a maximum profit. There is a vast difference in the ability of brood sows to produce thrifty pigs which will make profitable feeders, and when a good one is obtained she should be kept upon the farm during her days of maximum usefulness. While pure-breeds are far better than scrubs, and should always be used for foundation stock, yet cross-bred pigs make excellent feeders, and in some cases seem to be even better individuals from the feeding standpoint than the average of the pure-breeds. But these cross-bred animals should not be kept for breeding purposes, as the next generation will be a non-descript lot, sadly lacking in the qualities which characterized the original cross-bred stock.

Generally the trouble with the farmer who does not make a profit from hogs maintained upon the farm is due to the fact that the owner has no special love for even a good hog, and consequently does not give them the attention and care which is necessary for success in this, as in every other line of live stock production. However, there is a place for profitable pork production upon every farm, no matter what other specialty may be followed, and the farmer who has not been making any profit from this branch of his business will do well to devote a little time to self analysis to determine the reason why, and remove the causes of his failure or dissatisfaction, rather than to abandon the business of pork production entirely as some farmers periodically do.

Oakland Co.

A. R. FARMER.

LIVE STOCK NOTES.

Many cattle feeders are making the serious mistake of marketing their short-fed holdings prematurely because of the high price of feed. Many well-bred steers are coming on the market that should be held back in the feed lots for 50 to 80 days and made to weigh from 1,450 to 1,500 lbs. Such heaves are growing scarcer all the time and promise to continue so for months ahead. In various quarters farmers are awakening to the fact that the country is short of cattle and are placing orders with Chicago live stock commission firms, but so few choice feeders are being offered for sale that prices have reached a dangerously high altitude. Some prime weighty feeders have been purchased for \$6.10, and intending buyers are forced to face lively competition from killers.

The southwestern portion of the country reports the smallest supply of cattle in years, due principally to the influx of settlers, spaying of heifers and wholesale marketing of calves in recent years. Farmers are beginning to restock their lands, but they find that desirable young cattle come high.

The owners of fat lambs, both natives and fed westerns, have been well satisfied with the prices obtained recently, sales having been made at much the highest figures of the season. Demand has been strong in the Chicago and other markets of the country, east and west, and in all probability further advances in prices will take place before the top is finally reached. More than ever, the popular demand centers in fat medium-weight lambs, with extremely heavy lambs strongly discriminated against by killers. Prime little yearling wethers have advanced sharply, too, and fat sheep have joined in the general upward movement at the same time, but lambs are always a long way ahead in upturns. This change in the market was predicted months ago, and sheepmen who had confidence in the future of the live mutton industry and hung on and finished off their holdings in first-class shape are now reaping their reward. The general sheep and lamb market has now advanced much above the prices paid a year ago, and is only natural in view of the materially reduced feeding operations everywhere. Lately revised figures show that shipments of feeder sheep and lambs from the eight leading western markets during 1911 amounted to 3,773,956 head, running 667,162 short of the number shipped in 1910. Conditions are the reverse of those of last year, when average prices for lambs were the lowest seen since 1904.

Disinfect Your Pens

YOU can't fatten hogs in a dirty pen. The hog house should be sprayed occasionally with Dr. Hess Dip and Disinfectant, not only to kill the lice and other vermin, but also to kill the disease germs which result from sour swill droppings. Lice hide under the troughs and pen posts—swill droppings become sour and caked, giving off foul, poisonous odors which the hogs inhale.

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Sentiment in the hog and provision markets is that the persistent enormous marketing of the hog supplies of the corn belt states month after month is bound to bring about greatly reduced supplies for shipping before many weeks and that this will make a high range of prices for later marketings. Several causes have influenced holders to send their hogs to market earlier than in former years, long continued severely cold weather and extremely high-priced corn acting as powerful arguments for selling hogs of quite light weights, as well as mere pigs. Many people hardly know what to make of the government report, which has just appeared, showing the aggregate supply of hogs in the United States as 65,410,000 head, or within 210,000 of such holdings a year ago, and its accuracy is largely doubted. While the government's figures are recognized as the most reliable to be had, they are, of course, after all only estimates at best, and it seems not unlikely that holdings have been exaggerated.

Mules have been selling as much as 10 per cent lower than in 1910, the decline being attributed by southern authorities to the 40 per cent decline in the value of cotton. It is claimed that the low price of that great southern staple will lead to a decrease in the acreage to be planted this year, and this, combined with the reduced purchasing power of the planters, will diminish the shipment of mules to the south during the year. Feed is costing mule dealers twice as much as a year ago, and this tends to hold down the supply.

Sellers of Percheron horses report good sales of high-class breeders since the beginning of the year to buyers from Illinois and Iowa, and good sales have been made also of high-class Shire and Belgian stallions, while good second-hand stallions are offered at bargain prices.

Country shippers of horses to the Chicago market did a wise thing when they curtailed their recent offerings, thereby checking the former downward tendency of prices. The worst feature of the horse market all along has been the superabundance of a common grade of drafters, the demand being mainly for a good class of heavy draft horses, such as are usually in small supply. The time for breeding high-class horses of the draft type has arrived, and wide-awake farmers are doing this, realizing that it will, in all probability, result in bringing them substantial profits by the time the horses become matured.

Farmers are buying breeding cattle in various parts of Indiana, Illinois, Iowa, Missouri and other states, and it already has been demonstrated that breeding beef cattle can be made profitable, even on farms that are worth \$150 per acre.

A recent dispatch from Guthrie, Okla., says that over 100,000 head of cattle are being fattened at the 40 oil mills of that state and that they will be marketed freely from this time on, but this statement has been declared grossly exaggerated, investigation failing to discover more than 47,000 head in both Oklahoma and Texas oil mills. Scarcely any cattle are being fed on corn in Oklahoma. There is a probability of more cattle being put on feed to replace those marketed from the southwest.

A car load of 20 head of fancy Angus cows that averaged 1,240 lbs. was sold on the Chicago market recently for \$6.75 per 100 lbs. Most of them were pure-blooded Angus cattle, and the price was the highest paid in many months for a straight load of cows.

Prominent stockmen of Wyandotte county, Ohio, have been visiting the Chicago stock yards for the purpose of buying feeder cattle. They said that farmers have been building silos in large numbers and that there are now about 100 in the county against none only five years ago. By this means feeding operations are doubled.

Considerable surprise has been expressed because of the liberal marketings of hogs in recent weeks. Iowa and Nebraska especially are free shippers of young hogs tipping the scales around 200 lbs. and are evidently disposed to sell liberally around the market prices. The packers have been good buyers of these hogs to meet the heavy requirements of the fresh meat trade.

An Illinois stock feeder marketed at Chicago not long since 36 head of Hereford steers that were two years old and averaged 1,361 lbs. at \$8.50 per 100 lbs. They had been on full rations of ear corn and clover and timothy hay since the close of last August and were allowed the run of pasture in the meantime. Feeders in the part of the state where these cattle were fed are paying from 60 to 65 cents a bushel for corn, prices being the highest paid in 11 years, and home-grown hay costs \$12 per ton, while alfalfa hay has been brought in at a cost of \$16 per ton. Fifty per cent less cattle feeding is reported thereabouts than a year ago, but it is reported that swine are going to be shipped in normal numbers to market.

C. C. Brower, of Indiana, showed up at Chicago recently with a shipment of a double-deck of western fed wethers of his own feeding that were prime enough to sell for \$5.05 per 100 lbs. The owner bought them as feeders last September at \$3.70, when their average weight was 91 lbs. They were run on rye and blue grass pasture and later placed in a corn field until husking time, since having been furnished rations consisting of shocked corn and oats. They made good gains and showed good profits.

One of the most successful cattle feeders of Fremont county, Iowa, and one of the large feeders of the middle west, has placed 600 exceptionally fine cattle on feed for next summer's market. They were purchased recently on the South Omaha market. The owner marketed last August at Chicago 536 choice beefs that weighed around 1,400 lbs.

VETERINARY

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

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

Fibrous Tumor on Teat.—A hard flesh-like bunch about the size of a hickory nut is growing on back part of my one of my cow's teats and I would like to know how to treat it. This bunch has no neck, but is rather flat. J. H., Goodrich, Mich. —Apply one part iodine and six parts lard to bunch once a day. In my practice I usually open skin and dissect out bunch.

Partial Loss of Power.—I have 11 fall pigs that have been doing fine until 10 days ago, then they began to show weakness in hind quarters. Their food since weaning time has consisted of skim-milk and corn. They are kept in a warm place. R. St. C., Muir, Mich. —Corn and milk is not a balanced ration for pigs, especially if they do not have plenty of exercise. Feed less corn, more oats, oil meal, roots and tankage. They should be given some lime-water with their feed, and this is made by dissolving lime in water. The water absorbs only so much, therefore no danger in making it too strong.

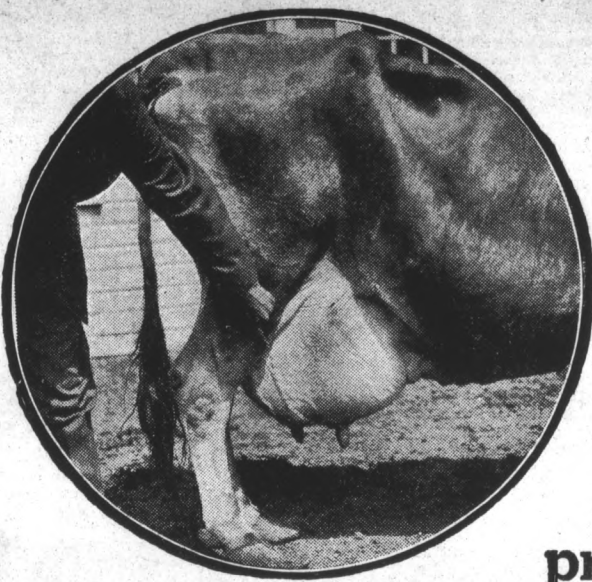
Crippled Pigs.—M. P., Dryden, Mich. —See treatment for crippled pigs and how to feed them, in this column. Change their feed, keep them dry, clean and warm.

Navicular Disease.—My four-year-old colt is quite lame in left fore-quarter and I am unable to find any swelling or soreness. Rest seems to make him some better, but when worked his lameness increases. When standing still, he moves left foot and is inclined to point it out in front of body. After a day's work he is very lame. F. B., Manton, Mich. —Your horse should have absolute rest and in order for him to recover he must have it. I am inclined to believe the lameness is in navicular (coffin) joint. Apply one part red iodine mercury and 10 parts cerate of cantharides to coronet every week or ten days.

Sprained Tendons—Scratches.—My 8-year-old gelding is lame in left fore-leg, caused, we believe, from a strain of back cords. Would like to know how to treat this case. We also have another horse that is troubled with scratches, but there are not many cracks on back part of hind legs. G. L., Lakeview, Mich. —His lameness is perhaps in tendons and I advise you to clip hair off back part of leg from hoof to knee and apply cerate of cantharides which will blister lightly. These applications should be made every week or ten days until he recovers. It is needless for me to repeat the importance of rest in the treatment of sprains. For your horse that has scratches apply equal parts tincture benzoin and glycerine to cracks twice a day and give him a desertspoonful of Donovan's solution at a dose in feed three times a day.

Congestion of Lungs—Hemorrhage—Black Teeth.—We had three fine pigs weighing about 100 lbs. each; they are three months old. This morning found one of them very ill, seemed almost impossible to breathe, had three severe coughing spells in the forenoon in which the blood and froth flowed from mouth and nose. From noon on they came often and more severe until about an hour before it died, the blood ceased to flow yet it still coughed, panted and struggled until death ended its sufferings. Another one we found dead in the pen this morning, the evening before it ate and drank and seemed all right, but had a slight spell of coughing while drinking, as if it had choked, from eating too fast. We noticed the other one the same way. Opened them while yet warm and found their hearts full of black clotted blood, also the lungs very dark. Have been fed warm milk with middlings three times a day with some corn. They had a light roomy pen, well ventilated, warm, a dry bed of rye straw and the pen is cleaned every day, but one day the old sow opened the outside door, letting in the cold air. What are the results if pigs get black teeth? J. S., South Haven, Mich. —Your hogs suffered from congestion of the lungs and internal viscera and it was no-doubt followed by hemorrhage resulting in death. The others died from acute congestion. Many well hogs have black teeth and I have failed to understand why black teeth should harm a pig.

Indigestion—Congestion.—Had a litter of eight pigs farrowed November 7, weaned them December 21, then placed them in comfortable quarters in basement of barn. I commenced feeding them lightly at first on slop made of oats and corn ground together with sweet skim-milk, adding a little oil meal and this food was fed to them warm. They lived on this ration up to two weeks ago, when middlings were substituted for oil meal. Since then I have fed them about three pints of corn and oat meal and one pint of middlings with enough milk to make six quarts twice a day. They have also had a quart of shelled corn three times a day. A few days ago I found one breathing quick and short, body very hot and this pig died after being sick for 12 hours. I might add that he bloated badly after death. Twelve hours later another one died showing much the same symp-



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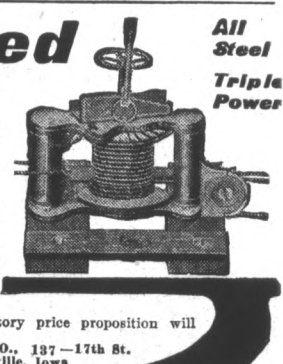
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toms and a third one seems to be sick. The first hogs that died discharged froth and blood from mouth and nose. The sick one is quite stiff, but has a good appetite. T. C. S., Buchanan, Mich.—You may have fed your pigs a little too much corn, but on the whole you fed them about right. The cold weather is perhaps responsible for their deaths. Protect them from cold, keep them clean, their bowels open and give them equal parts ground ginger and cooking soda in their feed. Two-thirds of a teaspoonful is plenty for one pig and it should be given twice a day.

Wolf Teeth—Indigestion.—I have a seven-year-old mare that has what are called wolf teeth and I would like to know if they do much harm. This seven-year-old mare is thin, but has a good appetite. E. L. B., Marcellus, Mich.—Supernumerary teeth, more frequently called "wolf teeth," are frequently seen just in front of the molars (grinders) in either the upper or lower jaw. Sometimes they grow to such length as to disturb the horse while eating. They do, as a rule, very little harm, but in my practice I always extract them; this is done more to satisfy the owner than to relieve the horse for unless I do the work in a humane surgical way someone else would be called upon to do it who might injure the mouth. Many persons labor under the mistaken idea that "wolf teeth" cause blindness in horses; this, I am sure, is a mistaken idea. Your mare's teeth may need floating, also give her a tablespoonful of ground gentian, a tablespoonful of ginger and a teaspoonful of powdered sulphate iron at a dose in feed two or three times a day.

Diabetes.—Have a seven-year-old gelding that must have either kidney or bladder trouble for he urinates too often. He has been treated by our local Vet. but the horse is no better. V. J. B., Charlotte, Mich.—Give him 1 dr. urotropin at a dose three times a day for 15 days, also give him a teaspoonful powdered nitrate of potash at a dose twice a day.

Ophthalmia.—Have a mare that went blind about 12 months ago. We imagine that she can see a little out of one eye. Can this film that clouds her sight be removed? G. B., Ionia, Mich.—I am inclined to believe that very little can be done to benefit her eyes; however, you might blow a little calomel into eyes once a day and give 1 dr. iodide potassium at a dose in feed three times a day.

Rheumatism.—When my 10-year-old mare steps over in stall or starts to walk her shoulder joint snaps and I have wondered if bone is broken or what it might be. She stumbles some when traveling and has had small boils on shoulder and is rather thin. H. T., Kingsley, Mich.—A cracking of a joint indicates a rheumatic or dry condition of joint. Apply equal parts spirits of camphor and olive oil to shoulder joint once a day. Increase her food supply and give her two tablespoonfuls of ground gentian, a tablespoonful of ground ginger, a tablespoonful of red cinchona and a teaspoonful of salt at a dose in feed three times a day.

Dropsy.—I have a mare 12 year old that foaled last October; before foaling time she swelled on lower part of belly. Her colt died soon after it was born; its death was no doubt the result of cold. She has not done well since and is almost as corpulent as she was at foaling time. F. B., Dafeo, Mich.—Your mare should be well fed, exercised moderately daily, her bowels kept open by feeding her well salted bran mash or roots. Give her 2 drs. iodide potassium and 1 oz. ground gentian at a dose in feed three times a day.

Solidified Bursal Bunch.—Last spring I purchased a large horse in Detroit that was a very little knee-sprung and during midsummer I noticed a bunch growing on inside of right knee, which must now hurt him. This horse seldom ever lies down and when he does appears to be in considerable pain, for he holds foot off the ground. He also makes a fuss when shod. He travels stiff but not much lame. A. J. P., Grass Lake, Mich.—Paint bunch with tincture iodine once a day and it will perhaps relieve him.

Vertigo—Gastritis.—I would like to know what caused the death of my five-months-old pig. She acted as if intoxicated and would squeal as if in pain. I have another brood sow that vomits and refuses to eat. H. L., Imlay City, Mich.—Your hog died the result of vertigo or perhaps brain hemorrhage. Your sow has eaten some irritating infected food. Give her a teaspoonful bicarbonate soda or one-half of a teaspoonful sub-nitrate of bismuth at a dose three times a day.

Horse Took Cold.—Six weeks ago my four-year-old horse contracted a cold. I have given him tar and oil, rubbed his chest with turpentine and mustard; have consulted a local Vet. who prescribed for him, but the horse does not appear to recover. He eats and drinks well, but I imagine his lungs are slightly-affected as there is a slight heaving of flanks. J. K. M., Lawton, Mich.—Give him 30 grs. of quinine, ½ oz. fluid extract gentian and 1 dr. iodide potassium at a dose four or five times a day. Apply mustard and water to sides back of shoulders and chest three times a week. Keep the horse in a warm, but well ventilated stable.

Stifle or Hock Lameness.—Three weeks ago my nine-months-old filly went lame in hind leg and I have thought that her stifle was affected for it is swollen. When standing still she keeps heel off ground and part of time food is held up as if she suffered pain. W. D. R., Ionia, Mich.—The lameness is either in hock or stifle and to be sure that you treat the right parts, apply one part turpentine, one part aqua ammonia and four parts raw linseed oil to stifle and hock three or four times a week.

Foot Soreness.—I have a six-year-old horse that travels stiff and sore in front. I am unable to account for this stiffness and would like to know how to treat him.

E. R. L., Deford, Mich.—He may suffer from a light attack of stable founder caused from high feeding and no exercise, or his hoofs may be contracted, or he may have soreness in coffin joints. No matter which ailment he suffers from he will be benefited by blistering coronets with one part red iodide mercury and 10 parts cerate of cantharides every week or ten days. Pack feet with blue clay, oil meal or antiphlogistine.

Chronic Heaves.—Have a horse that has heaves, but do not know how long he has been broken-winded. He does his work fairly well, but I would like to know how to prevent him getting worse. W. E. G., Dimondale, Mich.—Feed no clover or musty, dusty, badly cured fodder of any kind and very little bulky food is the best way to feed a horse that has heaves. Wet the feed and do not allow him to drink too much water at a time, while working but let him have all he wants after his day's work is done. If he is a ravenous eater, bed him with shavings or sawdust. Give 1 dr. powdered lobelia, 2 drs. muriate ammonia and a dessertspoonful of Fowler's solution at a dose in feed three times a day.

Inactive Skin Glands.—Our eight-year-old mare panted during hot weather last summer but did not perspire freely enough, but when put in stable her coat became moist. She is now in foal and if you think I had better treat her, tell me what to do. S. B. W., Sand Lake, Mich.—Feed your mare well and give her good care, but don't forget to groom her thoroughly twice a day, this will stimulate glands of skin. When summer comes if you work her, she should be clipped and frequently washed with tepid water.

Cough.—I bought a cow last summer and she had a slight cough which has never left her; it must be slight for she remains in good health, but I have thought she is a little worse now than when I got her as she now passes some phlegm, or mucus from nose and mouth. H. A., Fennville, Mich.—Give her a teaspoonful of tincture opium, a teaspoonful fluid extract belladonna and a teaspoonful tincture lobelia at a dose in feed two or three times a day. Apply equal parts turpentine and olive oil to throat twice a week.

Lice.—I would like to know how to rid my horses of lice; these vermin are about the size of bed bugs and resemble sheep ticks. G. W. H., Eagle, Mich.—If your horses are very lousy it may be necessary for you to clip them. You should also whitewash or disinfect your stable; besides, your combs and brushes should be dipped in some solution that you apply to kill lice. I find by boiling 5 ozs. of crushed stavesacre seed in a gallon of water for two or three hours, then strain through a cheesecloth, and fill to original quantity, then apply two or three times a week. If you do not care to clip your horses, blow Persian insect powder into coat three times a week.

Vertigo.—I have a ten-year-old mare that is in an unthrifty condition, first noticed her dull and dumpy last spring, she tired easily, seemed to fall asleep standing and was inclined to tumble down. At times she trembles and sways and has trouble to keep from falling down. C. F. H., Henderson, Mich.—Your mare suffers from vertigo and perhaps has a weak heart and an inactive liver. Give her 25 grs. calomel at a dose twice a week for three weeks. Keep her bowels open by feeding well salted bran mash or roots. Give 2 drs. bromide of potash at a dose in feed three times a day.

Infectious Abortion—Strips of Mucus.—I have a mare that is 16 years old next spring that has lost two colts at seven months. Would you advise me to breed her again? She gets up with difficulty and for two years has occasionally showed symptoms of bowel pain and she also passes white, string-like mucus, that resembles a partially decomposed worm. She is now in good condition and I would like to know if you would advise me to breed her. M. S., Rosebush, Mich.—She is not worth considering for breeding purposes and if I were you should fill her place with a sound mare.

Periodic Ophthalmia.—We have two horses coming four and five years old that have each had attacks of moon blindness and I would like to know if this ailment is contagious. The lower part of eye ball becomes clouded gradually becoming reddish color forming a film on cornea, causing partial loss of sight, but in 10 days the eyes appear to clear. W. R., Howell, Mich.—The veterinary profession are convinced that there has not yet been found a remedy for this ailment. Fomenting the eyes with warm water, keeping the animal in a dark place, feeding cooling laxative food, has a tendency to lighten and shorten each attack, but it is only palliative treatment. Apply a saturated solution of boric acid to eyes twice a day and give a cathartic when first symptoms appear will help.

Anaemic—Weakness.—From a state of good health my horse began to go down and became so weak that I was obliged to discontinue teaming. Our Vet. thought it was only a run-down condition and prescribed a tonic which we have since given him without any special results. W. A. D., Sharon, Mich.—Give your horse plenty of nourishing food, also a teaspoonful of powdered sulphate of iron, a tablespoonful of ground gentian, a tablespoonful of ginger, a tablespoonful of powdered charcoal and a tablespoonful of salt at a dose in feed three times a day.

Bruised Thigh and Hip—Fractured Ribs.—Team ran away, going straddle of a stump; one of the horses had three ribs broken and the doubletree caught stump and tumbled the other one back, landing with stump between hind legs, bruising hip and inside of thigh. Her hind leg is stiff and swollen. What had I better apply? Do you believe that she is injured internally? A. H. K., Bentley, Mich.—Give her a teaspoonful powdered nitrate of potash at a dose in feed three times a day. Dissolve ¼ lb. acetate of lead in a gallon of water and add one pint tincture arnica, then apply to swollen parts three or four times a day.



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I invite you to investigate my labor-saver and crop-improver; Free booklet on cultivating and plant culture, by Farmers, Agri. Experts and U. S. Dept. of Agriculture; also a list of valuable Farm books and where they can be obtained free. Wanted, Agents for Michigan at Once. Big Commission.

GEO. GOODCHILD, Lansing, Mich.

CLOSING OUT SALE.

On Feb. 27th, 1912,

of my whole herd of
SHORTHORN AND POLLED DURHAM CATTLE.
20 head, consisting of Cows, Bulls, Heifers, Heifer Calves and Bull Calves. Herd headed by famous bull Springfield Lad 3rd; weight, 2,200 lbs. Farm, ¼ mile from village of Oxford, where sale will be held.

L. W. SUTHERLAND, Oxford, Michigan.

For Sale—Black percheron Stud, two and half years old. Weighs fourteen hundred or better. Inquire, **BRANNAN BROTHERS, Williamston, Mich.**

Position Wanted as Foreman or Manager on farm, by experienced farmer, stockman, best of reference. Add. R.F.D. No. 1, Box 18, Nashville, Mich.

BREEDERS' DIRECTORY.

CATTLE.

ABERDEEN-ANGUS.

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

WOODCOTE STOCK FARM, Ionia, Mich.

AYRSHIRES

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

For Sale

—3 Registered Guernsey Bulls; 5 registered large Yorkshire sows, bred. For prices write John Ebels, R. No. 10, Holland, Mich.

GUERNSEYS FOR SALE

—Cows and heifer calves. **GEORGE MORLOCK, Watervliet, Mich.**

Guernsey Bull Calves

sired by half-brother of Rose of Langwater, m. 12, 985.5 lbs.; b. f. 669.89 lbs., 2 yrs. 7 mo. Allan Kelsey, Lakeview, Mich.

HOLSTEIN BULL

calves, sired by best son of Pontiac Butter Boy and from equally good dam. **C. D. WOODBURY, Lansing, Mich.**

HOLSTEINS

—10 head choice high grade and pure bred heifers, all fresh in spring for \$650. 3 regis. bull calves at a bargain. **B. B. Reavey, Akron, Mich.**

Registered Holstein Cattle

—Special prices on two bulls, 5 and 13 months old. **FLOYD F. JONES, R.F.D. 3, Oak Grove, Mich.**

BULLS

from 3 to 9 months old A. R. O. stock. 3 young cows A. R. O. bred at \$200 each. **ROBIN CARR, Fowlerville, Michigan.**

BULL CALVES

—De Kol, Hengerveld and Korndyke strains. None better at the price. Few better at any price. Tabulated pedigrees and prices on request. **COLE BROTHERS, Ypsilanti Farms, Ypsilanti, Mich.**

FAIRLAND SHORTHORNS

—Young Bulls of all ages. A few young cows and heifers, bred for beef and milk, prices right. Also pure bred Scotch bull, Golden Crown. **JOHN J. FOSTER, R. No. 3, Niles, Mich.**

The Flood-Like Advance of No-Rim-Cut Tires—10 Per Cent Oversize

This is what happened when men proved that tire bills could be cut in two:

In 1907 we sold 28,685 tires.
In 1908 we sold 51,542 tires.
In 1909 we sold 105,127 tires.
In 1910 we sold 210,762 tires.
In 1911 we sold 409,521 tires.

That's pneumatic automobile tires alone.
So far this year the demand has run three times that of 1911.

Note how that demand doubles every year—grows and grows with increasing experience.

Today—after 900,000 have been tested out—the demand is growing faster than ever.

Yet for years these tires cost one-fifth more than other standard tires. Now they cost but an equal price.

Can you think these men mistaken—these motor car makers, these tens of thousands of users who have come to this patented tire?

They Sought What You Are Seeking

They sought for a way to cut tire bills in two. We proved that these tires could do it.

They sought tires which can't rim-cut. One glance at these tires proves rim-cutting impossible.

They sought oversize tires, to take care of their extras—to save the blow-outs due to overloading. And they found this oversize without extra cost in No-Rim-Cut tires.

That's why they bought, in the year 1911, 409,521 Goodyear tires.

Loss—\$20 Per Tire

We figure the average loss of men who don't use them at \$20 per tire. It varies, of course, with the sizes. And care or abuse affects it. One can't be exact on these savings.

We figure it this way. Statistics show that 23 per cent of all ruined clincher tires are rim-cut. No-Rim-Cut tires wipe out that loss entirely.

Ten per cent oversize, under average conditions, adds 25 per cent to the tire mileage. And No-Rim-Cut tires, measured by air capacity, aver-

This is what happened when motor car makers made their final comparisons:

44 makers in 1910 contracted for Goodyear tires.
64 makers for 1911—
127 makers for 1912.

And these makers are experts on tires.

No-Rim-Cut tires now far outsell any other make. And the demand is six times larger than two years ago. It's the coming tire.

Are All These Men Mistaken?

age 16.7 per cent larger than five leading makes of clinchers.

The clincher tire is the old-type tire—the hooked-base tire—which No-Rim-Cut tires are displacing.

This No-Rim-Cut feature, plus the oversize feature, will save motor car owners this year, we figure, a million dollars a month.

The Only No-Rim-Cut Tires

In No-Rim-Cut tires there are three flat bands of 126 braided wires vulcanized into the tire base. These wires make the tire base unstretchable.

These tires stay on without hook-

ing to the rims, because nothing can force them off the rim until you remove the removable flange. Then they slip off in an instant.

Your removable rim flanges, when you use this tire, are curved outward instead of inward. That's why they can't cut the tire.

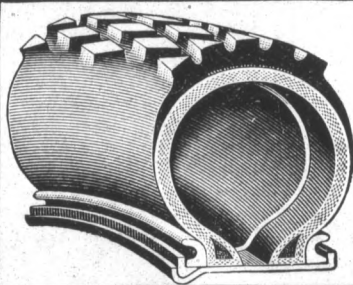
We control by patents the only way to make a practical tire of this type. Other devices, used to meet our competition, have serious shortcomings which we explain in our Tire Book.

That is why the demand for hookless tires centers on Goodyear No-Rim-Cut tires. Nothing else known can take the place of these bands of braided wires.

These patented tires now cost no more than other standard tires. They fit any standard rim, quick-detachable or demountable. So, when you give up clinchers, don't adopt experimental tires.

More and more, the men who know best are insisting on Goodyear No-Rim-Cut tires. Soon or late, you are bound to come to them.

Our 1912 Tire Book—based on 13 years spent in tire making—is filled with facts you should know. Ask us to mail it to you.



GOODYEAR
No-Rim-Cut Tires
With or Without
Double-Thick Non-Skid Treads
With a Bulldog Grip

THE GOODYEAR TIRE & RUBBER COMPANY, AKRON, OHIO
Branches and Agencies in 103 Principal Cities We Make All Kinds of Rubber Tires, Tire Accessories and Repair Outfits
Main Canadian Office, Toronto, Ont. Canadian Factory, Bowmanville, Ont. (505)

BULLS-HOLSTEIN-BULLS

One \$50 Bull
One \$60 Bull
One \$70 Bull
One \$80 Bull

We have some very choice ones a little higher.
Write for description and pedigree.

Long Beach Farm, Augusta, [Kalamazoo] Mich.

"Top-Notch" Holsteins.

A fine young bull from an Advanced Registry dam.
Beauty Pieterje Korndyke King No. 78950.

Born Nov. 26, 1910.

SIRE—Willowbridge Bos, who is a grandson of Beauty Pieterje, who has an official record of 30.51 lbs. butter in 7 days and was the first 30-lb. cow of the breed to produce a 30-lb. daughter.

DAM—Anna Houwtje Lenore, who has an official record as follows: Milk, 1 day, 84.3 lbs.; milk, 7 days, 546.2 lbs.; butter, 7 days, 20.25 lbs. She gave 140.5 lbs. milk last year in 312 days at 10 years old. She has given 1016.75 lbs. milk in 9 milking periods averaging 326 days each. She has 2 A. R. O. daughters. One has a record of 23.22 lbs. butter in 7 days at 4 years 3 mo. old. He comes from large producers on both sides, is a good individual, nicely marked, with a little more black than white. Price \$100.

McPHERSON FARMS CO., Howell, Michigan.

I Did Not Sell 20 Holstein Bulls in Nov.
I Want to Finish the Job in December.

Send for my Dec. Announcement. Select a bull from it, order him QUICK. Several from A. R. O. dams, and sired by Johanna Concordia Champion, the only bull in service whose grand dams average 34.06 lbs. butter in 7 days. Also yearling heifers bred to him.

L. E. CONNELL, - Fayette, Ohio.

HEREFORDS—7 bulls from 2 mos. to 2 years old, all reg. and of the very best breeding. Also big boned Poland China hogs. ALLEN BROS., Paw Paw, Mich.

We Have fine grandsons of Pontiac Korndyke in our lot of Holstein bulls ready for service now. Prices right. Gregory & Borden, Howell, Mich.

HOLSTEIN BULLS FOR SALE

Young bull out of a 20-lb. A. R. O. cow. Sire Ontario De Kol Burke—every entry in his pedigree has an official record. He is a grandson of De Kol Burke. This is a finely bred youngster.

BIGLOW'S HOLSTEIN FARMS, Breedsville, Mich.



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

JERSEYS AND DUROC JERSEYS FOR SALE.

A few high class boars from such champion boars as Orion Chief, Instructor, and King of Illinois. Also a few bred sows, Jersey bulls, cows and heifers.

BROOKWATER FARM, ANN ARBOR, MICH., R. F. D. 7.

REGISTERED JERSEYS For Sale—Some combin. Ring the blood of St. Louis and Chicago World's Fair Champions by HERMAN HARMS, Reese, Mich.

JERSEY BULL CALF from a R. of M. cow. Cheap, considering the quality. C. A. TAGGETT, R. No. 1, Caro, Mich.

JERSEY BULL CALF for sale, born Feb. 11, 1911. Dam and granddam, also grandsire Register of Merit animals. A high class individual. WATERMAN & WATERMAN, Ann Arbor, Mich.

MARSTON FARM—JERSEY CATTLE.
T. F. MARSTON, Bay City, Michigan.

Crystal Springs Jerseys for Sale from high testing cows. C. A. BRISTOL, R. No. 2, Fenton, Mich.

FOR SALE—3 yearling Holstein-Friesian bulls, also bred heifers \$150 to \$200 each. Bull calves \$40 to \$60. 33 years a breeder. Photos and pedigrees on application. W. C. JACKSON, South Bend, Ind., 719 Rex St.

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

Lillie Farmstead JERSEYS
Cows all in yearly test. Several splendid Bull Calves. A few Heifers and Heifer Calves. I guarantee satisfaction or money refunded.

COLON C. LILLIE, Coopersville, Michigan

JERSEYS of the best breeding. Cows officially tested. A few bull calves from cows making splendid records. SAMUEL ODELL, Shelby, Mich.

RED POLLED—Choice lot of females any age, also some bull calves. J. M. CHASE & SONS, Ionia, Michigan.

Dairy Bred Shorthorns—2 bulls, 8 mos. old. For sale for sale. Price \$75 each, cash or good note. J. B. HUMMEL, Mason, Mich.

For Sale at Low Prices—Twelve young bulls, 10 to 15 months old. Reds and Roans and all from good milking dams. Write at once or better still come and see. A. E. STEVENSON, Port Huron, Mich.

SHEEP.

Reg. Rambouillets—Wish to close out both sexes. All ages, low price. Farm—2 1/2 miles E. Morrice, on G. T. R. R. and M. U. R. J. Q. A. COOK.

Oxford Down Sheep—Good Yearling Field Rams and ewes of all ages for sale. I. R. WATERBURY, Highland, Michigan.

Forty Registered Oxford Down Ewes & Ewe Lambs. Also Ten Rams and Ram lambs for sale, must be sold at once cheap. A. L. WRIGHT, Bad Axe, Mich.

HOGS.

Durocs and Victorias—Elegant spring pigs, either sex, as good as the breed produces at living prices. M. T. STORY, R. F. D. 48, Lowell, Mich.

BERKSHIRES—12 Gilts at \$25; 8 at \$30; 5 tried Sows at \$35 and up. All bred. Best blood lines. Elmhurst Stock Farm, Almont, Mich.

Berkshires—Weaned pigs \$15, two for \$25. Boars ready for service \$25. Gilts safe in pig to Handsome Lee Jr., a Mich. State Fair Prize Winner \$35. Registered and transferred. Express prepaid in lower Michigan. C. C. COREY, New Haven, Mich.

FOR SALE, BERKSHIRES—2 boars & 3 gilts farrowed in June also a choice lot of Aug. and Sept. pigs, sired by Handsome Prince 3d & Marion King. A. A. PATTULLO, Deckerville, Mich.

Berkshires—Buy a service Boar now, cheap. Other stock also for sale. C. S. BARTLETT, Pontiac, Mich.

O. I. C. Service Boars, Gilts bred for April farrow Aug. and Sept. pigs, large, smooth and prolific. Glenwood Stock Farm, Zeeland, Mich., Phone 84

O. I. C. SWINE—Males weighing from 175 to 250 lbs. each. Also a very choice lot of gilts GEO. P. ANDREWS, Dansville, Ingham Co., Mich.

O. I. C. SWINE—My herd is chiefly strain both males and females. Write for Live and Let Live price on pairs and trices, not akin. A. J. GORDON, R. No. 2, Dorris, Michigan.

O. I. C's—A few tried sows to farrow in March—fall pigs, also Buff Rock cockerels and cock birds. FRED NICKEL, Monroe, Mich.

O. I. C. Sows bred for spring farrow. OTIS GREENMAN, R. 4 Bellevue, Mich.

O. I. C's—30 bred sows, headed by 3 herd boars. Some fine gilts of last March and April farrow, 300 to 350 lbs. each. Also last fall pigs. Stock registered. OTTO B. SCHULZE, Nashville, Mich.

O. I. C.—Bred gilts by Champion boar, \$25 each, for January shipment. C. J. THOMPSON, Rockford, Michigan.

O. I. C's—Service males, 25 bred gilts weighing 175 to 250 lbs. each. 4 bred yearlings. Choice fall pigs. Shipped c. o. d. Rolling View Stock Farm, Cass City, Mich.

O. I. C.—Spring boars all sold. A few lengthy gilts to be bred for April farrow. Choice Aug. & Sept. pigs, cheap. A. NEWMAN, R. No. 1, Marlette, Mich.

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

O. I. C. swine and Buff Rock cockerels of down for quick sale. G. D. SCOTT, Quimby, Mich.

OUR Imp. Chester Whites and Tamworth swine won 245 1st at Fairs in 1911. Service boars, also sows bred for spring farrow of either breed that will please you in quality and price. Adams Bros., Litchfield, Mich.

Improved Chesters—Young breeders of March, April Aug. and May farrow, either sex and trices not akin. Satisfaction guaranteed. Also Holstein cattle. W. O. WILSON, Okemos, Mich. Both phones.

Duroc Jerseys for Sale—Service Boars, Bred Sows and Fall pigs, either sex. Pairs not akin. M. A. BRAY, Okemos, Mich.

Duroc Jerseys for Sale—Boars and Gilts, also Fall pigs (both sexes) bred from State Fair winners. Prices reasonable. Write or call and see. R. G. VIVIAN, R. 4, Monroe, Mich.

For Sale—Duroc Jersey Gilts bred for last of March and April farrow also a few fall gilts. J. M. PARK & SONS, R. No. 5, Coopersville, Mich.

DUROC JERSEY sows for sale, bred for March and April farrow. Have a fine lot of fall pigs either sex. Call or write Jno. McNicoll, R. 1, North Star, Mich.

FOR SALE—DUROC-JERSEY bred sows, pigs and Shepherd Pups. Express prepaid. J. H. BANGHART, Lansing, Mich.

30 High Class Boars ready for service. Special prices for 30 days. Plenty of growth, style and finish. Satisfaction guaranteed. Come or write. J. C. BARNEY, Coldwater, Mich.

LARGE TYPE P. C.—Largest in Michigan. Pigs and fall pigs. Bred from mammoth sires and sows. Weigh 160 to 175 lbs. at 4 months. My motto—"Not how cheap but how good." Will pay expenses of those who come and do not find what I advertise. 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, Mich.

Butler's Big Type Poland-Chinas—size, bone, quality, for everything in Poland Chinas. If you want a nice boar to head your herd, a brood sow or fall pig. Pairs not akin, or a reg. Jersey bull of any age write us. Our prices are very low. J. C. Butler, Portland, Mich.

SPECIAL SALE on Poland China Boars, Sows Bred and fall pigs. Also Dairy bred Short-horn Bull Calves. ROBERT NEVE, Pierson, Mich.

Poland Chinas—Bred from large type. Stock all ages, both sexes, at Farmers prices. W. J. HAGELSHAW, Augusta, Michigan.

15 Poland China Sows bred for spring litters. Will ship c. o. d. priced to sell. WM. WAFFLE, Coldwater, Mich.

POLAND CHINAS—Young sows bred for April farrow. Extra good fall pigs, either sex. L. W. BARNES & SON, Byron, Shiawassee Co., Mich.

Poland Chinas—Gilts bred to a \$75 pig for April farrow. Also choice fall pigs. E. D. BISHOP, Route 38, Lake Odessa, Mich.

Big Type P. C. Sows bred to Big Bone Junior. A. A. WOOD & SON, Salline, Michigan.

For Sale—Mule Footed Hogs. Mr. Farmer get the mule footed hog and get rid of the cholera. I have a fine lot of them, all registered stock. Write me. R. J. GROVES, Davison, Mich.

MULEFOOT HOGS FOR SALE. I am making list of all mule foot owners in U. S. Send your name now and get free printed matter. G. C. Kreglow, Ada, Ohio.

Poland Chinas—Home of Michigan's Grand Champion Boar. Bred sows & fall pigs by this great sire. They're priced right. E. J. Mathewson, Nottawa, Mich.

Lillie Farmstead YORKSHIRES.

Boars for spring service. A few bred sows. Also sows bred for August and September farrow. Pairs and trices not akin. Satisfaction guaranteed. COLON C. LILLIE, Coopersville, Mich.

PRACTICAL SCIENCE.

SOURCES OF PHOSPHORIC ACID AND POTASH IN FERTILIZERS.

(Concluded from last week).

Kainit, Ashes, Etc.

Kainit is a commercial potash salt of a lower grade than even the sulphate or the muriate, and contains from 10 to 12 per cent of actual potash (K₂O). Besides these commercial sources of potash there is unleached wood ashes, which contains approximately five per cent of potash in the form of potassium carbonate, and the ashes of other vegetable products such as corn cobs, which are produced in some considerable quantities in certain sections.

Availability.

Probably the question of availability is more directly concerned with the phosphoric acid products than with either of the other two standard fertilizing ingredients. Most soils have a strong power of fixing phosphates. We may pour a watery solution of phosphoric acid upon the soil and no matter how heavy the rain, very little of this phosphoric acid will be washed out of the soil. This is due largely to the fact that when the soluble phosphoric acid strikes the soil it combines with lime which is in the soil and becomes reverted, in which condition it is no longer soluble in water. It is, however, to a considerable extent sol-

uble in dilute salt solution and because of this fact, that is its solubility in dilute salt solutions, and in dilute acids, it has been considered that it is in this way quite readily available to plants, therefore it is customary to consider as available, not only the water soluble phosphoric acid but also the commonly known reverted phosphoric acid.

Any acid phosphate or super phosphate that is put on the soil becomes speedily changed into the condition known as the reverted, whereby it is no longer soluble in water and consequently the rains will not wash it out of the soil. The insoluble phosphoric acid, however, does not yield to the influence of water nor salt solutions, nor dilute acids. It is, therefore, considered to be very slowly available to plant growth unless it be associated with an abundant amount of organic matter and in a good healthy soil.

In the accompanying tables we give a compilation of the composition of fertilizing materials as published by the Ohio Agricultural Station, in bulletin No. 100. These tabulations are well to have in mind as they not only give the percentage of the various fertilizing ingredients which enter into the commercial fertilizers but they also give the fertilizing ingredients in the various animal manures and in some of the animal and vegetable by-products.

Average Composition of Fertilizing Materials.

Materials.	Percentage Composition:			Pounds Per Ton.		
	Nitrogen.	Phosphoric Acid.	Potash.	Nitrogen.	Phosphoric Acid.	Potash.
Ashes, hard coal
Ashes, soft coal
Ashes, wood, leached
Ashes, wood, unleached
Ashes, cottonseed hull
Ashes, corn cob
Azotin (ground meat, etc.)	15
Bone ash
Bone-black, untreated
Bone-black, dissolved
Bone meal, raw
Bone meal, free from fat
Bone meal, from glue factory
Bone meal, dissolved
Castor-bean pomace
Cottonseed meal
Dried blood
Dried fish
Florida soft phosphate
Hair
Hoofmeal and horn dust
Kainit
Leather meal
Muriate of ammonia
Muriate of potash (80 per cent)
Nitrate of potash
Nitrate of soda
Peruvian guano
South Carolina rock (floats)
South Carolina Rock (dissolved)
Sulphate of ammonia
Sulphate of potash (low grade)
Sulphate of potash (high grade)
Sulphate of potash and magnesia
Tankage, "6 and 35"
Tankage, "7 and 30"
Tankage, "8 and 20"
Tankage, "9 and 20"
Tankage, "10 and 10"
Thomas (or basic) slag
Tobacco stalks
Tobacco stems
Wool waste

Composition of Farm Manures.

	Percentage Composition.			Pounds Per Ton.		
	Nitrogen.	Phosphoric Acid.	Potash.	Nitrogen.	Phosphoric Acid.	Potash.
Horse manure (Watson)	0.49	0.26	0.48	9.8	5.2	9.6
Cow manure (Watson)	0.43	0.29	0.44	8.6	5.8	8.8
Sheep manure (Watson)	0.77	0.39	0.59	15.4	7.8	11.8
Swine manure (Watson)	0.84	0.39	0.32	16.8	7.8	6.4
Horse manure (Wolff)	0.58	0.28	0.53	11.6	5.6	10.6
Cow manure (Wolff)	0.34	0.16	0.40	6.8	3.2	8.0
Sheep manure (Wolff)	0.83	0.23	0.67	16.6	4.6	13.1
Swine manure (Wolff)	0.45	0.19	0.60	9.0	3.8	12.0
Cattle urine (fresh)	0.58	...	0.49	11.6	...	9.8
Horse urine (fresh)	1.55	...	1.50	31.0	...	30.0
Human excrement, mixed (Wolff)	0.7	0.26	0.21	14.0	5.2	4.2
Hen manure (fresh) N. J. Ex. Sta.	1.15	0.92	0.45	23.0	18.4	9.0
Hen manure (fresh) (Wolff)	1.63	1.54	0.85	32.6	30.8	17.0
Barnyard manure, average	0.49	0.32	0.43	9.8	6.4	8.6

HOW TO SELECT COMMERCIAL FERTILIZERS.

In deciding to buy fertilizers, the farmer should certainly have some ideal in mind. If there is any virtue in commercial fertilizers, that virtue demands that they should be used with skill.

The Law Requires a Guaranteed Analysis.

In nearly all of the states, particularly in Michigan, the legislature has very wisely provided that the manufacturers of

commercial fertilizers shall stamp upon the outside of the sack the guaranteed composition of the goods. The samples that are shipped into the state are subject to periodical inspection by the agents of the state experiment station, samples being transmitted to the chemists of the experiment station, by them examined, and report made in bulletin form, to be distributed among the citizens of the state who are interested in the question of fertilizers. It is usually the custom for

the various experiment station chemists to not only give the actual analysis of the samples submitted in various parts of the state, but also to frequently give some additional data regarding fertilizers in general, and to transmit for the benefit of the farmer the current market prices at which the various ingredients retail in the large centers.

Cost of Ingredients.

In the bulletin of the Michigan Experiment station, for 1911, the following schedule is quoted for estimating the commercial values of the fertilizers printed in the report.

Nitrogen is estimated at 16½¢ per lb.; potash is estimated at 4½¢ per lb.; available phosphoric acid is estimated at 5¢ per lb.; total phosphoric acid (bone), is estimated at 4¢ per lb.; insoluble phosphoric acid in fertilizers containing nitrogen, 2¢ per lb.

This schedule of values does not differentiate, except in so far as phosphoric acid is concerned, between the various sources supplying the different amounts of fertilizing ingredients mentioned. It is generally conceded that a considerable difference should be given in the value of nitrogen from nitrate of soda, for example, and the nitrogen from tankage, cottonseed meal, and from other sources which are not so readily available as are these last mentioned. For instance, nitrogen in nitrates might be placed at 16½¢ a pound. It is generally conceded that nitrogen in ammonia salts should be rated a little higher than the nitrogen in nitrates, probably 1¢ per pound more, this making the rating for ammonia salts 17½¢ per pound. On the other hand, the nitrogen in coarse bone and in some forms of tankage should not be rated at more than from 12¢ to 14¢ per pound.

This difference in rating of the fertilizing ingredients dependent upon different sources of supply is one of the strong reasons why investigators have urged the home mixing of commercial fertilizers. In this way, no matter if there were no saving financially in the products obtained by home mixing over the products obtained in the factory mixed goods, the farmer would have the assurance that the materials used in these home mixed fertilizers was of the highest grade obtainable.

It is quite usual, also, to recognize a slight difference in the commercial value of potash obtained from high-grade muriate of potash and that obtained from the sulphate and carbonate of potash. It is generally conceded that sulphate or carbonate of potash is practically its most desirable form and it should be given a rating perhaps of one-half cent per pound higher than is the case with the muriate.

In the Michigan bulletin only that insoluble phosphoric acid in a fertilizer which is accompanied by organic matter is given any value whatsoever, and that is given a rating of 2¢ per pound. The reason underlying this is a good one, although it is doubtful if it is correctly applied, especially as broadly as it is applied in the bulletin mentioned.

Why Insoluble Phosphoric Acid Should be Associated with Organic Matter.

Bone meal contains a considerable quantity of insoluble phosphoric acid, all of which, in green bone, has some commercial value. We think perhaps two cents per pound is a fair price to place upon insoluble phosphoric acid in bone meal. The theory of the value of the organic matter with which it is associated in the bone, decomposition sets up within the soil which liberates the otherwise insoluble phosphoric acid, thereby making it available. Ground phosphate rock is not associated with organic matter, consequently in a fertilizer devoid of organic matter it should not be given nearly as much value as is the insoluble matter in bone meal. In fact, it might be almost neglected as far as its commercial value is concerned.

Fertilizers, however, if used correctly, will be used in conjunction with other organic manures, and they will be used in the soil in conjunction with organic matter, for a soil devoid of organic matter is not a soil suitable for the application of commercial fertilizers. Complaint has been made at various times, and correctly, that commercial fertilizers wear out, or burn out, more properly speaking, the soil in some instances. This statement is the result of close observation and is caused by the fact that in the utilization in the soil of the commercial fertilizers applied, a considerable drain is made upon the organic matter of that soil. Consequently, if the soil contains little or almost no organic matter the use of commercial fertilizers tends to cause the

soil to run out instead of to build it up. Granted, then, that commercial fertilizers are to be used on soils containing a considerable quantity of organic matter, then the application of even ground phosphate rock with its phosphoric acid completely insoluble tends to increase the amount of available phosphoric acid in that soil. The reason for this is, as stated before, that through the natural decomposition of the organic matter already in the soil, the insoluble phosphoric acid in the ground phosphate rock applied is gradually made available. It matters not, therefore, whether the fertilizer added in itself contains organic matter.

Again, looking at it from another point of view, it is easily possible to mix into a fertilizer both organic matter and ground phosphate rock and, in this way, give to the ground phosphate rock a two cent per pound valuation which it would not get were it removed and applied by itself. In this case, it is extremely probable that the advantage of the second application would be as great as were it used in conjunction with that fertilizer containing organic matter.

Bone Phosphoric Acid Should be the Basis of Differentiation in Price.

We think it is exceedingly practical and desirable, however, to distinguish between the values of the insoluble phosphoric acid in bone products and the insoluble phosphoric acid in ground rock, provided, of course, the bone is a green bone or a bone containing its original content of organic matter.

Farmers should bear in mind these facts in buying commercial fertilizers and it is a good idea to bear these commercial valuations in mind for they insure a certainty that the amount paid for the fertilizer will not be grossly in excess of its real commercial value.

For purpose of calculation, let us consider that we have a fertilizer of the following composition:

	Per Cent.
Nitrogen as ammonia	2 to 3
Available phosphoric acid	8 to 10
Insoluble phosphoric acid	3 to 6
Actual potash	10 to 12

What is the total amount of plant food per ton of such fertilizer, and what would its commercial valuation be?

In computing commercial valuation, figures should be based upon the lowest percentage claimed by the manufacturer. In this case we have ammonia from two to three per cent. We should, therefore, base our calculation on the lowest amount, that is, two per cent of ammonia. We have stated that it is fair to give to the nitrogen in ammonia the valuation of 17 cents per pound. If there were two per cent of ammonia, then a ton of this fertilizer would have 40 pounds of nitrogen as ammonia. This 40 pounds multiplied by 17 cents per pound, would equal \$6.80.

The available phosphoric acid is eight per cent. Therefore, in 2,000 pounds there would be 160 pounds of available phosphoric acid. The valuation given it, which was five cents per pound, would mean \$8.00, the value of the available phosphoric acid in one ton of the fertilizer mentioned. The insoluble phosphoric acid ran from three to six per cent. Estimating three per cent phosphoric acid would mean 60 pounds insoluble phosphoric acid per ton, which, valued at two cents per pound, would be \$1.20 per ton. The potash, which in this instance is in the form of sulphate of potash, running 10 per cent actual potash, would show 200 pounds of potash per ton, which, valued at five cents per pound would mean \$10, the actual value of potash per ton of fertilizer in question.

Now, to recapitulate, we have the Nitrogen, valued at \$6.80 Available phosphoric acid 8.00 Insoluble phosphoric acid 1.20 Actual potash 10.00

Total valuation per ton \$26.00

The above valuation is based entirely on the costs of the raw materials in the various large fertilizer mixing centers in the country, and represents the price at which these goods can be purchased as a rule but does not include the cost of freight and the labor of mixing and handling.

FLOYD W. ROBISON.

The South Bend Watch Co., South Bend, Ind., are putting out a remarkable book about watches, called, "How Good Watches Are Made." It gives many watch pointers that will save you money. It tells all about the personal adjustment necessary for watches, even though they are adjusted to run in both freezing and boiling temperatures, as are the watches built by this company. This book is free to Michigan Farmer readers. Address all requests for same to The South Bend Watch Co., 2 Market street, South Bend, Indiana.

THE DAIRY

CONDUCTED BY COLON C. LILLIE.

PEAS FOR DAIRY COWS.

Analysis shows that the Canada field pea contains 23.7 per cent of protein, 50.2 per cent of nitrogen free extract, .8 per cent of fat, 2.4 per cent ash and 15 per cent water. As compared with whole cottonseed the peas have about four per cent more protein, 22 per cent more nitrogen free extract, while cottonseed has 19 per cent more fat, 1.6 per cent more ash and about six per cent less water. Thus, we see, from these figures, that this product of our northern latitude is quite as able to furnish us with that most desirable and necessary element, protein, as is the far famed seed of the cotton plant.

Peas are rich in the constituents which produce muscle, blood and bone and consequently are valuable for all growing animals as well as those at work. The high per cent of protein also makes it an excellent grain for mixing with others to compound a dairy ration. For feeding the dairy cows, this grain, however, should be ground, according to the careful observations of those who have attempted to determine the best manner in which to feed it. However, pea meal has a tendency to pack and so its mechanical condition is improved when mixed with other feeds so as to lighten it up.

Not only is the grain of this plant excellent when compounding dairy rations, but the straw also has considerable value in this regard. The plant, being a nitrogen-gathering one like clover and other legumes, stores up within its different parts a large amount of nitrogenous material. This makes the straw as well as the grain valuable for feeding purposes.

One of the difficult operations in connection with the growing of this crop is its harvesting. Growers have found, however, that by mixing peas and oats together this operation becomes as easily performed as is the harvesting of oats or other grains that stand up well, and inasmuch as the grain should be mixed with other kinds for feeding it is not necessary that they should be grown separately. It has been found that oats make an exceptionally good grain to grow peas with since they mature in nearly the same period, and also because the resultant mixture of grain is admirably adapted to the feeding of dairy animals. For this purpose the grain should be mixed so that about two-thirds will be oats. Then, too, in the event that one would run short of hay or fodder while this crop is maturing, he could cut a whole or part of his field and put it in the mow for feeding as hay. The result would be exceedingly satisfactory since the product would contain quite as much protein as clover hay itself. It is, however, a little more difficult to secure than the clover crop, but with this exception, the grower would have little to feel disappointed over.

The growing of peas on the farm where dairy cows are kept would have a tendency to reduce the amount expended for concentrates, which are now being bought in exceedingly large quantities for the balancing up of the dairy feed. By growing a liberal amount of peas and oats together, one can entirely eliminate the necessity of purchasing cottonseed meal and other feeds containing a high per cent of protein, and still continue to feed to his animals a well balanced ration so that none of the feed nutrients need be fed in such large quantities as to make the grain an uneconomical one.

A still further advantage in the growth of this plant upon the farm is because of its being a legume and having the power to gather nitrogen from the air and leave a portion in the soil, thus supplying the land with additional nitrogen, thereby saving on the fertilizing bill. The excellent mechanical condition of the soil after a crop of peas have been grown testifies to the advantage along the line mentioned.

Field peas were formerly grown through the central part of Michigan more liberally than they are today. The reason for this lies largely in the fact that the pea weevil did much toward making a poor stand. But now that we know how to overcome the work of the insect it need not have this effect. By simply confining the seed in a tight box and subjecting to the fumes of bisulphide of carbon at the rate of from one to two ounces to each one hundred pounds of seed the insect is destroyed. The insect is inside of the seed. The fumes, which should not be breathed by the operator, do not harm

the germinating power of the seed. The treatment may be continued for as long as two full days. The inferior seeds can also be removed by throwing the whole in water when the seeds containing the weevil arise to the top and can be skimmed off, while those that sink are of good quality. By taking this precaution with regard to the selection of seed, preparing the land well, and getting the seed in the ground at the earliest possible date in the spring, one is not likely to be disappointed in the crop which results.

Gratit Co.

READER.

"SOME PHASES OF DAIRYING."

Professor Fraser's address as reported in the Michigan Farmer of February 10, not only expresses interesting facts, but reveals much more "between the lines."

In the first chart Prof. Fraser gives the work of six cows, representing the best and poorest of three herds.

By the chart, the average cost of production for butter-fat per pound from these six cows was 36½¢. If we may take this figure as an approximate of universal cost, then, since 36½¢ is far above the average of regular market quotations, we must draw our conclusion, the butter producer is not profiting largely from the "high cost of butter." And from a manufacturer's viewpoint dairying is too unprofitable to be considered as a part of farm economy, to say nothing of farm profits.

Prof. Fraser's fourth chart, as printed, marks distinctly the benefits to be gained by close selection of best stock and practical details in feed, breed and care.

This chart represents the work of 13 cows, producing an average profit of \$42.60. It would now be interesting to know how many cows would be registered as below this standard, in securing the given 13 standard specimens.

In the absence of such figures or facts, we note that the average production of the 13 cows in butter-fat is 326 lbs. Upon this basis I will wager a good cow against an old hat that cows, as they run, will not produce of the required standard sort, 13 out of 1,300. Prof. Fraser shows that a cow producing \$20 profit must yield 240 lbs. butter-fat per year.

Then, to produce an annual profit of \$500, one must keep 25 standard average cows or the pick of approximately 2,600 cows, that is, it is possible there might be about one profitable dairy herd of 25 cows in each county of a state and all cows outside of this must be destroyed, or maintained as a benevolence on the part of the farmer to provide cheap butter for the masses.

If, as a business proposition, we destroy the unprofitable herds of ordinary cows, then what of the price of butter produced from the select? It looks like the coming of a trust that would pale the shadow of Havemeyer and Rockefeller.

To what extent the conditions that prevail may be bettered by breeding, selection and care, must remain an unmeasured and unknown quantity. It is believable such improvement is enormous beyond conception. It is equally patent that so long as there is a farm there will be ordinary cows in abundance.

Then, to the average farmer the practical conclusion drawn from Prof. Fraser's chart is, the average farmer would best keep only enough cows to provide his family with the luxuries of milk, cream and butter, leaving to the specialist the work of producing for the market.

This division of production would gain the specialist dairyman profitable remuneration for his labor and skill and the grain farmer an outlet for his products at a better figure.

Prof. Fraser refers to cows kept at the University of Illinois, wherein two cows produced a profit of 25 cents and another two produced a profit of \$223.27.

I have good reason to know there are farmers who question the truthfulness of the larger profit. Suffice it to say, Prof. Fraser is not the sort who exaggerates facts, and in this case there is no reason why he should. There is a greater question involved in such abnormal productivity.

Can this cow produce equally well the second, third and fourth year, and is it an abnormal production, amounting to a disease or derangement that, in the end, will sap and deteriorate the vitality of the whole bovine race, and maybe visit malady upon the consuming humans? I leave this for each to pursue for himself.

I will answer in advance all questions that will arise as to my having overlooked the incidental benefits of dairying through production of fertilizing elements

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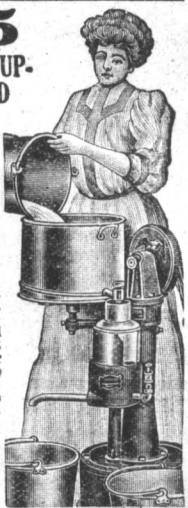
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by suggesting that the production of spring lambs, baby beef, poultry products and kindred sorts of animal husbandry, not omitting draught horses, would produce as much fertilizer at a less intensive outlay, confinement and inconvenience, and would scarcely lose more on the investment than Prof. Fraser's article shows is lost in common cow keeping.

Prof. Fraser's charts are curious, in that they throw light of an unexpected character upon the city consumer's opinion, that farmers are growing rich from high-priced butter.

They are interesting by showing the difference between individual cows. They are practical when summarized in a business way, by showing that cow-keeping, on the whole, is far from profitable.

Ionia Co.

J. E. TAYLOR.

VALUE OF OAT AND PEA HAY.

What is the value of oat and pea hay in a ration for milch cows with corn stover, corn and cob meal and cottonseed meal?

Van Buren Co.

M. N.

One can safely figure oat and pea hay if it is properly cured and cut at the right stage of development, of the same value as common red clover hay. There would be very little difference. The pea vines are richer in protein than clover, but oats are not quite so rich, but the two together would make a hay that can safely be figured in balancing a ration, of the same value as clover hay. And, if it is handled properly in the making it is just as palatable.

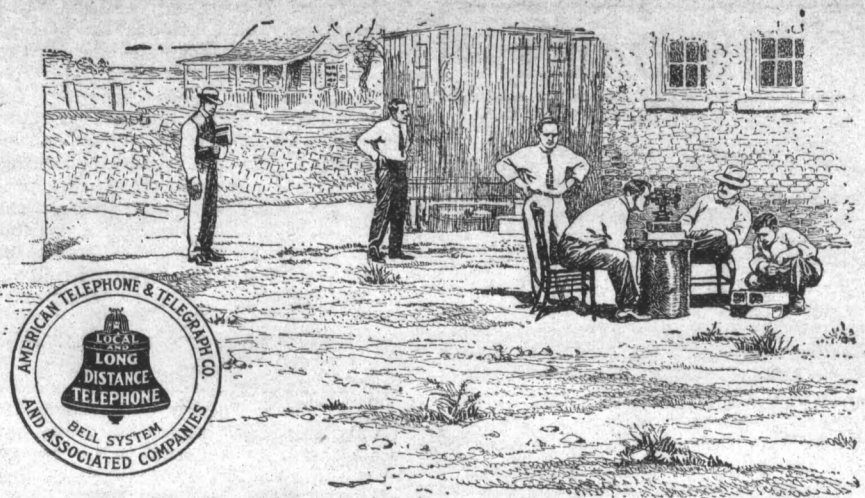
IMPROVEMENT IN DAIRY COWS.

It is a matter for breeders to feel congratulated over that there is being made such strides in the improvement of the dairy breeds of cows. Two of the different breeders' associations have recently stated that records of individual cows but lately tested show 32 cows to have official records of over 700 pounds of butter in a year. One breed shows 14 cows out of 65 tested to be in the 700-lb. class and above.

The work of the advanced record department of the breed organizations is doing much to bring the attention of breeders to the business side of the cows which they are producing and offering to the public. This attention puts performance before conformation and while it may disturb former established ideas as to just how a dairy cow should look, it will ultimately create in the minds of breeders as well as dairymen a general type of dairy animals that will be more exclusive of inferior animals and include more of that large and profit producing class if it is possible to come closer than the present ideal. But if we have perfected our ideal type then these records will either corroborate the fact that our ideals are true, or that we should not put the dependence upon them that we have and that we should go back of the appearance of the animal and see what she can do at the pail. At whatever angle we view the situation we are sure to be convinced that this work is an admirable one and that it is and shall continue to be a decided step forward in the production of animals for dairy purposes. We now need to impress the dairymen and the farmer of the wide difference in cows and urge and help them to secure such as will give profits, and to aid in the weeding-out process that must be done to put the dairying business wherever carried on, upon a paying basis.

HIGHER BUTTER BUT LESS COWS.

The February Crop Reporter contains an estimate of the number and value of the live stock upon the farms of the country on January 1, 1910 and 1911 respectively. In compiling these figures, the census report of the number for 1910 was used as a base, to which the percentages of the yearly variation of the numbers were applied. According to this estimate the number of milch cows on the farms of the country on January 1, 1912, was 20,669,000 as compared with 20,823,000 in 1911, or a decrease during the year of 1.5 per cent. There has been a shrinkage in value of individual value of cows, according to the estimates made by the department, from \$39.97 in 1911 to \$39.39 in 1912, making a difference of \$16,795,000 in the total value of all milch cows. This, in the light of the high prices which have obtained for dairy products during the past year, shows that the farmers do not consider the business sufficiently profitable so that the number of dairy cows in the country has even been maintained, to say nothing of the business being increased.



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U. S. Census Bulletin.

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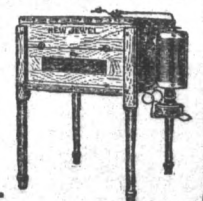
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SOME CONDITIONS AFFECTING THE SECRETION OF MILK.

No one has been able to satisfactorily explain the process by which milk is elaborated in the udder of the cow. It is known, however, that this is done largely during the process of milking, for if a cow that gives regularly eight or ten quarts of milk be slaughtered at the time she is usually milked she would not have more than a quart of milk in her udder. During the period between milking times the blood is carrying material to the cells of the udder out of which the milk is manufactured. When the milker takes hold of the udder the stimulation to the nervous system of the cow causes the elaboration of the milk which passes to the cisterns from whence it is drawn by the milker. This function being performed by the animal at the milking season makes the observance of conditions that give the maximum of milk production, important economically.

Where one is in the habit of taking his meals at a precise hour, he needs no timepiece to tell him when the hour and minute for meals have arrived. His body will indicate that. Now the function of secreting milk being a bodily function of the dairy cow it becomes important that the time for stimulating it should be established at the same time each day. Particular dairymen are anxious that their cows be milked at the precise hour, and minute each day. If the same order of milking be followed each time and if the milking is started at the exact hour this policy can be carried out to a nicety, and it pays in the better returns from the animals. Establish the habit.

The dairy cow is a nervously constructed animal. Anything that affects her bodily or mentally affects her whole system and consequently that portion of her nervous equipment responsible for the production of milk. It is a fact that exposures to extremes of weather as well as to unusual excitement disturb the system of the animal, and from what we have seen in the foregoing would naturally affect the secretion of milk. Boisterous language about the stable, the abuse inflicted on the animal by a milker with a quick temper, the exciting of the cows through being dogged, often reduce the "mess" of milk one-half or more. An understanding of the process by which milk is secreted would aid in explaining, no doubt, just why these exciting causes have the effect they do. Nevertheless, practical demonstration has so thoroughly established the fact that all dairymen who are seeking to obtain the largest net profits insist that their cows be kept under quiet conditions, especially around the milking hour.

Clean milking is another matter which makes for the securing of maximum profit. In the elaboration of milk in the cow's udder the fat particles are slower in reaching the milk cisterns than are other parts of the milk. As a consequence of this condition, the first portion of the milk is very poor in butter-fat, whereas the last part is extremely rich. Tests show that the first streams of milk from the cow's udder test as low as .8 per cent of butter-fat, and that the "stripings" often test as high as 12 and even 14 per cent. Hence, it needs no argument to convince the average man that his milkers should milk the cows clean, for in doing so he secures that part of the milk most desired.

On the other hand, slow milking is to be avoided, for tests have demonstrated that, other things being equal, the slow milker will not secure the same quantity of milk from a cow that a fast milker will secure. It appears that the elaboration of milk is most complete when the milking is vigorous from the first. Although this should not be construed to mean rough treatment.

The same argument would apply as to the changing of milkers. The cow becomes accustomed to a certain milker and often when a change is made her nervous system is so disturbed that the elaboration of milk is checked almost entirely. Where large commercial herds are kept and it is impossible to have the same milker continuously milk the same cows, the practice of having the milkers rotate is followed, so that poor milkers will not have a chance to spoil good cows and also that the cows may not become accustomed to any particular milker, thus preventing the milk flow from suffering through a change. However, where it is possible to keep the same milker with the cow, superior results are obtained, providing he is a good milker.

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A. H.



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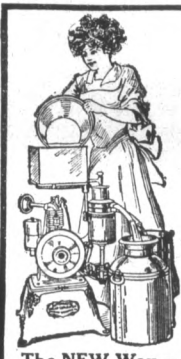
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The Lawrence Publishing Co.,
 Detroit, Mich.

DETROIT, FEB. 24, 1912.

CURRENT COMMENT.

In another column of this issue will be found a continuation of a discussion regarding the merits of the present mortgage tax law, which point has been raised in recent issues of the Michigan Farmer. This is a proposition upon which neither laymen nor students of taxation matters will ever wholly agree. Those who maintain that the taxation of both mortgages and the real property upon which the mortgages are secured constitutes double taxation will contend that the amount that must necessarily be paid in taxes upon the mortgaged land, or that portion of it which is not represented by the owner's equity, will be more than offset by the cheapening of the rate of interest when mortgages are practically exempt from taxation. Others will as strongly contend that no such reduction of the interest rate will occur and should it occur will be equally certain that the reduction is due to some other cause.

If, however, the discussion of this problem serves to direct the attention of people of different shades of opinion upon this question to the methods of farm financing which prevailed in many of the European countries, and in even some countries of the far east, the problem will be ultimately solved in a much more satisfactory manner than by either the taxation or exemption of mortgages or any portion of the value of real estate which is represented by a mortgage to which it is collateral security. This system is operated through credit associations, which are locally known as banks, and are organized without any subscription of capital stock. The membership is simply made up of people owning real estate who desire to use same as security for cash loans. Upon joining the society, an application is made for a loan which is made upon recommendation of a committee of the society or so-called bank, running for a long period of years and at a low rate of interest, usually 3½ to 4 per cent per annum, depending upon other conditions. As a means of reimbursing the treasury of the organization for the loans so made, debenture bonds are issued for which all of the property of all of the members having made loans through the society is security. These are issued in small denominations and are freely purchased by people who have

large or small sums for which they seek investment.

There are thousands of these banks in Germany and other European countries, and they are associated with district and central clearing houses or banks to facilitate the transaction of this business to the advantage of both investor and borrower. There the small real estate owner is enabled to borrow money at a low rate of interest, practically the same rate as the industrial organization whose bonds are on the approved list.

What is needed in this country is such a system fostered and protected by the state, to the end that the farmer or small business man may no longer be compelled to seek loans in his restricted local money market, in which outside capital does not compete to an extent which will operate toward the lowering of interest rates to a legitimate minimum, even under the exemption of mortgages from taxation. In the meantime the discussion and agitation of this question should do much to bring about a healthy public sentiment in the direction above outlined.

The United States Department of Agriculture has recently investigated the dessicated potato industry of Germany, the report of which is the more interesting because of the fact that Germany grows about one-third of the world's potato crop. Germany has a number of potato drying plants, having a combined yearly capacity of 25,000,000 bushels of potatoes, an amount equal to more than seven per cent of the average annual crop of the United States.

There are two systems of preparing this product, one of which makes the potatoes into thin flakes which are used as a substitute for fresh potatoes in the household and are also ground into a flour and mixed with other flour for the making of bread and other cereal foods. Another is used which reduces the manufacturing cost about one-half in the preparation of potatoes for other than human food. It is stated in this report that four tons of potatoes yield about one ton of dried product and that the cost of manufacturing is about \$1.30 per ton of potatoes, including items of expense, depreciation, etc.

Most of this product is used as a food for all kinds of live stock, having about the same equivalent value as corn for such use. The product is also used in the manufacture of yeast, alcohol, etc., but being partially cooked is not suitable for the manufacture of starch, although it is thought that a process will be worked out for manufacturing the material in such a manner as to make it suitable for starch making.

This is of interest, not alone as a means of using up the enormous German potato crop which in some seasons competes with our own market, but as well because of its possible application in this country should our production grow to exceed the demand for human consumption, especially in sections where the comparatively high freight rate reduces the value of the crop to a very low level in years of flush production.

In the congressional investigation of the Michigan sugar beet industry, which has been in

progress for some time, the status of the Michigan sugar beet industry was made the subject of inquiry. After some compromises the committee agreed on a report which every member signed, including Congressman Fordney, whose district lies in the heart of the sugar beet section of Michigan. This report indicates a violation of the Sherman anti-trust law by the sugar trust, so-called, alleging twenty-one actions which constitute such violations. However, the principal interest of the reader in this work will be in relation to its bearing upon the Michigan sugar industry.

The investigation of this committee shows that in 1910 the world's supply of sugar was 17,000,000 tons, of which 50.5 per cent was beet sugar. The largest sugar consuming countries of the world were shown to be the United Kingdom, which consumed 86.3 pounds per capita, and the United States where the per capita consumption was 81.6 pounds. One of the phases of the sugar problem in which the committee was instructed to inquire was if the existence of a trust had any tendency to decrease the price of sugar cane and beets to the producer. The report indicates that in Louisiana the sugar cane grower is discriminated against by arbitrary rulings of the trust,

while the Hawaiian planter is independent.

Regarding the beet sugar growers, this report says: "The present committee reports that the evidence as taken does not disclose combination between manufacturers in the beet sugar industry to have caused, or had a tendency to cause, a decrease in the cost of sugar beets."

The committee made no recommendation with regard to the action which congress should take in consequence of their findings, leaving that for the regular standing committee to take up. There is a great variety of opinions as to whether congress should reduce or remove the duty on sugar. However, so far as Michigan is concerned, a staple condition of the sugar industry is to be desired and the further development of the industry is apparently to the advantage of the consumers of the entire world. With more than one-half of the sugar supply to its credit, it will be seen that the beet sugar output is a very considerable factor in the keeping of prices down to a reasonable level, and with the increased cost of labor and greater uncertainties in growing the sugar beet crop which have prevailed in recent years, it is certain that growers should receive more instead of less for their product, and such a condition can come about only through the assured stability of this industry in which increased production will in the end mean cheaper sugar for the entire world.

At a recent farmers' meeting where the question of national aid for highway construction came up for discussion the sentiment seemed strongly to favor the extension of national aid in this direction. Several reasons were given for this expressed opinion, such as the fact that the federal taxes are paid indirectly and no one would feel the burden of providing a degree of government aid for road building. Another reason given was that the building of government roads would inspire the people to construct more good roads on their own account and thus more quickly bring about an improved condition of the highways. This argument is one which has also been advanced in favor of the county road system. That is, it is claimed by many who should have a good knowledge of the subject that under the county road system the townships will independently build more good roads than they did without the county road system. This may be true of outlying townships which get no immediate benefit from the adoption of the county road system through the improvement of the roads which greatly benefit the taxpayers; but right here is a frequent cause for discussion and consequent dissatisfaction with the county road system.

Even in counties where it is in successful operation there is a strong feeling on the part of the people of outlying townships that they do not get a square deal in the building of roads. That is, the roads improved are such as do not benefit the taxpayers of these outlying townships greatly. This, of course, would be very much more true of any system of federal aid, since only the main roads between large centers of population would be benefited by any proposed system of federal aid yet advanced.

However, the ultimate solution of the road problem will not be reached without many differences of opinion regarding the plan in vogue during the process of evolution. But whatever our opinion with regard to the soundness of the policy of expending large sums in the building of permanent roads, either through cash appropriations or the selling of bonds, all will agree that what money is expended on the highways of any community should be expended to the best possible advantage. For this reason every reader of this paper should have a personal interest in the highway problem in his locality, and by the concerted action of interested people of each township, the appropriation made at the spring election should be sufficient to meet the requirements and the men elected to expend the funds so appropriated should be the most competent obtainable for that office.

In many counties there will also be an opportunity for an expression of opinion as to the proper unit for road improvement. Here, again, the reader should carefully consider whether he prefers to have the county the unit for road improvement and have the urban population pay their share toward such improvement, or have the farmers continue in the future as they have in the past, to

pay the entire cost of such road improvement as may be effected under the old system of the township and district road unit.

One can scarcely realize the extent and scope of the Farmers' Institute Work.

Institute meetings conducted throughout a great country like the United States in a single year. The 1911 annual report of the director of office of experimental stations, recently submitted to the secretary of agriculture, contains some interesting statistics with regard to the number and scope of institute meetings held throughout the country during 1911. The report says:

"Reports were received during the past year from 44 states and territories giving data respecting their institute work. In 41 of these, regular institutes were held to the number of 5,582; 3,723 were one-day meetings, 1,704 two days, and 155 three days or more.

"The total number of sessions was 15,532, with an aggregate attendance of 1,994,676. If the states and territories not reporting equal the sessions and attendance of last year, the aggregate number of session for the entire country will amount to 16,545 and the attendance to 2,074,099, as against 16,586 sessions in the previous year and 2,395,808 attendance, a falling off in sessions of 41 and in attendance of 321,709. The special institutes aggregated an attendance of 1,252,933, making the entire attendance at institute meetings of all kinds 3,327,092, or 383,848 more than in 1910. The special institutes are rapidly growing in importance and interest. One hundred and forty-nine movable schools were held with an attendance of 39,965; 62 railroad instruction trains were run, covering 35,705 miles, accompanied by 740 lecturers and attended by 939,120 persons. Four hundred and fifty-nine independent institutes were held, with an attendance of 130,917, and 15 round-up institutes, continuing through 153 sessions, attended by 22,730 persons. There were 303 picnics and conventions, consisting of 269 sessions, attended by 120,161 persons."

This trite maximum is often quoted as though one should be honest from a standpoint of policy alone. However, if absolute business integrity were the standard of every man it would not matter to those with whom he had business dealings whether this practice were the result of policy or of a deeper and more praiseworthy principle. Be that as it may, it undoubtedly always pays in the long run to be perfectly honest and fair in our dealings with our fellow men. We should do just as we agree and be careful to remember what we agree to do. We should be prompt in meeting our engagements and obligations and try to educate ourselves to be broad minded and liberal in our judgments or suspicions as to the dishonesty or deceit of others. Then we will unconsciously build up a reputation for ourselves which will not only be an enviable personal acquirement but as well a valuable business asset throughout our entire lives.

HAPPENINGS OF THE WEEK.

National.

What is known as the "Help One Another Club" has been organized in Toledo as a means of helping to solve the cost of living problem. This club has ordered a carload of flour from a Michigan mill and a wholesale firm of Toledo has donated the use of a portion of their building from which it will be dispensed at cost to purchasers, city employees being given the preference. It is said that if this experiment is successful the club will go into the work on a larger scale and furnish the people of Toledo with foodstuffs at cost.

The federal grand jury at Indianapolis last week issued indictments for 54 labor leaders in various sections of the country, who were charged with conspiracy in relation to the various dynamiting jobs which have startled the country in recent years. These men were mostly, if not all, connected with the organization of structural iron workers. Two Detroit men who had formerly been officers in the local union were among those indicted. Practically all of the indicted persons are now under arrest.

On the initiative of prominent Red Cross officials, a citizens' committee has been organized in New York to secure funds throughout the country for meeting the needs of the famine sufferers in Central China. Last summer the worst flood in forty years destroyed the crops over an area of 50,000 square miles. Many have already died of hunger, and unless prompt relief is given multitudes of men, women and children must perish.

At a recent conference in New York between leading railroad officials and officials of the principal companies manufacturing steel rails in the country, the

improvement of the character and quality of steel rails was the subject of diligent inquiry. A committee of railroad executives and manufacturers was organized to continue investigations and report findings at future meetings.

On Monday, February 19, delegates representing the milk producers of the various sections from which Detroit's milk supply is drawn, held an adjourned meeting at the Burns Hotel in Detroit, for the purpose of effecting an organization for their mutual benefit. This movement is the result of stringent regulations adopted by the Detroit Board of Health for the inspection of dairies contributing to the Detroit milk supply. The delegates present at the meeting represent an organization of members having about 6,000 cows, but it is thought that the organization will become general, embracing practically all of the owners of herds, the milk from which finds its way to the Detroit market. It is said that the organization will undertake to effect a compromise with the officers of the Detroit Board of Health regarding the board's requirements, particularly as to the temperature at which milk shall be delivered at shipping stations. The present demand is that milk shall be delivered at a temperature below 60 degrees, which the producers claim they cannot do.

Former Governor Herrick, of Ohio, has been appointed as Ambassador of the United States to France to succeed Robert Bacon, who recently resigned that post.

A peculiar accident occurred at Birmingham, Utah, last week, when a locomotive and three cars loaded with ore were derailed on a steep grade and rolled 250 feet down the mountain side, crashing through the roofs of two of the principal buildings of the town, killing four persons.

Maj.-Gen. Fred C. Ainsworth, officially known as Adjutant-General of the army, was last week charged with disrespect to his superiors, the major-general in command of the army, and the secretary of war. Preparations were begun to try him on the charge by court martial, but General Ainsworth resigned his position, and at his own request was placed upon the retired list. These events form the sequel to a friction of long standing between officers of the staff and officers of the line, so-called, in the army, and as a result a bill is pending in congress abolishing this and other offices and combining them with the office of major-general.

A limited train on the Pennsylvania railroad was wrecked near Huntington, Pa., on February 15, when a dining car and eight steel pullmans left the track and plunged down a thirty-foot embankment. Of the 132 persons aboard three were killed and 67 injured. The wreck was caused by the breaking of an arch bar under the engine. This wreck will be carefully studied by experts and is of more than ordinary interest, due to the fact that it is the first bad wreck of a modern steel train. It is said the showing will be favorable to the steel type of cars, as none of the cars were telescoped or buckled up.

After being fatally wounded in a duel at Helena, Ark., James Gilbert, who came from Kentucky, declares that he was the man who fired the shot which killed Gov. Goebel of Kentucky, in January, 1900. It is impossible to verify his story and Kentuckians who were closely in touch with the Frankfort tragedy declare that after several men had been convicted and jailed, others bragged that they had been involved in the killing.

Michigan labor leaders will urge the passage of the employees' liability compensation act in the special session of the legislature. This proposed legislation was recommended by the special committee appointed by Gov. Osborn for investigating labor conditions in Michigan in their recent report.

Arizona was last week admitted as the forty-eighth state in the Union. The formalities were carried out under moving picture machines with a large crowd of visitors present.

The new postoffice bill which recently passed the house committee in congress, provides for a limited parcels post, and an investigation of the general parcels post proposition by the commission to make a full report to congress within two years.

The suffrage committee of the Ohio Constitutional Convention voted to report to the convention a proposal recommending that equal suffrage be provided for in the new constitution.

Chancellor Mahlon Pitney, of New Jersey, has been appointed associate justice of the United States Supreme Court to succeed the late Justice Harlan. Judge Pitney has been a chancellor of New Jersey since 1907. He has also served as a congressman, a member of the New Jersey senate and as an associate justice of the New Jersey Supreme Court.

It has developed that the evidence against the officers of the Structural Iron Workers' Union was most of it secured by the aid of a dictaphone, a little instrument which was concealed in the secretary's office and reported conversations through receivers in another room, where they were taken down by stenographers.

The efforts of Col. Roosevelt toward saving the fauna of America has been recognized by the French acclimatization society, which presented to the Colonel a gold medal for his work along this line.

A large number of families in eastern and northern Detroit were inconvenienced last Saturday morning by the bursting of a large water main, which also disturbed a trunk line of gas, thus interfering with both water and gas supply.

Foreign:

Ex-Premier Yuan Shi Kai has been elected to the presidency of the Chinese Republic to succeed Dr. Sun Yat Sen, whose resignation was accepted by the national council which afterwards passed

a resolution paying great tribute to Dr. Sun, whose purity of purpose and self-sacrifice they declare to be unparalleled in history. Yuan Shi Kai has declared that he adheres unconditionally to the national cause. He is looked upon as a man of great constructive ability and it is believed that he will be able to bring about a degree of consolidation of the country's interests. The provisional capital of the new Republic will be located at Nankin.

Mexican regulars defeated rebel soldiers in an engagement near Cuernavaca, Mexico. Fifty-seven rebel dead were left on the field.

Mayor J. W. Hanna, of Windsor, died last week, succumbing to an attack of pneumonia after several weeks' illness.

CROP AND MARKET NOTES.

Ogemaw Co., Feb. 13.—The unprecedented severe weather that we have had for the past six weeks has let up a little today and soon something else than cutting stovewood can be done. There is no feed for sale in this county except what is shipped in and many farmers have not enough to stand a late spring. Baled hay is selling now (by dealers) for \$20; potatoes, 90c@91; eggs, 30c; butter, 30c; cream around 33c. Quite a few cattle have been shipped out during the past four weeks and milch cows are in especially good demand by shippers. Feed is high. Wheat, 90c; corn, 80c, shelled, per bushel. Not much damage to wheat has been reported as yet as there is plenty of snow to cover it.

Saginaw Co., Feb. 8.—The coldest January ever experienced here, entirely without the customary January thaw. Beets were marketed all through the month. Good returns on the whole were received. The sugar companies will be obliged to run most of February to clean up the product, making the longest sugar season yet known. Supplies of feed will run low before warm weather. Stock is wintering well. Eggs scarce and very high, quoted at 40c wholesale. Butter around 35c.

Mecosta Co., Feb. 8.—Continued cold weather has held prices for all products up pretty well. Potatoes, 88@90c per bu; hay \$18@20; corn, 40c per crate; eggs, 30c; butter-fat, 32c per lb. Horses are selling at from \$140@200, according to size; milch cows from \$20@40. No straw to be had at any price. Apples all sold. More sickness now than for some time. No old-fashioned January thaw with attendant fog. Weather has not been warm to cause snow to thaw perceptibly since Christmas, though the weather has not been as cold here as some other places not far away. Lots of farms are expected to change hands, according to inquiries reported.

New York.

Genesee Co., Feb. 15.—Beginning with last April, this has been everything but a normal year. April was quite cold and damp, followed by very warm, dry weather in May. Midsummer was the hottest and driest for many years. The early fall was quite wet. December was rather mild; but January and thus far in February have been very cold. Cellars froze, which never froze before. There were also a number of winds which were very destructive to crops. Wheat went into winter in quite good shape. Wheat was a good crop last summer. Hay half a crop. Oats, early potatoes and early corn almost a failure. Late potatoes, late corn and beans fair crops. Apples a medium crop. Most of beans marketed. Potatoes not moving much. All kinds of stock and feed high. Good young horses \$200@300 each. Good cows \$50@100. Many farms offered for sale, but not many changing hands just now. Price \$50@200 per acre, according to condition of soil, improvements and location. Of course, some are held above their real value same as in other localities. Following are the prices offered by dealers, not the retail prices: Butter, dairy, 30@32c; creamery, 38c; pork, alive, 6c; dressed, 8c; turkeys, 20c; geese, dressed, 11c; fowls, 12@13c; ducks, 20c; eggs, 30@35c; lambs, 10c; wheat, 95@97c; oats, 53c; hay, baled, \$16@20; beans, \$2.50; red kidneys, \$2.75; medium, \$2.45; red marrow, \$2.50; potatoes, 95c; cabbage, ton, \$23@25c; milk retail, 7c quart.

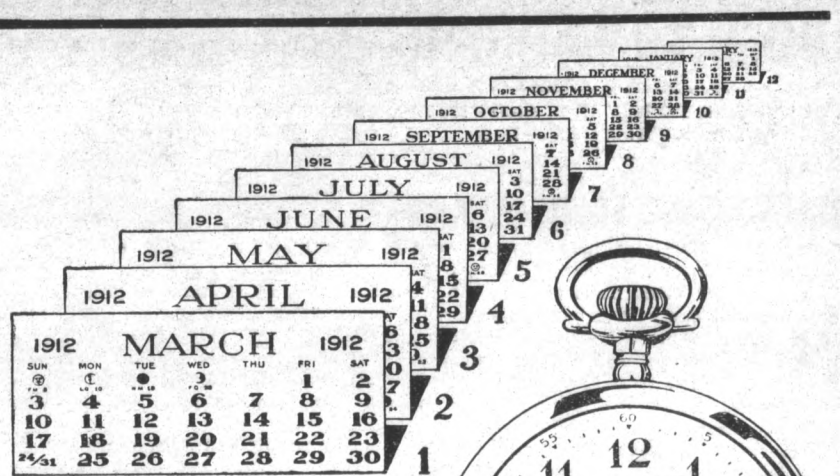
Ohio.

Carroll Co., Feb. 13.—The weather here is very cold; snow has been on the ground for over a month. Farmers are about out of feed. The farmers that burn coal find it hard to get because the country banks can hardly supply the demand. Butter, 35c; eggs, 36c; wheat, \$1.10; oats, 50c; corn, 75c; buckwheat flour, 4c lb.

Hardin Co., Feb. 12.—Cold weather still continues through our section of the country. Very little progress in farming line now. Some corn in the shock yet; very cold and disagreeable for stock to be out. wheat is selling for 95c; corn, 65c; oats, 50c; hay, \$18.50; eggs, 35c; cream, 35c.

THE ROUND-UP INSTITUTE.

The Round-Up Institute will be held at the agricultural college, East Lansing, on February 27 to March 1, as announced editorially last week. Superintendent Taft advises that Professor Hunziker, mentioned in last week's notice, will be unable to attend on account of illness, but he has secured Professor Oscar Erf, of Ohio State University, as a substitute. Professor Erf will talk on the same dairy topics which were previously assigned to Professor Hunziker. In addition to the regular program, Superintendent Taft has planned for a special fruit session on Wednesday afternoon. There will be something for every farmer in the varied program offered and no reader should miss this Institute who can possibly arrange to attend.



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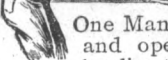
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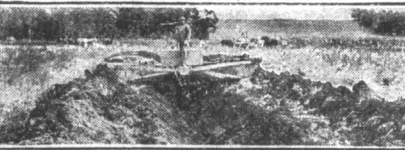
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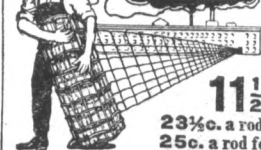
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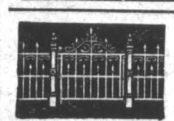
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11 1/2 CENTS A ROD 23% c. a rod for 18-in. hog fence. 25% c. a rod for 47-in. farm fence. 25c. a rod for 60-in. poultry fence. \$1.40 for 80 rod spool of Ideal

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

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FROM FACTORY DIRECT TO FARM 26-inch Hog Fence, 15c. 47-inch Farm Fence, 23% c. 60-inch Poultry Fence, 30c. 80-rod spool Barb Wire, \$1.40 Many styles and heights. Our large Free Catalog contains fence information you should have. COILED SPRING FENCE CO. Box 21 Winchester, Ind.



CHEAPER THAN EVER! Every Kind of Woven Wire Fence also Wrought Iron Picket Fences, Gates, Etc. Write for free Catalog Enterprise Foundry & Fence Co., 1232 E. 24th St., Indianapolis, Ind.

POULTRY AND BEES

POULTRY DESTROYERS AND HOW TO CATCH THEM.—I.

The mink that visits your chicken roost has his advance and retreat all planned before he makes a venture. He always comes from the rear, along some fence, through weeds or any sort of hiding. He is one of the most important of all fur bearers, and one of the hardest to catch. It is found in most localities, preferring tiles, stone bridges, and similar places for its home. This animal is very destructive to poultry, sometimes killing dozens of fowl in one night.

The mink is generally found in the neighborhood of rivers, lakes, and small streams. It has a fondness for fresh running water, and is seldom found near ponds or pools which are at all stagnant. Whenever it is possible, in endeavoring to trap this animal, sets should be made in water. Use traps of the best makes, sizes No. 1 and 1½.

Where there are indications that a mink has visited your poultry house and that his home is along a wooded creek, dig a hole in the bank of the creek, at the water's edge, about five inches in circumference and twelve inches deep. Set the trap in front of this hole, one inch under water, and cover with water-soaked leaves, sprinkling a little sand on the leaves to prevent them from floating away. For bait I find muskrat to be the best, but any kind of fresh meat is good; liver or the entrails of animals will get results. The bait should be placed in the back part of the hole, not in the water.

A good place for a land set is in a canebrae or a thick growth of swamp grass, flags or rushes. A jaybird makes good bait, as a mink, when traveling through a swamp, is generally looking for a bird. Fasten the bird with heavy thread to the limb of a tree and let hang about fifteen inches above the ground. Drop a little fish oil on the bait. The mink will smell the oil, stop, and soon sees the bird. He jumps for it and alights in the trap, which should be set under the bait and covered with some material common to the place.

A very good set for mink is made by using a medium-sized tile. A stick should be wedged in the middle, upon which the bait is fastened. Use rabbit's head or bird as bait. Place the tile in shallow water so the bottom will be covered to a depth of an inch or two. The traps should be placed at the ends of the tile. This set can also be used with success on land. The traps should be covered.

Always stake your traps when trapping mink. If near water the chain should be fastened in deep water, for when the animal is caught it dives for deep water and is drowned.

Minnesota. V. P. GOKEY.

THE DAY-OLD CHICKEN TRADE.

We are in the midst of another breeding season, and probably no branch of late has made such strides as the sale of day-old chickens. For farmers this branch has a great future, either as buyers or sellers. Often, as hatching progresses, farmers find themselves with many small broods, and by buying chickens these small hatcheries are at once brought up to the full number that the hen can accommodate. Then, again, as a seller, the farmer can keep flocks of pure-bred fowls on the colony system, incubate their eggs, and sell the day-old chicks, so that, looking at him either as buyer or seller, he has, in my opinion, great opportunities in this direction.

The best breeds for this line of business are certainly the most popular breeds. It is also preferable to stick to pure-bred stock, as there is not much demand for cross-bred chicks. I have tried both, and from experience I must advise holding to pure-breds of popular breeds. Of course, the choice of breed or breeds rests greatly with the farmer, the district he lives in, and the soil upon which he is situated. Today, probably the most popular of the sitting breeds of poultry are the Orpingtons, Wyandottes, Rocks and R. I. Reds. Of the non-sitting varieties, White Leghorns and Black Minorcas are probably most popular, although with many the Brown Leghorn is a strong favorite.

Where it is desired to go right into this business in a large way, artificial incubation must be resorted to. As a rule, from the multitude of buildings upon the general farm it is possible to convert one of them into an incubator room. In doing this take care to select the one with the

most equable temperature, also free from draughts and noises. In buying incubators it is always well to buy the best; you will never regret doing so, as the best machines, if properly worked, are very reliable and satisfactory.

On a smaller scale this line may be taken up with broody hens—that is, natural incubation—but I have, during the last ten years, experimented with both methods and am convinced that, for this line, artificial incubation is the better of the two methods, and certainly the most profitable, as it involves less labor. Of course, the difficulty with natural incubation is to get broody hens in any quantity early in the season. Then, when they are obtained, you must set several together in order to obtain any quantity of chicks.

Packing and Shipping Chicks.

In selling day-old chicks success depends almost entirely upon careful packing. Some years ago, when I first became interested in the business, wooden boxes were universally used, and are yet used by many, for the transit of live chicks. However, today they have taken a back seat in favor of cardboard boxes. Last winter, in the midst of very keen frost, I sent out chicks in such boxes, which are all alive and doing well; in fact, distance seems no object if well packed. Such boxes should be of double-strength cardboard, which is very strong and also more resilient and warmer than wood, should be lined with felt and provided with ventilation holes.

The best age at which to send live chicks away is about twelve hours after hatching; at this age they require nothing but warmth—no food—and they travel famously. If less than a dozen are placed in a box, it is an advantage to make a circle inside by means of cardboard, and so shut off the cold corners, which may be stuffed with a little hay. Experience has shown that a dozen travel much better than a smaller number, because the larger number contain more heat, and therefore keep each other warmer; and again, one dozen will travel better than two dozen, because with two dozen in a box they sometimes crowd each other in the corners. There are times when customers ask for a broody hen along with the chicks. In such cases never put the chickens with her as she will trample them to death enroute.

In conclusion let me emphasize care in the choice of breeds, recommend advertising your chickens attractively, and last, but not least, let me caution against carelessness in handling the incubators. If properly conducted, the day-old chick business will be found one of the most profitable branches of poultry keeping on the farm, for often in spring and summer, when eggs are cheap, they can be incubated in this way and turned to good account.

Canada. W. R. GILBERT.

IN ANSWER TO INQUIRIES.

Black Turkeys.

An Eaton county subscriber asks about Black turkeys, as he is desirous of securing breeding stock. Years ago this breed or variety had many friends and was quite generally grown in some sections of the country. Through neglect and inbreeding it deteriorated in size and stamina but of late years has been given renewed attention, especially in the east, and by turkey raisers of that section is now regarded as a very desirable breed. We do not know where specimens of the breed may be obtained in this state. We trust that raisers who have stock of this breed for sale will make the fact known through our advertising columns.

Feather Pulling.

G. H. C., of Cass county, reports his chickens picking the feathers from each other's throats until the necks of some of his fowls are entirely bare. This may result from his fowls contracting the habit of pulling feathers, or it may have been induced by the presence of a mite, (somewhat smaller than the mite which causes scaly leg), which attacks the base of the feather. The presence of the mite may be determined by the aid of a good magnifier, or by the fact that the feathers surrounding the bare spots break easily or are easily pulled out. However, this mite does not always begin its attack upon the feathers of the throat, but may cause feathers to fall out from almost any part of the body, and, therefore, it would appear that the trouble in this case is due to the feather pulling habit. In either case grease the bare spots thoroughly with carbolized vaseline or some other penetrating ointment. No one has ever been able to determine what causes healthy fowls to develop this habit

"A Shoe For Every Member Of The Family"

"OUR FAMILY" shoes are "Star Brand" shoes with the well-known "Star" on every heel. They have solid leather soles, heels and counters. No substitutes for leather are ever used.

You can soak a piece of the "Our Family" leather in a pan of boiling water and it will still be as soft and as pliable as before. It is specially tanned box calf leather and this severe test proves that no better leather can be obtained.

It is a large line made in a variety of styles and prices, for every member of the family—from childhood to old age. They are better shoes than any other manufacturer has yet produced to be sold at the price asked for them.

Always ask for and insist upon having "Star Brand Shoes" because

"Star Brand Shoes Are Better"

ASK YOUR DEALER—If he can't supply you write for a copy of the Star Brand Family Magazine. It's full of good reading and household helps and besides it shows 92 popular styles of the "Star Brand" shoes.

ROBERTS, JOHNSON & RAND
MANUFACTURERS Branch of International Shoe Co. ST. LOUIS

Send 10c in stamps or silver for postage and packing and we will mail our Society Girl Art Calendar, 12x20 in 10 colors, by the famous artist, Penrhyn Stanlaws.

Address Dept. 7.



I COULDN'T Give You a \$7.55 Better Hatcher If I Charged You \$100 For It

Yet My Price Is Only

All Freight Prepaid Sold on One, Two or Three Months' Test

Freight Paid East of Rockies

YOU can't get anything better than the best—then why pay more than 1 charge for my World's Championship Belle City Incubator. It has won the double world's championship in over 5,000 hatches—that makes it best of all—no matter what the price. The reason I can sell my incubator at so low a price is because I would rather sell several thousand at a small profit if I can, rather than a few hundred at a big profit. Order from this advertisement if you wish to. Thousands do. Here is description of the machine you will get—the machine that won the double world's championship: 140-Egg Belle City World's Championship Incubator has simple, perfect self-regulator, correct hot water heating system, copper tank, and boiler, safety lamp, double walls and double door, with dead air space all over with roomy nursery and strong egg tray. Of course the thermometer is right; I use the "Tycoos." I also supply egg tester, burner, funnel, everything you need including valuable instruction book on operation, hatching and care of chicks.

\$11.50 Combination Offer! Get my Belle City World's Championship 140-Egg Incubator and my celebrated 140-Chick Belle City Brooder—Guaranteed to raise more healthy chicks than any brooder made. Read description.

It is double-walled, hot water, top heated, metal safety lamp and burner, wire runway yard with platform. Absolutely the most perfect chick raiser made today.

By ordering together you save 90%—by ordering from this advertisement, save time—get your machine when you want it, ready to start when your eggs are ready. Early broilers bring biggest prices. Why pay more for an incubator than I charge—doesn't it seem reasonable to buy your machine from me as thousands of people do right from this advertisement? Let me send you my portfolio "Hatching Facts." I send this portfolio with each machine if you order from this advertisement, or your name on a postal gets it.

Jim Rehan, President, BELLE CITY INCUBATOR CO., Box 14 Racine, Wis.

My Guarantee With Every Incubator My Guarantee is not just a promise but an Ironclad document by which I guarantee my Fairfield Incubator to be the best built, simplest, easiest and cheapest operating machine on the market, guaranteed to hatch 90% or better. Guaranteed to be satisfactory in every respect or we refund your money without quibbling.

My Big 1912 Catalog FREE

Sam Thompson's Fairfield Incubator Guaranteed to Hatch 90% or Better.

No hen in the world will equal this. No other incubator is good enough to be sold on such a guarantee, which proves that the Fairfield way is the best way and that this is the machine for you to buy. So far I have received over 2,000 reports from last year's customers who hatched 90% or better.

By Actual Test, the World's Greatest Hatcher Made of finest California redwood. Has large, roomy egg chamber, perfect heating system. It's the most perfect machine on the market and the cost is no more than you would pay for an ordinary machine. Write for catalog, price list and free particulars of guarantee and 42 days' trial offer. Address SAM THOMPSON, Pres. Neb. Incubator Co. 65 Main Street, Fairfield, Nebraska.

Write for Special 2-Hatch Trial Offer

SELF RAISING GATES PEERLESS ARE THE GATES OF THE FUTURE.

No one is going to lift and drag around an unwieldy, cumbersome gate if it can be avoided.

PEERLESS SELF-RAISING GATES

spring up free and clear from the ground, swing over snow, grass

or rubbish, and may be latched in the raised position to let small stock pass under. An extra heavy high carbon steel frame, filled with the strongest fence fabric made, crossbars 6 inches apart. Heavy malleable fittings.

Your dealer can furnish Peerless Gates. If he will not, write for catalogue and prices.

Peerless Wire Fence Co. 213 Mich. St., ADRIAN, MICH.

"THEY'RE GALVANIZED"

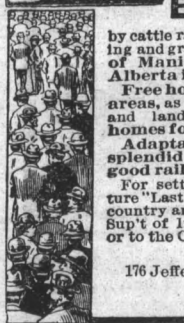


EGG CASES Second Hand \$8.00 With fillers 30 doz. Capacity per hundred P. McKANNA'S SONS, Honesdale, Pennsylvania.

Why Rent a Farm

and be compelled to pay to your landlord most of your hard-earned profits! Own your own farm. Secure a Free Homestead in Manitoba, Saskatchewan or Alberta, or purchase land in one of the above provinces and bank a profit from \$10.00 to \$12.00 an acre every year.

Land purchased three years ago at \$10.00 an acre has recently changed hands at \$25.00 an acre. The crops grown on these lands warrant the advance. You can



Become Rich

by cattle raising, dairying, mixed farming and grain growing in the Provinces of Manitoba, Saskatchewan and Alberta in Western Canada.

Free homestead and pre-emption areas, as well as land held by railway and land companies, will provide homes for millions.

Adaptable soil, healthful climate, splendid schools and churches and good railroads.

For settlers' rates, descriptive literature "Last Best West," how to reach the country and other particulars, write to Sup't of Immigration, Ottawa, Canada, or to the Canadian Gov't Agent.

W. C. McINNES,
176 Jefferson Ave., Detroit, Mich.
C. A. LAURIER,
Marquette, Mich.

How to Make Money Raising Chickens



First, be sure you start with the right tools—don't experiment with "Cheap" machines, but get

CYPHERS

Incubators and Brooders

Write today for our FREE 244-page "Poultry Guide" for 1912. Filled with practical facts, for every poultry raiser—shows you the latest successful methods, ideas, figures, etc. Eight valuable chapters that you simply can't afford to miss. Explains "Cypfers Company Service" that is FREE to every Cypfers Customer. Write for FREE "GUIDE" now—today! CYPHERS INCUBATOR CO., Dept. 35 Buffalo, N. Y.

Ironclad

A WINNER In 1911

National Hatching Contest

Mrs. J. B. Stevenson, of Lockney, Tex., with her 140 egg Ironclad wins in No. Valley Farmer's Hatching Contest. Her records were 142 eggs set, 8 tested out, 137 chicks hatched; 143 eggs set, 6 tested out, 133 chicks hatched. Think of that! You can now get these famous winners—

140 Egg Incubator BOTH \$10.00

Chick Brooder

If ordered together, 30 Days trial—5 year Guarantee. Order direct—money back if not satisfactory. Incubator is Calif. Redwood covered with galvanized iron, triple walls, copper tank, nursery egg tester. Set up ready turn. Brooder well made. Order from this adv. Catalogue Free.

Ironclad Incubator Co.
Box 65, Racine, Wis. (3)

112 PAGE POULTRY BOOK FREE

Tells how to succeed with poultry on the ordinary farm. How to make a first-class brooder out of an old piano box. What breeds lay best. Plans for poultry houses, how to feed, breed, etc. Describes

PRAIRIE STATE Incubators and Brooders

You will be surprised at the valuable information it contains. It's free. Write a postcard today.

Prairie State Incubator Co., 413 Main St., Homer City, Pa.

MAKE YOUR HENS PAY

Our two BIG FREE BOOKS tell YOU how. OUR New 1912 Hatcher and Brooder will give you stronger chickens and will save half the cost. Write for FREE BOOKS today and we will tell you how to MAKE your poultry pay better than the rest of the farm.

Cycle Hatcher Company,
126 Lehigh Ave., Elmira, N. Y.

Mandy Lee

The incubator that is making chick hatching a science. "Open front poultry house" plan of ventilation—openings at the eggs. Heat, moisture and ventilation regulated and appertained automatically. Send for latest book, free. Write us for mating list and prices on S. C. White Leghorn stock and eggs from the Mandy Lee farm.

GEO. H. LEE CO., 1212 Harney St., Omaha, Neb.

125 Egg Incubator \$10

and Brooder BOTH

If ordered together, Freight paid east of Rockies. Hot water, copper tanks, double walls, double glass doors. Free catalog describes them. Send for it today.

Wisconsin Incubator Co.,
Box 126, Racine, Wis.

140 EGG INCUBATOR and 140 CHICK BROODER

The Incubator is California Redwood, covered with asbestos and galvanized iron; has triple walls, copper tank; nursery; egg tester, thermometer, ready to use. 30 Days' Trial—money back if not O. K. Write for Free Catalog today.

Ironclad Incubator Co., Dept. 65 Racine, Wis.

Bees on the Farm

"Gleanings in Bee Culture" will help you get more pleasure and more profit from Bee keeping. 6 months trial subscription 25c. Book on Bees and Catalog of Supplies sent free.

THE A. I. ROOT COMPANY, Box 240, Medina, Ohio

A few **W. H. Turkeys** still on hand. Do not sell choice eggs for hatching. B. R. Cock-erels all sold. Mrs. Mae Whitbeck, Montague, Mich.

but it is generally ascribed to idleness. If possible to discover the guilty ones it is a good plan to remove them from the flock, as a change of surroundings will sometimes break up the habit. Some poultrymen recommend, as a last resort, the trimming of the beak in such a way as to remove the sharp edges of both upper and lower mandibles, so shaping the beak that it is difficult for the fowl to get a hold. If they seem inclined to eat the feathers try adding a little meat to the ration. Also give a liberal allowance of vegetable matter if possible. The harder they have to work for their food the better, hence adopt feeding methods that promote exercise.

Ridding Hens of Lice.

A Saginaw county reader reports a few deaths in his flock of yearling hens which he believes to be due to body lice. The hens have been infested for some time and have been treated with a powder which has failed to rid them of the parasites. A post-mortem of one of the dead fowls failed to disclose anything wrong with the internal organs. As the symptoms before death are those usually produced by lice, it would seem that the loss of some of the hens was the result of the ineffectiveness of the treatment applied.

At this season a remedy which can be applied in a dry, powdered form is best since there is danger in using dips in cold weather. We can not do better than recommend a powder which is being used with success by several of the experiment stations which are among the leaders in attention given to poultry. Carbolic acid enters into the composition of this powder and it is stipulated that the highest grade of crude carbolic (90 to 95 per cent strength) must be used. If this is not obtainable the cresote product known as cresol may be substituted. The directions for making the powder are: Take three parts of gasoline and one part of crude carbolic acid (or cresol). Mix these and gradually add, while stirring, enough plaster of paris to take up all of the moisture. As a general rule it will take about four quarts of the plaster to one quart of the liquid. The whole must be thoroughly mixed and stirred until the liquid is uniformly distributed through the mass. When enough plaster has been added the mixture should be a dry, pinkish brown powder having a fairly strong carbolic odor and less pronounced gasoline odor.

Apply this powder to the fowls, working it well into the feathers on every part of the body, especially into the fluff at rear and on lower part of body and under wings. This powder is said to affect the lice very quickly, the statement being made that, a few moments after applying, dead and dying lice may be shaken from the fowls or dislodged by loosening the feathers with the fingers. Repeat the treatment at intervals of four or five days until at least three applications have been made. Also, at the conclusion of the treatment, clear out and burn all litter which the henhouse contains.

CREDIT DUE THE POULTRYMAN WHO TRIES.

So much has been said about the slack methods of farmers in regard to their care of the poultry that I begin to think the farmer does not get credit for what he is really doing in the way of caring for his flock. I notice that farmers in this vicinity are putting forth every effort to make their poultry a prominent factor in successful diversified farming, and on most of the farms it is a very profitable branch of the farming system being carried on. The farmers are building good comfortable chicken houses, keeping them clean and well ventilated, and where such conditions exist the farmer is getting good pay for his work in plenty of fresh eggs and a good supply of chickens for the market. I believe that a word of praise, now and then, along this line would help a lot to better conditions; that is, praise for the man who does take proper care of his chickens. The neglectful man will soon become ashamed of his neglect and will try to compete with his thrifty neighbor.

Success is as much a matter of spirit as of purpose, and tangible results always flow from a combination of the two. The man who succeeds must recognize the fact that his success is due to the community as much as to himself. The obligation to the community should always be paramount, and the best citizen is the one who recognizes his debt to the community. The careless, slovenly man is the unsuccessful man, the man who

takes no pride in the results of his efforts, and to him I would commend this admonition: Whatever you find worth doing at all try to do better than anyone has ever done it.

Wayne Co. J. P.

THE CLOVERS AND THEIR VALUE AS HONEY PRODUCERS.—I.

White Clover.

This subject covers a very wide field and is one I hesitate to enter for various reasons, one of which is that the habits of these plants apparently vary somewhat in different localities; also that statements made by one writer are sometimes flatly contradicted by another. Then, too, some of these plants I have not had actual experience with and am therefore forced to borrow from various authorities, but as far as possible, my own experience is given. I am not a scientist, consequently this series of articles presents the practical rather than the scientific side of the subject.

Probably the most common and the most important, in the eyes of the honey producer, is the common white clover, botanically known as trifolium repens. It may be found almost everywhere and has given its name to the most popular honey produced. Raspberry, basswood, milkweed and other fancy white honeys are pronounced superior by various hon-



The White Clover Plant.

ey epicureans, but after all none has gained the reputation that white clover honey holds. White clover honey, as sold on the market, is not, generally speaking, all gathered from white clover but rather from the various clovers with, as a usual thing, the white predominating. Even this is not always true, as in many places there is little if any white clover left, and almost the entire crop is gathered from the alsike which, however, is so nearly the same thing that I do not believe there is anyone whose taste is so finely developed as to be able to detect the difference. In fact, the name white clover, as applied to honey, should not be construed to mean honey from the white clover plant, but, rather, white honey from clover.

As to the habits of this variety of clover, it is so generally well known as to make mention of them here seem almost superfluous. I will say, briefly, that it is a plant which seems to do its best in brush lots, neglected fence corners, upon roadsides, or any place in which other clovers would do very little. The seed is very hard to gather, owing to the fact that the stalks or vines are inclined to run along the ground instead of assuming an upright position. A peculiarity of this clover is that wherever a joint touches the ground it will take root.

A variety of white clover which is not very generally known in this country is called the Giant White. Having been introduced from across the water, comparatively few bee-keepers have had experience with it but it appears to be a species of white clover which grows about as large as our common red clover. Its leaves are identical with those of the red variety but its blossom is white, and in its general habits of growth it closely resembles the white clover as we know it. Information as to whether or not it is of account as a honey plant is lacking, and I doubt whether the plant is found in sufficient areas in this country to make the determination of this point of particular interest. Nor does it appear probable that its use will ever become general, since its habit of running along the ground instead of growing upright makes it, like the smaller white clover, a crop that would hardly prove profitable for other than grazing purposes.

Mecosta Co.

L. C. WHEELER.

THE DOCTOR HABIT

And How She Overcame It.

When well selected food has helped the honest physician place his patient in sturdy health and free from the "doctor habit" it is a source of satisfaction to all parties. A Chicago woman says:

"We have not had a doctor in the house during all the 5 years that we have been using Grape-Nuts food. Before we began, however, we had the 'doctor habit' and scarcely a week went by without a call on our physician.

"When our youngest boy arrived 5 years ago, I was very much run down and nervous, suffering from indigestion and almost continuous headaches. I was not able to attend to my ordinary domestic duties and was so nervous that I could scarcely control myself. Under advice I took to Grape-Nuts.

"I am now, and have been ever since we began to use Grape-Nuts food, able to do all my own work. The dyspepsia, headaches, nervousness and rheumatism which used to drive me fairly wild, have entirely disappeared.

"My husband finds that in the night work in which he is engaged, Grape-Nuts food supplies him the most wholesome, strengthening and satisfying lunch he ever took with him." Name given by Postum Co., Battle Creek, Mich.

Read the little book, "The Road to Wellville," in pkgs. "There's a reason."

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

Highest Prices Paid for all kinds of

RAW FURS

We remit promptly on receipt of skins, and give fair assortments. Our attainment to the rank of Leading Fur House, is backed up by a history of 80 Years, and as a further testimonial, we would refer you to any mercantile agency or bank.

G. GAUDIG & BLUM

125-127 W. 27th St. N. Y. City

Importers and Exporters of Raw Furs since 1831.

Warehouses: LIEPZIG—LONDON—PARIS—BERLIN

\$10,000 Backs

this portable wood saw. Guaranteed 1 year—money refunded and freight paid both ways if unsatisfactory. You can easily earn \$10 a day with a

HERTZLER & ZOOK

Portable Wood Saw

As low as \$10

sawing all kinds of neighbors' lumber. Strictly factory prices—save jobber's profits. Operates easily. Stick sits low—saw draws it on immediately machine starts. Only \$10 saw to which ripping table can be added. Write for catalogue.

HERTZLER & ZOOK CO.,
Box 23, Belleville, Pa.

Choice Standard-bred Rouen, Pekin and Indian Runner Ducks; Buff, White, Golden, Silver, Columbian and Partridge Wyandottes; Barred and Buff Rocks; Reds; \$2.50 single bird; \$6 trios; Toulouse Geese, \$4 each. Catalog free. Geo. F. Hartman, Box 280, Freeport, Ill.

Indian Runner Duck Eggs. Flock of 28, average 235 each in 1911. Care of ducks with order. Also S. C. W. Leghorns. Price for each \$1 per 13; \$3 per 50; \$5 per 100. Wm. P. Booth, R. 3, Orland, Ind.

INDIAN RUNNER DUCKS—Great Layers and Great Payers. Booking egg orders now. J. GORDON DRAKE, Port Huron, Mich.

Barred Rocks—Males and females, prices right. Great laying strain, prize winners, 15 eggs \$1.50. W. C. COFFMAN, R. No. 6, Benton Harbor, Mich.

Prize Winning Barred Rocks, R. I. Reds, Mammoth Pekin and I. Runner ducks. Stock for sale. Eggs \$1.25 per set. Utility \$5 per 100. EMWOOD FARM, R. R. No. 15, Grand Rapids, Mich.

LIGHT BRAHMA, Barred Rock and White Wyandotte Cockerels from prize-winning stock. E. D. BISHOP, Route 38, Lake Odessa, Mich.

LILLIE FARMSTEAD POULTRY

B. P. Rocks, R. I. Reds, and S. C. W. Leghorn eggs for sale. 15 for \$1.25; 50 for \$3.50; 50 for \$2.50. CLOON C. LILLIE, Coopersville, Mich.

MY entire stock of thoroughbred S. C. Brown Leghorns and business for sale. Write or call. LEWIS T. OPPENLANDER, R. No. 4, Lansing, Mich.

White Rock, S. C. White Orpington and Indian Runner Duck eggs at farmers' prices. Circular free. G. N. BURT, Box B, Oakwood, Ohio.

BUFF & White Orpingtons, Buff & White Leghorns Barred & White Rocks, & R. C. Rhode Island Reds. Selects \$3, Mediums \$2, Utility \$1.50 each Satisfaction guaranteed. H. H. KING, Willis, Mich.

Single Comb Black Minorcas. R. W. MILLS, Saline, Mich.

SILVER, GOLDEN and WHITE WYANDOTTES. A fine lot of cockerels \$2 and \$3 each. Fine circular free. C. W. BROWNING, Portland, Mich.

White Orpington cockerels \$1.50. Flock of fine late hatched birds, 12 for \$8. great layers. Lake Ridge Farm, Levering, Mich.

White Wyandotte cockerels \$2.50, \$3 and \$3.50, from thoroughbred stock and heavy layers. A. Franklin Smith, R. F. D. 9, Ann Arbor, Mich.

DOGS.

For Sale—Scotch Collie Puppies at \$5 each, 1 stud dog, 1 female 2 yrs. old, 11 Hampshire ewes. HARRY W. GARMAN, Parkville, Mich.

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HORTICULTURE

PRINCIPLES OF TREE PRUNING.

THE proper training of the trees is one of the guiding ideas in successful orchard management. The development of the commercial fruit growing business in various parts of the country shows that it is necessary to evolve systems of tree pruning that are adapted to the soil and climatic conditions of each particular locality. Years ago tree pruning was governed largely by arbitrary rules and the wise saying of ancients, rather than by thoughtful experience and a study of the conditions surrounding the trees. There have been so many theories, so many practices, so much confusion, that few who have practiced the art have been satisfied with the work they have done in their orchards. Perhaps the most frequent cause of unsatisfactory results has been the tendency to rush to extremes. On one hand, many growers do not believe in pruning at all and so do not practice it, while, on the other hand, many resort to an indiscriminate chopping, sawing, cutting and slashing and term it pruning.

The chief object in pruning is to induce the tree to produce fruit and grow healthy wood for future crops of fruit. Every branch produced draws upon the resources of the tree and soil. The branches most favorably located perform the chief functions of carrying on the work of the tree. Those less favorably located do not produce first-class fruit and become an unnecessary drain upon the rest of the tree. The object of pruning, therefore, is to throw the energies of the tree into the most productive parts. The other parts must be removed. Tillage methods have a great influence upon the strength and vitality of the tree and to a large extent govern the necessities of pruning. A poorly nourished tree cannot support a large bearing surface, while a vigorous, well-fed tree can support a correspondingly large number of branches. The strength of the tree and its available supply of food should be carefully considered before any extensive pruning is to be undertaken.

To properly prune a tree one must know on what wood and under what conditions fruit spurs grow. Apples, pears, quinces, most plums and cherries are borne on wood two or more years old, so as to take out all such wood would result in no fruit. With these fruits it is not necessary to practice heading-in, except as a special resort. All peaches and some plums bear fruit on the wood of the past season, and must be headed-in more or less to keep the bearing wood near the trunk. One should have a definite purpose in pruning a tree. A young tree should be trained, so that in later years it will have a vigorous and productive head. By directing its growth it is forced to grow in the desired direction. By having a definite purpose the skillful pruner removes branches before they form, that is, he destroys the buds and twigs that would grow out of place and not be wanted. A sharp knife is his most valuable tool. No large branches that are not wanted are allowed to grow and all his efforts are toward encouraging the tree to grow toward the ideal he has chosen after a careful study of the form of tree best adapted to his special line of fruit production.

The real problem of pruning begins with the setting of the young tree. If a one-year-old tree is planted the branches should all be removed and the stalk cut back to about the height desired for heading. This may vary according to the kind of fruit and the grower's ideal of a perfect tree. The head cannot be formed until the next year brings out the branches that must be thinned out and those retained for the framework of the tree. If two-year-old trees are selected from the nursery row, the work of heading can be begun by cutting back all the branches about five inches from the head, leaving the ones that will be wanted to form the head and possibly a few more to enlarge the leaf area. These can be cut off later. For the first few years the chief object is to train the tree in the direction it should grow. The peach tree is the only exception to this rule. It should be pruned as light as possible to avoid the danger of over-stimulating the tree and causing a too heavy growth of immature wood.

In pruning a commercial fruit orchard there are three things to be considered: First, form; second, quality; third, quantity.

In the management of the young orchard for the first few years, especial attention should be given to the form having in mind a well-defined idea of what type of tree is wanted. In the past great mistakes have been made in leaving too many main branches, or, in other words, not pruning sufficiently during the first few years of the tree's life. It is also necessary in pruning to have a knowledge of the tree's habit of growth as well as the special environment suitable to each variety. In pruning young trees one should aim to develop the best framework to support the leaves and fruit and all pruning must be directed to a proper distribution of the leaves and fruit if the best results are obtained. It strengthens the stem to cut back and bring the head of the tree nearer to the ground, giving the sap less distance to travel and forming a thick, healthy trunk.

At regular intervals during the growing season it pays to prune out or rub off all undesirable shoots that are likely to need cutting out in future years. The next spring a strong branch with an upright tendency should be selected as a leading shoot, the side shoots may be cut back two-thirds, the leader being left somewhat longer so that other branches will be given off from it, but not in such quantities as to prevent the sunlight from shining all through the tree. After the tree comes into full bearing, the chief object is to secure first-class fruit in moderate quantity, and if the mistake has been made of leaving too much wood in the past, it becomes necessary to resort to severe cutting back, not only of the present year's growth, but many times much more.

In cutting back a large branch remember to cut back to the trunk, to avoid leaving an unsightly stub. The best time for doing this work is after the severe winter weather has passed and before bloom commences. In the large commercial orchard it is not always possible to do everything in season, so it may be done in mild winter weather without seriously injuring the trees. Only common sense can tell a man how much wood to remove during the period of the tree's development. If a mistake is to be made it should be on the side of light pruning. Much depends upon the variety, the soil and the climate. One must decide at the time of planting whether he is to practice high or low heading. Modern growers favor low-headed trees because it saves work in spraying, pruning and harvesting, the fruit and trees are less injured by winds and the trunk is less liable to sun-scald or winter-kill, besides the low-headed trees come into bearing at an earlier age.

A skillful pruner takes into consideration the habits of the tree. If it has a spreading, drooping, or long, slender habit of growth, he prunes to the buds that point upward or toward the center of the tree. If the natural growth is dense and upright, he cuts out the lower buds so as to cause the compact top to spread. In shaping the head it is well to keep in mind that the weight of the fruit has a tendency to spread the branches downward from the center. A young tree that appears too dense will correct itself in this respect after bearing two or three heavy crops of fruit. After the head has been formed at the desired height, subsequent pruning should be directed toward the formation of wood and fruit buds. Pruning for wood can best be accomplished by removing and cutting back branches so as to throw the whole amount of nourishment into those that are left. When pruning for wood weak growing varieties should be pruned generously strong growing varieties lightly. Those having long, unbranching limbs should be pruned closely to prevent the tops spreading too much. Trees in rich, deep soils should be pruned lightly, while those in a less fertile soil that produce short branches and shoots should be pruned more severely.

The two general types or head are the open-centered tree, and the close-centered tree. In the first the framework consists of the short trunk surrounded by four or five main branches ascending obliquely. In the second the trunk continues up beyond the main side branches and forms the center of the tree. As a rule the latter is preferable in many localities. Whichever the form, care should be taken that the lowest branches will be exposed to the sun and light.

In pruning plum trees I would always prefer the early spring and not wait until after the foliage comes out or the blossoming season is over. If a plum tree is pruned after the blossoming sea-



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son is over, wherever a branch is cut back a number of weak shoots start out where only one should come from. It is very dangerous to prune plum trees after the sap has started in the spring. The heading back of the shoots which have made too much growth during the season should take place late in February or early in March in this latitude. These shoots should be cut back about one-half of their growth by making a cut as small as possible just above the bud, bearing in mind that by leaving a bud on the inside it will tend to produce a straight top or on the outside a horizontal growth.

Cherry trees require but little pruning. Pinching and shortening in may be practiced to produce a compact, spreading top. The cherry should not be pruned in winter because the gum formed in the wound is likely to cause decay. In starting a cherry tree the head should be formed somewhat higher than is the case with the peach and plum. Pear trees should be treated in every respect the same as the apple. Yet, the dwarf varieties should be pruned more severely to prevent a crop of fruit that will overburden the trees, or cause them to suffer a severe set-back in their growth.

New York. W. MILTON KELLY.

USING ARSENATES WITH LIME-SULPHUR SOLUTION.

How should one use Paris green or other arsenates with lime-sulphur solution for fruit trees, including apples, muskgoes, etc.?

A. K. Arsenates are used in essentially the same manner with the lime-sulphur solution as they are with Bordeaux mixture. It is the general observation of orchardists that arsenate of lead is a better adherent to the trees than is Paris green. However, there are still some practical men who use Paris green instead of other forms of arsenic. Essentially the same practice can be followed with regard to pears as is followed in spraying apple trees. Peaches, however, are a tender fruit and the strength of the solution must be reduced. For apples one should use from four to six pounds of arsenate of lead to 100 gallons of lime-sulphur solution. If Paris green is used one pound is sufficient for this amount of the solution. Paris green does not cling to the foliage as firmly as arsenate of lead, and for this reason it is best to use a larger amount of the latter than the former, which insures the destruction of eating insects and yet does little or no damage to the foliage of the trees. For peaches use about one-half pound of Paris green, or not over four pounds of arsenate of lead to each 100 gallons of the lime-sulphur solution.

CO-OPERATION AMONG THE GRAPE GROWERS IN WESTERN NEW YORK.

The following report furnished us by Secretary Loomis of the association mentioned, will be appreciated by a large number of our horticultural readers. This has been a bad year for marketing grapes and consequently for an association devoted to that purpose. In the opinion of its secretary, this report argues that the co-operation work should be more comprehensive. The report follows:

Inasmuch as the results secured by co-operative associations in handling farm crops are of interest, particularly at this time, irrespective of whether or not they are successful in securing for their members the "larger part of the consumers' dollar" so often talked about, the following summary of the report made last week by the executive committee of the Chautauqua & Erie Grape Shipping Association to its members, the grape growers of the western New York grape belt, will be of general interest. The report covers the operations of this company in the shipping season of 1911, and measured by the price of the product which was returned to its members, the season is not considered a very successful one.

The net price of eight-pound baskets of grapes reported to the growers was nine and one-half cents. This is the lowest price which grapes have netted the growers in the Chautauqua belt for a dozen years.

The company makes the following summary of its business for the season:

"The Chautauqua & Erie Grape Company handled for its members during the season of 1911, a total of 1,625 carloads, containing 2,683,455 eight-pound baskets; 86,212 four-pound baskets; 5,068 three-and-one-half pound baskets, and 17,979,045 pounds bulk grapes, and a few packages of other fruits, selling for \$464,280.90,

as pooled and paid out to the growers by the various local managers."

Considering the fact that this association did a business in merchandise as indicated above of almost a half million dollars, and handled funds amounting in all, on other accounts than merchandise enough more to bring it very close to the half-million mark, the following table showing the office and managerial expenses will be of special interest:

Directors and executive committee, \$2,569.30; inspectors, \$2,590.68; traveling salesmen, \$3,359.79; telegraph and telephone, \$2,091.49; local expenses, \$5,570.48; incidentals, \$3,008.28. This makes the total managerial and incidental expense of the association, including loading and sales expenses, but \$19,190.02; or less than four per cent of the amount of money handled. In this respect the association can be considered fortunate and successful in every sense of the word.

Getting down now to the gist of the report, the amount which the company received for the various grades and kinds of grapes in the various packages used, the following items will be noted:

Average price of various varieties and packages for season of 1911: Two million, four hundred and seventy thousand, nine hundred and seventy-three 8-pound baskets of Concord, average price 9½c; 121,805 eight-pound baskets of Wordens, average price 9½c; 58,366 eight-pound baskets of Niagaras, average price, 8.58c; about 11,000 eight-pound baskets of No. 2 Concord, average price, 8c; 2,536 eight-pound baskets of Catawbas, average price, 9.6c; 8,486 eight-pound baskets of Moore's Early, average price, 11.4c.

Eighteen other varieties were shipped in eight-pound baskets but all in less than 2,000 lots. The only one of interest is the Delaware which, in this size package, brought but 10.1c, a price entirely inadequate to pay for its wonderful table qualities proving conclusively that the Delaware should never be shipped in eight-pound baskets.

Following are prices received for grapes put up in four-pound baskets:

Twenty thousand, two hundred and ninety-seven four-pound baskets of Delawares, average price, 5.9c; 33,009 four-pound baskets of Wordens, average price, 4.99c; 12,874 four-pound baskets of Niagaras, average price, 4.87c; 2,985 four-pound baskets of Catawbas, average price, 5.7c; 6,612 four-pound baskets of Concord, average price, 4.86c.

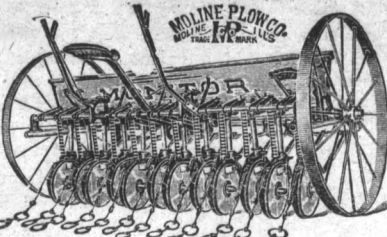
The general low level is noticeable throughout the list but the price of 5.9c for four-pound baskets of Delawares offers a little encouragement as to what real quality "in small packages" will do even in a rock-bottom market.

The bulk stock was almost exclusively Concord, there being almost 17,000,000 pounds of Concord in bulk, either in trays or in 20-pound baskets, bringing \$21.26 per ton in trays and \$23.77 average in baskets; and only about 667,000 pounds of bulk Niagaras, and no other variety shipped in bulk. The Niagaras brought a few cents less per ton than the Concord throughout the season, a great change from a few years ago when the Niagaras brought the better price in almost all markets.

In a year when the total grape crop brought in, according to the best figures available, something over \$2,200,000 it is a disappointment to note that less than 25 per cent of the business was handled by the one co-operative association covering the entire belt. The showing will appear a little brighter, however, when it is stated that this year, by previous arrangement, the Chautauqua & Erie Company sold no grapes to the local grape juice and wine plants, and as it is estimated that these local plants took not less than 20 per cent of the total crop, this raises the percentage of the crop sold outside the belt handled by this company to somewhere close to 35 per cent.

PLANNING THE FARM GARDEN.

While plans for the year's farming campaign are being made, the farm garden must not be neglected. The garden can be made the source of much satisfaction and comfort as well as a saving of money and should not be neglected upon any farm. But if it is to be such a garden as will meet these requirements it must be planned upon in advance, else it will very likely fail in meeting them properly. A few loads of stable manure, a small amount of money invested in garden seeds and a few half days of time devoted to the farm garden will repay one hundred fold for the entire cost. A good garden is always a source of pleasure and profit.



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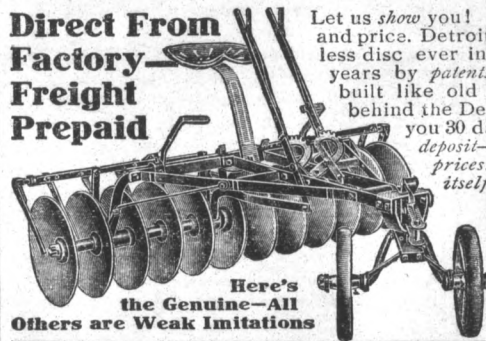
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HAND OR POWER Auto-Sprays

No. 1, shown here, is fitted with Auto-Pop Nozzle—does work of 3 ordinary sprayers. Endorsed by Experiment Stations and 300,000 others. 40 styles and sizes of hand and power sprayers—also prices and valuable spraying guide in our Free Book. Write postal now.

THE E. C. BROWN COMPANY
32 Jay St., Rochester, N. Y.

Phoenix "Red Tag" Trees

TRADE MARK

Sixty Years the National Standard—are growing—nay—bearing in every State in the Union, also in Canada and Mexico. Produced on 600 acres—rich Illinois land—no branches—all "Bloomington" grown. Trees, Small Fruits, Roses, Shrubs, Plants—the best of everything for Lawn, Garden and Orchard.

DEAL DIRECT—we pay freight, guarantee safe arrival. Save you one-half. Write for 36-page Book No. 39. Tells you what and how to plant—mailed free.

PHOENIX NURSERY CO., Bloomington, Illinois.

CATALOG FREE

Buy direct from grower—enormous saving—better trees. Apple—one year tops on three year roots, 80c per 10, \$70 per M. Other fruit equally low. Five new Strawberry Plants for testing, free on request. We guarantee satisfaction. We pay freight.

Galbraith Nursery Co., Box 67, Fairbury, Neb.

LEASING ORCHARDS AS A BUSINESS.

(Continued from first page.)

arose between the tenant and the owner over their verbal agreement as to their respective shares of the fruit. If our contract had defined the rights of the tenant as well as of the other two parties this would have been avoided.

(2). The contract should include the location and description of the orchard. We usually locate this after the method of land description and give approximate number of trees, also stating if any other than apple trees are included.

(5). The period covered by the contract should be stated. Nearly all our contracts are for six years. We make the term even as it gives both of us an even chance on the "off years." I would prefer to begin with a run-down orchard on the "off year" as it gives a chance to put it in better condition for a heavy crop the second year. I should prefer not to lease a badly neglected orchard for less than five or six years.

(4). The agreements or concessions of the renter should be carefully defined. These should include definite agreements as to pruning, burning brush, cultivating, mulching, mowing, thinning, removing undesirable trees, harvesting and marketing fruit, etc. The owner should see that the contract is sufficiently explicit as regards spraying so that the orchard will be kept reasonably free from scale, and if the lease is a share lease other details of care, harvesting, and marketing should be covered.

(5). The agreements or concessions of the owner (and tenant, if there be one), should form another clause in the contract. These should include such provisions as access to the orchard at all times, also to the water supply for spraying, buildings for storage of fruit or packages or for stabling horses, agreements as to board and horse feed while working on the orchard, fertilizers, mulch materials, use of owner's or tenant's tools, cultivation, cropping or pasture, fences and confining of stock, rooting of hogs, and any other details for which it may be foreseen that occasion may arise.

Our orchards are all leased with privilege of pasturage of sheep and hogs during the spring and summer. With some the dates of removing them are stated, in others it is optional with us. The pasturage problem has caused us considerable annoyance. Owners, or more often tenants, are careless about turning out stock when they should, or do not keep up fences well and stock breaks into the orchard. If possible to make such a contract we would exclude stock altogether, but one could rent few orchards in our locality in this way. Hogs cause the most trouble by rooting the ground, making it inconvenient in spraying and harvesting the fruit. We now put in a special rooting clause covering this point. If possible, the renter should see that water is pumped into an ample storage tank by mill or engine. Life is too short to pump it by hand for extensive spraying. It is well to provide for storage facilities and stable room, if possible, for these may be needed, also agreements as to board and horse feed if these are to be furnished by the owner. The questions of cultivation, fertilization and mulch material should be settled. In one orchard we get the wheat straw grown on a portion of the farm for this purpose, on another we get barnyard manure.

(6). Finally, the consideration should be stated. If the orchard is leased for a cash rental the amount and time of payment should be stated, if on shares the portion and grade of fruit and division of varieties. Agreements as to division of drops and cider apples should be included, also whether owner or renter is to pick and deliver owner's share. The division of all expenses of care, harvesting, or marketing between owner and the renter, and full authority of marketing should rest with one or the other party, preferably the renter. Share leasing makes a more complicated contract than cash rental.

Most of our smaller orchards are leased for a rental of from ten to twenty-five bushels of winter apples, tree run with a proviso that this shall not exceed one-fourth of any crop. These orchards have from 25 to 100 trees each. Privilege of pasturage for hogs and sheep usually until September 1 is granted, also summer and fall apples and cider apples for family use. These owners are getting all the good fruit they can use without effort on their part, and their orchards are improving, both of which were not true before leasing them. Another orchard of

100 trees in better condition is rented as above with an additional cash rental of \$50 annually. The care of another orchard is charged to the owner. He and the tenant take fruit for their own use and we harvest the balance on halves. Two orchards of 100 and 175 trees respectively are leased on shares. We keep an accurate account of all expense put upon the orchards, including pruning, spraying, harvesting and marketing the fruit, packages, etc. This is deducted from the proceeds and the balance divided one-third to the owner and two-thirds to the renter. If the proceeds of any season are not equal to the expenses the renter must stand the deficiency. This plan requires a very complete contract, it being necessary to specify the wages chargeable, and many other details and requires a complete and systematic keeping of accounts, but these orchards could not be leased in any other way. The owner of one of these orchards will receive a small balance this season, while the other one will receive as much as the renter would feel like paying for the entire term of the contract on a cash basis.

This brings us to the fourth and perhaps the most interesting division of the subject, namely the financial prospect. Will orchard leasing pay the owner, the renter, or both?

So far as the owner is concerned, we must presume that he would not or could not give the orchard proper care himself, otherwise we would not lease it. His choice, then, is between the entire income from a neglected orchard, or a reasonable cash rental or share of the fruit or proceeds from the orchard when cared for. In every instance in our experience the owner has been a gainer by leasing the orchard as compared with his income from it before leasing. Without effort on his part he is assured of good fruit, a cash income, or both; while under the former regime he received nothing, or at most some poor fruit.

The income of the renter will vary with the conditions previously mentioned, but with a reasonably favorable opportunity I believe his prospect of a fair profit is better than in any other line of work he can take up with an equal amount of capital.

Calhoun Co.

S. B. HARTMAN.

WORK WITH A SERIOUS LETTUCE DISEASE.

A disease known as Sclerotinia libertiana which attacks the lettuce plant and does much damage, has greatly reduced the profits of many growers of the eastern states and promises to become an imposing enemy to the crop unless careful treatment is given.

The North Carolina Station tried various methods for the control of the disease, such as soil disinfection by heat or by chemical solutions, mulching, etc., but none of them seemed very satisfactory. An experiment was then undertaken in which lettuce beds were thoroughly inoculated with sclerotia and seeded to lettuce. The beds were examined and as soon as a diseased plant appeared it was removed and the ground about it drenched with Bordeaux mixture or a solution of copper sulphate. Officials of the station believe that the disease may be controlled by a careful inspection of the lettuce beds every other day and pulling up and burning all diseased plants. The place in the bed from which the plants are removed should be drenched with Bordeaux mixture or sulphate of copper solution, and the inspection continued throughout the season. The next year the same treatment should be followed and it is thought probable that two years of this treatment will almost, if not entirely eradicate the disease.

TRAMP SNOW ABOUT YOUNG TREES.

Where a mulch, heavy crop of weeds or some sown crop has lodged over the orchard and become covered with snow, an excellent harbor is made for mice. They burrow channels about from one place to another, gather small seeds for food and pass the winter comfortably. However, they seem to enjoy a better balanced ration than that furnished by dry seeds, and seek to get all they can of green stuff, the tender growing bark of young peach, apple and other fruit trees being particularly relished by them in the cold months of winter. The damage resulting from their gnawing is apt to be serious and should be provided against. By tramping the snow firmly about the trees it will be found that the rodents will not trouble the bark further. They do not appear able or have an inclination to burrow through the packed snow to get at the tree.

YOUR BIG "MONEY CROP" IS YOUR APPLE CROP

You can make more profit from the fruit you grow on your farm than from anything else you can raise—and with less time than you must devote to making a crop of wheat, oats, corn or potatoes. Apples, for instance, will earn you \$200 to \$500 and more per acre—not once in a while, but on a regular average; not in some far-away place, but right in your own locality.

You can prove this in your own orchard, this year. With a few pruning tools, a little fertilizer, a plow, and a



Deming

Spray Pump

you can work wonders, bringing your trees into a good, healthy condition, so that they will begin to bear such fruit as you read about. Of course, you should start new orchards, too; but you can make money from the old trees while the new ones are coming to bearing—and for a good while afterward.

How to Make Money From the Trees in Your Old Orchard

"How the Old Orchard Paid," tells how one Pennsylvania farmer has taken a Deming Spray Pump and some good ideas and has made money. His story will interest you, because the methods he used are open to you, too. Send for this book and our new Catalogue, or ask your dealer for full particulars about Deming outfits. If he does not handle them, write us.

THE DEMING COMPANY
255 Success Building - SALEM, OHIO
Manufacturers of Pumps for All Uses
AGENTS EVERYWHERE

START GROWING FINE FRUIT ON THE TREES YOU HAVE NOW.

"Improved Sunshine" Sprayer

Simplest and most effective made. Any one can use it. Solid brass upper and lower cylinders. All brass plunger. Brass valve seat and extra large air chamber. Guaranteed. Only Agitator Made Having Four Paddles. All others have but two. Makes the work easy. Simple to operate and produces a constant uniform spray. Send for descriptive circular.

CRESTLINE MFG. COMPANY
DEPT. 15

CRESTLINE, OHIO

Plant the quality grape CATAWBA-CONCORD

The grape for everybody everywhere.

A cross between the Catawba and the Concord—so scientifically made that it unites all their merits with none of their defects. Equal in quality to the finest house grapes and as easily grown as the Concord. For ten years it has proved its superiority. Has received awards wherever shown.

Write at once for large descriptive catalog of Raspberries, Blackberries, Grapes, Strawberries, Currants, Gooseberries, Garden Roots, Hardy Perennial Plants, Shrubs, Vines, Roses, etc. It tells how to plant and grow them—free to everybody.

J. T. LOVETT, Box 161, LITTLE SILVER, N. J.

Guaranteed Trees at Wholesale Prices

Buy direct from us and Save Money. All stock of high quality and Genesee Valley grown, where scale is unknown. 12 PEACH TREES, 98c. 5 Elberta, 2 E. Crawford, 3 L. Crawford, 2 Champion, 1 Carman, 1 Early Rivers. All fine, 1 year, well-matured and true to name or money back. Write now for free catalogue of complete line.

Bellamy Bros. Nurseries, 1072 Bellamy Rd., Danville, N. Y.

PLANT HARDY TREES

Healthy, acclimated, high grade, true to label fruit trees and plants for Northern States at wholesale prices, direct from nursery to planter. Send for catalogue.

CELERY CITY NURSERIES, DESK E, KALAMAZOO, MICH.

FRUIT TREES

Fresh dug Western N. Y. Trees. Apples, Pears, Cherries, Plums, Peaches, Small Fruits, Shrubs, Roses, etc. Best Trees. Best Prices. Write for FREE Cat.

THE FRUITLAND NURSERIES
J. FAHNER, Prop., 309 Winton Road, Rochester, N. Y.

STRAWBERRY PLANTS—Warfield, \$2.00; Dunlop, \$2.25; Gandy, \$2.25; Brandywine, \$2.50; Aroma, \$2.50 per 1000. Catalog free, 100 varieties, J. G. PRESTAGE, Allegan, Mich.

GRANGE

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

THE MARCH TOPICS.

State Lecturer's Suggestions for First Meeting.

Song, by Grange chorus.
Roll call, responded to by each giving a current event.

Is the Grange doing as much to make better homekeepers as it is to make better farmers?

The test of a profitable cow, by a dairyman.

How to keep bossy at her best.
St. Patrick's Day exercises by children of the Grange.

Music throughout this program in charge of Overseer.

CIVIC RIGHTEOUSNESS.

(Concluded from last week).

The Grange takes in the farmer's entire family. Wherever you find a good live, active Grange, you find the school and community going along progressive lines. The Grange, nearly forty years ago, favored teaching domestic science and scientific agriculture in the schools, showing that the farmer is a leader of thought and popular sentiment. If the people expect to build up the country schools, the country church, the country roads, and to develop the highest state of cultivation, there must be a school for the older people. Above all else we should covet and cultivate a spirit of community service. There is nothing spectacular in efficient social service, certainly not in country community building. But there are rewards for all that. Unless rural leadership, means community usefulness it avails not. The idea of leadership must be obliterated by the fact of service. The purpose of education and life is usefulness. He who lives to enjoy never enjoys anything. Good citizens are useful citizens; no others are good.

Now for a few words in regard to our duties as sovereign citizens of this great republic. Do you often think of yourself as a sovereign citizen? You had better, because it will give you a higher conception of your duties as a citizen than if you think of yourself as a common voter. To you is entrusted the responsibility of decent government. Does that responsibility ever rest heavily on your shoulders? Upon the party man who had rather vote for a bad man of his party than for a good one not of his party this responsibility does not rest very heavily. We pay no attention to politics in choosing our friends, then, in the name of common sense, why should we in choosing our officials.

It is a universal truth that eternal vigilance is the price of liberty and also of decency. The grafter and the political heeler we have with us always, and he is confined to no party. Like the domestic hog, he is omnivorous and omnipresent. Be a party man if you will, for parties are necessary to good government, but be a clean party man. Do not allow certain interests to blind your eyes to true conditions. It is with us as it has been in all ages—the rights of man as opposed to the encroachment of wealth and special privilege. Burke said, "When parties change their principles, then patriots change their parties." Lincoln said, "I am not bound to win, but I am bound to be true; I am not bound to succeed, but I am bound to live by the light that I have. I must stand with anybody that stands right, stand with him while he is right, and part with him when he goes wrong." Pinchot, the chief apostle of conservation, says, "True loyalty to a party is loyalty to the ideals upon which it is founded. No man can be loyal to a party and lend himself, like a rubber stamp, to leaders who have abandoned the essential principles which gave that party its right to live."

There, from three high sources, in three different epochs, you get a correct definition of what politics should be. Clean politics is a game that any man may be proud to play, and there is no way in which he can better display his civic righteousness. In conclusion, I would say, don't be afraid to get out and attend your farmers' institutes and picnics; it is your business to be public-spirited citizens. There is nothing so valuable to a community as public spirit, as public-spirited citizens who are willing to do something for which they are not paid. If you get no other inspiration here than that public spirit which comes

from mingling with your fellows, it will be dollars in your pocket. Public spirit is a brother to good citizenship. Somebody has said that farmers can have as much justice as they will demand, and they will have as much injustice as they will stand for. Farmers have not had their full share of favors from legislatures and from congress, and it is because this public spirit has been neglected and the farmers themselves have been indifferent as to their public duty as citizens. It is not only our duty to raise good crops, and good stock, but it is our business to keep alive the patriotism of this country, and to see that good men and good women are placed in positions of trust.

AMONG THE LIVE GRANGES.

Vienna Grange, of Genesee county, is conducting a lively membership contest. The ladies are arrayed against the gentlemen and the losers are to furnish supper to the victors. The contest is not only swelling the membership at a rapid rate, but appears to be awakening renewed interest in the Grange and all that it stands for.

Newaygo Pomona's Midwinter Meeting was held with W. W. Carter Grange in the village of Newaygo. The following officers were elected for the ensuing two years: Master, Wm. Carter; overseer, George Warren; lecturer, Mrs. Mary Stuart; steward, A. C. Flint; assistant steward, Leonard Clark; chaplain, Ada McCall; treasurer, Wm. Robertson; secretary, Sophia Kimbell; gate keeper, Sanford Anderson; Ceres, Nancy Terwilliger; Pomona, Mary Zerlant; Flora, Blanche Carter; lady assistant steward, Lola Stuart.

Plymouth Grange, of Wayne Co., held an all-day meeting Feb. 1, which was well attended and thoroughly enjoyed by all. Its present officers are: Master, J. H. Hanford; overseer, Clarence O'Brien; lecturer, Dr. W. J. Burrows; steward, E. Moyer; chaplain, Mrs. C. O'Brien; assistant steward, B. VanVorhis; treasurer, J. H. Root; secretary, Mrs. Chas. Smith; gate keeper, Clyde Brown; Ceres, Mrs. H. Packard; Pomona, Mrs. Maude Bennett; Flora, Mrs. Edith Moyer; lady assistant steward, Mrs. VanVorhis; pianist, Mrs. G. Gates. After conferring the first and second degrees on a class of eight the Grange enjoyed several musical numbers after which Sisters Root, O'Brien and Hanford read papers on the subject, "Does the Grange meet the needs of the women on the farm as fully as it should?" From the very lively discussion which followed it seemed to be the general opinion that it does not. Next meeting Feb. 15.—W. J. B.

COMING EVENTS.

Pomona Meetings.
Ingham Co., with Leslie Grange, Thursday, Feb. 22. Patriotic program.
Western (Ottawa Co.), at Conklin, Thursday and Friday, March 1 and 2.

FARMERS' CLUBS

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.

Wixom Farmers' Club, of Oakland county, reported through its delegate, Mr. E. M. Moore, at the recent annual meeting of the state association, that this Club finds its special feature meetings to be most interesting and advantageous to the organization. This Club each year celebrates the Fourth of July, making the regular meeting for July come upon that date. They celebrate in a safe and sane manner and the members have a real good time and unanimously vote this the best possible way to celebrate the national holiday. This special feature is also helpful financially, the ladies serve a dinner and the proceeds are generally from \$20 to \$30. This helps in the holding of a fair in October, which is another special feature always offered by this Club. Cash premiums are offered for the best exhibits of corn, etc., the premium list last year amounting to \$50. The last event of this kind was the third held by this Club, and these meetings have proved both useful and practical. A dinner is also served at this time and the meeting is open to general attendance, a strong program being offered aside from the exhibits. This Club experiences a difficulty in getting young people to attend, the members and those who attend the meetings being largely the older people of the community. As a means of getting young people out Mr. Moore sug-

gested evening meetings during the summer. Notwithstanding the liberal premiums offered at their fair, this Club has from \$30 to \$40 in the treasury.

White Lake Club, of Oakland county. The report of the delegate from this Club was similar in detail to that of the Wixom Club noted above. The Club was reported to be in a prosperous condition and doing excellent work.

CLUB DISCUSSIONS.

Hold Institute Meeting.—The February meeting of the Wixom Farmers' Club was taken up and in place of it a one-day farmers' institute was held at the K. O. T. M. hall at Wixom, Tuesday, February 13. N. I. Moore, state speaker, was with us and gave two very interesting and profitable talks. His first subject was "Seed Selection." He urged the farmers to select seed that was well bred. He said time was well spent in selecting and caring for good seed, especially the corn. He feared the farmer who had not saved good seed corn would have serious trouble this spring to secure it. The subject was discussed by several and decided four things necessary for good crops: First, good seed; second, good soil; third, good cultivation; fourth, good season, all within the control of the farmer but the fourth. Mr. Moore's second subject was "Cultivating and Feeding the Soil." He said it was a good thing to keep ground supplied with plenty of vegetable matter; for this you can use the barnyard manure, also June clover and plow under. The speaker said be sure and have a proper rotation of crops. Study the soil and see what it needs to bring about the best results. Mr. L. D. Lovewell, of South Lyon, gave an interesting talk. His subject was "Co-operation." He advised the people to patronize the merchants in their home towns, thus making it better for all concerned. He urged the Farmers' Clubs and Grange to co-operate for the trend of better living of the individual and society at large. Mrs. Nellie Deitrich, of South Lyon, gave a recitation which was exceptionally fine, entitled, "Lincoln's Last Dream." It was listened to by an attentive audience. A resolution was read and adopted that we favor the nomination of Theodore Roosevelt for our next president. Also, a rising vote was taken in favor of Mr. Roosevelt.—Mrs. R. D. Stephens, Cor. Sec.

Begin Seventeenth Year.—The January meeting of the Arcadia Farmers' Club was held at the pleasant home of Mr. and Mrs. George Irish. After enjoying an excellent dinner, the meeting was called to order by President Hainline. We were then entertained by a very fine program, consisting of music, recitations and readings. The question box was then opened and subjects profitably discussed. Our Club is just entering its seventeenth year since organized. We have 32 families enrolled and hold one meeting each month of the year. An out-door picnic is held in August. The Club adjourned to meet with Mr. and Mrs. Ray Taylor the last Thursday in February.—Mrs. C. F. Hainline, Cor. Sec.

Federal Assistance in Road Building.—The Conway and Handy Union Farmers' Club was entertained at the home of Mr. and Mrs. W. Stowe, Jan. 26. The attendance was not large, about 63 people being served to dinner. "Should the federal government engage in inter-state road building?" J. B. Fuller said: "Road building is one of the greatest problems before the people today; papers are full of both sides of the question. We are in need of good roads; good thing to have the government take hold of it for several reasons; the government can build cheaper, has the machinery, can get help, get enough money from men we would not get through general taxation. The foreigner's tobacco is taxed; the men that live on luxuries, in a way, pay taxes to the government. If the township builds a road and receives \$500 state aid that money comes out of the farmer through general taxation. If the government builds the mile main road there will be no particular difference to our taxes; there will be a greater inspiration to people to build other roads to the main road. Discussion—J. B. Rambo agreed with Mr. Fuller. Money used in great quantities to make waterways. Why not build dirt roads; good roads are valuable, better for team, save men from using bad language, keep up and abreast with other nations. G. L. Adams and H. Benjamin thought the time was near when we would have auto trucks to haul our products to market and we must meet it by having good roads, the quicker the better as this is an age of progress; government must take hold of it and use its money for the experiments needed to make perfect roads. Some \$8,000 was taken in the county for road building and about \$3,000 paid out, this shows we are helping build good roads somewhere else.

Would Have Laws Enforced.—The following resolution was read and adopted: Whereas, we recognize that the future of our great nation, as well as our individual protection, lies in the proper respect and honest enforcement of law, therefore,

Resolved, That the Conway and Handy Union Farmers' Club heartily commend the action of the worthy citizens of our county and the Anti-Saloon League in their effort and action toward securing the proper enforcement of the local option law in our county, and we hereby pledge them our moral support and commendation as patriotic citizens. Adjourned to meet with Mr. and Mrs. S. Horton in February.

Rayo LANTERNS



You Can Feel Safe

when driving home at night if you use a Rayo road lantern.

Its strong, white light reveals the road ahead; the ruby disc in the reflector is a warning in the rear.

It is attached to the vehicle by a simple bracket. Lift it off, and you have a first-class hand lantern.

Rayo lanterns are made in numerous styles, sizes and finishes. They are the strongest and most reliable you can find, and will not blow or jar out.

All Rayo lanterns are equipped with selected Rayo globes, clear, red or green, as desired. Wicks inserted in burners, ready to light.

Dealers everywhere; or write for descriptive circular direct to any agency of the

Standard Oil Company
72 W. Adams St. Chicago



Sure Catch!

You can depend on a Sargent Trap to get and hold everything that comes within reach of its jaws. Quick on the trigger—gives not the slightest warning. Grips the leg like a vise, but the jaws are broad-faced and don't break the bone.

SARGENT

Steel Game Traps

make trapping more profitable because you lose no animals. Made of finest spring steel; solidly put together; stand hard usage. All sizes, from gophers and rats to biggest wolves, single or double spring.

Ask at any hardware store for Sargent Traps or write to us.

SARGENT & COMPANY,
151 Leonard St.,
New York.



"NEVERBREAK"

TUBULAR STEEL SINGLE TREES, DOUBLETREES, TRIPLETREES AND NECK YOKES

Will Not Bend Cannot Break No. 200—TWO HORSE PLOW DOUBLETREE



They weigh no more and cost no more than wood. They stand up to the hardest strain and last forever.

Thousands of farmers have given up the old-fashioned, breakable wood whiffletrees for the "NEVERBREAK." Ask your dealer, or write for information and prices. Address Dept. N

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PITTSBURGH, PA.

Monarch Hydraulic Cider Press

Net owners 25% to 100% on investment per year. Ask for Free Catalog and "Good Tip" booklet telling how.

Monarch Machinery Co., 644 Hudson Terminal, New York

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In each town torideand exhibit sample 1912 Bicycle. Write for special offer. We Ship on Approval without a cent deposit, allow 10 DAYS FREE TRIAL, and prepay freight on every bicycle. FACTORY PRICES on bicycles, tires and sundries. Do not buy until you receive our catalogs and learn our unheard-of prices and marvelous special offer. Tires, wheels, lamps, sundries, half prices.
MEAD CYCLE CO., Dept. W77 Chicago, Ill.



MARKETS

DETROIT WHOLESALE MARKETS.

February 21, 1912.

Grains and Seeds.

Wheat.—The wheat market which received active support on Monday made a feeble attempt on Tuesday and early prices moved up a fraction, but the volume of selling was sufficient to turn the tide and the close saw a loss of $\frac{1}{4}$ ¢ for cash and $\frac{1}{4}$ ¢ for futures. Foreign news was in favor of an advance, while the decline was the result of domestic conditions, dealers being able to see nothing but the huge stock of grain in Chicago with no buyers in sight, while Minneapolis has more wheat than a year ago and southwestern receipts are large. The Liverpool market is strong because England wants to attract shipments away from the continent. There is also unsatisfactory grading of Argentine wheat. American millers complain of light demands for flour and the winter wheat crop in Kansas is reported in fine condition, but there are reports of injury from other parts of winter wheat. There was a net decline of 2¢ in cash wheat for the week. The price one year ago for No. 2 red wheat in this market was 90¢ per bu. Quotations for the week are:

	No. 2	No. 1	Red.	White.	May.	July.
Thursday	97½	95½	1.02½	96½		
Friday	97	95	1.02	96½		
Saturday	96	94	1.01½	96		
Monday	96	94	1.01½	96½		
Tuesday	95½	93½	1.00½	96½		
Wednesday	95½	93½	1.01	96½		

Corn.—While there was little change in the corn market, there was an easy feeling early in the week in sympathy with the wheat market. This was counteracted by the news from Baltimore of a better export demand. Fluctuations were confined to futures, the market for cash grain being firm, although the price has dropped about $\frac{1}{4}$ ¢ during the week. One year ago the price for No. 3 corn was 46½¢ per bu. Quotations for the week are:

	No. 3	No. 3	Yellow.
Thursday	66¾	67¾	
Friday	66¾	67¾	
Saturday	66¾	67¾	
Monday	66¾	67¾	
Tuesday	66¾	67¾	
Wednesday	66¾	67¾	

Oats.—Free selling by western speculators caused an easy tone in this market due largely to the movement in the wheat market, but somewhat to a moderate increase in receipts. The local market has dropped $\frac{1}{4}$ ¢ from last week's quotations. The price for standard oats on this market one year ago was 32½¢ per bu. Quotations for the week are as follows:

	Standard.	No. 3	White.
Thursday	53¾	53¾	
Friday	53¾	53¾	
Saturday	53¾	53¾	
Monday	53¾	53¾	
Tuesday	53¾	53¾	
Wednesday	53¾	53¾	

Beans.—There has been a decline in this market of 2¢ per bushel since last week and a shrinkage in the May quotations of 3¢ per bushel. Quotations for the week are as follows:

	Cash.	May.
Thursday	\$2.40	\$2.48
Friday	2.40	2.48
Saturday	2.40	2.48
Monday	2.38	2.45
Tuesday	2.38	2.45
Wednesday	2.38	2.45

Clover Seed.—There has been a net drop of 50¢ per bushel in this market since the high point touched last week. The low point was reached on Monday when the closing quotation was \$13.40 per bu. On Tuesday the market advanced 10¢. Quotations for the week are as follows:

	Prime Spot.	March.	Alsike.
Thursday	\$13.75	\$13.75	\$13.25
Friday	13.75	13.75	13.25
Saturday	13.65	13.65	13.25
Monday	13.40	13.40	13.25
Tuesday	13.50	13.50	13.25
Wednesday	13.50	13.50	13.25

Timothy Seed.—Prime spot timothy seed sold on this market on Tuesday at 7¢ per bushel, which is last week's quotation.

Rye.—The rye market is quoted 1¢ lower. There is, however, practically nothing doing in this trade. Cash No. 2 is quoted at 94¢ per bu.

Flour, Feed, Potatoes, Etc.

Flour.—Prices are unchanged. Market steady.

Straight	\$4.25
Patent Michigan	4.85
Ordinary Patent	4.60
Rye	5.20

Feed.—All grades are unchanged and steady. Carlot prices on track are: Bran, \$28 per ton; coarse middlings, \$28; fine middlings, \$28; cracked corn, \$30; coarse corn meal, \$30; corn and oat chop, \$27 per ton.

Hay and Straw.—Both hay and straw remain steady. Firm. Quotations are: No. 1 timothy, \$22@22.50; No. 2 timothy, \$21@21.50; clover, mixed, \$20@21.50; rye straw, \$11.50@12; wheat and oat straw, \$10.50@11 per ton.

Potatoes.—There is only a fair supply of potatoes on the market. Prices rule firm with those of a week ago. Car lots on track are quoted at 95¢@1 per bu.

Provisions.—Family pork, \$17@19; mess pork, \$16.50; medium clear, \$16@17.50; picnic hams, 9½¢; bacon, 12@13½¢; pure lard in tierces, 9½¢; kettle rendered lard, 10½¢ per lb.

Dairy and Poultry Products.

Butter.—The butter market is firm at the decline of 5¢ per lb. from last week's quotations. Receipts only moderate. Quotations are as follows: Extra creamery,

27¢; first creamery, 26¢; dairy, 21¢; packing stock, 20¢ per lb.

Eggs.—Egg prices have declined 6¢ per dozen during the past week. The arrival of southern eggs is credited with an influence in the weakening of prices, although more moderate weather and the prospect of an early increase in domestic production is more largely responsible for this sharp decline. Current receipts, cases included, are quoted at 33¢ per doz.

Poultry.—There has been no marked change in the market for live poultry during the past week, except a slight increase in the quotations for spring chickens. Quotations are: Live turkeys, 16@17¢; geese, 11@12¢; ducks, 14¢; young ducks, 15¢; No. 2 chickens, 9¢; hens, 13@14¢. Dressed—Chickens, 13½@14¢; ducks 16@17¢; geese, 14@15¢; turkeys, 18@19¢ per lb.

Veal.—Market rules steady. Fancy, 10@12¢; choice, 9@10¢ per lb.

Dressed Hogs.—Light, \$7.50; medium, \$6.75; heavy, \$6.50 per cwt.

Cheese.—Michigan, September, 17½@18¢; Michigan, late made, 16½¢; York state, 17½@18¢; limburger, 16@18¢; domestic Swiss, 19@22¢; brick cream, 18@19½¢ per lb.

Fruits and Vegetables.

Cabbage.—Steady; now selling at 3¢ per lb.

Onions.—\$2 per bu; Spanish, \$2 per crate.

Apples.—There is no change in the apple market since last week. Baldwins are selling at \$3@3.50; Greenings, \$3.25@3.50; Spies, \$3.50@4; Ben Davis, \$2@2.50 per barrel.

OTHER MARKETS.

Grand Rapids.

The mild weather has not greatly affected the potato market as yet and price ranges from 75@85¢ at loading points. Fresh eggs have taken a tumble and 25¢ is Tuesday morning's quotation to the shipping trade by jobbers. Dairy butter is worth 27¢. Live poultry is selling as follows: Fowls and chickens, 11¢; roosters, 8¢; geese, 10¢; ducks, 13¢; turkeys, 18¢. Dressed hogs are worth 7½@8¢. Grain prices as follows: No. 2 red wheat 90¢; oats, 53¢; corn, 67¢.

Chicago.

Wheat.—No. 2 red, 93½¢@1.00½; May, 99¾¢; July, 95¾¢.

Corn.—No. 3, 62½¢@63¼¢; May, 67¼¢; July, 67¢ per bu.

Oats.—No. 2 white, 52½¢@53¢; May, 52½¢; July, 47½¢ per bu.

Barley.—Malting grades, \$1@1.30 per bu; feeding, 75@85¢.

Butter.—The week of mild weather brought a big increase in receipts and resulted in a bad break in prices. Creameries declined 6¢ in this market on Monday but regained 1¢ the following day, placing this market on a par with Elgin. Dairies are also 5¢ lower. Quotations: Creameries, 23@27¢; dairies, 21@25¢.

Eggs.—Offerings show a fair increase but the market is in an unsettled condition due to the outlook for heavy receipts in the near future. Prices have declined 4@5¢ the past week under a demand that is only fairly active, but the sudden change in the weather this week seems likely to stiffen the market to some extent. Quotations are: Firsts, grading 45 per cent fresh, 28@28½¢; ordinary firsts, 25@26¢ per dozen; at mark, cases included, 23@25¢.

Poultry.—This market has a steady undertone. Live are quoted as follows: Chickens, 12½¢; fowls, 12½¢; roosters, 9¢; turkeys, 14¢; ducks, 15¢; geese, 11¢. Dressed—Chickens, 14¢; fowls, 14¢; roosters, 10¢; turkeys, 19¢; ducks, 17¢; geese, 13¢.

Potatoes.—Receipts liberal but trading has been of sufficient volume to absorb the offerings of good stock at a slight advance in values. Market firm. Michigan stock is now quoted at \$1.05@1.08 per bu. Wisconsin, \$1.03@1.05; Minnesota, \$1.05@1.08.

Beans.—This market has weakened somewhat under heavy offerings and a slow demand. All kinds are lower. Current quotations are: Pea beans—Choice hand-picked, \$2.55 per bu; prime, \$2.42 per bu; Red Kidneys, \$2.65@2.75.

Hay and Straw.—Market is steady to firm. Quotations: Timothy, choice, \$22.50 @23.50 per ton; No. 1, \$20.50@21.50; No. 2 and No. 1 mixed, \$19@19.50; No. 3 and No. 2 mixed, \$14.50@18; clover, \$16.50@19; No. 2 and no grade, \$7.50@13.50; alfalfa, choice, \$20.50@21; No. 1, \$19@20; No. 2, \$18@19; straw, rye, \$9.50@10.50; oat, \$9@10; wheat, \$7.50@8.50.

New York.

Butter.—This market shared in the expected drop in values and prices generally are about 5¢ lower. Market steady at the lower range. Creamery specials are quoted at 29¢ per lb; extras, 28@28½¢; firsts, 27@27½¢; seconds, 25½@26½¢.

Eggs.—Easier with prices showing a 1¢ decline. Fresh gathered extras, 36@37¢; firsts, 35¢; seconds, 34¢; western gathered whites, 35@37¢ per dozen.

Poultry.—Live—Steady to firm with chickens quoted lower. Western chickens, 12@12½¢; fowls, 13½@14½¢; turkeys 15@16¢. Dressed—Quotations unchanged but market somewhat unsettled. Western chickens, 12½@15¢; fowls, 12½@16¢; turkeys, 12@21¢.

Boston.

Wool.—Although trading is along broad lines, with some of the nearby wools becoming scarce, moderate sales of domestic wools are being made at firm values. Reports from the west indicate that buyers are active in securing the new clip. One report says that two-thirds of the Utah clip has been sold at 15@18¢. The lower grades of territory wools have figured most prominently in recent deals in old wool in this market. Interest in the foreign product shows a decline. The leading domestic quotations range as follows: Ohio and Pennsylvania fleeces—Delaine washed, 32¢; XX, 28@29¢; fine, unmerchanted, 23¢; half-blood combing, 30¢; ¾-blood combing, 30¢; ¼-blood combing, 29¢; delaine unwashed, 26¢; fine un-

washed, 21½¢. Michigan, Wisconsin and New York fleeces—Fine unwashed, 20½¢; delaine unwashed, 24¢; ½-blood unwashed, 28¢. Kentucky, Indiana and Missouri—Three-eighths blood, 28¢; ¼-blood, 29¢.

Elgin.

Butter.—This market recorded a drop of 5¢ on Monday of this week, the rapid accumulation of stock being the explanation. The market was declared firm at 27¢. The output for the week was 700,000 lbs., compared with 625,000 lbs. a week ago.

THE LIVE STOCK MARKETS.

Buffalo.

February 19, 1912.

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

Receipts of stock here today as follows: Cattle, 150 cars; hogs, 90 double decks; sheep and lambs, 105 double decks; calves, 1,200 head.

With 150 cars of cattle on our market here today, weather soft and rainy, and with 27,000 reported in Chicago, our market was from 15@25¢ lower, and the extreme tops of the cattle, according to the quality, were all of 35¢ per cwt. lower than last Monday.

We quote: Best 1,400 to 1,600-lb. steers, \$7.40@7.85; good prime 1,300 to 1,400-lb. do., \$6.50@7; do. 1,200 to 1,300-lb. do., \$6.25@6.75; best 1,100 to 1,200-lb. shipping steers, \$6@6.40; medium butcher steers, 1,000 to 1,100, \$5@5.75; light butcher steers \$4.25@4.75; best fat cows, \$4.50@5.25; fair to good do., \$3.75@4.25; common to medium do., \$3@3.50; trimmers, \$2.25@2.75; best fat heifers, \$5.50@6; good do., \$4.50@5.10; fair to good do., \$4@4.50; stock heifers, \$3@3.25; best feeding steers, dehorned, \$4.25@4.50; common feeding steers \$3.25@3.75; stockers, all grades, \$3.25@3.75; prime export bulls, \$5.50@6; best butcher bulls, \$5@5.25; bologna bulls, \$4@4.50; stock bulls, \$3.25@4; best milkers and springers, \$4.50@5; common to good do., \$2.50@3.

With 90 cars of hogs on sale today, the bulk of the choice quality yorkers, mixed and medium weights sold at \$6.55, and the pigs and lighter weights sold generally around \$6.25. Rough sows, \$5.75@5.80; stags from \$4.50@5.25. Market opened slow, but after the first round ruled fairly active at the prices, and the supply was well cleaned up; closing steady.

The lamb market was very dull today; most of the choice lambs selling for \$6.75; few choice at \$6.80@6.85. Don't look for much improvement the balance of the week unless the runs are very light, as the dressed meat market is very bad in the east. The sheep market was active today; market strong. Look for about steady prices the balance of the week on sheep.

We quote: Best lambs, \$6.65@6.75; cull to common do., \$5.25@5.75; wethers, \$4.50@4.75; bucks, \$2.25@3; yearlings, \$5@5.75; handy ewes, \$4@4.25; heavy do., \$4@4.25; cull sheep, \$2.50@3.25; veals, choice to extra, \$10@10.50; fair to good do., \$8@10; heavy calves, \$4@5.50.

Chicago.

February 19, 1912.

Cattle. Hogs. Sheep.
Received today 28,000 66,000 27,000
Same day last year 30,204 35,788 21,210
Received last week 55,009 201,362 102,131
Same week last year 57,178 156,598 89,134

This week opens with an extremely dull cattle market, due largely to the dearthness of beef, very mild weather and the nearness of Lent. A few choice lots are moving off at about steady prices, but the general market is on the down-grade, buyers bidding 10@15¢ or more lower. Hogs are in good general demand, the decline of 10¢ being attributable to the liberal receipts. Sales range at \$5.80@6.25, the best light hogs going at \$6.25, while pigs bring \$4.50@5.95, stags \$6.30@6.50 and boars \$3@3.50. Hogs marketed last week averaged 217 lbs., compared with 232 lbs. one year ago and 212 lbs. two years ago. Sheep and lambs of the best quality are selling at steady prices, others being largely a dime lower. Lambs sell at \$4.50@6.75; yearlings at \$5@5.75; wethers at \$4.15@4.75; ewes at \$2.25@4.25 and bucks at \$2.50@3.25.

The shippers operating in this market last week shipped from here 63,868 hogs, compared with 51,974 a week earlier and 42,834 the same week last year. This is the strong feature.

Cattle buyers complained last week of a congested dressed beef trade and of the adverse influence of the approaching Lenten season, and the traffic in steers at times was of listless character. The week opened largely 10@15¢ lower, with a Monday run of 26,144 head, only the few prime heavy beefs selling at steady values. Trade was sluggish the following day, and a light Wednesday supply failed to bring any improvement. Nor was the market better on subsequent days, and liberal supplies for the week would have been disastrous for sellers. A large share of the week's sales of beef steers took place between \$5.60 and \$7.90, with the choicer class of heavy steers going at \$7.50@8.50 and the poorer light steers at \$4.75@5.75. Medium grade cattle went at \$6@6.75 and good lots at \$7 and upward, and choice yearlings brought \$7@7.90. Butcher lots of cattle sold relatively well, particularly the best fat offerings, cows and heifers fetching \$3.45@6.65, while cutters sold at \$3@3.40, canners at \$2@2.95, and bulls at \$3.25@6. There was not a very large demand for stockers and feeders, 60¢ corn in the farming districts and high prices asked for well-bred cattle for fattening tending to check the inquiry. There was no lack of ordinary light-weight stock steers, but most buyers wanted choice weighty feeders, and these were scarce and dear, packers buying many of them. Stockers went at \$3.50@5.50 and feeders at \$4.75@6 for inferior to choice, and fancy feeders sold to a limited extent up to \$6.25. Calves had a fair outlet at \$3@8.50, not many going above \$8. Milk and springers

had a moderate sale at \$30@65 per head, choice Holsteins selling especially well. No fancy beefs were received during the week. The general market closed 10@15¢ lower than a week earlier.

Hogs were marketed here and elsewhere in the west liberally last week, and prices experienced declines at different times, the weakness being most pronounced in the cheap and medium-priced heavy packing grades, as usual. Rallies took place, however, and the undertone for the choicer barrows was rather firm on the whole, some sharp upturns resulting in most of the packers curtailing their purchases, but this was easily offset by the enlarged purchases made by eastern shippers, who on one day took nearly 30 per cent of the arrivals. Choice light weights continued to meet with a steady shipping demand, causing the best of these hogs to sell within 5¢ of the extreme top of the market. Fresh pork consumption continued on an enormous scale everywhere on account of the cheapness of such meats as compared with beef and mutton, but cured meats are accumulating enormously in warehouses, as retailers refuse to lower their prices in accordance with the reductions that have been made by wholesalers. On the opening of the month five leading western packing points held aggregate provision stocks aggregating 290,415,000 lbs., compared with 225,841,000 lbs. a month ago and 162,135,000 lbs. a year ago. Closing Saturday prices were not much different from those a week earlier.

Sheep and lambs had their usual ups and downs last week, starting off largely at lower prices because of a large Monday supply and selling higher subsequently on greatly reduced offerings. Much the worst feature of the market was the preponderance of poorly finished stock, many consignments having to sell at such low prices as to allow but slender profits to the men who fed them. One of the curious features of the market is the continued heavy offerings of native ewes, many sheepmen going out of the industry apparently, and prices for such stock have ruled extremely low. A sale was made late in the week of 238 head of fancy Wisconsin-fed western lambs that averaged 84 lbs. at \$7, being contracted to arrive, the only sale of the week above \$6.75. The greater part of the lambs and sheep closed lower than a week earlier. Feeder lambs have sold moderately at \$4.75@5.75, largely at \$5.50 for good lots.

Horses were offered in very good numbers last week, but there was not a large showing of prime heavy drafters such as sell around \$250@325. The offerings of lighter weights selling at \$175@225 were ample, and wagon horses that bring \$160@200 were plentiful. Farm horses have met with an excellent demand, selling chiefly at \$160@200, and nice breeding mares sold at higher prices now and then. Inferior horses sold below \$100, and drivers were neglected at \$100@200 and upward.

LIVE STOCK NOTES.

Once more, the approach of the Lenten season has been a factor in depressing the live stock markets of the country, although it must be admitted that the dearthness of most meats hurts their consumption to a far greater extent than religious rules for fasting. The markets also have been weakened at times by much larger offerings of cattle, hogs and sheep following unrestricted movements of stock trains after the change from severely cold to mild weather.

The consumption of fresh pork products has been uncommonly large all this winter, and this outlet has afforded the most sure support to prices for hogs, although the consumption of cured meats has been as large as could be expected under all the circumstances. The one obstacle to the sales of bacon, hams, lard, etc., is their dearthness, retail meat dealers having failed to lower their prices to any great extent. Meanwhile, hogs have been rushed to western markets from month to month in enormous numbers, and the packers have been manufacturing provisions at a very much faster rate than their consumption called for. This has been going on for such a long period that western warehouses are rapidly filling up, until at last many of them have no more space unfilled. Stocks are far ahead of former years in volume, the accumulations having been at an unprecedentedly rapid rate, and numerous owners are evidently anxious to make quick sales.

The character of the marketing of cattle at Chicago and other western points fails to show any marked change, further than a reduction in offerings of strictly prime heavy beefs. The cause of this is well understood, of course, it being the dearthness of corn and other feeds and a determination upon the part of stockmen nearly everywhere to hold down their winter feed bills. Furthermore, the winter has been a rarely exceptional one in the severity and long duration of cold weather, and many stock feeders say their cattle failed to make perceptible gains during the coldest weather. With corn bringing 60 cents a bushel or more in feeding districts, owners are naturally tempted to let their cattle and save the corn for selling. Whether this is a wise course or not depends on the quality of the cattle and the ability of the owner to continue the process of feeding, but it would appear that well-bred cattle that are doing well and can be made fat should not be marketed prematurely, for choice beefs are the highest ever known at this time of the year.

The following comes from San Angelo, Texas: "The high price for range cattle in this section of Texas is advancing and is higher than packers' quotations. Last week a bunch of cows were sold to Itasca ranchmen at \$29 per head, which is practically \$4 above two months ago. A few days ago \$57.50 per head for steers was paid. This is the highest price ever known in the history of the state to be paid for ordinary grass-fed cattle."

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.
February 15, 1912.
Cattle.

Receipts, 856. Market dull at last week's prices.

We quote: Extra dry-fed steers and heifers, \$6.25@6.50; steers and heifers, 1,000 to 1,200, \$5.75@6; do., 800 to 1,000, \$5@6; do. that are fat, 500 to 700, \$4@4.50; choice fat cows, \$4.75@5; good fat cows, \$3.50@4.50; common cows, \$3@3.25; canners, \$1.75@2.75; bulls, \$3.75@4.50; stock bulls, \$3@3.75; milkers, large, young, medium age, \$4@5; common milkers, \$25@35.

Roe Com. Co. sold Gerish 26 steers av 992 at \$6.20; to Sullivan P. Co. 5 canners av 862 at \$2.85; to Goose 7 cows av \$60 at \$3.50; to Rattkowsky 1 do weighing 1,020 at \$4; to Mich. B. Co. 5 butchers av 790 at \$4.50; 1 bull weighing 1,080 at \$5; 1 cow weighing 1,170 at \$4.75; to Sullivan P. Co. 4 canners av 875 at \$2.75; 1 bull weighing 1,620 at \$4.75; 1 do weighing 920 at \$2; to Newton B. Co. 15 steers av 960 at \$5.40; to Parker, W. & Co. 1 bull weighing 1,300 at \$4.75; to Newton B. Co. 8 do av 910 at \$4.85; to Goose 3 cows av 943 at \$3.25; to Parker, W. & Co. 20 steers av 1,025 at \$6.15; to Nagle P. Co. 20 do av 1,149 at \$6.40; 20 do av 1,050 at \$6.

Haley & M. sold Mich. B. Co. 2 steers av 960 at \$5.75; 7 do av 757 at \$5.40; 6 butchers av 826 at \$4.50; to Parker, W. & Co. 5 bulls av 1,368 at \$4.75; to Goose 4 cows av 975 at \$3.80; to Applebaum 1 butchers av 862 at \$4.30; 2 cows av 965 at \$3.75.

Bishop, B. & H. sold Mich. B. Co. 11 butchers av 727 at \$4.80; to Hammond, S. & Co. 4 cows av 820 at \$3.25; 1 canner weighing 730 at \$2.75; to Goose 4 cows av 880 at \$3.25; to Nagle P. Co. 22 steers av 1,063 at \$6.15; 2 cows av 1,060 at \$5; to Hammond, S. & Co. 9 do av 916 at \$3.65; 1 do weighing 1,160 at \$3.75; to Kamman B. Co. 2 steers av 995 at \$6; to Rattkowsky 6 butchers av 705 at \$4.35; 1 cow weighing 900 at \$4; to Kamman B. Co. 8 steers av 902 at \$5.50; 1 do weighing 980 at \$5.25; to Lachalt 10 do av 760 at \$5; 2 cow and bull av 1,065 at \$4.50; to Regan 11 butchers av 688 at \$4.30; to Goose 2 cows av 875 at \$3.50; 4 do av 880 at \$3; 12 butchers av 750 at \$4; to Sullivan P. Co. 1 cow weighing 1,040 at \$2.75; to Newton B. Co. 25 steers av 957 at \$5.75; 1 cow weighing 1,170 at \$4.50; 5 butchers av 668 at \$4.25; 25 steers av 934 at \$5.75; to Kamman 6 cows av 726 at \$2.85; 2 do av 1,040 at \$4.50; 2 bulls av 1,570 at \$5; to Parker, W. & Co. 2 bulls av 1,330 at \$4.75; 5 heifers av 806 at \$5; 6 cows av 1,080 at \$4; to Heinrich 22 steers av 808 at \$5.25.

Rosenheim sold Mich. B. Co. 2 cows av 920 at \$3.50; 5 do av 1,060 at \$4.50.

Lowenstein sold same 7 do av 1,090 at \$4.50; 2 do av 895 at \$3.50.

Brown sold same 23 steers av 1,020 at \$6.

Hety sold Newton B. Co. 5 cows av 1,164 at \$4.65.

Hoffend sold Hammond, S. Co. 2 cows av 965 at \$3.25; 1 do weighing 1,320 at \$4.50; 5 do av 940 at \$3.10.

Worthey sold Sullivan P. Co. 1 bull weighing 1,330 at \$4.75; 4 steers av 860 at \$5.35.

Jedele sold same 1 bull weighing 1,510 at \$5.25; 6 steers av 910 at \$5.85; 1 do weighing 1,220 at \$6.50.

Sheep and Lambs.

Receipts, 2,951. Market steady at last week's prices. Best lambs, \$6.25@6.40; fair to good lambs, \$5.50@6; light to common lambs, \$3@4.50; fair to good sheep, \$3@3.50; culls and common, \$1.25@2.50.

Bishop, B. & H. sold Thompson Bros. 21 sheep av 93 at \$2.50; to Mich. B. Co. 11 lambs av 55 at \$4.50; 34 do av 67 at \$6; 2 do av 50 at \$4; to Parker, W. & Co. 80 do av 73 at \$6; 21 do av 65 at \$5.75; 23 do av 75 at \$5.75; to Sullivan P. Co. 8 do av 50 at \$4; to Hayes 11 sheep av 95 at \$2.50; to Hammond, S. & Co. 4 do av 70 at \$2.50; 26 lambs av 85 at \$4; to Sullivan P. Co. 5 do av 106 at \$4.50; 9 do av 105 at \$4.50; 4 sheep av 105 at \$3; 3 do av 73 at \$2.50; to Thompson Bros. 17 do av 85 at \$3; to Fitzpatrick Bros. 8 lambs av 80 at \$6.50; 18 do av 48 at \$4; 36 sheep av 130 at \$2.90; 45 lambs av 85 at \$6.40; to Hammond, S. & Co. 229 do av 83 at \$6.40; 85 do av 80 at \$6.40; to Nagle P. Co. 41 do av 70 at \$6; 16 do av 60 at \$5; 23 do av 85 at \$6.25; to Thompson Bros. 17 sheep av 85 at \$3; to Young 42 lambs av 60 at \$5.50; to Fitzpatrick Bros. 26 do av 55 at \$4; 14 sheep av 90 at \$3.25.

Spicer & R. sold Mich. B. Co. 1 lamb weighing 70 at \$5.50; 1 sheep weighing 110 at \$3; to Newton B. Co. 3 do av 100 at \$2.50; 14 do av 90 at \$2.85; 14 lambs av 70

at \$5.75; 1 sheep weighing 93 at \$2.75; 14 lambs av 70 at \$5.

Hogs.

Receipts, 1,884. Market steady with Wednesday and last week's close; nothing sold up to noon.

Range of prices: Light to good butchers, \$6.15@6.25; pigs, \$5.75@5.80; light yorkers, \$6@6.15; stags one-third off.

Bishop, B. & H. sold Hammond, S. & Co. 615 av 200 at \$6.20; 450 av 180 at \$6.15; 325 av 165 at \$6.10; 310 av 155 at \$6.05.

Spicer & R. sold Parker, W. & Co. 250 av 200 at \$6.15; 115 av 180 at \$6.10.

Haley & M. sold same 260 av 210 at \$6.20; 140 av 195 at \$6.15.

Friday's Market.
February 16, 1912.
Cattle.

Receipts this week, 1,336; last week, 1,518. Market steady at Thursday's prices.

We quote: Best steers and heifers, \$6.25@6.50; steers and heifers, 1,000 to 1,200, \$5.75@6; do. 800 to 1,000, \$4.50@5.50; do. that are fat, 500 to 700, \$4.50@5; choice fat cows, \$4.75; good do., \$3.50@4.50; common cows, \$3@3.50; canners, \$1.75@2.75; choice heavy bulls, \$4.75@5; fair to good bologna bulls, \$3.75@4.25; stock bulls, \$3.50@3.75; milkers, large, young, medium age, \$4@5; common milkers, \$20@35.

Veal Calves.

Receipts this week, 681; last week, 877. Market steady at Thursday's prices. Best, \$3.50@9; others, \$4@8; milch cows and springers dull.

Sheep and Lambs.

Receipts this week, 8,304. Market, quality considered, strong at Thursday's prices. Best lambs, \$6.25@6.40; fair to good sheep, \$3@3.75; culls and common, \$1.75@2.75.

Hogs.

Receipts this week, 4,964; last week, 7,596. Market steady to 5c lower than on Thursday. Range of prices: Light to good butchers, \$6.15@6.20; pigs, \$5.75; light yorkers, \$6@6.10; stags one-third off.

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Woman and Her Needs At Home and Elsewhere



"Be not the First By Whom the New is Tried"

IT is the fashion of each new generation to consider itself wiser than the last. Certainly each new generation adds something to the lessons the race must learn before it attains perfection, but does it follow naturally that the ways of the present are so much better than those of the generation preceding that we must discard their pet theories as things absolutely valueless? With our advanced knowledge in science, medicine, psychology and eugenics it is quite the thing to "pooh pooh" at everything our fathers and mothers held to. But are we not a little too quick to leave the old for the new, in some things at least?

There is the matter of child training as only one example. We hear nothing nowadays but "the new psychology," though just what that is I have yet failed to learn from any of its advocates; "let the child grow naturally," "the rule of reason" or "the rule of love," "don't insist on the child's 'minding,'" "let it develop into a perfect man according to its own individual thought," and so on and so on through a mass of "tommy-rot" of which our mothers never heard. Our mothers and grandmothers who were crude enough to insist on obedience even at the sole of the slipper, are decried as barbarians and their method of raising children, it is declared, would give to the world only criminals.

What a commentary on ourselves, that last remark. How can the "new" mother account for her own superior intelligence and fine mind, since she confesses that she was brought up in the good old-fashioned fear of the rod? Candidly, are we not going a step too far when we throw out all corporal punishment, and insist on bringing our youngsters up by "moral suasion?"

Now do not understand me as believing in whipping children for every offence. I am with the "new psychologists" in making the "punishment fit the crime." Where we differ is that I firmly believe there are some childish "crimes" which are "fitted" only with a smart whipping, while the new psychologist would send him away to say he was sorry, while probably he is glad all the time.

I have seen many children who were brought up without whipping, and begging their parents' pardon, I never saw a well behaved or obedient one in the lot. A friend who has tried both ways sadly confessed the other day that new methods had failed with her. When her first two boys arrived she had not yet attained the present day heights of knowledge so she crudely brought her boys up as her mother had brought her, spanked when she thought they needed it, reasoned when that would work, judiciously persuaded and cajoled when that seemed best, but first, last and always insisted on obedience. When the second boy was ten a baby sister arrived. Meantime, a course of mothers' clubs had "broadened" the little woman and she had come to regard her previous methods as barbarous. The small daughter should have different treatment, she should grow naturally and not be corrected except when a continuance in her course would bring her harm. After seven years the mother sadly confesses she made a mistake. The child is disobedient, ill-mannered, selfish and absolutely indifferent to the rights of others. A fourth child, two years old, is being brought up in the old-fashioned way.

Our mothers had their faults in child training undoubtedly, but they possessed one shining virtue which alone made up for all their lack, they taught their children obedience. If a child was told to do a thing, the mother saw that he did it. And by so doing she taught her offspring the most valuable lesson he could learn. Obedience is the one thing necessary to give happiness to man, obedience to the laws of health, of the state, of God, and he who learns this early in life is thrice blessed.

The great cry of many mothers against insisting on obedience is that the child's individuality will be thwarted. But why? Individuality was never crushed by a parent's simply insisting on a child's do-

ing right. It is when the parent insists on shaping the child's future work in life, his choice of vocation, that mischief is wrought. But simple insistence on obedience to the laws of home never hurt any child. Individuality is only another name for lawlessness in many cases, and the parents who will not "thwart their child" are usually too weak-willed to give their children a proper training.

DEBORAH.

GOLD AND OTHER LAID WORK.

No. 15.

BY MAE Y. MAHAFFY.

From the earliest times in which ornamental needlework assumed a role of importance from an artistic standpoint, gold and silver have been utilized to add splendor and richness to silks, satins, velvets, linens, and various fabrics which are suitable for carrying anything with as much weight as necessarily marks this

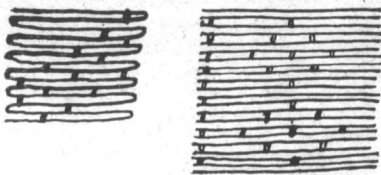


Fig. 1.

class of embroidery. In the very ancient work the metal itself was used, the gold or silver being beaten thin and cut into narrow strips, but for centuries now the gold or silver substance, and it is seldom the pure metal, has been wrapped spirally around flax or silken threads of a strong nature. This is called passing, commonly, and is laid upon the surface to be ornamented and held in place by stitches of fine, strong silk. This assumes the order of couching, and is in reality that form of stitchwork, though in a more extended fashion than that touched upon in the chapter on "Darning Couching Stitches." In that chapter most of the work referred to was in outline form, and when mere outlines are desired in metal threads the same processes may be resorted to as were therein described. However, in solid or laid work slightly different phases must be dealt with.

In the first place the worker in gold or silver must be sure that the passing is of the best quality, as it tarnishes easily if at all inferior. Dampness, either from

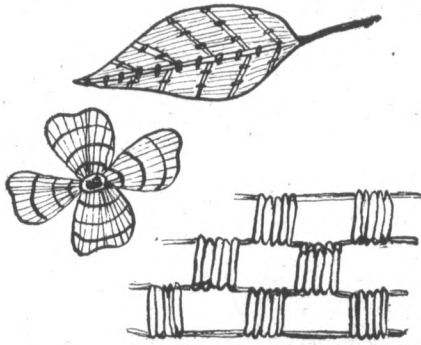


Fig. 2.

perspiring hands or other moisture will speedily ruin the threads, so that these features must be guarded against. With good materials to begin with, and a reasonable amount of caution in their handling, covering the work as it progresses, etc., there is little difficulty experienced on this score, lots of work holding its brightness for years. Sharp scissors should be used in cutting the passing, so that clean cuts will be made without haggling. The ends may be left raw, or drawn through to the wrong side of the goods, as in braid work. As a rule, especially in olden gold work, the material was backed with some other strong fab-

ric, since the weight of the embroidery was great. This makes it difficult to pierce the materials except when absolutely necessary, and it is customary to carry the passing upon the surface without cutting as much as possible. Curves are made sharply, the thread being taken back and forth across the surface, the rows crowded close together, and the utmost care exercised that the thread does not twist, a trick it is quite prone to. In some work each row is stitched down as it is laid, but usually two or three rows are carried along at one time, and the stitches are made to cover all, thus hastening the work without in the least detracting from its beauty.

The stitches are taken right over the rows, and the manner in which these stitches are spaced may be made to form most attractive patterns, diamonds, blocks, zigzag and diagonal lines, etc. See Fig. No. 1. Basket weave patterns are among the prettiest. Sometimes portions of the work are raised, like rows of diamonds or disks through the center of a space, or any desired geometrical figure. Yellow cotton or yarn is used for padding the gold, and white for silver. The passing is then laid right across the entire space, raised as well as flat portions, and the couching stitches are placed to outline the forms, being scattered at will over the remaining flat surface. This brings out the raised parts distinctly.

The passing may be stitched down with a self color or one quite at variance as to shade. The Chinese like to use shades of red which gives the work a beautiful copper tone. For very delicate effects white produces the palest tone. Some shades of blue will give a greenish hue to the gold thread. In fact, it is surprising to the tyro to discover the varied shades made possible by a change in stitch color, the gold or silver assuming quite unusual tints with certain other colors.

Silk floss is such an exquisite medium for laid work that no one can afford to overlook its possibilities along that line. The softly twisted variety is best suited to the work, and it, too, is carried back and forth across the figure to be covered. Being more flexible than gold or silver, it may be used in the needle and drawn through the material at the edge. It can be carried across on the under side to begin the next row, but this is an unnecessary waste of material, since by taking tiny stitches along the edge sharp turns may be made. This plan also has its drawbacks if the article being embellished is to receive severe usage, as these tiny stitches are not so likely to hold as those of greater length. To obviate this, and at the same time economize on the floss the worker should carry one row across and then, skipping one or two, take the floss back again, the additional length of stitch along the edge making for added strength. The gaps thus left are filled in turn.

The rows of stitching, whether on metal or silk threads, may be arranged to give contour or shape to certain forms, like leaves and flowers. Illustration No. 2 shows the stitches arranged in curves in the petals of the flower. The leaf form has the diagonal threads laid over the closely laid threads, and these in turn are stitched down. Shaping in this way simulates the veins of the leaf.

A lot of the old-time laid work, now being copied by later workers, has the flower centers filled in with fancy stitches of different kinds, such as knots, crosses, couched lines laid across in both ways from side to side, diagonally or straight, spaced regularly, etc. This gives a quaint, pretty change from the laid work of the petals.

A desirable laid work pattern which is available for such designs as do not demand solid work is also shown in Fig. No. 2, and is known as Portuguese laid work. Threads are laid across the space, and groups of stitches, three, five or seven, placed over two of these threads every so often. The same process may be followed for very heavy lines, several rows of floss or passing being laid close together, with the groups of stitches taken over them at regular intervals.

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Whitefish, Round.....	8 1/2 c
Perch, Round.....	3 c
Perch, Skinned, Dressed, Headless.....	6 1/2 c
Tullibees (Large Canadian Herring).....	3 1/2 c

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WHAT SHALL WE EAT?

BY EDITH WILSON M'CORMICK.

Which shall we do in our case, please state,
Get scared to death or defy our fate?
We have lived for years on a peaceful farm
Safe, so we felt, from stress and harm.
Well fed, we thought, content with our fare.

But now we're told there's danger there.
We raise a lot of fruit and wheat,
Potatoes, eggs and milk and meat.
We cooked three hearty meals a day
And ate what we liked in a fearless way.
But Uncle Sam saw his rural classes
Were getting behind the city masses.
To remedy this he sends mail to our door
Each week day, thus we read much more.
We began to talk of tubercular milk,
Dietic rules, and all that ilk.

Mrs. Rorer wrote, "Berries should feed birds alone.
Three meals of potatoes we should cut down to one.

A small piece of meat, a spoonful of soup
And then on green salad and a cracker fill up."

Our men "couldn't stand such a meal,"
so they said,
"Without bread and milk before going to bed."

Then we read Dr. Fletcher, "You must chew your bread
Not soak it in milk, if you would be well fed.

Nor should it be made of flour soft and white,
But make it of whole wheat and take a small bite."

So thus we set our table out,
We ate no pie nor sauerkraut.
But graham bread and "apple sass"
Well sweetened, we'd for supper pass.
We plumed we were progressive,
We cereals ate each morn successive.
Then comes Janet McKenzie Hill,
In Boston she has learned her skill.
Says, "Don't eat acids with a starch,"
And "Sugar'll leave you in the lurch."
You must not put it on your mush,
But only cream to make a slush."
Woods Hutchinson had said we could
For sugar was a "wholesome food."
We farmer folk are badly scared
So long on scanty food we've fared,
We fear to take another bite
Lest we should squash a germ, or might
Do something someone says we can't
And make them sit on us and rant.
Please someone come to our assistance,
You'll find us too weak for resistance.
What may we eat? What shall we fear?
Do write it out quite plain and clear.

be seen, but which one seldom runs across nowadays, is called inlaid work. Instead of laying threads upon the surface of a background fabric, a design is cut out of one fabric and fitted into the same sized spaces cut out of another. It is necessary to baste the two upon strong paper or enamel cloth, and the parts must be so carefully cut and adjusted that they will fit exactly. They are then caught together by overcasting. Later these stitches may be covered, if desired, by fancy braid, cord, or more elaborate stitchwork.

SHOWERS.

BY PEARLE WHITE M'COWAN.

"Showers" or "throws" for prospective brides, or newly married couples, still continue popular. But these delightful social affairs are just as appropriate upon some other occasions, and may furnish an excuse for more than one pleasant afternoon or evening, when there is no engaged or recently married person or persons present.

Not long ago a Ladies' Aid society began to realize that though their church cupboards were fairly well stocked with good, plain, useful dishes, there was a decided lack of fancy pieces, such as creamers and sugars, butter dishes, bread and cake plates, salt and pepper shakers, pickle and jelly dishes, etc. So it was decided to have a "shower" and a "pot luck" supper in the parlors of the church. The affair was a decided success, and the participants went home conscious that the church cupboards lacked nothing, unless it was space.

A church kitchen might be stocked in the same manner with kettles, basins, skillets, big spoons, forks, knives, and all the culinary articles likely to be needed upon festive occasions. The same idea would be equally as appropriate for use in lodge or club rooms.

Another "shower" idea was recently carried into effect when a company of friends proceeded to take possession of the home of a couple whose twenty-first wedding anniversary it was, each bringing a piece of graniteware or some modern and useful kitchen utensil. To say that these people were as pleased as any bridal couple could possibly be, would be only mildly stating the facts, for this was an entirely unlooked for event, and such occasions in the natural course of business and family cares, had come to be rare in their lives.

It is quite probable that there are other homes, where, after a housekeeping experience of several years, many kitchen utensils are showing symptoms of con-

stant wear and yet the frugal housewife seldom feels justified in throwing them away. But after a "shower" of this sort, many of them would be apt to find their way to the "trash pile," while the new and shiny additions would prove a positive joy to the busy house mother, to say nothing of the deeper pleasure of the thoughtful and happy surprise they would be continually calling to mind.

Still another kind of "shower" that has grown quite popular in our town during the last few months, is the "baby throw." This latter is intended to bring a little gladdening into the prospective mother's days, and each of the guests (who, of course, are only ladies, and either relatives or very near and dear friends), brings some little gift either for the use of the mother or the little, looked-for baby. Tiny knitted shoes, stockings, jackets, rattlers, bibs, toilet articles, etc., are all appropriate and useful. It is well to hold this sort of shower in the afternoon, at the home of some relative or intimate friend and thus relieve the prospective mother of all obligations in the line of entertainment.

PAY BACK YOUR LAST SUMMER VISITS NOW.

Now is the psychological time for the country woman to pay back the visits her city friends and relatives made her last summer. For just now the stores are filled with bargains which no woman ought to miss. Suits, skirts, gowns, wool dresses and winter hats are marked down to the lowest possible figure and as most of the stores are already showing their spring stocks, you may be sure the reductions are real ones. Suits which cost \$15, for instance, may be bought for \$9.50. Skirts for which \$10 was asked earlier are now \$6.25, etc. The garments are all this year's styles, too, so will be good for another season at least. Do not have too much faith in the "half-off" sales, as you seldom find bonafide ones. The goods are first carefully marked up from the original asking price, and then sold for a half of the new price. When you stop to think of it, it is really a little more than any man could be expected to do, to sell at half price. But you get generous enough reductions to pay you for doing a little of next fall's shopping now.

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These patterns may be obtained from the Michigan Farmer office at the prices named. Be sure to give pattern number and the size wanted.



No. 1283—Men's Negligee Shirt. Eight sizes, 32 to 46-inch breast measure. For 36 breast it requires 3½ yards 32 inches wide. Price, 10 cents.

No. 5390—Children's Yoke Dress. Cut in sizes 1, 3 and 5 years. The three-year size requires two yards 36 inches wide; 1½ yards of insertion, 1½ yards of edging. Price, 10 cents.

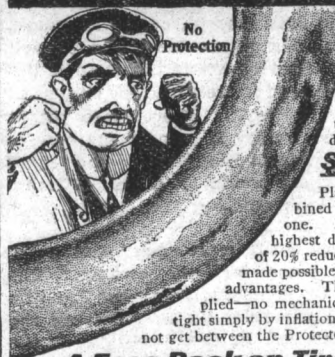
No. 2854—Ladies' Tucked Dressing-Sack. Eight sizes, 32 to 46 inches bust measure. For 36 bust it requires four yards 27 inches wide. Price, 10 cents.

No. 5111—Children's Rompers. Cut in one size. Age 1 year requires 2 yards of 27-inch material. Price, 10 cents.

No. 4817—Boys' Suit. Three sizes, 2, 4 and 6 years. For four years it requires 3 yards 36 inches wide; ¾ yard contrasting 27 inches wide. Price, 10 cents.

No. 5059—Children's Dress Closed at Left Side of Front. Cut in sizes 2, 4 and 6 years. Age 4 requires 2½ yards of 36-inch material. Price, 10 cents.

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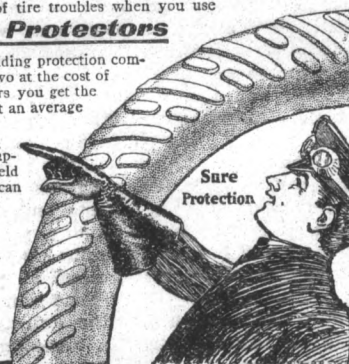
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HOME AND YOUTH

THE BASCOM COUNTY BLACK FOX.

BY WM. J. COOPER.

"I wish we had an auto like that Jim!" The Wilson boys, Jack and Jim, turned and watched the Harpers' auto as it tore down the road.

"I guess we could buy one, too, if we were storekeepers," Jim answered with considerable dissatisfaction. "I'd be satisfied with a new top buggy for mine, but with all those sugar beets and potatoes froze in the ground I guess we'll 'hoof it' another year."

Jack kept silence the rest of the way home. The younger brother's wish, however, was of long standing—long for a fourteen-year-old boy. Ever since the first car went whizzing by his home he had craved one, but a new and stumpy farm, a family of six, and a mortgage, offered poor hopes of gaining his wish.

However, if Jack was silent it was because the wheels in his head ran noiselessly, and an idea was the result. Now, a good healthy idea has, sometimes overcome bigger obstacles than was in the way of Jack's wish.

At supper that evening, he asked: "Pa, what is a black fox's pelt worth?"

The elder Wilson looked quizzically at his younger son. "Why, Jack? How many have you got?"

"I'm not joking, pa. I heard they were worth a lot."

"Well, my boy, I read in the paper that a trapper sold one in Detroit for \$800, and the fur was not prime, either. Are you going to try for the Bascom county black fox, Jack?"

"I am going to try," the boy answered.

Now, Bascom county contained, or was reputed to contain, a real, live black fox, if the word of a score or more of its citizens counted for anything. For two years back, from time to time, farmers had driven to Bascom Centre with the news that the black fox had crossed the road just ahead of them, or that they had seen him trotting across their fields, or their children had seen him on the road as they came from school.

Each appearance had brought out its army of hunters, but, like a will-o'-the-wisp he had disappeared, leaving neither scent nor trace behind him. Some of the skeptical went so far as to say there was no black fox. That Ted Sanders' black collie pup's wandering habit was the cause of the whole excitement. However, as the pup had been dead a good year from an overdose of nux vomica, and Judge Swartz, of unimpeachable veracity, had seen the fox enter the Big Swamp as he drove around the "bend" in the road—this on Thanksgiving day, not two weeks past—the fox's existence and presence was as good as proven.

Now, Jack was some trapper himself. Muskrats a plenty had he caught, and other small fur-bearing animals, perhaps better not mentioned here but of staple value, an occasional mink, and once he had caught a coon, but that was all trifling to the job he laid out for himself when he decided to capture the Bascom county black fox.

Now, Jack realized that he was up against a big proposition. The best hunters and trappers in this county of skillful men of the woods had failed, but this only added to his determination. But how?

Jack slept little that night, devising plan after plan, until he fell asleep to dream of whole droves of black foxes. But morning arrived, and action. A light snow had fallen during the night, an ideal tracking snow—not enough to make hard walking, still enough to make a plain track.

Jack had come to one conclusion. It was that the fox did not have his home in the Big Swamp, because that had been beaten up almost foot by foot by the hunters at various times. Yet the region of this swamp was the centre of all his reported appearances. His home was somewhere on the borders was his conclusion. The swamp was only about two miles from the Wilson place, with pine "slashings" on the borders and a little stream ran through one edge of it.

While no trace or track had ever been found which could have been positively identified as made by the black fox, the hounds had taken a lead into the Big Swamp several times, always stopping after going up and down the banks of the the chase had always ended and it was a matter of great puzzlement to the hunters;

both the instinct of the hounds and the woodcraft of the hunters were baffled.

Jack's idea was that the fox took to the water of the little stream and, of course, everyone knows that this destroys the scent. But he must have come out of the stream again, so why had the dogs been unable to recover the scent? This was just what Jack purposed to find out. He managed to impart a little of his enthusiasm to Jim, who agreed to go along.

They took a gun, an axe and a shovel, with a pocketful of lunch. Jack took the lead, proposing to circle the swamp until they found a track. There were rabbit and squirrel tracks in plenty; there were tracks of weasel and even one mink track, but none made by a fox. Finally, after nearly completing the circuit, Jack let out a yell.

There was a fox track, large and plain, and going right into the swamp. The surface was comparatively dry, so the boys had little difficulty in following the track, which led in the direction of the little stream not over ten feet wide. Straight into the stream led the track and there it disappeared; neither did it appear on the other bank.

"Jim, I'll cross over on that log and you stay on this side; then we'll examine every inch of the banks on both sides until we find the track."

Up and down the stream they went and then repeated. Still again did the boys traverse the little creek, but all to no purpose; the track had totally disappeared.

"Let's go home," said Jim. "My lunch is all gone and I'm hungry."

"Wait just a little." Jack was examining an old elm stump close to the edge of the creek which at this point ran very close to the upland. On one corner of this stump a little snow had collected and in that snow was a track. "Hurrah!" cried Jack. Jim hurried over, but neither of the boys could find where it led.

They looked up stream and down stream. Finally a great light dawned upon Jack. Right above where they stood, reaching down from the high bank, was a lodged tree trunk that had blown or fallen over the bank. The bushy end of it was within perhaps eight feet of the elm stump. Climbing upon the trunk, which grew larger towards the butt of the tree, he found more snow and there again was the track.

Up over the steep bank they climbed. It all seemed so simple now, yet it had baffled the best hunters of Bascom county. There, in the light snow, was the track, yet they had circled the swamp not two rods farther in. How had they missed the track going out? But the track did not go out.

Not ten feet from where they were, and right on the edge of the bank, stood a monster pine stump—one of a thousand more just like it in the timber "slashings," only this stump had a monster hollow in its bowels.

Seeing no continuation of the track, and knowing something of the timber climbing abilities of this particular fox, their first thought was of this stump. Sure enough! Just enough snow remained on top of the stump to show the track,

and in the center of the top was a hole hardly seven inches across. It did not seem possible that the fox could squeeze through it, but the presence of hairs on the sides of the aperture gave proof of his ability to enter, and the hairs—the hairs were jet black!

The boys looked breathlessly across the top of the stump at each other. Within the compass of that old shell of a tree lay \$800—possibly \$1,000!

But now came the fear of possession. Had anyone seen them following the track? They peered in every direction. No one was in sight and the sun was rapidly making all tracks disappear.

The first thing to be done was to plug up the hole, which was done with such thoroughness that no fox could have gnawed himself out in a month of nights. One thing was clear, and that was that the rapid decline of the sun would preclude finishing the capture that day. They were four miles from home and had only an axe to work with. Reluctant, but happy, they went home, which they reached about dusk.

The boys decided to say nothing about what they had discovered, reasoning that it was just possible that the hairs might be those of a black squirrel. But it was mighty hard work concealing their feelings. They went to bed early and if they did not dream of foxes it was because they were too tired.

Next morning, taking their gun, axe and a crosscut saw, they went back to the stump over snowless ground. The plug was still in place. The boys listened a minute and fancied they heard a scratching inside the stump.

"Well, here goes," said Jack, as they sawed into the side of the stump. Stumps are hard things, and that particular stump seemed made of iron. However, there is an end of all things. The saw ceased its clear ring and uttered gruff sounds. The hollow had been struck and a sharp metallic bark electrified the boys. Mr. Fox was there! But getting at him was tough work. Finally, a thin wedge was split out, leaving a cleft large enough to see through but not large enough to permit the animal's escape. There, huddled in one corner, showing all his white teeth, growled and barked as black a fox as ever nature's freak produced!

A little slim club, previously prepared, soon finished Mr. Black Fox's career. The cleft was widened and the boys had won. It can't be said that the boys walked home—they flew, yet not half so fast as did the news of the capture of the Bascom county black fox.

Men came from far and near to see it. Finally, a well-dressed, keen-eyed—not to mention hook-nosed—stranger got off the train at Bascom Centre and inquired the road to the Wilson's. When he left the black fox went with him and the Wilson boys hurried to the National Bank at Willow, where they saw a check turned into a big roll of green and yellow backed bills, and again into a certificate of deposit for \$1,000. And if you ever go up that way you will probably see another auto besides the Harpers'. The boys call it the Bascom County Black Fox.

THE BACHELOR UNCLE

BY EVERITT McNEIL.

I hurried back into the house. Teddy and Joey had both recovered consciousness, and Ellen was comforting them. I passed at once into Belle Murdock's room. Rodney's nurse confronted me. Without a word I pushed her aside and strode to the bedside. Belle lay on her back, her eyes closed and her mouth open, breathing heavily. I placed a hand on her shoulder and gently shook her. Her eyes remained closed. I shook her violently, but the result was the same. She lay like a breathing automaton, dead, absolutely dead, to the world. The nurse stood near the foot of the bed, her tall figure drawn up to its full height and her eyes watching every move I made. Her face was white, and her lips were drawn tightly across her teeth, and her hands gripped the bedpost until her knuckles showed white.

"How long has it been since Red Murdock gave Belle that last dose of medicine?" I asked, turning abruptly to her.

"Sir, Mr. Murdock has given her no medicine. I attend to such matters," she answered shortly.

"So much the worse for you," I said. "Some one has given this poor girl an overdose of an opiate, with what inten-

tion I will not say; but, if it was your hand that gave her the potion, I'll see that you have a chance to explain this and certain other matters to a judge and jury."

She hesitated a moment, and I could see that her hands on the bedpost were trembling; but she answered bravely: "Sir, by what right do you speak to me in this way? Why do you threaten to bring me before a judge and jury? What have I done?"

"Woman," I answered shortly, "this is no time to bandy words. I happen to know that murder has been attempted here; and I have the best of reasons to think that Red Murdock's hand gave the fatal potion. But I have no time to talk now. I must act at once. Your services will not be required longer. Get ready to leave at once. I will take you to Plumville. Come, be quick."

She threw back her head defiantly. "I will not go. Mr. Rodney hired me, and Mr. Rodney alone has the right to discharge me. I—"

"Woman," I interrupted sternly, "if you are not ready in five minutes I'll bind you hand and foot and carry you to Plumville by force. Rodney is out of this

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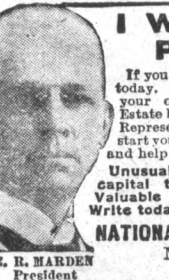
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game, and if he attempts to interfere in any way he will find himself in trouble. Now I mean exactly what I say," and I took out my watch and held it in my hand.

She gave one swift glance at my face, as if to discover whether or not I would do what I said, and then, without uttering a word, she began swiftly packing her belongings into her gripsack.

"Teddy," I called, "come here."

In a moment the boy was by my side. "I am going to take the nurse to Plumville at once," I said, "and I want you to stay in this room every moment while I am gone, and take care of Belle. She is asleep now, and I do not think she will wake up before I get back. Little Joey and Ellen can stay in here with you; but I leave Belle in your especial care. Uncle hasn't time to explain anything now. You will be my own brave boy and do what uncle asks?" and I placed my hand affectionately on his head.

"Yes, sir," Teddy answered, promptly and proudly, "and I'll see that no harm comes to little Joey and Ellen; and you needn't hurry, Uncle John. I am not afraid."

"Uncle will want you to tell him all about what happens when he comes back; but now he is in a very, very great hurry. Goodby," and I stooped and kissed the brave little face. "Come," and I turned to the nurse. "Time is up."

"I am ready," she answered, and picking up her gripsack she followed me out of the room.

"Mr. Delvin," she said, as I helped her into the buggy, "I warn you that I will have the law on you for this high-handed action and your slanderous words. I am a respectable woman, obliged to earn my own living, and I will suffer no man, no matter how big and strong he is, to browbeat and threaten me with impunity," and her small eyes glowed and her harsh features vainly endeavored to take on a look of righteous indignation.

"Nurse," I replied, "if I have wronged you in any way, pardon me; but I am compelled to take stern and decisive measures, if I would save Belle Murdock's life. A cowardly plot to murder her has been discovered and circumstances seem to indicate that you are a party to the plot. Until things are cleared you are under suspicion. Pardon my frankness; but I think it right that you should know this. It would be wiser for you to tell at once all that you know about this unfortunate affair; for the poor girl's sake and for your own sake it would be best. Will you do it?"

For a moment her form trembled, her face whitened, and fear looked out of her eyes; and then her wonderful self-control conquered.

"Sir," she answered, and her small wrathful eyes looked straight into mine, "your assumption of my guilt, or at least of my guilty knowledge of a crime that probably exists only in your jealous, heated imagination, is an insult to my womanhood. If I was a man I would knock you down; but, being only a woman and in your power, I must submit to your insults until freed from your presence. I have nothing more to say," and her teeth came together with an audible snap that said plainly: "You will get no information from me."

I jumped into the buggy and whipped up the horses. Time was too precious to waste any of it just now talking to her.

When I reached Plumville I drove at once to Doctor Goldthorp's. Fortunately he had just returned from a sick-call, and his horse and buggy were at the door. In a few words I told him the condition in which I found Belle Murdock, and asked him to go to her at once. Doctor Goldthorp swore, as only a good man can when his righteous anger is aroused; and, bidding me hurry Doc Anderson along, he jumped into his buggy, and drove away, his horse at a gallop, in the direction of Red Murdock's house.

Plumville is a small town, little more than a village; moreover it is an unusually healthy locality, and two doctors are amply sufficient to attend to all the physical ills of its inhabitants.

Doctor Anderson, a tall, thin, energetic young man, was in his office. I summoned him to the buggy and told him what I wished of him. Before I had finished speaking he was on his way to the barn. "This is a case where the loss of a minute may mean the loss of a life," he called back, as he hurried away. "I'll be at Murdock's inside of a half an hour," and the barn door closed behind him.

"Mr. Delvin, perhaps you will now kindly drive me to the station. I wish to catch the twelve o'clock train," the nurse

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said, as I again took my seat in the buggy. They were the first words she had spoken since leaving Red Murdock's.

"I will take you at once to your destination," was my reply. "But, before doing so, allow me to suggest again that you tell all that you know. I fancy you will find it no easy thing to explain or excuse your part in this matter to the doctors, and that your arrest will follow. It would be better for you if you told your story now, freely and without coercion. Shall I take you to a notary public?"

For a minute or two she was silent, the nervous clutching and unclutching of her hands and the wrinkling of her white forehead alone showing how great was the real agitation of her mind. Then her face grew hard as rock, the defiant look came back into her eyes, and I saw that all the obstinacy of an unusually obstinate and strong-willed woman was up in arms, and I knew that I would get no help from her, at least not at present. Her fear of, or her loyalty to, Harry Rodney was greater than her dread of me or of what I could do.

"Mr. Delvin," she answered, "I have already told you that I am not a penitent. I have no crime to confess. I will not endure your insulting insinuations longer. Drive me at once to the station, or I will call for help." Her thin white lips were drawn tightly over her strong white teeth, and there was a look on her face which told me that she was preparing to take the bit between her teeth.

"If you call for help it will not in the least better results," I answered quietly. "It would only make public what I should think you would prefer to keep hidden. I am now on my way to the sheriff's to ask him to detain you until this thing is cleared up. I know Sheriff Bowlder well, and can arrange with him so that you will appear to be his guest. This I shall do, if you go quietly; otherwise I will be compelled to have you arrested and confined in jail. Get up," and I drove on, keeping one eye on the rigid figure beside me, half expecting the woman to call out or to jump from the buggy and take leg-bail; but she kept her seat, sitting stiffly upright, and never uttered a word again until we stopped at the sheriff's house.

Sheriff Bowlder was just coming out of the door as I drove up. I explained how matters stood, and asked him if he would take charge of the nurse until the doctors reported.

"Sure," he answered heartily. "Bring the lady right in. No one need know but what she is the guest of my wife, unless she obliges me to take harsher measures; and I'll guarantee, Delvin, that she'll be on hand when wanted. Allow me to assist you from the buggy," and he turned to the nurse and offered her his hand to help her alight.

The moment the nurse stood on the ground she turned toward me, her hands tightly clutching the sides of her dress, and said, the venom almost dropping out of her eyes: "I'll get even with you for this outrage, John Delvin, as sure as my name is Jane Wixam. Now, officer, do your duty. I am ready," and she turned to the sheriff, with the air of a wooden tragedy queen.

"Ho-ta-toi-ta!" exclaimed the sheriff. "You are making a barn out of a chicken coop. It is no outrage to be the guest of my wife, Miss Wixam, and that is what you are for the present. So long, Delvin," and he turned and walked, with the angry woman by his side, up the path to the door of the house.

Chapter XVII.—The Doctors Get Suspicious.

I drove at once and as fast as I dared make the horses go, back to Red Murdock's, more anxious than words can tell to know how it was with Belle; for I now felt absolutely certain that the secret which Rodney was attempting to guard so desperately was the thing that had come between Elsie Lamont and me, and that its revelations would prevent this accursed marriage.

But, what could I do? Belle was unconscious—possibly dying—and the secret was still safe in her keeping. Rodney would deny the interview he had had with Red Murdock at the bridge. Besides, I shuddered at the thought of giving publicity to the affair, and furnishing food for all the scandal-mongers in the county to roll their tongues over. For Elsie's sake Harry Rodney's true connection with the Belle Murdock case must be kept secret; for, if it were known, her name would soon be tossing about all over the country. Yet, she must not wed Rodney; and, as I sat in my buggy, grip-

ping the lines tightly and urging the horses to their utmost speed, I vowed that if Providence did not show me a way to stop the marriage before Sunday, I would make one.

When I was within a quarter of a mile of Red Murdock's I saw a horseman coming swiftly down the road toward me. At first sight I knew it to be Rodney on his black stallion. For a moment he halted in front of Red Murdock's, and sat staring at the buggies of the two doctors; and then he rode slowly on, until, catching sight of me, he dug his spurs deep into his horse's flanks and rushed by like a whirlwind, the look of an ugly devil on his face. As he passed he suddenly swung his light riding whip and struck a vicious blow at my face. So unexpected was the cowardly attack that I had no time to protect myself, and the lash cut a deep furrow in my left cheek.

For an instant the red blood flooded my brain, and I pulled up the horses with a jerk that almost snapped the lines in two; but Rodney was rods away, riding furiously, and there was nothing for me to do but to bottle my wrath and drive on, with a prayer that fate would not long delay the uncorking of the bottle.

The moment I drove into the yard Ellen hurried out of the house to meet me.

"Oh, Uncle John, I'm so glad you've come!" she cried. "It's awful. They are pumping the insides right out of the sick woman, and Joey is crying, an—" She gave a little scream. "Your face is all bloody! Oh, what is the matter, Uncle John?"

I hastened to assure her that it was only a scratch; and, catching her up into my arms, hurried with her into the house. I left Ellen in the kitchen with Teddy and Joey, and went into the sick room.

Doctor Goldthorp and Doctor Anderson were working over Belle with a stomach pump.

"How is she? Will she live?" "Well, that is for the good Lord to say," Doctor Goldthorp answered. "Now, Delvin, the best use you can make of yourself is to drive right over to Tom Watson's and get his sister Ann. Belle must have a woman nurse, and you can trust Ann not to give her an overdose of anything. Tell her that I said she must come. Now, hurry. There is one chance out of a hundred of pulling her through." And the autocrat of the sick room dismissed me with a wave of his hand and gave his attention to Belle.

In half an hour I was back, with Ann Watson. She was a maiden lady, who ought to have been married and the mother of children, but whom Providence had reserved for the special help of all who were in trouble. She came eagerly, and her kindly presence brought hope and cheer into the sick room.

"She is now in the hands of God and the nurse," Doctor Goldthorp said solemnly, in answer to my anxious look of inquiry. "And in better hands she could not be," with a courtly bow to Miss Watson. "Now, Delvin, this way, please. Doctor Anderson and I wish to speak with you in private," and he led the way out of the house. At my buggy he stopped and turned to me.

"Delvin," he said, "this is a terrible affair. I do not know what to do or say. Anderson and I feel quite sure that an attempt has been made to drug that poor girl into her grave. We can account for her condition in no other way; and yet we do not care to swear to this before a court of law, for there is the possibility of the drugs having been given to her through ignorance or a mistake, and it would be terrible to fasten even a suspicion of murder upon an innocent person. Have I stated our position correctly, Anderson?" Doctor Anderson nodded an affirmative and Doctor Goldthorp continued: "Now, we wish to know, Delvin, if you have any reasons to believe our suspicions correct?" and he looked at me sharply.

"I have the same suspicions that you have," I replied, after a moment's thought; "but, at present, I do not feel justified in giving them a name. One can not be too careful in such a serious matter. My advice would be to keep the thing quiet, until we know something definite; and, in the meantime, to guard against the possibility of any one tampering with Belle's medicine. I took upon myself the responsibility of discharging her nurse. She is now visiting Sheriff Bowlder." Both doctors nodded approvingly. "And, before coming for you, I gave Red Murdock a horsewhipping for striking Teddy, and advised him to clear

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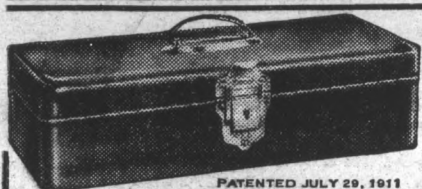
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out. So I fancy that brute is well out of the way. Now, the thing to do is to save Belle, if possible. Can it be done, doctors?"

The two men shook their heads. "It would be a miracle if she recovered," Doctor Anderson said. "Her hurt is of a most serious nature. She has not had proper care, and that dose nearly finished her. If we had been two hours later she would have been dead. But, as Doctor Goldthorp says, she is now in the hands of God and the nurse. I agree with you, Delvin, about keeping things quiet. Now, I must be going. Doctor Goldthorp will stay until this evening, when I shall return and spend the night here. But there is little a doctor can do, except to watch results. Goodbye," and stepping over to his buggy he drove rapidly away.

Doctor Goldthorp promised to send me word the moment Belle became conscious; and, calling Teddy and Ellen, we got into the buggy and drove home. After supper I took Teddy and Ellen with me into the library, where we would be alone, and asked them to tell me how they came to be at Red Murdock's, and what had happened there before my coming.

"Well," Teddy began, "while we were eating breakfast we thought of poor little Joey, and how hungry he was, and then Ellen said: 'Let's take him something to eat, and see how the sick woman is,' and we got Mary Jane to put something good to eat in a basket—"

"But we didn't tell her where we were going," broke in Ellen, "'cause Mary Jane is funny, and thinks we are babies, and wouldn't let us go so far alone. So we explained that we were going to have a picnic, and wanted something extra good to eat; and she gave us some cookies, and two big pieces of pie, and some jelly, and four tarts, and bread and butter. Mary Jane is awful good, even if she is funny, and I like her," Ellen concluded.

"And when we got to the sick woman's house," Teddy continued, "Joey was so glad to see us that he pretty near cried; but the nurse was terrible cross, and wouldn't let us go near the sick woman. And we made a table out of one of the chairs, and put the good things in the basket on it; and then we played Joey was a very rich man giving a feast to his friends, and Ellen and I were the friends; and we were having just a fine time when the door opened and Joey's father came in. He swore terrible, and called us brats, and told us to go home, and never to come there again; and then we went into the sick room. Joey felt terrible, because we were his company; and he asked to excuse his pa, because he—he was sick; and he began to cry, and we tried to comfort him; and then Joey's father came out of the sick room; and he was terrible, terrible mad when he saw that we had not gone, and he kicked over the chair with our eating things on, and he said he'd lick us until we couldn't stand if we didn't get right out, and—"

"Oh, Uncle John," Ellen interrupted, her face flushing and paling with the emotions called forth by her vivid remembrances of the scene, "he's an awful, awful wicked man, 'cause when Joey said: 'Please don't papa, they're my company,' he—he swore at Joey, and started after him, and said he'd lick him until the blood run; and Joey screamed, and tried to get away from him, but he's lame and he can't run, and—Oh, Uncle John, he hit him on the head with his fist, and Joey fell down, and I thought he was dead; and Teddy jumped and stood right over little Joey as he lay on the floor, and shook his fist at the big man. Then the big man started for Teddy, and I screamed louder than ever, and he hit Teddy on the head and Teddy fell down; and then you came. I don't think I was ever so glad to see anybody in my whole life!" and half sobbing she threw her arms around my neck and kissed me. "My, but wasn't Teddy brave! I must kiss him, too."

A short time after the children had gone to bed, and while I sat alone trying to think out some way of saving Elsie from wedding the man whom I now knew to be a villain and utterly unworthy of her, there came a sharp rap on the door; and, when the door was opened, Teddy, in his white nightgown, quickly stuck his head in and asked: "Uncle John, can I take Joey to the circus with me? He—he'd be delighted; and Ellen and I will take care of him so he won't be the least bother. Can I, Uncle John?"

"Yes, but—"

But Teddy waited for no buts. With a yell he whirled around and darted up-

stairs, shouting: "He can go, Ellen! Uncle John says Joey can go to the circus with us! Hurrah! Day after tomorrow is circus day, and Joey is going with us! Hurrah! Bully for Uncle John!" and, for ten minutes or more, I heard Mary Jane trying to quiet the two children, who were shouting and laughing to each other about the good time they were going to have with little Joey at the circus.

(To be continued).

HENRY WADSWORTH LONGFELLOW.

BY AVA E. LAUTENSCHLAGER.

Next week will see another anniversary of the birth of Longfellow, widely known as the poet of the heart and the home, a century and half a decade of years having passed since he first saw the light, Feb. 27, 1807. The now flourishing city of Portland, Me., in which he was born, was then a forest-bound hamlet. Longfellow, like Dana, and Bryant, and Holmes, inherited some of the best blood of New England, being able, on his mother's side, to trace his lineage back to John Alden and Priscilla of early Puritan fame. The Longfellows also were of sturdy yeoman stock.

There is much that is attractive, but little that is stirring, in the history of Longfellow's happy boyhood. He was surrounded by books and an atmosphere of culture and refinement; he was given every educational advantage that his native town could afford, and in his fourteenth year he was sent, fully prepared, to Bowdoin College, where he became a member of the famous class of 1825.

At the age of eighteen he had already sketched out for himself a plan of life very much like that which he eventually followed. "I will be eminent in something," he declared. His ideal was a purely literary life, but his practical father gave him but little encouragement. In 1824 he wrote to his son: "A literary life, to one who has the means of support, must be very pleasant, but there is not enough wealth in this country to afford encouragement and patronage to merely literary men."

The literary outlook in those days was indeed a discouraging one. The future seemed dark and forbidding even as seen through the eyes of a youthful poet, and so, with a sigh of regret, Longfellow gave up his dream and resigned himself to the study of law, the profession of his father and his grandfather.

But, during the autumn following his graduation from college, there came an event that changed the whole current of his life. A chair of modern languages was to be founded at Bowdoin; young Longfellow was deemed a suitable candidate for the position and in 1826 was sent on a three years' tour to Europe, there to prepare himself for the work. He took up his duties in 1829 and held the position with great credit to himself until invited to abandon it for a similar, but much more important, position at Harvard. He was again asked to visit Europe, this time for a period of eighteen months, in order to perfect himself in the German language. He was ready for his life-work when he returned to enter upon his duties at Harvard, toward the end of 1836. These he continued to discharge, ably and assiduously, until the summer of 1854, when he resigned his professorship in order to devote himself entirely to literature.

In thousands of American homes Longfellow is the only poet. He has comforted thousands of sorrowing hearts and pointed thousands to the star of hope. He has touched all the chords of those experiences which are common to mankind—the aspirations and the nameless melancholy of youth; the dream of love; the endearments of home; the fierce battle of manhood; the visit of death; the vacant chair; the sunny memories of age. He was a singer in all keys. He understood all the stops in the great organ and struck all of its chords. The genial, loving, kindly nature of the poet shines from all his work.

No American has been more universally loved than Longfellow. When he died in Cambridge, March 24, 1882, there was mourning throughout the whole land. All felt that they had lost a near and dear friend. His last words, penned only nine days before his death, were in accord with his whole life:

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