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FARM NOTES.

Corn Versus Peas and Oats.

We have a ten-acre lot, the soil of which is heavy clay loam, covered with a heavy June grass sod. We have it covered with manure. We are going to put this lot with the twenty-acre one next to it. The twenty-acre lot is corn stubble and will be sown to oats and seeded down to clover. Would it be best to put this ten-acre lot into oats and peas and seed to clover or plant to corn and try and seed at the time of the last cultivation. Barley does well with us, and is quite good to seed after. Have the oats, peas and corn on hand.

Macomb Co.

POTTS BROTHERS.

The comparative merit of the two methods suggested for getting the field seeded to clover this season, would depend not a little upon the season, which, of course, is a problematical factor in the consideration of the subject. The writer has seen good seedings of clover secured with oats and peas on clay soil and where this crop is sown thinly enough so as to mature a crop of grain, there is a good chance of getting a good seeding of clover with it in a normal season; possibly a better chance than of getting a seeding in corn where the seed is sown at the last cultivation. Of course, much depends upon weather conditions. Either method would not prove very satisfactory if the season were as dry as last year. However, conditions are more favorable for a first class crop of oats and peas and also for getting a seeding with this crop where the crop is gotten in early. The weather conditions have prevented rapid progress with the spring work and in case the oats and peas could not be gotten in early in May we would prefer to chance the corn crop. However, seeding in the corn crop is an uncertain proposition. We have seen just as nice seedings secured in this way as in any other, but they are not a universal success by any means. A great deal depends upon weather conditions, not only during the fall but during the winter as well in the success of a clover seeding which is sown so late in the year as it must be when seeded in corn. However, from the standpoint of the crop to be grown this year, the corn crop would be better than either of the others suggested, since

it has a much longer growing season and would utilize the plant food stored up in this sod much better than the crops with a shorter growing season. On this account, if the problem were the writer's, he would plant the field in corn and seed at the last cultivation as suggested, using a little timothy as well as clover so as to insure some kind of a stand of grass upon the field.

Fertilizing Potatoes.

Please tell me thru your paper what kind of fertilizer you use for potatoes? My soil is a clay loam with clay and gravel subsoil. A part of the ground was in potatoes last year. I am going to spread stable manure on a part of the field. The field has only been cropped three times. Please state kind and amount per acre.

Indiana.

R. PATSEL.

The question of the kind and quantity

of fertilizer to use on potatoes for best results is one not easily answered, and one which every farmer can best determine for himself by experiments conducted on his own land and under his own conditions. As before noted in these columns the writer is experimenting to determine these points for himself, but has not yet reached the point where he feels that he can tell others what is most profitable under his own conditions, to say nothing of theirs. This year we will use 1,000 lbs. per acre of a commercial fertilizer having a formula of 1:8:5. This will be applied as soon after plowing as is practicable and thoroly worked into the soil before the potatoes are planted. As the land is a clover sod the nitrogen content of the soil should be sufficiently high to make it unnecessary to have much of this element of fertility in the fertilizer. Last year we used a formula of 2:8:10, putting on the same quantity, but upon a timothy and June grass sod instead of a clover sod. We did not get a large crop, but the season was very dry and the fertilizer is expected to show up in the oat crop that is now being sown more effectually than it did in the potatoes. However, the price received for the tubers was unusually high, and we believe that we got back the investment made in the fertilizer, and will try the same liberal fertilization again to de-

tion must do the same for himself. Too many take it for granted that what they hear or read about the use of fertilizers is true and will apply to their conditions. But the best way to find out is to put the question direct to our own soil, and the sooner this is done by the average farmer the better. It need not be done on a large scale at first, but it is the part of wisdom to determine whether or not we are neglecting a means by which we could increase the profit derived from our business.

The Crop Rotation and Soil Fertility.

I have a two-acre field of black sand that I wish to plant to potatoes this year. Two years ago a crop of rye was taken off and last year a crop of barley. Now if I applied about 200 lbs. of fertilizer per acre do you think I could raise a profitable crop of potatoes? If not, how much fertilizer should be used?

Wayne Co.

SUBSCRIBER.

While it might be possible to raise a fair crop of potatoes on this land by applying the amount of fertilizer mentioned, or, in fact, without applying any fertilizer at all, depending upon the fertility of the soil, yet a crop rotation of this kind is not in line with good farming. Soil fertility does not depend upon the presence of plant food alone. It is quite as dependent upon mechanical condition, as upon the actual presence of sufficient plant food to grow a good crop, and if the mechanical condition of a soil

of humus or vegetable matter gets into a poor mechanical condition, which induces puddling and baking in a heavy soil, and leaching with rapid drying of a light or open soil, so that the growing crops will either suffer from a surplus or a deficiency of soil moisture, depending upon the soil which they occupy, and are thus unable to make the best use of the fertility present in the soil. This is one reason why Michigan lands of either class should be seeded to clover frequently in the crop rotation, since clover adds much humus to the soil. It also supplies it with a liberal store of nitrogen taken from the inexhaustible store of this element of plant food contained in the air. In addition to these benefits its elaborate and deep root system reaches down into the lower strata of soil and brings up mineral plant food which is out of reach of the shallower rooting crops, making it available for the use of future crops. Thus clover is a great soil renovator, as well as a profitable crop, and no opportunity should be lost to seed the land to this crop when it is in small grain in which a clover seeding can be secured with a minimum of labor and loss of time. This frequent recurrence of clover will keep the land in good mechanical condition and better supplied with available fertility than the application of any amount of commercial fertilizer without

the growing of clover or some similar crop for this purpose.

Of course, where one has small areas which it is desired to crop continuously, the same end may be secured by the use of liberal applications of stable manure, which adds both humus and nitrogen to the soil in liberal quantities. It also makes considerable mineral plant food contained in the soil available for the use of crops thru chemical action resulting in new combinations, which process is also promoted thru the action of the beneficial bacteria which it contains. When this desirable condition of the soil is obtained, thru the use of clover or stable manure, or better still by the use of both, then commercial fertilizer can be most profitably used to supplement and increase the available fertility of the soil. In fact, its proper use is supplementary to these other means of promoting fertility and

a good mechanical condition of the soil, rather than as an exclusive means of keeping up soil fertility, for which purpose it is likely to prove a disappointment for the mechanical reasons given above.

The amount of fertilizer which it may be profitable to use on the potato crop under these favorable soil conditions is commented upon in answer to the above inquiry. The quantity which it would be profitable to use on a soil which has been repeatedly cropped without the application of stable manure or the growing of clover is still more problematical. If the land is still fairly well supplied with humus, or if the season is a favorable one with a good distribution of moisture thruout the growing season, liberal applications would probably be profitable, but



A Type of Field Stone Construction Popular in Sections where the Material is Plentiful.

termine this point more accurately, leaving a check plot, of course, to arrive at as exact results as possible. When the writer first commenced to use commercial fertilizer on potatoes he put it on in small quantities only, gradually increasing the quantity from year to year to determine if possible how much could profitably be used under our conditions. As above noted this is a point which cannot be determined in a single year, as conditions affecting the problem vary to such a great extent. However, eastern growers and several experiment stations have found that it pays to fertilize liberally and we are going ahead on that finding until we can determine this question accurately on our own account. And for the reasons given above every farmer who would have this valuable informa-

be poor a maximum crop cannot be expected, even with liberal fertilization. The growing of successive crops of small grain on this field, to be followed by potatoes will rapidly exhaust the humus or vegetable matter contained in the soil and tend to get it into a poor mechanical condition. Humus is a wonderful agency in soil fertility, separating the particles of compact, heavy soil, making it possible for the water to percolate thru it easily and giving access to air, which is so necessary to plant development. On the other hand, it fills the interstices between the coarser particles of the lighter and looser soil, making it more retentive of soil moisture, and holding the soluble plant food contained in the soil in an available condition for the growing crops. Thus the soil which has been depleted

if these conditions do not prevail a maximum of benefit could not be reasonably expected from the fertilizer. The potato crop removes many times the amount of plant food contained in this small application of fertilizer, and while this amount might be of some benefit in getting the crop started, the yield would depend altogether upon the condition of the soil and the season, while if the land is in ideal mechanical condition the crop will be much more independent of climatic conditions for the reasons given. On the rich prairie soils the farmers have been able to grow successive crops of grain for many years without much supplementary fertilization or the growing of clover, but this policy has depleted the wonderful store of humus which nature has deposited in the soil to an extent which is very apparent where the rotation of crops has been persistently neglected. Thus the judicious crop rotation must go hand in hand with intelligent fertilization for best results, and commercial fertilizers are often condemned as unprofitable or worthless simply because the land is not in a condition to make the best use of them for the benefit of the growing crops. They are undoubtedly a valuable agent for supplementing the fertility of the soil, but cannot be successfully depended upon as the exclusive means for the maintenance of soil fertility.

AFTER A HEAVY RAIN—WHAT THEN?

Heavy rains have been quite general over the state the past week. More water has probably fallen during this time than has fallen as rain since last summer. This means that the soil is well filled where it did not run off too rapidly, and our business is to try to conserve this rainfall for during the summer months when we usually have something of a drought.

Fields that are plowed should be harrowed down well as soon as the soil is in condition to work well—when it will crumble after being pressed in the hand. If worked too soon it will be heavy and the stirring and tramping may cause it to puddle and become hard; if left too long it will crust over and be somewhat lumpy when broken up and will also become hard so that it can not be worked to advantage until after another rain, during which time it may lose considerable moisture.

I have heard the argument made at such times, especially by those whose land is a heavy clay that they do not care about saving the moisture as there is too much already and what they want is to get rid of it so they can work the land and get out the crops. Very well, the proper thing to do then is to cultivate the soil as soon as it is dry enough, for in addition to conserving moisture in the lower soil this will dry out the upper soil, that is, the layer stirred by the harrow, so it will soon become dry enough to plant crops. It will be seen that cultivation stirs up a layer of the surface soil so this will become dry and this in turn acts as a blanket to prevent the loss of the moisture from below by evaporation, so a double purpose is served.

If the field is not already plowed now will be a good time to hustle this operation, and the plow should be followed by the harrow as soon as the top soil has dried a little—a half day or a day after being plowed. It will harrow well then, and the soil will dry out less than if left without harrowing until ready to plant. The ground will also be in better shape than if no harrowing had been done until just before planting. I believe that several workings of the soil a week apart will place it in better condition than if the same number of workings had been given all at once. Even if this were not apparent the soil would be better aerated and in better condition chemically than if the working had been given all at once.

Early Plowing.

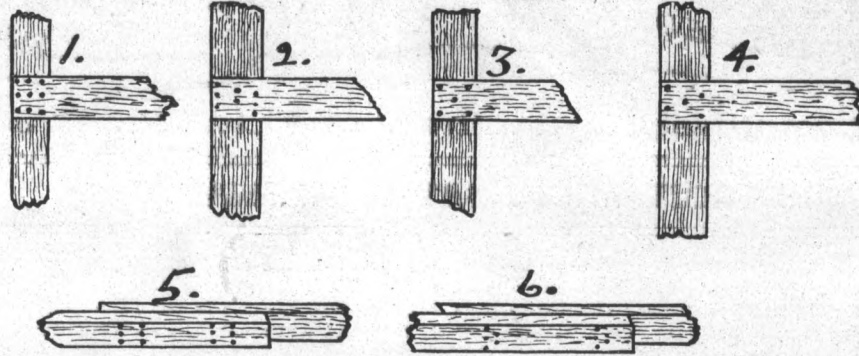
The plowing for corn is progressing whenever we can find time for doing this when the ground is suitable. I should like to have all the plowing done in April if possible, but as it is not, early May is the next best time. The ground may then be worked occasionally to prevent its baking and get it leveled down and pulverized. In this way we can get a good seed bed that will hold moisture.

For the harrowing we will use for the most part a combination spring and spike tooth harrow and leave the surface as level as possible after each working. We may also use the cutaway some.

We have often had a chance to compare the crops on early and late plowed ground

and find that the early plowed invariably does the better. It seems to be a kind of partial summer fallowing.

I should like the experience of farmers who have disked or cultivated in oats on clean ground. Some report little success with the method. We have had good results on clay ground with oats sowed in this manner, but have not tried it on prairie soil until this season. We disked the field with a cutaway harrow three times and harrowed with a spring tooth once. The oats have been in the ground about two weeks with so little



warmth that they have just begun to sprout. It might have been better if we had waited until later before sowing, but I can not see why the diskings would not hold moisture about as well as the plowing.

That Osage Orange Hedge.

Some time ago we described our osage orange hedge and the treatment we contemplated giving it, that is the trimming up of the best trunks as high as we could reach with the ax and the cutting of the others. This has been done and the brush burned at a cost of about \$7.00 for a hedge forty rods long. It is not a desirable job, and it is probable that the trunks will sprout quite rapidly, but it at least enables one to get nearer it with a team, and with some work put upon the cutting of the sprouts I believe we shall get some good posts in time.

Calhoun Co. S. B. H.

DO NOT BE DISCOURAGED.

Today is "Arbor Day," but there will be no trees planted in this section; the high places in the fields are covered with snow, and low grounds are flooded with water, which, in turn, is covered more or less with ice. Shall we sit down and lament about what we cannot help? That would do no good. If we cannot plow there is plenty of other work that we can do on the farm, even on such a day. The tile will carry off the water, and the sun will come out, the snow and ice will vanish, and all vegetation will grow the faster for the thro soaking it has had. The oats were half drilled the 28th, and before dark were well covered with snow, and it has rained or snowed a good share of the time for the last thirty-six hours, but that has so moistened the soil that the plant food in the fertilizer will be made immediately available, and when the sun comes out the oats will make up for lost time; as for the other half, the oats that are still in the bags, it will be May before they are in the ground, but May sown oats have before now produced good crops, and they will again. It may be a bit late before the crops are in, but that is no reason for discouragement. We have been promised sunshine and rain, seed-time and harvest, and this year is not going to prove any exception, even if the spring is backward and the rains that usually come in March and early April have been postponed until now. We ought to be thankful that this cold and snow comes in April rather than in May, hence there is a bright side to look at, as there usually is. If this kind of weather induces us to give our ground a little better preparation, and a little more fertilizer, then we will have no regrets coming when the harvest time comes round. A few days earlier or later do not matter so much as thoro preparation, and fertilization to give the young plants a vigorous start in life. Considering the present prices of almost everything which he has to sell the farmer of Michigan has no reason to feel discouraged over the lateness of the season. If one crop does not give good returns another may. We are not like the orange or peach grower, who have their eggs all in one basket, so that an accident means disaster. With wheat, oats, rye, barley, corn, beans, sugar beets, and potatoes, as well as our live stock to depend on for an income there is no reason to fear that we shall come to want by reason of a little untimely weather at this season.

Eaton Co.

APOLLOS LONG.

HOW TO DRIVE NAILS.

Generally speaking, the driving of nails would seem a very simple affair, but the real facts are, very few men who are not mechanics, and also many who are mechanics, know how to drive nails. For instance, nails driven as shown in Nos. 1, 3 and 5 of the accompanying illustration are driven in lines, parallel with the grain of the wood; the result is that they simply act as wedges and split the timber, or separate the fibers, which, of course, greatly reduces its strength. By

driving the nails as shown in Nos. 2, 4 and 6, that is, out of line, with the grain or fibers, they will not split the timber, and the result will be stronger work, even where fewer nails are used. This matter may seem small to many, but it really is a point that should not be overlooked, in constructing either new, or repairing old buildings, fences, gates, etc., as the life of same will be greatly prolonged by using some care and judgment in placing the nails where they will do the most good. J. E. B.

New Type of Gasoline Engine.

One of the most meritorious labor-saving devices ever offered to the farmer is the Farm Pump Engine, manufactured by Fuller & Johnson Mfg. Co., Madison, Wis. A picture of it, together with their offer, will be found on the back cover of this paper. This small but powerful engine connects with any standard pump, no matter where located, by simply tightening five common nuts. No special foundation, connections or fittings of any kind are needed. This new invention will fill a long-felt want, as windmills have proved inadequate where a continuous supply of water is needed, and the usual type of engine must have a solid foundation, and is usually so made that the pump must be brot to the engine instead of the engine being taken to the pump. The Farm Pump Engine, installed and ready to run, costs less than a first-class windmill outfit, and can also be used for spraying, running cream separator, churn, and any machinery run by hand even more effectively than the usual type of gasoline engine, because more portable. It is so compact and light (weighing complete slightly over 200 pounds), that it can be detached from the pump and used wherever needed without trouble, and without bothering about the foundation. As a protection against fire, tests have shown that by adding a piece of common pipe to act as an extra air chamber a steady stream of water can be thrown 40 feet straight up in the air. This also makes it valuable for washing wagons, windows, etc.

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LIVE STOCK

FEEDERS' PROBLEMS.

Summer Forage for the Hogs.

I have an acre of ground for hog pasture which I seeded last summer and most of the clover killed out. Now, what could I sow on it to make the most feed for the summer until after haying and harvesting? Would it be better to sow rape, or Canada peas and oats, and what time and how much should I sow? I manured the ground over last summer and I want to make as early feed as possible, as I will have two sows and seven pigs to pasture it.

Kalamazoo Co.

O. W.

Where forage is desired for the early summer, rape would be the better crop to sow. The peas are better adapted to late summer pasturing, the common practice being to turn the hogs into them when the grain is well formed and allow them to harvest the crop. Of course, the peas will also make green forage, but where it is desired to seed the land to clover for pasture the following year the rape will prove a more satisfactory crop. The seed should be sown at the rate of four or five pounds per acre on a well prepared seed bed, seeding to clover at the same time. In from four to six weeks the rape will be large enough to pasture, altho if many hogs are to be turned into it it should not be used much before six weeks from the time of seeding. Rape makes an excellent green forage for hogs, but has some objections for small pigs, especially where it makes a rank growth. If the small pigs, particularly if white in color, are allowed to run thru a rank growth of rape when it is loaded with dew it is apt to cause an irritation of the skin which is undesirable. This tendency is not as noticeable with black pigs, but if the pasturing is begun at just the right time and the stock of hogs is regulated to the area, there will be no real cause for trouble of this nature.

Grinding Grain for Horses.

I have a variety of corn called the white capped dent. It is so hard at this season of the year that I thot it would be best to have it ground to feed to my horses. Will you kindly tell me thru your paper which is best, to have it shelled and just cracked or ground fine, cob and all. I have no oats to feed with it.

Allegan Co.

W. STALEY.

Where corn is fed as the exclusive grain ration it is better to feed it in the ear, as the horse eats it more slowly and masticates it better. Where it is very hard, soaking it in water from one feed to the next will remedy this condition and will improve its feeding quality about as much as grinding. Where it is ground it should be mixed with bran or other bulky feed so as to make it more easily digested. In fact, it is both desirable and economical to mix it with other feeds in compounding the ration for the work horses, as advised in the following reply to a query. It always pays to give the matter of grain rations careful attention, but this is particularly true in a season when all grains are as high in price as they are at present. It does not pay to feed a grain ration which contains so much of one element of nutrition, that some of it is wasted in the animal economy, which condition of affairs can only be avoided by the feeding of a well balanced ration.

A Ration for the Work Horses.

Have been much interested in reading your articles on grain rations for farm horses and wish to ask you for a balanced ration for horses, from the following feeds: Corn (ear), 75c per bu; corn meal, \$30 per ton; bran, \$30 per ton; oats, 65c per bu; oil meal, \$1.85 per cwt., economy being an important consideration. Team weighs about 2,700.

Van Buren Co.

W. L. VOKE.

In making up a ration for the work horses from the feeds enumerated in this inquiry, the composition of the ration would depend somewhat upon the kind of hay that is being fed. The writer is now buying the grain for his work horses, and after some deliberation has settled on a ration made up by mixing 600 lbs. of shelled corn, 200 lbs. of bran and 100 lbs of old process oil meal. This gives a grain ration with a nutritive ratio of one to six, as compared with a ratio of one to eight for oats. But we are feeding timothy hay, which is very deficient in protein, for which reason we have thot it profitable to use a ration carrying a little more protein than oats contain. If mixed hay were being fed we would increase the proportion of corn in the ration from the standpoint of economy, but from the standpoint of efficiency this ration would scarcely be too narrow, even with mixed hay. To horses of 1,200 lbs. weight we are feeding 12

lbs. per day of this grain, and all the timothy hay they will eat on full work. Heavier horses should be fed a little more than this amount, which corresponds quite closely with a ration of 15 lbs. of oats in its content of nutrients. So far this ration is proving entirely satisfactory, and is fully 50 per cent cheaper than its equivalent in oats at the prices quoted. It is doubtful if this same combination could be improved upon by the inquirer from the list of grains given. If preferred the corn could be fed separately from the other feeds if desired to use it in the ear, but we would not expect quite as good results when so fed, as the object in using bran is as much to give a desirable bulk to the ration as to increase its protein content. Possibly later in the season we shall grind the corn in this ration and feed the grain ration with cut feed, but with it fed in this mixture our horses are masticating the corn well and eat the ration a little slower than would be the case if it were ground.

DEVELOPING THE YOUNG BREEDING SWINE.

The Sows.

To properly present the subject of growing and developing young swine that are to be used for breeding purposes it is necessary that we discuss the matter more largely from the standpoint of the breeders of registered swine—to whom the farmers and feeders look to the fuller development of the principles of heredity and selection.

The selection of the young sows that are to be grown for breeding purposes should be made at the time they are taken from their dams. The sow pigs that are well marked, show a good heart and rib girth and development, stand square on their toes and possess quality should be separated from the others and removed to a yard or pasture away from all other hogs and fed in a manner that will promote the growth of their bone and muscle and build up good strong and vigorous constitutions, without overloading them with fat. Much, in fact, all of the sow's future usefulness as a breeder will depend upon how she is fed and developed until she has reached the age and size that it is desired to breed her for her first litter.

It cannot be too firmly impressed upon the minds of the breeders of registered swine that the practical farmers and feeders demand that their hogs possess bone, muscle and constitution as well as the fancy markings and breed characteristics. The man who has a clover, alfalfa or blue grass pasture is very fortunate indeed, and by the use of a very small amount of grain food will promote an ideal development. Corn may be safely used in the ration if the gilts are not making good gains in flesh; but it is not necessary to overfeed them with a heavy heat producing ration because they are growing long and rangy, for then they are on the road to future utility. Try and maintain that kind of growth. Skim milk, wheat middlings, bran, ground oats and linseed oil meal are excellent foods for young breeding swine. Many breeders are making a success of supplementing their young gilts rations with digester tankage and find it a very economical and efficient source of protein.

There are many other excellent foods for young gilts that may be used with good results, the main point being to feed for bone, muscle and flesh and avoid putting on an excess of fat. When pasture is out of season alfalfa and clover run thru a cutting box and fed in the form of a thick slop will keep the pigs digestive apparatus in excellent condition. In my own experience I have found no kind of grain food superior to ground oats as a part ration for the growing gilts from the time they are seven months of age until they are ready to breed for their first litter. If all of our young breeding animals were fed ground oats as a part of their grain ration we would have more regular breeders and animals whose organs of maternity were properly developed. I am fully satisfied that if ground oats form a part of the ration there will be but little difficulty in getting the young sows safe in pig and they will be developed in a manner that will insure their future usefulness as breeders.

While it is possible to attain extremely heavy weights at a very early age, better economical results will be obtained if the gilts are grown and developed upon a cheaper ration of such foods as may be grown on the farm. By planning our feeding so that clover, alfalfa and blue grass pasture enter into the economic development and growth of our gilts it

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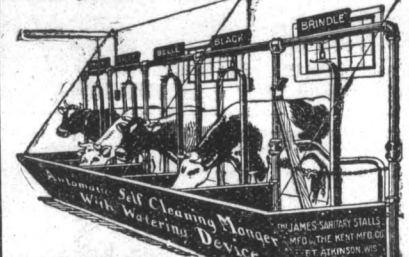
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Editor knows from experience Shoo-Fly is O. K.

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Cures Strained Puffy Ankles, Lymphangitis, Pail Evil, Fistula, Sores, Wire Cuts, Bruises and Swellings, Lameness, and Allays Pain Quickly without Blistering, removing the hair, or laying the horse up. Pleasant to use. \$2.00 per bottle at dealers or delivered. Horse Book 5 D free. ABSORBINE, JR., (mankind, \$1.00 bottle.) For Strains, Gout, Varicose Veins, Varicocele, Hydrocele, Prostatitis, kills pain. W. F. YOUNG, P.O.F., 63 Monmouth St., Springfield, Mass.

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Owl Brand Pure Cotton Seed Meal

49 Percent Protein and Fat. Richest cattle feed on market. Write for booklet No. 11 and prices. F. W. BRODE & CO., Memphis, Tenn.

is possible to obtain a weight of from 250 to 300 pounds at from nine months to one year of age is about all that can be reasonably expected, unless they are fed heavy and overloaded with fat, which makes them undesirable for breeding purposes.

The matter of sanitary conditions is of great importance and it requires vigilance and patience to keep the gilts clean and free from vermin and lice. Constant watching and often dipping is required to keep down lice and vermin. Pigs that are lousy cannot make good growth, no matter how well they are fed. Everything must be kept clean and no old feed allowed to accumulate. Pure water, dry nests and protection from heat and cold are all necessary factors in the development of breeding swine, regardless of sex. New York. W. MILTON KELLY.

SHEARING EARLY.

It has always been my custom to shear my sheep right after corn planting. But last fall, thru a little neglect, my flock became infested with ticks, and this spring the ticks were so bad the young lambs were so pestered with them they could not grow as they ought, and the ewes kept growing poorer every day, so I concluded to try the experiment of shearing them early, and then go to work and get rid of the ticks. On April 7 I hired a man to come and shear my flock. The next day it snowed and was quite cold, but closing the windows in my sheep stable it was so warm and comfortable that none of the sheep seemed to notice the loss of their fleece, not one showing any symptoms of cold. After waiting a few days I dipped the lambs, but not the ewes as I did not have a tank suitable for this purpose. After four or five days, there was still some ticks on the ewes, which kept getting on the lambs. So I gave the lambs a thoro dipping the second time, and then carefully went over each ewe and killed every tick and nit to be found. At this writing a tick cannot be found on the lambs or ewes, and both are doing finely. For eight years my flock was entirely free from these pests, and it was only by a little oversight they became infested last fall. I do not know how it is with others who keep sheep, but I cannot afford to feed ticks. My sheep are doing so well, and appear to be so comfortable since being sheared, that I believe I shall shear early in the season hereafter. Ottawa Co. JOHN JACKSON.

THE EARLY TREATMENT OF THE CALF.

The farmer who has from one to half a dozen calves can afford to give their care the same consideration that is bestowed on this department of farming by the dairyman or the stock breeder. Turning the calves out in the hog lot or the orchard to be exposed to the hot sun and the cold storms does not promote their rapid growth. The flies pester them and they are left to subsist on the scanty pasture with no grain and but little milk in too many cases. They are far better off in the barn in a clean, well bedded box stall, where they can be fed a liberal allowance of grain and good clover hay and green clover and grass when it is large enough to cut for that purpose, than they are in the hog lot or the orchard, and will make a much better growth when so cared for. But when so kept the stalls should be cleaned and bedded frequently. I have seen calves kept in stalls so filthy as to be a disgrace to their owners. This is even worse than the hog lot, but with reasonably clean quarters they are much better off in the barn while they are young, as the flies and the sun and the storms will not affect them there, and with judicious feeding they will make a better growth in a few months than they would in a year as they are too often handled on the average farm. And there is a good profit in this extra attention given to the calves. Under present conditions the average stocker produced upon the Michigan farm does not pay for his keeping.

GOOD SUCCESS WITH PIGS AND LAMBS.

I have a good report again to make on a litter of fall pigs, farrowed September 27, 1908, and sold on April 12, 1909; average weight, 200 lbs; sold for 6 1/2c on the farm. Also on my flock of ewes, 17 of which dropped 31 lambs and raised 27 of them; also sheared 10 lbs. and 10 oz. of wool each, which sold for 25c per lb. Oceana Co. A. C. GOWDY.

VETERINARY

CONDUCTED BY DR. W. C. FAIR, CLEVELAND OHIO.

Advice thru 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.

Bursal Swelling.—Have a mare with soft bunch on hock. Can it be taken off without blistering? J. Z., Wayne, Mich.—Apply iodine ointment to bunch once a day and it will perhaps reduce it.

Sore Shoulders.—When my mare is backed she shows soreness in right shoulder, but when going ahead does not show it much. What had I better apply? W. H. S., Kingsley, Mich.—Apply equal parts spirits camphor, extract witch hazel and alcohol to shoulder twice a day. Hand rub muscles for 15 or 20 minutes twice a day.

Diseased Tail.—What is the cause of my horse's tail dying? The first joint is dead and the second is shrinking and losing its life. W. G. C., Yale, Mich.—The tail has been injured and it has, no doubt, interfered with the circulation of blood thru tail. Cut off the diseased portion and the tail will soon heal; no use trying to restore the diseased parts to a normal condition.

Mange.—The hair is coming off my cattle around the eyes, and bare spots are appearing on different parts of the body. None of my neighbors know what to do for it. J. E. B., Fremont, Mich.—I am inclined to believe that your cattle may have mange or ringworm. Apply sulfur one part and lard four parts; when this mixture is made add some carbonate of potash and it should be applied once a day for a few days to the bare spots.

Bunch in Udder.—Have a cow that has a bunch in udder the size of a hen's egg, situated just in front of hind teat. This bunch has been there since last summer; do not know what caused it. Cow is perfectly healthy and this never does in any way seem to interfere with milk. R. N., Ionia, Mich.—Apply iodine ointment to bunch once a day and it will perhaps remove it. Also give 1 dr. iodide potassium at a dose in feed night and morning for twenty days.

Cramp of Muscles.—Have a driving horse that seems to have a stiff neck, the cords are swollen on left side, extending along neck to shoulder, that perhaps he caught cold, but he is not sick—has been in this condition for the past ten days. C. F. L., Freesoil, Mich.—Your horse suffers from a spasm of muscles of neck. Apply equal parts spirits camphor and alcohol three times a day. Give 2 drs. cholral hydrate at a dose in a pint of water three times a day.

Stomach Worms.—What is wrong with my lambs? They live until four or five weeks old then they hump up their backs and hold their heads down, grit their teeth and will die in about three hours. Sheep have been fed pea straw, timothy and alsike hay with oat chop. J. R. K., Whittemore, Mich.—Your lambs die the result of stomach or bowel worms. Give 15 drops fluid extract gentian and three drops worm seed, oil at a dose once a day for a week.

Chronic Cracked Heels.—I have two horses that have had scratches on hind legs under fetlock since middle of last winter. Have bot remedies from two local veterinarians which have failed to effect a cure. I have also applied coal tar dip. My horses are fed a good quality of feed and plenty of it. W. A. M., Beulah, Mich.—Chronic cracked heels are not easily cured. Apply peroxide-hydrogen twice a day; ten minutes after this apply one part iodoform, one part tannic acid and four parts vaseline once a day. If there are fungus sores in cracks, burn with nitrate silver.

Garget.—My cows are having udder trouble and are falling in their milk. I first noticed their udders going wrong soon after I commenced to feed corn, bran and oil meal; the bunches in udder are quite hard. G. A. S., Nirvana, Mich.—It is possible that you are feeding your cows too much corn. Give 1/2 oz. powdered nitrate potash in feed twice a day and apply iodine ointment to udder bunches once a day. If the bunches fail to reduce give 1 dr. iodide potassium at a dose twice a day for 10 or 15 days. Are your cows well bedded and is your stable kept clean and dry? Have your cows not been standing in a cold draft or lying on cold damp ground, for these are all causes.

Barren Cows.—I have two cows in my herd that calved last December which have not come in heat since. These cows have acted the same every year. I have tried your formula for barren cows, but I don't think these come under that head for they have calved every year, but it bothers me to get them in heat. What should I do for them? A. P., Onsted, Mich.—Give each cow 1/2 oz. powdered capsicum, 1 oz. ginger and 1/2 oz. powdered rosin at a dose in feed two or three times a day. I have known opening the neck of womb or a forced service to have the desired effect of bringing them in heat.

Partial Paralysis.—I have a sow with pigs four weeks old; the sow appears to have lost the use of hind quarters. I have been told that she has kidney worms and to give her turpentine she will get well. What should I do? L. T., Freesoil, Mich.—Your sow has perhaps been fed too much corn and had too little exercise. Feed her oats and oil meal. Give her 15 drops tr. nux vomica at a dose (Continued on page 531).

IF YOU NEED A MEDICINE, YOU SHOULD HAVE THE BEST.

Although there are hundreds of preparations advertised, there is only one that really stands out pre-eminent as a remedy for diseases of the kidneys, liver and bladder.

Dr. Kilmer's Swamp-Root stands the highest, for the reason that its remarkable health restoring properties has been found to be just the remedy needed in thousands upon thousands of even the most distressing cases.

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

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

WE GUARANTEE CAUSTIC BALSAM will produce more actual results than a whole bottle of any liniment or spavin cure mixture ever made.

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If new customers will send 6c to pay postage, we will send a 25c box (12 doses) of Dr. Fair's New Worm Remedy, and write you a letter telling about worms and how to kill them without hurting the horse. We deliver 60 separate doses (5 times the quantity) by mail for \$1.00.
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For getting from 1 to 6 mares in foal from one service of a stallion, \$3.50 to \$6.00. Safety Impregnating Outfit for barren and irregular breeders, \$7.50. Serving Hobbles, Stallion Bridles, Shields, Supports, Service Books, etc. prepaid and guaranteed. Stallion Goods Catalog FREE. CRITTENDEN & CO. Dept. 66 Cleveland, Ohio.

LIVE STOCK NOTES.

It is the handy little cattle of a medium grade that average buyers are after, and it does not take a great many of the higher-priced beeves to go around. The fact is, the buying capacity of the average family is limited, and the cheaper light cuts of beef are in greater favor than usual. For a long time fat cows and heifers have met with the best demand and have been bringing relatively the best prices, with decreasing receipts. It seems strange that so few stockmen care to feed female cattle.

Owners of hogs refuse to be stampeded by the big packing concerns into hurrying their droves to market, and every bad break in prices is sure to be followed by a great falling off in the receipts at Chicago and the Missouri River markets. The packers have been claiming a loss on an average of \$1.25 on every hog they cut up, and strong efforts have been made to establish a lower basis for hogs, great numbers of hogs being left over in the stockyards at night, thereby swelling the supplies the following day to increased proportions. These accumulations have been used by the packers as a club to force prices lower, but after the reduction in values took place country shippers shut down on their marketings. The eastern shippers have required decidedly less hogs, as the dearthness of hog meats has seriously curtailed their consumption, but the supply of hogs of late has been too small even for the curtailed requirements. It may not be amiss to advise farmers to market their matured hogs, but to hold others to maturity. There is no greater folly than that of marketing healthy growing pigs. The farmer stands in his own light by doing so, and the little fellows are not wanted and must be sold at a big discount.

For several weeks there has been an exceptionally small demand for stocker and feeder cattle in the Chicago stockyards. This is easily accounted for by the dearthness of corn and the unsatisfactory demand for finished beef cattle. A little later good grass may be expected to start up larger buying in some quarters, and light-weight cattle will undoubtedly become more active. A few venturesome stockmen are taking chances and investing in high-priced heavy feeder cattle that can be matured in a comparatively short time, but most farmers are afraid of the game. It may pay out, but it is well to go a little slow in such matters. A few prime heavy feeders have been selling around \$5.50@5.60 per 100 pounds.

Live-stock receipts during March at seven primary interior markets, 3,671,890 head, show considerable increases over March, 1908 and 1907, figures of 3,379,678 and 3,088,978 head. All the larger centers, with the exception of St. Joseph and St. Paul, show figures in excess of those recorded for March, 1908. The increase is due to larger receipts during the month of cattle, hogs and sheep. Receipts at the same markets during the first quarter of the year, 10,449,993 head, were about 10 per cent below the corresponding receipts in 1908. Chicago, Kansas City, Omaha and St. Joseph show considerable losses for the quarter, primarily under the head of hogs, but also under the head of cattle and calves. The calculated number of cars used in transporting the total number of live stock to market for the first quarter of the year, 178,915, was below corresponding totals in 1908 and 1907 of 200,434, and 188,692 cars, respectively, tho the number of cars for March, 61,904, compares favorably with the March number for the preceding two years.

Shipments during the month of packing-house products from Chicago, 161,456,467 pounds, show a decided decrease when compared with March, 1908 and 1907, figures of 200,450,012 and 199,525,571 pounds. The largest losses in shipments are shown by fresh beef, lard, hides, and canned meats, while cured meats and pork show larger totals than for March, 1908. Shipments for the first quarter of the year, 501,636,703 pounds, were about 20 per cent below the corresponding 1908 and 1907 figures, due mainly to losses in the shipments of fresh beef, cured meats, hides, lard and canned meats. The smaller shipments of canned meats from Chicago correspond fairly well with the diminished export demand for the article.

The eastward trunk-line movement of provisions during the month from Chicago and Chicago-Junction points, 80,390 net tons, shows a similar decrease as compared with corresponding 1908 and 1907 figures of 119,032 and 111,519 net tons. A considerable tho not so heavy a decrease is also shown by the quarterly figures of the movement, 230,581 net tons, which were about one-fourth less than those reported for the first three months of the two preceding years.

Live-stock receipts during the month at four principal Atlantic seaboard cities, 677,596 head, were considerably below like receipts during March, 1908. Smaller totals are shown for the arrivals of all classes of animals, chiefly hogs. The total for the first quarter of the year, 2,260,254 head, likewise shows a considerable shrinkage when compared with the corresponding 1908 totals of 2,499,815 head, the decrease being due to smaller receipts of hogs.

Horse breeding is being given a new impetus in Michigan by the unusual scarcity and high price of farm and draft horses. Generally speaking, a better grade of sires is being used than ever before, and as size counts in the price it is probable that the colts bred will be better fed and cared for than was formerly the case with the scrub colts bred upon the farms of the state.

According to information received by the Department of Agriculture thru the Department of State, the Belgian Government has issued a decree, effective May 1, removing the restrictions previously imposed against the importation of cattle from the United States because of the existence of foot-and-mouth disease.



The BEST PROOF of DEPENDABILITY



NO statement which might be made in type could be more convincing proof of the superiority of the harvesting machines comprising the International line than is the world-wide popularity of these machines.

You know the real test of a harvesting machine—the only test that tells—is actual work in the field.

In the last half century more than two hundred different makes of harvesters have been put to this test.

You know the machines that have stood the test and proven dependable, year in and year out—the machines that today are known the world over.

Champion Deering McCormick Milwaukee Osborne Plano

The popularity of these machines is not due to chance or luck.

It is due to one thing only—that the men who originally built these machines, and the men who took up their work when they were through, have made machines that were right—machines that have always brought in the full harvest under all conditions in the quickest time—with least labor on the part of man and horse, and with the least trouble and delay from accidents.

Today — 1909 — McCormick, Deering, Champion, Osborne, Milwaukee and Plano harvesting machines are more popular than ever before, because they are better than ever before.

They are better because they have been improved from time to time in every detail of construction, whenever it has been found that any improvement could be made. These machines are built to work successfully under the varying conditions found in the harvest field. If the grain is down and tangled the reel and platform can be so adjusted that all of the grain will be cut and bound much the same as when it is standing straight.

In the manufacture of these well known lines of machines great care is exercised both in the selection of materials and in construction. All the bearings are easily accessible so that you will have no difficulty in oiling the working parts and giving the machine the attention which it should have in order that the full measure of success may attend its work throughout the harvest season. Every precaution is taken to furnish you with a machine that you can depend upon during the busy harvest time when delays cost money.

It may be that you do not need a binder—but in all probability you need a harvesting machine of some kind—mower, hay rake, or hay tedder. If so, you should choose from one of the six leading lines of harvesting machines. The mowers and rakes are just as standard as the binders.

If you buy your machine from one of the six leading lines there will be no necessity for you to stay awake at night worrying about how you are going to get through your harvest.

When you buy a machine you would like to be sure that the principle of construction is correct, that the materials are high grade and that the workmanship is skilled—for these are the things that determine the quality of the machine.

The harvesting machine question is not a small matter. If you make a mistake in the harvest field it is going to be costly. The ripening grain will not wait while you are skirmishing over the country to find some extra part that is needed to repair a broken down machine. If you buy one of these harvesting machines you will evade such troubles. In case of an accident you can get all the repairs you want from a nearby International dealer, who always carries a full supply in stock.

If you are in need of a harvesting machine, it will pay you to look into the merits of these well known lines.

For a full-value harvest you must have a dependable machine in dependable condition. Get ready now while there is time. When the grain is ripe will be too late.

We urge upon you the importance of deciding this matter now, because if you put it off until a more convenient time, the chances are that you will never give the subject proper attention. You no doubt think there is plenty of time,—but the harvest season will be upon you the first thing you know. Therefore consider this harvesting machine question now while you have the time to give it proper study. Write for any information that you may need to help you make a wise decision.

Ask the dealer for the catalogue of the machine you want. If you do not know the dealer nearest to you, ask us.

From the International dealer you can get repairs that fit, if repairs are needed. Also the best binder twine—McCormick, Deering, Plano, Champion, Milwaukee, Osborne or International.

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THE MICHIGAN FARMER, Detroit.

The easiest way to prove a thing is to show it.

For years, we have advised farmers and their wives to let "bucket bowl" cream separators of all sorts alone—because they wash hard, rust easily, are easily damaged and wear out in consequence.

How do you like this solid dish pan full of disks? There is absolutely nothing in that pan but disks—just disks from the bottom up—and all from a "bucket bowl" machine a disgusted farmer and his over-worked wife discarded for a Sharples Dairy Tubular.

They got very tired of washing and drying it twice a day.

What's In The Other Pan?

That little piece in the other pan is the triple tinned, pressed steel, wear forever dividing wall used in the Sharples Dairy Tubular Cream Separator bowl. It is about like a napkin ring in size and shape, is just as easily washed, is instantly removable and is absolutely all there is inside Sharples Dairy Tubular Cream Separator bowls.

You'll never forget this picture. Every time you think of cream separators you'll

The Dish Pans Tell The Story



think of the difference between the Sharples Tubular and the "bucket bowl" kind—a difference in work, wear, efficiency and profits just as great as the difference in the contents of these two pans.



Will you wash one piece or a pan full? If you prefer one piece, then get a Sharples Dairy Tubular Cream Separator instead of a "bucket bowl" machine. Sharples Dairy Tubular bowls contain only one little piece, instantly removable and just like the single piece in the dish pan. All other separators are the "bucket bowl" kind—full of parts and works. The full dish pan contains the many disks used in one of the "bucket bowl" machines that are being discarded by the car load for Sharples Dairy Tubulars.

It is not surprising that Tubular sales exceed those of most, if not all, other separators combined. "Bucket bowl" sales are so reduced, by Tubular popularity, that the leading maker of disk machines (the self styled "original" disk maker) has found it necessary to commence suit against a catalog house that has been making and selling a cheap separator with disks like his for a number of years. Why? Because he has lost his grip—taken a back seat—is so out of date that he's scrapping for trade with the catalog house concern.

The Tubular is made in the world's greatest cream separator factory. Branch factories in Canada and Germany. It is the world's greatest cream separator. It will give you greatest satisfaction—greatest profit—greatest wear. Get catalog No. 152

The Sharples Separator Co.

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"We have found the National the most satisfactory in every way. So say 40,000 farmers and dairymen."

Would 40,000 Endorsements Have Weight With You?

Especially if the 40,000 came from good solid successful farmers and dairymen all over the land? More than 40,000 National Cream Separators have been sold to such people—yet the National costs more than some separators. There must be a good reason. The National Cream Separator sells to the level-headed class who demand a full return on every investment, and know that they don't get it in a cheap mail-order separator—made to sell rather than do the best work. The National gets all the cream—and lasts a lifetime, often without expense of repairs for years and years. Your dealer will supply you with a National for inspection or trial if you insist. Illustrated catalog of full particulars free on request. THE NATIONAL DAIRY MACHINE CO. Goshen, Ind. Chicago, Ill.



Lillie Farmstead Jerseys.

We have some splendid bull calves for sale from one to six months old. They are from cows with records of 300 to 425 pounds of butter last year. Write for description and prices. COLON C. LILLIE, Coopersville, Mich.

St. Lambert Jerseys, 2 1/2 months, 2 1/2 year heifers. L. R. KUNEY, Adrian, Mich., Bell Phone.

RED POLLED BULLS, from 6 to 15 months old, bred from good milking sows. John Berner & Son, Grand Ledge, Michigan.

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

CHOICE JERSEYS. Large St. Lamberts. Young stock of either sex for sale. CLARENCE BRISTOL, R. No. 2, Fenton, Mich.

SPECIAL

Owing to conditions which make it necessary for the management to leave the State, the entire equipment of Francisco Farm must be sold. 30 Grand Shorthorn cows and heifers, mostly Young Phyllises, Young Marys and Lavinas with two or three Scotch crosses, and a high class herd of F. C. swine are in the offering. Come and see them and you will be surprised at the prices made. P. P. POPE, Mt. Pleasant, Mich.

WOODLAND SHORTHORNS.

Let us quote you prices on some choice cows and heifers. We want to buy a good bull out of a heavy milking dam. Red preferred. MEYER BROS., R. 7, Howell, Michigan.

BULL CALF for sale—From "Dairy Shorthorn" with strong milk inheritance, kept in Dairy form for ages. Full milk records kept. Correspondence solicited. W. W. KNAPP, Watervliet, Mich.

Pure Bates Shorthorns. Polled Durhams. A. D. DeGarmo, Highland, Mich.

RED POLLED CATTLE—\$25.00 each. Young cows and heifers at \$50 to \$75. E. Brackett, Allegan, Michigan.

J. B. CROUSE STOCK FARM, HARTLAND, MICH. Have some choice cows and heifers at right prices.

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EDWIN S. GEORGE, Owner. Rams and Ewes for Sale. WRITE FOR PRICES TO ROBERT GROVES, Shepherd, R. F. D. No. 3, Pontiac, Mich.

SHROPSHIRE HALL STOCK FARM. Will make special prices for thirty days, on ewes from 1 to 3 years old, all bred to Imported Cooper, and Mansell rams to lamb in March and April, also on very choice ewe lambs, this is to make room for an importation that is going to arrive this spring. L. S. DUNHAM & SONS, Concord, Michigan.

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Buy of Michigan's Largest Breeder of good sheep. Romeyn C. Parsons, Grand Ledge, Mich.

RAMBOUILLET—Flock founded 1892 with 40 ewes selected from one hundred registered ewes of the best breeding possible. J. Q. A. COOK, Morrice, Mich.

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FOR SALE, 2,000 PIGS, 6 to 8 weeks old, at \$2.50 to \$3 each; any breed. Will ship by express and give you money's worth. UTILIZATION CO., Grand Rapids, Mich.

NORTHERN GROWN BERKSHIRES. ROYCROFT FARM, Sidnaw, Mich.

BERKSHIRES—Sows bred to Longfellow's Duke, and our new herd boar Prime Bacon #8611, a great son of the noted Lord Bacon, and of intense Masterpiece breeding. Guernseys, M. B. Tukeys, B. Fly, Rocks, Pekin Ducks, Hupp Farms, Birmingham, Mich. G. C. Hupp, Mgr.

A FEW FALL GILTS bred for fall farrowing. Also choice lot of spring pigs bred by King Premier. A. A. PATTULLO, Deckerville, Mich.

BERKSHIRES—SPRING PIGS, Premier Lon, fellow and Masterpiece, the world's champions. C. D. WOODBURY, Lansing, Mich.

ADAMS BROS. IMPROVED CHESTER WHITES, Litchfield, Mich. A won more premiums in '08 than any other herd in Michigan. Stock all ages for sale. Prize winning W. Orington, W. L. Horn and Buff Rock eggs, \$1 per 15. Shorthorn bulls & heifers.

CHESTER WHITES—A few choice young sows bred for April farrow. Also fall pigs either sex. Orders booked for June delivery. W. O. WILSON, Okemos, Mich.

CHESTER WHITES. Boars ready for service \$15.00; Gilts bred for fall farrow \$20.00; Spring pigs either sex. Satisfaction guaranteed. COLON C. LILLIE, Coopersville, Mich.

DUROC JERSEY SWINE, Shepherd Dogs, B. for 15. J. H. BANGHART, Lansing, Mich.

Duroc Jerseys—Nothing for sale at present. CAREY U. EDMONDS, Hastings, Mich.

DUROC Jersey of size and quality. 40 Boars ready for service. 50 sows at Farmers Prices. Satisfaction Guaranteed. J. C. Barney, Coldwater, Mich.

O. I. C.'s Boars & sows all sold, I have a fine lot of young pigs that will soon be ready to ship. A. NEWMAN, Route No. 1, Mariette, Mich.

O. I. C.'s—ALL AGES. Thirty sows bred on approval. H. H. JUMP, Munith, Mich.

O. I. C. Boars ready for service. Spring pigs by Glenwood Stock Farm, Zeeland, Michigan, R. 6. Phone 94.

O. I. C. swine very prolific. My herd is Chief, the world's Champion and Grand Champion, the greatest O. I. C. boar in the world, also a Grand son of Tutesy second, the world champion sow. Place your order now for spring pigs. A. J. GORDEN, R. No. 2, Dorr, Mich.

HEAVY BONED Poland China boars and young Shorthorn bulls at bargains. Send for snap-shot photos. ROBERT NEVE, Pierson, Mich.

Poland-Chinas—Choice young boars, fall prospects and herd headers. Prices right. Write today. L. W. Barnes & Son, Byron, (Shiawassee Co.) Mich.

Poland-Chinas. Nothing but spring your order now. WOOD & SONS, Saline, Mich.

LARGE ENGLISH YORKSHIRES. Boars ready for service \$15.00; Gilts bred for fall farrow \$20.00; spring pigs either sex. Satisfaction guaranteed. COLON C. LILLIE, Coopersville, Mich.

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FARMER AGENTS WANTED The Chicago Special Cream Separator is new, practical and perfect—it costs 50% less than any other separator and is 50% better, point for point, and we can prove it. It is fully guaranteed in every detail—its distinctly original patented skimming device simply gets all the cream. It is the easiest running separator ever made, and the most convenient—in fact, every desired feature in a cream separator is found in the Chicago Special. We want farmer agents and are willing to pay you well for getting our separators introduced. We have the most liberal offer ever made—30 days FREE TRIAL—send no money—just try the machine—we want you to be both judge and jury. Write today for illustrations, description, and prices. Kurtz & Company, 626 Monadnock Bldg. Chicago.

THE LARGEST AND BEST LINE OF WELL DRILLING MACHINERY in America. We have been making it for over 20 years. Do not buy until you see our new Illustrated Catalogue No. 14. Send for it now. It is FREE. Austin Manufacturing Co., Chicago

ANGORA GOATS FOR SALE—Good ones for \$5.00 and up. FRED H. MOORE, Rochester, Indiana.

JERSEY BULL. From imported dam; double grandson of Flying Fox; 1 yr. at a bargain. Shivevale Farm, Pt. Austin, Mich.

BREEDERS' DIRECTORY.

CATTLE.

ABERDEEN-ANGUS.

Herd headed by UNDULATA BLACKBIRD ITO 83836, one of the best sons of PRINCE ITO 50006, and Grand Champion Bull at the Detroit and Grand Rapids Fairs of 1907 and 1908. Herd consists of Ericas, Blackbirds, Prides, etc. WOODCOTE STOCK FARM, Ionia, Mich.

1 ABERDEEN ANGUS bull, 1 Polled Durham 1 herd bull closely related to World's Champion, and one yearling bull left. Freight and car fare to buyers. CLOVER BLOSSOM FARM, Port Austin, Mich.

GUERNSEYS—BULL CALVES

from tuberculin tested cows. ALLAN KELSEY, Lakeview, Mich.

FOR SALE—Two Guernsey bulls aged 5 and 2 yrs; son and grandson of Prince Rosendale. Prices right. M. L. Dean, Napoleon, Mich.

HOLSTEINS—A fine registered bull of excellent breeding and individuality, 17 mcs. old for \$100. J. M. SHORMAN, Fowlerville, Mich.

Holstein-Friesians. HICKORY GROVE STOCK FARM, Owen Taft, Proprietor, R. 1, Oak Grove, Liv. Co., Michigan. Bell phone

HOLSTEINFRIESIANS—A few fine bull calves sire Canary Mercedes Royal King. W. B. JONES, Oak Grove, R. No. 3, Mich.

TOP NOTCH HOLSTEINS.

"Top Notch" registered young Holstein Bulls, combining in themselves, in excellent proportion, the blood of cows who now hold, and in the past have held World's Records for milk and butter-fat at fair prices. McPHERSON FARMS CO., Howell, Mich.

BOARDMAN STOCK FARM, Holstein Cattle, JACKSON, MICH. Has more imported Holstein-Friesian Cows than any farm in the Middle West. Registered BULL CALVES of the most fashionable breeding. 30 fine, registered, Duroc Jersey sows due to farrow soon.

HOLSTEINS—I will sell "Aggie Cornucopia Pletertje Dekol" No. 57254, Born Mar 20, 1908. Unquestionably the best bred yearling bull in the state. 3 Bull calves 2 to 4 mo. old. A. R. O. dams. Write at once if in need of something good. L. E. CONNELL, Fayette, Ohio.

HEREFORDS—Both sexes and all ages for sale. Also Poland-China hogs. R. E. ALLEN, Paw Paw, Mich.



Northern Grown Jerseys.

ROYCROFT FARM, Sidnaw, Mich. JERSEY Bull Calf born July 4th '08, first calf of a heifer whose dam gave 9350 lbs. milk in one year, test 5.4-10. Sire's Dam's record 10060 lbs. with first calf, test 5.2-10 per cent. The Murray-Waterman Co., Ann Arbor, Mich., R6.

POLLED JERSEYS—Hornless dairy cattle. Rules for registration, breeder's names, etc., of Chas. S. Hatfield, Secy. Box 9, R. 4, Springfield, O.

THE DAIRY

CONDUCTED BY COLON C. LILLIE.

COST OF KEEPING A COW A YEAR WITHOUT A PASTURE.

What will it cost to keep a cow a year where pasture cannot be obtained?
New York. B. F. MACK.

No one can answer this question in a way that will fit the different sections of the country, owing to variation in the prices of feed. We must also take into consideration whether a cow is kept on a farm or not, because if kept on a farm where ensilage can be grown the cow can be kept cheaper than where ensilage does not form a part of the ration. I answer this question largely from my experience with my own herd of cows, and I try to keep them as cheaply as possible and to furnish them a liberal ration, one which will enable them to give a maximum production for the entire year, and not only that, but one year with another.

I believe that the cheapest food that can be raised for the bulky part of the ration is corn silage and clover hay, consequently in this estimate I have used nothing but these two foods. As a matter of fact, however, we do feed some shredded corn fodder and some pea-and-oat straw, and this would cheapen the ration a little bit, owing to the lower value of this roughage as compared with clover hay. These two feeds mix in with the clover hay and corn silage nicely, give a little variety to the cows, and do not detract at all from the ration.

Then I have figured on using cottonseed meal and oil meal for a grain ration—no other grain. Of course, if you put in wheat bran or gluten feed, or almost any other concentrate, at present prices the cost of the ration will be increased somewhat. I put in these two foods because we know just what we are buying in them. There is practically no chance for adulteration because they are good foods and fill the bill, and because, in purchasing digestible protein, I do not know where you can go and buy it as cheaply as you can in these two foods. I might have figured a ration in which peas and oats formed a part, but so much depends upon the cost of raising peas and oats, and also upon the fact that they are not successfully grown in all localities, that I finally concluded not to take them into consideration. When a cow is fresh, and for the first six or eight months thereafter, she requires a heavier ration than during the latter part of the period of lactation or when she is practically dry and storing up energy and making preparation for the next year's campaign. So I have divided this feeding period into eight months and four months, and I figure on giving the cow 35 lbs. of corn silage and 15 lbs. of clover hay per day for the first eight months. That, all will admit, is a good liberal roughage feed. I doubt if all cows would eat that much. Figuring corn silage at \$2.50 per ton would give us a cost of \$10 for the silage. Figuring clover hay at \$8 per ton would give us \$10 more for the cost of clover hay. Then I have figured 2 lbs. of cottonseed meal and 2 lbs. of oil meal per day for eight months. That, also, is a good liberal feed. The latter part of the eight months the cow will not require so much as this, but during the heavier part of the milking period she ought to have a little more. These grains, figured at \$1.50 per cwt., or \$30 per ton, would equal \$7.20 for both the cottonseed meal and the oil meal, or a total cost of \$34.40 for the first eight months.

Now, for the last four months of the year I have figured 20 lbs. of corn silage and 10 lbs. of clover hay for roughage; also 1½ lbs. of the cottonseed or oil meal. During the latter part of the period, and during the period when the cow does not give milk, I would cut out the cottonseed meal and feed nothing but the oil meal, and I think that 1½ lbs. a day would be a good liberal feed. Then for the last four months we would have the ensilage costing \$3, the clover hay \$4.80, and the oil meal \$2.70, making a total for the year of \$44.90. This, of course, is figured for 1,000 lbs. live weight. If a cow doesn't weigh 1,000 lbs. she wouldn't be expected to eat that much food. If she weighs more than that you will have to increase it accordingly.

Where one has rough land that cannot be plowed he is apt to figure the pasture as not amounting to much. On good level land that can be plowed, however, I believe it will pay to cut down the pasture to the lowest limit and feed the cows a ration in the barn. I believe a

man will get more out of his cows in a year than he will where he depends very much on pasture.

A CREAMERY OVERRUN.

What is the overrun on 100 lbs. of butter-fat?

Will the salt increase or decrease the weight of butter, and how much? Our creamery man says he gets nothing for salt.

Monroe Co.

J. W. KEENEY.

First. The overrun on 100 lbs. of butter-fat is a very variable quantity. There are hardly any two creameries that get the same results. The reason is that creameries differ in the mechanical losses from skimming and churning and that sort of thing, and there is hardly one buttermaker in 25 who can control the per cent of moisture in butter. Consequently, nobody can tell how much overrun 100 lbs. of butter-fat would have until he knew the conditions under which it was made up. Theoretically, 100 lbs. of butter-fat ought to make 121 lbs. of butter and have the butter safely within the moisture limit; 21 per cent is the standard overrun set by the Dairy Division of the Department of Agriculture for gathered-cream creameries. In whole-milk creameries 19 per cent is the standard overrun, it being figured that a part of the butter-fat is lost in skimming and is sent home to the farm.

Second. Salt will certainly add to the weight of the butter. Salt dissolves in water, but the water will take up no more space or volume after the salt is added than it did before. Now, when this salty water is incorporated in the butter it does not add to its volume, but it does add to its weight because it is more dense and solid. Ordinary creamery butter contains 2½ to 3 per cent of salt.

THE MODEL STALL AGAIN.

I intend to remodel my barn this summer. Would like to have Mr. Lillie explain how the model cow stall is made. How much lumber would it require to build 16 stalls on this plan? How is the 2x4 behind the cow fastened? Can you have water before the cows all the time? How are the cows tied? How deep and how wide would you have the gutters behind the cows?

How would you make horse stalls so as to have them comfortable for the horses and handy for the attendant? Is cottonseed meal a good feed for work horses? How would you feed cottonseed meal, corn and timothy hay to horse in spring, while doing the spring work, for best results?

Montcalm Co.

SUBSCRIBER.

The model stall is 7½ ft. long from the feed alley to the gutter. Then you make the width of it according to the size of your cow. For the smaller sized cows 3½ ft. is wide enough, but if you have large cows the stalls should be somewhat wider. The stall has a double manger, one manger being on a level with the stall itself and usually made of cement. This is where you feed the grain and ensilage or other succulent food. Then the hay manger is 28 inches above this. The bottom of it is narrow, simply a 2x6 plank. This hay manger is boarded up on the alley side, while the side toward the cow is made of slats nailed to the bottom piece of the manger and slanting back toward the cow at an angle of 45 degrees and high enough so that the manger is 2½ ft. wide on top. Then there are single-board partitions separating the cows.

Now you can easily figure out the amount of lumber that is necessary to build this stall. The 2x4 behind the cow is fastened by toenailing on either side to the bed piece of the stall. It is supposed that the stalls will be placed on a cement floor, consequently you will have to put in a 2x4 for the base, or sill, of each partition, and the 2x4 behind the cow is toenailed to this base 2x4 on either side. You can have the gutter any depth and width that you like. I should say that a gutter ought to be a foot wide and eight inches deep.

I would not recommend this kind of a stall for horses. In the first place, the hay would be above the horse's head constantly and he would be getting chaff and dirt into his mane. Then I would not like to have a horse eat from a trough on a level with the floor of his stall. I would rather have a manger higher up. Then, again, you could not use the 2x4 across the stall in the case of geldings because this would prevent the urine from running back into the gutter. I would build a horse stall with the manger elevated 2½ to 3 ft. high, and you can have this large enough to hold the hay, and have a grain manger in one end of the hay manger, which would be nothing more nor less than a small box.

In the case of model stalls for cows you can easily have water before each

REAL AND FAKE CREAM SEPARATOR IMPROVEMENTS

A year ago, in keeping with its policy of ALWAYS HOLDING A POSITION FAR IN ADVANCE OF ALL ATTEMPTED COMPETITION, the DE LAVAL Company put on the market an entire new line of Improved Farm and Dairy sizes of cream separators.

They were brand new in every part, from the supply can at the very top to the shape of the base at the very bottom, and reflected the result of three years of study, experiment and test by the DE LAVAL engineers and experts throughout the world, based on thirty years of experience in cream separator invention, development and use.

Every good feature of previous DE LAVAL machines was bettered and many new and novel ones added, accomplishing greater simplicity of construction, ease of cleaning and replacement of parts; less cost of repairs where necessary; easier hand operation; more complete separation under hard conditions; greater capacity, and a material reduction of prices in proportion to capacity.

A year of practical experience in the actual sale and use of 100,000 of the new machines in 1908 but served to suggest still greater refinement of manufacture and a few finishing touches of perfection in the details of construction of the new line of machines as they are now offered to 1909 buyers.

The 1908-1909 changes in the DE LAVAL machines on the whole have been SO COMPLETE AND REMARKABLE that the man who hasn't seen and used an Improved DE LAVAL really cannot know what the perfect, up-to-date cream separator is TODAY.

The new DE LAVAL machines literally "SWEPT THE FIELD" in 1908 and competition was driven to such desperate extremity that THIS YEAR most of them have come out with all kinds of CLAIMED advertising and catalogue "improvements". Nearly everybody has an "IMPROVED" 1909 machine and is making a PLAY for business on that basis.

But we make the POSITIVE STATEMENT that there is not A SINGLE NEW OR ACTUAL IMPROVEMENT in any of them, and while some features have been bettered it has been merely through the appropriation of DE LAVAL ideas from TWO TO TWENTY YEARS OLD and in most cases long since discarded in DE LAVAL construction.

That's a PLAIN STATEMENT, made in plain words that no one can fail to understand. It has the knowledge, experience, reputation and capital of the DE LAVAL Company behind it. Some people won't heed it; some people won't believe it. That will be their loss. Those who do will profit and benefit by it.

We stand ready to PROVE IT to any one desirous of buying a separator for the first time or of trading in an old and out-of-date machine for a new one.

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cow by having individual buckets. We have these in our stable. A pipe runs along on top of the lower manger and is fixed on a dead level. Then a bucket is put in each stall and a supply tank at the end of the row of stalls on a level with the top of the buckets. This is governed by a float valve, keeping the buckets constantly full.

Cottonseed meal is a good feed for work horses, that is, a small portion of it; but where I fed horses timothy hay and corn meal, I should prefer to feed oil meal in preference to cottonseed meal, because it regulates the bowels better and I think will keep the horses in better physical condition.

GROUND BUCKWHEAT FOR COWS.

Kindly give me your opinion on feeding buckwheat to milch cows when ground with corn and mixed with other feeds. There is a mill near us that has a surplus of buckwheat. They offer to mix 2 bu. buckwheat and 1 bu. of corn, grinding and selling it for \$1.55 per cwt. I have that of mixing one sack (160 lbs.) of a commercial stock food, 100 lbs. corn meal, 50 lbs. wheat bran and 100 lbs. corn and buckwheat. What do you think of this mixture?

We have been feeding silage once a day and cottonseed meal all winter with other feeds but are out now. We are milking 18 cows.

Van Buren Co.

E. T. B.

Corn meal would be superior to ground buckwheat for cows and consequently if your buckwheat costs you as much as the corn meal I should prefer to use the latter. It is more palatable and digestible. Where the buckwheat is made into flour, the resultant buckwheat middlings are rich in protein, containing about 20 per cent of digestible protein. This, then, is rich enough in protein to help balance up the home-grown ration, but the buckwheat itself, ground flour and all, is not rich in protein, containing only about 7.2 per cent—not as rich as corn meal. Besides, it would contain the buckwheat hulls, which are practically worthless as a food. I think that a mixture of the stock food mentioned and corn meal would make a splendid ration, one good enough for any cow.

APRIL MEETING OF NORTH OTTAWA COW TESTING ASSOCIATION.

This association met for its April meeting at the farm home of Mr. Milo Edison, on Saturday, May 24. Mr. and Mrs. Edison furnished a splendid dinner for the members present. The barns and Jersey herd of Mr. Edison were inspected by the members before dinner. Mr. Edison has a herd of pure-bred Jerseys that he can well be proud of, and he knows the pedigree of each animal from A to Z and seems to enjoy telling it. After dinner the association was called to order by the president, John M. Park, Jr., and the minutes of the previous meeting were read and approved. It was decided to hold the May meeting on Friday, May 28, at the home of John M. Park.

Mr. Anderson, the tester, made a formal request that the association buy him another Babcock tester. He explained that it would be very convenient to have two of them so that he could leave one in the Nunica division of the association and not have to carry it back and forth so much on the interurban car. The members present gave their consent. Mr. Anderson also explained that it would be necessary to have another tester next year, for there would undoubtedly be enough cows in this vicinity for two test associations next year.

The following subjects of interest to the members present were discussed:

First. Are the breeding associations now being formed by the Michigan Experiment station practical and worthy of our support? This subject was introduced by Mr. John B. Martin, of Grand Rapids. He thought these associations were a good thing and more especially in communities where the herds were small. In sections where farmers all kept good sized herds it would not be so practical because there every farmer needed to own a bull himself, and this seemed to be the opinion of all members present. These associations have the advantage of furnishing a means whereby a dairy sire can be kept until his real worth is known, whereas it is the usual practice of farmers to change sires every two or three years, really before the real value of their sires is known. By changing from one neighborhood to another they can be kept to a better age. Another desirable feature of these associations is that they also encourage community breeding, which everybody that was a desirable thing. Even though there were no organized breeding associations in a com-

munity, dairymen of each community ought to keep the same breed of cattle. This would practically accomplish the same purpose as the organized breeding associations.

Second. Which is preferable, a permanent pasture, or a pasture used as one crop in a rotation of crops? Mr. L. E. Peck led in the discussion of this subject and his opinion was that a permanent pasture is preferable. He gave as the principal reason that by having a permanent pasture it costs less to fence the farm; that a permanent pasture has a tougher sod and cattle can be turned onto it earlier in the spring. He had observed that where people practiced pasturing as one crop in the rotation, sometimes the clover failed and the pasture grew up to weeds in place of grass, yet they had to keep this field in pasture all summer because they had no other pasture. This would be entirely obviated with a permanent pasture.

One member suggested that shade trees were necessary in a pasture, for cattle to enjoy themselves and do their best; that where pasture is used in a rotation it is impracticable to have shade trees because they do not work well in working the fields of the farm, while in a permanent pasture one can have plenty of shade and not have it interfere with the regular farm work.

The question of fertilizing in keeping up the permanent pasture was thoroughly discussed. Some claimed that the permanent pasture would run out and in a few years you would get very little benefit from it. Mr. Matthews, who had considerable experience in farming in England, claimed that in England there were permanent meadows and pastures that had not been broken for generations, and yet they yielded good crops of both pasture and grass. He claimed that on the moist land pastures of England basic slag produced splendid results in improving the pasture. Of course, the only element of fertility which basic slag contains is phosphoric acid. This would give us an idea that we might improve our permanent pastures here by the use of phosphoric acid in the form of phosphate rock or bone meal, or perhaps basic slag, the same as they do in England. Mr. Matthews said that the use of nitrate of soda would make a wonderful improvement in the pasture the first year, but unless its application is kept up it does not do so well afterward, and he thought nitrate of soda too expensive for annual application. Where permanent pastures become moss grown and do not seem to thrive, Mr. Park suggested that he had improved his greatly by disking early in the spring and seeding to clover, the clover acting as a host plant and improving the yield of grass. Several instances were given where a dressing of stable manure on portions of the permanent pasture had greatly improved the production of the pasture. Where stable manure cannot be used for this purpose, then a resort to some form of commercial fertilizer would probably be a paying investment.

Third. Shall the dairyman grow his own grain, or shall he purchase it? Mr. Milo Edison led in the discussion of this subject and said he believed it a most important question for dairymen to discuss. His idea was that the dairymen could not afford to attempt to grow all of his grain. The reasons given were that in the first place it would reduce the number of cows too much on the farm. If you attempted to raise the whole ration on the farm you could not keep cows enough to make it practical. Then again, you could not raise the right kind of grain. What the dairyman needs is grain, or concentrated foods rich in protein, to balance up the home-grown ration of corn silage and it is cheaper, he thought, to sell some of the products of the farm and buy such foods as cottonseed meal and oil meal rather than attempt to feed the grain ration raised on the farm. All agreed that it was good policy to buy at least a portion of the grain fed to the cows. Some even thought that the dairyman could make the largest profit by purchasing all the grain fed and attempt to grow nothing but the roughage.

The discussion of this question led to the discussion of grains on the market, as to whether the farmer could afford to buy the mixed dairy grains, or whether it would be preferable to buy such feeds as gluten feeds, oil meal, cottonseed meal, wheat bran, etc. The opinion of nearly every member present was that it would pay the farmer better to buy the cottonseed meal, oil meal, etc., rather than to buy the mixed dairy feeds.

U.S. U.S. U.S. U.S. U.S.

The Most Perfect Cream Separator That Money Can Buy.

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They are entitled to this claim of being **Standard** because they won out in the greatest contest of Cream Separators ever held at any National or International Exposition in 50 consecutive runs, lasting through one month, on the milk of 10 different breeds of cows. The **De Laval Disc Separators** and the **Sharples Tubular Separators** were entered in this contest and **were beaten**.

The United States Separators are used by a very large percentage of the leading breeders in all the 10 leading dairy breeds of cows.

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HORTICULTURE

SPRAY PROBLEMS.

The lime sulfur for the scale is applied once more, and of course, we are glad when this is done for it is a disagreeable job at the best. We used both the home cooked wash and the commercial preparation. The latter is by far the most convenient to use, especially if at a distance from home as some of our orchards are, and when the weather is catchy, but where one has the conveniences for cooking the material the home-made product is very satisfactory. So long as it is kept warm no trouble is experienced, but let it cool and crystals will form which require heat to dissolve. Where only a little is left in the bottom of the spray tank over night we find that it will bother unless cleaned out and re-cooked.

The commercial material having no sediment will not bother about clogging unless lime is used to whiten the trees and show where one has sprayed. This is the first season we have used this material, and we had the disagreeable experience of getting in too much lime, or of mixing it in too concentrated form, as it apparently formed a precipitate with the sulfur preparation which rapidly settled to the bottom and clogged the intake screen to the power pump even when this screen was held near the top of the tank. In this case about 20 pounds of ground lime was used to 200 gallons of liquid, it being diluted to about a half barrel and put into tank after it was nearly full of the commercial lime-sulfur mixture and water. Afterwards about five pounds of lime were used to 200 gallons of liquid and no further trouble was experienced, but the trees were whitened but little and it was difficult to see where one had sprayed. I believe a better job can be done when the spray shows well on the trees, especially if one sprays a second time after a change of the wind, which is necessary to do a thoro job with lime-sulfur. If anyone has had a similar experience with the commercial mixture or has been able to use sufficient lime with it to whiten the trees well, I should be glad to hear from him.

We also used a power sprayer for the first time, and altho it caused us considerable annoyance at times it saved a lot of hard work and some time, and I believe it will give good satisfaction when we become more used to it.

As to the comparative value of the home-made wash and the commercial material, I can tell better next fall, as we have used both in the same orchard, and we have tried both on trees little affected and on trees nearly dead with the scale. If the commercial material proves to be as effective after seasons' test, I believe it will almost entirely supplant the home-made wash.

Calhoun Co. S. B. HARTMAN.

MID-MAY AND ITS HAPPENINGS.

The third week of May should bring us to the height of the transplanting season. Tomatoes especially will require attention now; and good soil preparation counts for much in the ultimate results of the crop. It pays to have a good supply of rotten manure ready for use in the hills at setting time. Feed them at the start and they will fill the baskets at the harvest time. If the plants are spindling they should be covered well up to the tops and not be left high and dry in the air to be whipped and twisted by every wind that blows.

The quickest and easiest way to set is to run a light furrow for the rows. Drop a good shovel of manure for each hill and set the plants more or less slanting, according to their height and stocky growth. Be sure that they are covered well up to the branches, leaving only the tops above ground. When properly set the tops will lie almost on the ground, but they will stand erect after a day or two at most and will be all the better for the heavy covering. In this way of setting they get plenty of earth which they really require, and it is so much better than putting the roots down deep into the cold soil. Then, too, the covered portions of the stalks will at once begin to throw out feeders to gather in the more available plant food nearest the surface.

By this time the cucumber and melon plants ought to stand the open ground. It is well, however, to plan business to be at home in case Jack Frost decides

to make a call. At this stage of growth, they can be easily protected thru quite a cold snap by covering with anything that will keep the soil off the plants, then cover over all with more or less earth according to the weather. In this way they can be safely carried thru a temperature that will freeze the ground. I recall once having to hold sweet corn for three or four days of really cold weather by turning flower pots over the hills and covering with soil, and not a spear was lost.

Parsnips and salsify, if sown now, will have none too much time to make good growth; and mangels or carrots intended for stock feeding, will also be in season now. The wrinkled sorts of peas are in good time; but it is safe to watch the weather; and if cold and wet, cover them shallow which will make them safe under ordinary conditions. Evergreen and other late sorts of sweet corn are none too early now, but it will pay to take the precaution of soaking the seed well and if possible, start the germination, especially if weather conditions are still unfavorable.

Cabbage, cauliflower and brussels sprouts seed for the late plants ought also to be sown now. Make the seed beds as rich and fine as possible and do not sow too thickly. It makes but little difference whether sown in drills or broadcast, but when well established the plants should be thinned sufficiently to allow of stock growth. As soon as the plants begin to break thru the ground, dust liberally with air-slacked lime, coal or wood ashes to prevent attacks from the cabbage fleas. The former is best of all as it will be a precaution against clubroot if it should happen to be present.

The more tender kinds, as peppers, egg fruits, etc., had better be held back for a little rather than take the risks of a check which cold weather will invariably give them, even if they escape the damage of a light frost. With all the precautions possible we are liable at times to get caught, but with the above cautionary measures the suggestions if followed will be fairly safe.

The above list comprises the main varieties that require especial attention just now. Radishes may be sown for succession every two weeks until mid-summer or later. Lima beans that have been started under cover had better be held for a little time than to take chances with cold, wet weather as they are especially liable to rust under such conditions. It is good practice to spray them occasionally with nitrate of soda solution; an ounce to the gallon of water, or saltpeter will do equally well. It is good plant food and will also prevent rust.

Cultural work is, of course, in order at any and all times, too wet ground being excepted. "Keep the cultural tools hot," is good advice and never fails to bring its reward.

Wayne Co. J. E. MORSE.

CARING FOR BEARING STRAWBERRY PLANTS IN SPRING.

The severe drouth of last summer and fall was very injurious to newly set strawberry plants. Our plants, of which we set about 3,000 in April of last year on level, well drained land, made a fair growth during the early part of the season, but later many signs indicated that a plentiful crop of berries would be out of question that summer. However, the plants were frequently cultivated and the weeds kept down. The past winter had been an exceptional one. Many days were so warm that we decided that a mulch would possibly be detrimental, and finally it was neglected altogether. There was no heaving out of plants, as the soil, having been dry so long, was very porous. Inspection of these plants a few weeks ago almost caused us to plow up and replant, but this seemed such a loss that we concluded to experiment a little. We procured a bag of high grade commercial fertilizer, containing nitrate of soda, dried blood, muriate of potash, (actual 10 per cent), and very fine ground bone. This was distributed liberally along the rows of most of the plants (not on the plants), and carefully hoed in. The effect has been great, as is also the difference between the fertilized and the unfertilized plants. We do not expect much of a return from the plants omitted in the application of fertilizer, but the others give great promise, especially since the copious showers which have evidently assisted the chemicals in their work, and if frosts do not destroy them, we should have an excellent crop, considering the drouth of their first growing season. It is not yet too late to make such applications, par-

ticularly to late varieties. All strawberry plants, whether early or late, are greatly benefited by an application of fertilizer of the composition indicated above, just after the blossoms fall. If made later the nitrates are apt to cause the berries to be soft and impair the shipping and marketable quality. While the nitrogen greatly increases the size of the berries, the minerals, and particularly the potash, renders them of firm texture and improves the flavor. Do not neglect to apply the commercial fertilizers. If in doubt as to the result leave a row without and note the difference.

Ohio. E. A. SEASON.

HORTICULTURAL TOPICS DISCUSSED.

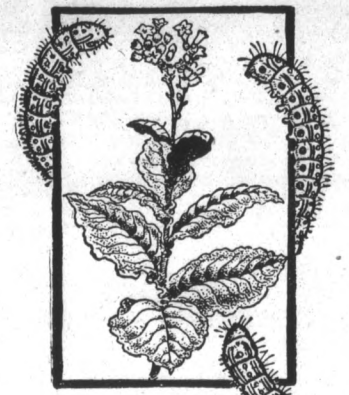
Planting About the Home.—The country and city dwellings and yards that look home like are comparatively few. Some of these are so because of accident. Rarely is one made beautiful by design. The rural people have a better chance to make their home attractive than their city cousins. Space is not wanting, as is the case in town, and the things to decorate with are at hand. Why so few homes are attractive when scarcely a country place can be found where some effort has not been made to beautify it, is due to this, that attempt is made to get a collection of plants about the house instead of making a picture of the landscape. When looking at a collection of plants one sees the beauty of some particular maple or lilac bush. If a picture is made of the whole planting the individual plants are made less prominent, and the entire yard and surroundings are impressed upon the mind at once.

The House.—As the dwelling is the important part of the landscape it should be made the central figure of the picture. Nothing should be placed so that persons passing cannot see it. Keep the lawn in front open. The tall trees should be placed at the sides or behind the house to form a background. This is where most yards are faulty. The trees hide the house and are therefore given the greater consideration, which is wrong. The trees whose tops are seen over the roof of the house suggest to the person that there is something beyond, that the family living there has not placed all they have in the front yard for show. This picture also needs a frame as well as a background, and it is made by planting trees and shrubs in groups about the border of the yard. These groups are so placed that any desirable view from a window in the house can be preserved, and undesirable ones screened. A stream, valley or landscape may be put in a frame as viewed from the windows of the dwelling if care is used in planting. Plant, for instance, two large trees at each side of this view. The branches above will form the top of the frame and the trunks the sides thereof.

The Lawn.—This is the common friend that introduces the host to strangers. It should not be marred with flower beds; tufts of twigs here and there often spoil its beauty and effectiveness. It is unkind to place anything between yourself and your guests. Flowers are planted along the border of the shrubbery composing the framework of the picture where they will show to good advantage being in relief against the shrubbery. Have an abundance of plant food for the grass, trees, shrubs, and other plantings to feed on. This is especially necessary for the lawn. If the line between the lawn and the house is too harsh modify it by planting low shrubbery, and perhaps a few modest flowers to harmonize the two. By placing the flowers about the borders near the shrubbery and the house and keeping the center open, caring for the lawn becomes very easy.

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DETROIT, MAY 8, 1909.

CURRENT COMMENT.

The State and the State Fair. For some years it has been the policy of the state to extend aid in a small way to the various organizations in the state founded for the purpose of promoting agriculture in its various branches, beginning with the State Horticultural Society and the State Dairymen's Association, and later extending to the State Fair and the West Michigan Fair. This aid differed from that which had been extended to the other agricultural societies in that it was for the purpose of paying premiums to exhibitors, it being specified that it must be used for the benefit of Michigan exhibitors, thereby tending to promote a more liberal exhibit of Michigan agricultural products, and particularly live stock, at these leading agricultural shows. There is now pending in the legislature the usual small appropriation bills for these various purposes, that for the state fair providing for an appropriation of \$10,000 per year for the next two years, but, owing to the outcome of a test case in which the supreme court rendered a decision that a small appropriation made by the last legislature to aid the Michigan Corn Improvement Association was unconstitutional, and owing to the opinions held with regard to other appropriations here mentioned by the attorney general, as well as to the desire to hold appropriations down to the lowest possible point in view of the prospective inadequacy of the appropriations made by the last legislature to meet the current expenses of the state during the current year, there is an apparent hesitation on the part of the legislators to grant these appropriations this year, which makes any phase of the proposition a most pertinent topic for comment at this time.

So far as the proper relation between a state and a state fair is concerned we believe there is little room for argument. The state fair should be a state institution in fact as well as in name, fostered and supported by the state to the extent necessary, and controlled and managed by state authority. The state fairs in the sister states about us which have most efficiently represented the agricultural and other industries of those states have been so fostered and controlled by the state, and we believe it would be to the advantage of the state in an industrial

way, and particularly to the agricultural industry of the state, if the Michigan State Fair were so controlled and managed. This would place the responsibility for its conduct on state officials and insure a state support which would obviate the occasion or necessity of friction between the fair management and its patrons, which is bound to occur under the present method of conducting the big show. Such dissatisfaction has been of frequent occurrence, due to the opinion of exhibitors and patrons that the fair was run too much on a revenue basis. The answer of the management has been the necessity of meeting the interest on outstanding bonds and of reducing the large floating indebtedness incurred in improving the grounds and erecting the buildings, and for which the officers and directors of the society have become personally responsible. Possibly the public has been too exacting in its attitude; probably the efforts of the management to place the Michigan State Fair on a plane with other institutions of the kind have not met with the general appreciation which they merit, but in any case the solution above offered would insure the result for which they have been striving and remove all doubt as to the future of the state fair, thus making it of the greatest possible benefit to the state.

But if in their wisdom the legislators do not believe it to be a wise policy for Michigan to assume this new obligation, then we believe the small appropriation heretofore granted should be continued, since it will be returned to a class of taxpayers who are doing a valuable work in building up the agriculture of the state and who in turn will perform a vastly greater service to the state in the added publicity which will be given to her agricultural possibilities and the opportunities which are offered in this and other industries. Previous differences between the State Agricultural Society and exhibitors of Michigan bred live stock and other products have been satisfactorily adjusted, and the premium list of the Michigan State Fair is the most liberal of any in the country, distributing the prizes hung up more widely and equably. This fact will undoubtedly promote a large exhibit of Michigan products this year, but without state aid in some form there is no assurance that such will be the case in future years. Unquestionably Michigan needs a good state fair, and to the end that such may be assured for the future as well as the present, we believe that Michigan Farmer readers will agree with us in advocating its state ownership and operation, and barring legislative approval of that plan, a continuation of the appropriations heretofore granted for the promotion of the more general exhibition of Michigan grown and owned live stock and other farm products. If so, a word to your legislators would be timely.

A liberal discussion of this proposition is invited.

An organization Otsego Co. Farmers has been effected Organize.

by the progressive farmers of Otsego county that promises much for the agriculture of that section of the state and that might be emulated with profit by the farmers of many of the older and better developed agricultural sections of the state. This organization is known as the Otsego County Potato and Clover Growers' Association. Its aim and purpose is very well expressed in the creed to which the members are asked to subscribe when joining the association, the text of which is as follows:

1. I believe in the farm, in the occupation of farming, and in the use of farm methods that build up the farm and increase farm profits.
2. I believe that farming is a complex industry, and that if I succeed as a farmer I must study my business.
3. I believe that Otsego county is a good place to farm and that the warm loam soils of this county are especially well adapted to the growing of potatoes and clover.
4. I believe in a three-year rotation of crops. I believe that one of the most profitable rotations for Otsego county is clover, potatoes and small grain, each grown one year, in the order named.
5. I believe that the basis of a successful potato crop is a heavy clover sod, plowed down about seven inches deep in the fall.
6. I believe in early spring planting for potatoes, thoro tillage to keep down weeds, and preserve soil moisture, and the spraying of potato vines for both insect pests and plant diseases.
7. I believe in the use of improved potato machinery, and in the gradual and cautious use of commercial fertilizers as valuable adjuncts in increasing profits in potato farming.
8. I believe that two, or at most three, varieties of potatoes are all that it is wise to attempt to grow for profit in Otsego county, and that of these varieties

probably the best late variety for practically the whole of Northern Michigan is the Rural New Yorker.

9. I believe that potato yields can be increased by proper selection of seed, and that seed potatoes should be selected only from hills that produce a uniformly high number of merchantable tubers, with no small or ill shaped potatoes.

10. I believe in 300 bushels of potatoes, and five bushels of mammoth clover seed per acre for Otsego county, and that I am ready to demonstrate that these yields can be obtained right now.

11. I believe that I may change these beliefs for better ones when I have studied and worked more with these crops.

In effecting its organization, this association has affiliated itself with the grange to an extent which should facilitate communication with its members and promote a local discussion of the problems involved in a beneficial way, by electing as vice-presidents of the association one member from each subordinate grange in the county, as set forth in the constitution, the text of which is as follows:

1. The name of this organization shall be the Otsego County Potato and Clover Growers' Association.

2. The purpose of this organization is to encourage the culture of potatoes and clover seed in Otsego county, and to promote the general welfare of the farming population.

3. The officers of the Association shall consist of a President, Secretary, Treasurer, Chairman of Publication Committee and as many Vice-Presidents as there are Granges in the county. Each Vice-President elected shall be a member in good standing of a Grange in the county. No two Vice-Presidents shall belong to the same subordinate Grange. The Vice-Presidents shall rank officially in alphabetical order.

4. The officers of the Association, including the Vice-President, shall constitute a standing executive committee of the Association, with the duty of furthering the interests of the Association along all agricultural lines. Unless otherwise ordered by the Association this committee shall arrange for the meetings of the Association as occasion demands, for schools of instruction, and shall direct the experimental demonstration work of the Association. The President and Secretary of the Association shall be Chairman and Clerk of the committee who shall keep the minutes of each meeting, such minutes to be read in full at the first regular meeting of the Association following.

5. The duties of the officers of the Association shall be those usually pertaining to the respective offices.

6. New members may be admitted to the Association by an affirmative vote of two-thirds of the members present at any regular meeting, and the payment of the membership fees.

7. This Constitution may be amended by an affirmative vote of two-thirds of the members present at any regular meeting, provided notice is given of the proposed amendment at the preceding regular meeting of the Association.

8. The officers shall be elected at the first meeting in the year, which meeting shall be known as the annual meeting, and shall be held in January.

9. All persons elected to membership in this Association shall pay a membership fee of 25 cents each year, failure to pay same within 60 days after the annual meeting, shall cause the secretary to drop their names from the roll of membership.

10. The Treasurer shall pay orders drawn on him by the Secretary, only when countersigned by the President or acting Vice-President.

11. Publication committee shall consist of a chairman and the vice-presidents of the Association.

The history of the organization of this association, together with aims and purposes which its enthusiastic members hope to accomplish has been furnished us for publication by its president, and appears in another column of this issue.

This organization would seem to promise great results for the county which has taken the initiative in effecting this pioneer organization of the kind in Michigan. It follows closely along the line of community production which the Michigan Farmer has long advocated as best adapted to Michigan conditions, and while the co-operative feature of marketing and purchasing supplies is not at present contemplated, there is much promise of fulfillment in the hope expressed by its president that the superior quality of the products offered will make competition so keen among buyers who seek to secure them that the full market value will be assured to the producer without incurring the responsibility and detail work which would devolve upon its officers if the organization were so broadened in scope as to include this feature. It can, however, be a great help to its individual members who seek to market their products as intelligently as they will grow them thru the influence of this association by collecting and disseminating among its members accurate statistics of production and data touching all kinds of factors which are likely to have an effect upon either supply or demand in the lines of production which will be promoted by this organization.

To one who is a student of agriculture it must be at once apparent that this organization will be of great value to

its membership in many ways, and that the increased prosperity of its members will soon be reflected in the increased valuation of their farms, not alone because of their increased fertility brot about by the wise system of crop rotation, liberal fertilization of the soil and the adoption of the best cultural methods for the growing of the crops which this association has been organized to promote, but as well thru the favorable publicity which will be given the section by this very means. The farmers of Otsego county are to be congratulated upon the progressive spirit which has prompted the organization, and the successful working out of the problems involved should prove an object lesson of no little value to the farmers of older sections of the state, who have been wont to look upon agriculture as a calling of doubtful success in our northern counties. We shall be glad to keep our readers informed touching the outcome of this association, which seems to promise so much for the improvement of Michigan agriculture in general and that of Otsego county in particular.

OTSEGO CO. POTATO AND CLOVER GROWERS' ASSOCIATION.

Replying to your favor, I will give you an outline of the origin and purpose of the Otsego County Potato and Clover Growers' Association.

We owe the idea of organization to Prof. C. B. Smith, of the U. S. Department of Agriculture, Bureau of Plant Industry, office of Farm Management.

Mr. Smith is well acquainted with this part of Michigan, and as quite extensive operations are carried on here in raising clover seed and good potatoes, Mr. Smith has spoken here twice on the two subjects, once some months ago before the Business Men's Association of Gaylord, where he was received with enthusiasm, and again the latter part of February when he spoke in the court house, with Prof. L. G. Dodge, of the same department, to the most representative agricultural audience ever gathered in Otsego county. These two gentlemen spoke on better methods of raising these two products, clover and potatoes—the latter so natural and so good in this soil, and the former so necessary to keeping up fertility, and so productive of valuable and good seed, and not liable to lead farmers to exhaust the soil. While our county average is about 100 bushels per acre, Mr. Smith holds before us the ideal of 300 bushels per acre, which he says he firmly believes can be made a common occurrence here. By noting the "creed," you will see the gist of what he would have us do. Many of us believe that he is entirely right. He has written a series of very clear, sane, convincing letters to the farmers, and published in county papers, this winter and early spring. His letter in last week's paper on "Plowing for Potatoes," is a model of its kind. The seventy-five men present at his last meeting here became members of the association. The association elected a president, secretary, treasurer, and a vice-president from each grange in the county. The president was authorized to appoint a committee on constitution. The officers named, including these vice-presidents, constitute the executive committee, with duties and powers as outlined in section 4 of the enclosed copy of the constitution. The main purpose of the association is one of general uplift—to improve methods and output. In improving methods we hope to bring it to pass that all shall follow a short rotation, viz., clover, potatoes and grain. This insures a prompt return of humus to the soil, and will lop off the slipshod, unsystematic efforts of the majority of farmers, and increase yield. It is desired to accomplish a general dissemination of information in simple language on the principles of better potato raising, and clover raising, which will soon be seen in all that the farmer does. We want to stop the late planting of potatoes, induce more cultivation, the discarding of all but two or three standard varieties at most, the spraying for blight which is not practiced at all yet in this county, in fact, to let the name, "Otsego County Potatoes" mean excellence, high standard, and be synonymous with good potatoes and vigorous clover seed, to induce a degree of skill, and rivalry, and desire to be high grade yet known to but few in this latitude.

This is in the same spirit that Prof. Holden has awakened the corn culture spirit, and the spirit that prevails with leading dairymen. We want to induce in each farmer the spirit of taking pride in his crop, and, briefly, of thinking a great

deal of, and a great deal about, his business.

The matter of selling the crop, or of forming a co-operative organization for the handling of the crop of the county, instead of letting it be done by dealers will not be taken up this year. We do not feel that we have developed well enough, or have developed sufficient executive ability, nor are we in command of proper resources or capital. Neither do I believe that there is as yet here a sufficient spirit of co-operation to swing so big a project. I do think that there would be among us too much of the spirit of jealousy and pettiness. I hope this will in time disappear. It is desired now to make the output of such a superior quality that the farmer producer can safely say to the buyer or dealer, not, "What will you give me," but, "What am I offered," and leave the moment to sell to the judgment of the farmer. Many of us believe that when our product is so good that it becomes a prize on the market that competitive buyers will seek our crop and pay all that the market will stand. We do not seek to corner the market, or to force prices, but to win thru a natural method—excellence. Should railroads continue to demand excessive rates, or buyers combine to keep prices unfairly low, there are other things that the association may yet do. The association will try to work out tests, with the use of different fertilizers, sprays, systems of culture, leguminous crops, etc. The association also offers three prizes for the best acres of potatoes grown under conditions which it prescribes.

We propose to raise a sample acre on the fair ground, and to dig them with modern digging machinery, and to plant half the acre to pure seed of an early variety; the other half to pure seed of a later standard variety; to fertilize both with commercial fertilizer and to spray half of each kind for blight for comparison with the unsprayed half; to auction off the potatoes at the fair, limiting the amount sold to any one man to five or ten bushels; that the seed may be well disseminated at a reasonable price.

A gentleman has offered to finance the effort on the acre. He is to have his expenses returned out of the sale of potatoes raised, but is not necessarily to have the whole crop. The acre was measured today.

It is desired to cultivate 10 or 12 times. We expect to gather experiences among farmers as to all kinds of conditions that affect yield—drill or check row; large or small seed, fertilized and unfertilized; best distance apart for rows; level cultivation or hilling, etc.

Thank you for your interest in us. We plan to become such a strong body that we can ask for experts to come here to speak, and for the Agricultural College to give us a short course here in the winter.

R. D. BAILEY, Pres.

HAPPENINGS OF THE WEEK.

Foreign.

Political differences in Santa Cruz, Mexico, recently caused much rioting and the authorities were compelled to arrest so many of the employes of the cloth and thread mills that the manufacturers have been forced to shut down.

The condition in Honduras is very alarming to the resident Americans. Their business places appear to be in jeopardy on account of jealousy on the part of natives who have been unable to cope with the American enterprise. President Davila has practically asked the United States to interfere as he has neither war munitions nor funds to put down a rebellion should the situation result in one.

Former President Amador, of Panama, the founder of that republic and its first president, died Sunday afternoon. The movement that he urged when others believed the independence of the state should be postponed, was of direct assistance to the arrangement for the building of the Panama canal. He was 74 years old.

The Zambesi River of South Africa, will be the scene of an international regatta in the spring of 1901. The event will occur above the Victoria Falls. It is under the auspices of the British South Africa Company.

The greatest confusion exists about and in Adana, Turkey, where the Armenians are being attacked by the rioters. The officials who are uncertain about affairs in Constantinople do not know which side they should take and as a result they are making no interference. The number of persons killed in the riots have been variously estimated but is believed to run into the thousands. The gravest concern now exists over the sanitary conditions of the city.

Former President Castro, of Venezuela, is preparing a case against France for his recent expulsion from Martinique.

Plans are being talked for a navy for Canada. Cruisers for both the Atlantic and Pacific coasts are being considered by those promoting the idea.

Sir Robert Bond, of Newfoundland, who is charged with making secret arrangements for a co-federation between that

island and Canada, was roughly handled recently while attempting to make a speech at Western Bay and was finally thrown by the indignant inhabitants into the sea where his friends afterwards rescued him. The election fight is being bitterly waged and the former premier denies any connection with the plot to unite the Island with the Dominion.

An heir to the throne of Belgium was born to the royal family last Friday morning. All Belgium is celebrating the event as it enhances the chances of the country continuing independent.

Reports lead to the belief that a new revolution will soon be on in Morocco, as the recently deposed Sultan, Abdul Aziz, has been gathering supporters about him and the town of Mequinez was sacked by them but a few days ago.

The new government of Turkey has finally succeeded in forming a cabinet.

Because of the increased expenditure called for by her larger navy and for meeting the demands of the old age pension bill the British treasury shows a deficit for the past year, of about \$80,000,000. It was expected that the administration would provide some new sources for raising funds to cover this shortage at the opening of the house of commons but the people were disappointed since it only advised heavier drafts upon the sources already taxed.

National.

A large number of deaths, a heavy loss of property and much suffering resulted from the storms that swept over the state and country last week. The severest storm passed across Tennessee from west of the Mississippi. In that state scores of lives are reported to have been lost and hundreds of buildings wrecked. All parts of Michigan suffered from the storm of last Thursday night when a heavy fall of snow and freezing threatened the fruit crop and delayed farming operations and the lightning which accompanied the snow did considerable damage in widely separated sections.

The Michigan supreme court refused to compel the issuing of an injunction in favor of the railroads preventing the railway commission from enforcing the recently established baggage rates. The former rates were unjust to the traveling public, especially where excess of baggage was carried but a short distance.

An agreement was signed by the operators and the miners' representatives at Philadelphia last week which will insure peace in the anthracite coal regions for a term of three years.

On May 1st 554 saloons went out of business as the result of the April election in 19 counties of Michigan. There are now thirty dry counties in the state.

The seventh United States infantry, which has been located at Fort Wayne, Detroit, is now on its way to the Philippines.

The grand jury called by the circuit judge of Jackson, to investigate the affairs of ex-Warden Armstrong, of Jackson prison, has returned indictments against twenty persons.

Much opposition is growing out of the reported purpose of the state of Mississippi to present to the battleship given her name, a silver service bearing the likeness of Jefferson Davis.

A bill has been signed by Governor Hughes, of New York, making it a misdemeanor to admit children under 16 years of age, who are not accompanied by parents or guardian, to any moving picture show that gives entertainment detriment to health or morals.

The third of a series of debates between Mayor Rose, of Milwaukee, and Dr. Samuel Dickie, of Albion College, will take place in New Orleans. The first of the series will be held at Milwaukee and the other at Chicago. The question under discussion is the merits of practical prohibition.

The Carnegie hero fund commission awarded 23 persons medals and cash to the value of \$14,000 for deeds of heroism done since the last meeting of the commission three months ago.

In the strike district of New York the bakers are compelled to have guards stationed at their doors to prevent disorders.

A jury of 16 men has been drawn for the trial of Gov. Haskell, of Oklahoma, and six other prominent men upon the charge of forming a conspiracy in conveying town lots in the city of Muskogee.

The senate of Missouri failed to pass a bill which provided for the abolishing of the whipping post now in use in connection with the state penitentiary.

A movement has been started for the return of flags captured by Michigan troops from Confederate soldiers during the civil war, to their respective states.

The battleship Mississippi which has just completed her maiden target practice in Cuban waters reports that the work of the big guns is generally more satisfactory and accurate than that of the smaller ones—most of the larger guns making perfect scores.

BOOK NOTICE.

Practical Arithmetics, by L. D. Harvey, President of Stout Institute, Menomonie, Wisconsin; formerly State Institute Conductor, Wisconsin; President of Milwaukee State Normal School; State Superintendent of Public Instruction of Wisconsin. This two-book series contains all the work in arithmetic needed under ordinary conditions by elementary schools. Book one, cloth, 12mo, 300 pages. Price, 35 cents. Book two, cloth, 12mo, 400 pages. Price, 50 cents. American Book Company, Chicago.

Famous Men of Modern Times, by John H. Haaren, L.L.D., District Superintendent of Schools, New York City, and A. B. Poland, Ph. D., Superintendent of Schools, Newark, N. J. This volume for supplementary reading gives in simple and attractive form the lives of thirty-three great soldiers, sailors, statesmen, scientists, and rulers, from Columbus to Gladstone. Cloth, 12mo, 352 pages, with illustrations. Price, 50 cents. American Book Company.

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POULTRY AND BEES

THE GROWING CHICKS.

Good chicks may be grown in confinement but it costs much more to produce them this way than if they have unlimited range, and are at the same time properly fed and cared for. Whether confined or on range, chicks must not be overcrowded if they are to make the best possible growth. In growing broilers and roadsters one may crowd the chickens much more than is generally considered safe, and may find that he gets a greater profit in this way than by giving the chicks the ordinary amount of room; but the grower of laying and breeding stock finds that his stock deteriorates very rapidly under such methods.

For all chickens intended for laying or breeding stock, free range should be considered essential to their proper growth. The growing chick must have room enough to get what exercise, green food, and the greater part of the animal food it needs without special expense or effort on the part of the keeper. Under such conditions, by feeding sweet, clean grains like oats, wheat, and corn, one can make big rugged chickens with little expense and trouble. This is the ideal way to grow chicks. It is not always feasible, not always the best adapted to one's circumstances; but there are very many cases where it would prove the best way, yet is not followed.

Methods Employed Dependent Upon Conditions.

Many people who have a fine range for chicks fuss too much over their care and feeding. A distinction should be made between the times when such work will pay and when it will not. Most persons who grow only a few chicks, say 50 to 100 on a good-sized grassy town lot, or 200 to 400 or 500 on a farm, need not do much for them further than to give them clean comfortable quarters at night, keep them free from lice, and see that they have an abundance of grain and water. To provide green food for chicks which can get all the fresh grass they want, or meat food for those which can find for themselves all the insects and worms necessary for them, is worse than wasting one's time and money.

But when chicks are grown on limited range, or upon an extensive scale, it is generally impossible that they should do as much for themselves by foraging, and the keeper must look more particularly to their feeding. He must give them a good variety of food, a better variety of grain than when they are not limited or crowded as to range; must furnish them extra green food and plenty of it, for when at all crowded they soon soil and make unfit for food the grass they do not kill; must give them plenty of animal food, for they soon exterminate all that is to be found in the territory they can cover without wandering more than is consistent with the best growth; must furnish all these things in abundance, and let them balance the ration themselves.

Tho it is often said that chicks are generally overfed, the case is extremely rare where sound chicks, given the opportunity to exercise as they desire, and given a proper variety of food, have been injured by overfeeding. Growing chicks handled right from the start, do not need to be forced to exercise. They run and scratch because it is natural for them, because they are healthy and hearty—full of animal spirits. If a grass yard alone does not furnish all the exercise they want the scratching shed could well be made use of for such purpose.

If sheds are not feasible, an effort should be made to furnish a supply of hay or straw in some shady spot where the grain can be scattered. If there are any leaves in the enclosures, grain scattered among them fosters exercise. A shed, open on all sides, with the roof of single boards and battened, and with boards at the ground a foot or eighteen inches high to prevent the litter from being scattered, answers the purpose well. If hay or straw were put into this and all grain fed in it, the chickens would be more contented and would thrive better. Such sheds cost but a trifle, being no more expensive or trouble than the low shades and shelters of boards which many poultry keepers have to make to protect their chickens from the heat of the sun and the pouring rains. Why not make them higher and a little larger and use them for scratching sheds?

N. H.

A. G. SYMONDS.

ECONOMY IN THE LARGE SQUARE POULTRY HOUSE.

I have been on the farm for about forty years and have kept more or less poultry each year, the number of fowls varying from 50 to 400 head. I kept them in a house 12x100 ft. and found it very inconvenient as it necessitated so many partitions, feed troughs and drinking vessels. So I concluded to make a change. Last spring I built a house 40x40 ft., inside measurements, thus giving 1,600 feet of floor space, and am well pleased with it. On the coldest and most blustery days last winter those hens would sing as merrily as birds in spring.

Description of House.

As stated, the house is 40x40 ft. The walls are of concrete 5½ feet above ground. It is studded inside with 2x4 scantling and lined with tarred paper tacked onto studding. This keeps it dry and warm. Being built on a sand knoll it has nothing but an earth floor. It has five windows in south side, each containing eight 10x12 in. panes, and three in east side. There are small shutters or runs for chickens to pass in or out thru on north side. The roosts are in northwest corner, and there is a ventilating shaft in center. I tried the experiment of wintering 25 colonies of bees in this house last winter and they came out in fine condition this spring.

Now as to the difference in cost. In my new, or square house, I have 160 feet of wall, enclosing 1,600 square feet of floor space. In the old or long house I had 224 feet of wall, enclosing 1,200 square feet of floor space. There is about the same proportion of waste in the roofing. So you see there is quite a difference in favor of the square house, in cost of material and construction. I keep in this house at present, 250 hens and get about 150 eggs daily.

Montcalm Co.

CHAS. LOTT.

HELPS FOR THE BEGINNER IN BEEKEEPING.—III.

Use of Extractor to Prevent Swarming.

I have not yet mentioned the use of the honey extractor to prevent swarming. To extract all of the honey in a hive preparing to swarm is a certain preventive of swarming.

Then why not extract? First, because the operator whom I am writing to help has no time to extract honey during the busy season. The honey must be left on the hives until leisure after the honey flow is over. Second, honey when first gathered is very thin and watery. In this condition it is no more fit to extract than are green apples to eat. For this reason do not, under any circumstances, extract any honey until it has been capped over and thoroughly ripened by the bees in the hive. Thin, watery honey has a poor flavor and is apt to sour. Produce a good article, a thick delicious honey, and it will pay you in the long run. Large producers are very careful to have their honey well cured and capped by the bees before extracting.

From the foregoing it will be understood that while the extractor may sometimes be used as an aid in controlling swarming, much good judgment must be used in having honey ripened.

A Word About Handling Bees.

Before entering the subject of extracting honey, there may be some who would appreciate a word about general manipulation of bees in their hives.


Bees are controlled in two ways, viz., by gentleness, with a knowledge of their habits, to avoid arousing their tempers, and thru exciting their fear. I confess that I control bees mainly in the latter way, because limited time requires rapid work with my bees. Suppose the combs of honey are ready to be removed from an extracting super. With smoker well lighted, send a few puffs of smoke into the entrance. With screw-driver break up the cover and blow smoke enough on top of the frames to drive as many bees down as possible.

As we are to remove the super entirely it is best to break it loose with screw-driver, blowing smoke in between, and set it on a bottom-board. Place the cover on the hive from which the super has just been removed. With screw-driver, pry the frames apart on either side of the one we wish to remove. This gives room to remove the comb without injuring the bees in the least. Shake and brush the bees from each comb in front of the hive and place the combs under cover at once in an empty hive or comb box.

If new at the business, work carefully and use plenty of smoke until familiar

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with the proper amount required. As before stated, much smoking may be avoided by removing honey with bee escapes. It is, however, necessary for every operator to understand the subduing effect of smoke. When smoke is used a general roar is set up in the hive. This is a sign of subjection on the part of the bees and for the operator to let up on smoking them. Have the smoker ready, keep the bees well down in the hive when working, and few stings if any need be received. Study the habits of your bees and remember that smoke is painful to them and that to use too much is cruelty.

In using escapes it is necessary that no cracks be left for bees outside to gain access to the honey in the super above the escape. Bees rob very readily after the honey flow, and at no time does one have to be more careful. Robbing is simply carrying honey by the bees from a strange hive to their own home. I will not tell you what robbing means but you will find out if careless about leaving honey exposed while extracting.

Equipment in the Honey House for Extracting.

The nice outfit is always the nicest, yet not always the most profitable per dollars invested. For this reason it often pays to make inexpensive equipment. It is best to buy certain articles, such as an uncapping knife, a 2-frame reversible extractor, veils and smokers. A good uncapping box may be made in a variety of ways. Fasten an ordinary molasses gate in the lower side of a galvanized wash tub. Make a frame covered with wire screen to support the cappings. This frame may be made of light material so as to suspend the cappings about two inches from the bottom of the tub. A cross-bar should be fastened across the top of the tub to support the combs when uncapping and also to remove cappings from the knife.

A ten-penny nail may be driven thru the cross-bar from the under side to rest the comb on. The comb supported on end of this nail is revolved to uncap opposite sides without removing from the pivot. The honey which drains from the cappings is drawn off thru the molasses gate.

Strainers.

All honey coming from either extractor or cappings must be strained thru at least two thicknesses of medium fine cheese cloth. A galvanized tub having a molasses gate in the bottom also may be used for a strainer tank. Spread the strainer (doubled) over the top of tub and tie a rope around, twisting it tightly with a stick. The strainer should sag enough to hold at least two pailfuls of honey.

The Honey House.

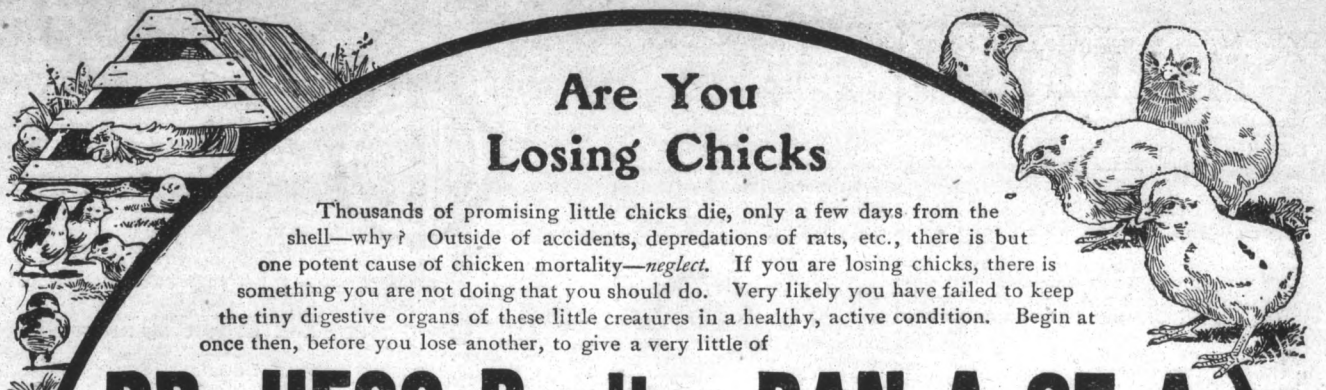
Almost any building which can be made bee tight will answer for a honey house. It should have windows covered with wire screen (preferably doubled, with an inch space between), and arranged so that bees can get out but cannot return. Use wooden doors in preference to screen as the latter attracts robber bees which get into the honey house when the door is opened. Arrange extractor, capping receptacle and strainer tank in convenient order. Have each the proper height for catching honey in pails or cans. I have said nothing about the proper packages for storing honey, as much depends on the method of marketing. Pails, 5-gal. cans, or barrels may be used, according to the demands of the market.

Porter Co., Ind. F. B. CAVANAGH.

LIVER TROUBLES IN HENS.

Several readers write for information touching liver troubles in fowls. In fowls that have died that organ has been found greatly enlarged and in some instances covered with light colored spots which have become more or less hardened. While a description of the methods of feeding and caring for the fowls would aid in diagnosing such cases, it is certain that the deaths are due to inflammation or congestion of the liver, a condition which is usually brot about by close confinement and consequent lack of exercise combined with the feeding of too much starchy food. Fowls that have been confined and fed largely on corn thruout the winter are quite apt to develop this trouble along towards spring.

It is not definitely known whether these troubles are communicable, but as they usually run thru an entire flock it is probable that they are spread from fowl to fowl thru the droppings. The remedy is to correct the conditions which brot on the trouble by removing those not yet affected to clean quarters, giving plenty of exercise and balancing the rations by giving plenty of green food, sweet skim-milk, etc.



Are You Losing Chicks

Thousands of promising little chicks die, only a few days from the shell—why? Outside of accidents, depredations of rats, etc., there is but one potent cause of chicken mortality—*neglect*. If you are losing chicks, there is something you are not doing that you should do. Very likely you have failed to keep the tiny digestive organs of these little creatures in a healthy, active condition. Begin at once then, before you lose another, to give a very little of

DR. HESS Poultry PAN-A-CE-A

once a day.

Dr. Hess Poultry Pan-a-ce-a is the prescription of Dr. Hess (M. D., D. V. S.) and in it are just the elements your chickens need to bring about healthy growth. It is "**The Dr. Hess Idea**" that even though a fowl be confined, you can, by *aiding digestion*, provide every needed element. Dr. Hess Poultry Pan-a-ce-a contains bitter tonics for digestion, iron for the blood and cleansing nitrates. It will make vigorous breeding stock, and it will save the little chicks after hatching and hurry them on to the point where they're profitable.

Nothing fills the egg basket like Poultry Pan-a-ce-a. It also cures gapes, cholera, roup, etc.

"**The Dr. Hess Idea**," put in practice, means unflinching success with hens. One penny's worth of Dr. Hess Poultry Pan-a-ce-a is sufficient for 30 hens one day. **Sold on a written guarantee.**

1 1-2 lbs 25c; mail or express 40c
5 lbs 60c; 12 lbs \$1.25; 25 lb pail \$2.50

Except in Canada and Extreme West and South.

DR. HESS & CLARK, Ashland, Ohio.

Send 2 cents for Dr. Hess 48-page Poultry Book, free.

DR. HESS STOCK FOOD

is a tonic, formulated expressly to correct a weakened animal digestion. That it does this is the testimony of successful feeders everywhere. It is "**The Dr. Hess Idea**," and contains elements which act upon animal organs, causing the maximum amount of food to be assimilated. It makes a dairy cow give more milk, a fattening steer round out trim and plump in the least time; makes hogs fat better and puts horses in prime condition. The ingredients in Dr. Hess Stock Food are recommended by prominent medical men to act upon digestion, build good blood and eliminate all dead, poisonous matter. **Sold on a written guarantee.**

100 lbs. \$5.00; 25 lb. pail \$1.60. Except in Canada and extreme West and South. Smaller quantities at a slight advance.

Send 2 cents for Dr. Hess Stock Book, Free.

INSTANT LOUSE KILLER KILLS LICE

LARGEST VEHICLE FACTORY IN THE WORLD

Studebaker

THE STUDEBAKER PLANT COVERS 101 ACRES

Means Wagon Perfection



wagons can be made is the farmer's protection in wagon buying. The most experienced and skillful wagon makers in the world have carried the art of **Studebaker** wagon making to perfection. Every vital part of a **Studebaker**—axle—skain—spoke—hub and tire has been improved to the point of becoming standard. That is why **Studebaker** has grown from a country blacksmith and wagon shop in 1852 to the largest wagon and vehicle manufactory in the world today. Just plain *quality*, good service to farmers. Cheapest in the end. Cost less per year.

See the Studebaker Dealer Ask to see the **Studebaker** wagon—it will speak for itself. Ask to see **Studebaker** buggies—you will find up-to-date designs and high grade material and workmanship. Ask to see **Studebaker** harness—look for the name stamped on the traces—it is your guarantee of quality. Remember, that there is no substitute for **Studebaker**. **If you don't know a Studebaker Dealer, write us and we will send you his name.**



Studebaker Bros. Mfg. Co.
South Bend, Indiana

The Kind it Pays to Raise

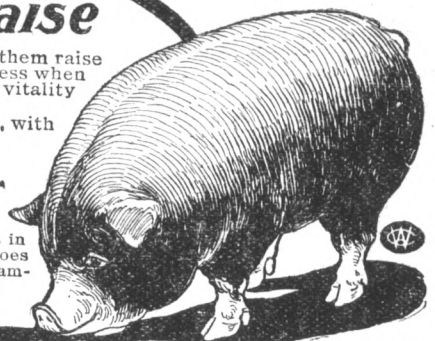
It doesn't cost as much to raise stock properly as it does to let them raise themselves. It takes more feed and your returns are much less when you permit lice, mites, ticks, worms, etc., to consume their vitality and to pester their day in and day out.

If you would start disinfecting your barns, sheds, pens, etc., with

Hygeno DIP AND DISINFECTANT

—and dip your stock in it occasionally you would be surprised at the results. By using Hygeno the returns would be dollars in profit instead of cents. A small quantity used occasionally does the work. If your dealer doesn't carry Hygeno write us for Sample and Valuable Free Stock Book—worth dollars to any farmer.

THE HYGENO DISINFECTANT CO., 810 Euclid Ave., CLEVELAND, OHIO



24 CANVAS GLOVES AT FACTORY PRICES \$1
Send me \$1.00 FOR and receive by return mail FOR postage paid one dozen pairs first grade canvas gloves.
Address **J. E. FOUST, VALPARAISO, INDIANA.**

RED BABIES—Rhode Island Red baby chicks only 15c each, \$15 per 100 and up. Prize winners Cincinnati, Chicago, Indianapolis, Kansas City, Milwaukee, Detroit, Toledo. Eggs \$2 to \$20 per 15. Owner **CHICAGO KING**, world's greatest Red male. High grade eggs and chicks to a few parties on a share basis, half price. **EDWIN B. CORNISH**, Edwardsburg, Mich.

"MONEY IN EGGS"
S. C. BROWN Leghorns—My method and farm range has developed layers with vigor. My eggs produce layers. One-third fancier's price and better layers. \$1 per 30, \$2 per 60, \$3 per 100, \$5 per 200, \$7 per 300. **J. E. MCARTHY**, R. 3, Enfield, Ill.

R. C. and S. C. Rhode Island Red and Columbian Wyandotte Eggs, \$1 per 15, \$5 per 100, \$2.75 per 50.
BUELL BROS., Ann Arbor, Mich.

SINGLE and R. C. Black Minorca Eggs—\$2 & \$1.50 per 15, (Northrup stock.) Fine large birds, scoring from 94½ to 96½. **D. C. Huggett**, Grand Ledge, Mich.

BARRED ROCKS—A few choice cockerels yet. Eggs 15 \$1.50; \$5 per 100, Thompson strain As good as the best. **L. R. Kunej**, Adrian, Mich. Phone 131.

BEST IN MICHIGAN. EGGS—\$1.50 per 15. Rocks, White, Silver, Golden, Buff Wyandottes, Rhode Island Reds, Leghorns, & Hamburgs all varieties. Leghorns, Rocks, Wyandottes, Reds, good utility matings \$1 per 15, \$5 per 100. Ducks, Pekins, Rouens, Aylesburys, Indian Runner, Muscovy, \$1 per 13.
E. J. HASKINS, Pittsford, Mich.

FOR SALE—Barred Rock egg 15 for \$1.00 \$4.00 per 100. No other kind kept.
A. C. FREEMAN, Ypsilanti, Mich.

White Wyandotte Eggs from prize winning & A. 1 lay; ing stock \$1.50 per 15 or \$2.50 per 30 eggs. **A. Franklin Smith**, Ann Arbor, Mich.

EGGS—Light Brahma, White Wyandotte and B P. Rocks \$1 a setting, \$1.50 for two settings. **E. D. BISHOP**, Route 38, Lake Odessa, Mich.

Barred Plymouth Rocks—Eggs for hatching. Price, 15 for \$1; 25 for \$1.50; 50 for \$2.50; \$4 per hundred. Satisfaction guaranteed. **Colon C. Lillie**, Coopersville, Mich.

S. C. W. LEGHORNS—Eggs, 15 for 100 for \$4. Buy of the man who perfects one breed only. **GILMAN A. GREEN**, Clarkston, Mich.

R. C. R. I. Reds the "dual purpose" breed. Eggs from 5 matings \$1 per 15; \$2.50 per 50. Improved Poland-China pigs eligible to registry \$5 each. **W. T. FRENCH**, Ludington, Mich.

S. C. BLACK Minorca eggs at \$1.50 per setting of 15. **P. C. Pigs** singly or in pairs of the best breeding.
R. W. MILLS, Salline, Mich.

SILVER LACED GOLDEN and White Wyandottes and Barred Plymouth Rocks. Eggs \$1.50 per 15, \$2.50 for 30. **C. W. BROWNING**, Portland, Mich.

S. C. BROWN LEGHORNS. Our Egg Circular ready, it's free. Big Birds—Greatest Layers. 15 cockerels yet for sale. **FRED MOTT**, Lansing, Mich.

SINGLE COMB WHITE LEGHORNS—Eggs for hatching. Price, 15 for \$1; 25 for \$1.50; 50 for \$2.50; \$4 per hundred. Satisfaction guaranteed. **Colon C. Lillie**, Coopersville, Mich.

DOGS.

FOX AND WOLF HOUNDS of the best English strains in America; 40 years experience in breeding these fine hounds for my own sport. I now offer them for sale. Send stamp for Catalogue.
T. B. HUDSPETH, Sibley, Jackson Co., Mo.

COLLIES for Service—Two Registered sable and white prize winners and stock workers. No puppies at present. **W. J. ROSS**, Rochester, Mich.

MARKETS

DETROIT WHOLESALE MARKETS.

May 5, 1909.

Grain and Seeds.

Wheat.—The reaction which set in last week in the wheat trade was only temporary as new high prices have been reached this week—on Tuesday the bidding price for No. 2 red cash wheat going to \$1.45. This advance is being attributed more to real conditions than to the manipulations of speculators.

Corn.—The supply of corn is short at grain centers and the farmers are not delivering the grain in large quantities. The bulge in wheat prices has been of some help to this deal but the grain itself and the delayed condition of farm work put the dealers in a position to advance prices.

Oats.—Local prices have not changed the past week. The market is slow but firm. The feeling of dealers is regulated by weather conditions—cold, wet days urging the buyers to press for more supplies, and warmer weather causing them to express an easier mode.

Beans.—Nothing has transpired in this deal to cause any comment and prices are ruling on the same basis as last week for cash goods. The October deal has advanced owing to the delayed condition of spring work largely.

Cloverseed.—The active season for this market has passed and prices are resting on about the same basis as a week ago. Conditions of the growing crop are not encouraging to those who desire low values.

Table with 4 columns: Grain, This week, Last week, Price. Rows include Wheat, Corn, Oats, Rye, Barley.

Flour, Feed, Provisions, Etc. Flour.—Prices are unchanged. Demand is good. Quotations are as follows:

Hay and Straw.—Prices unchanged. Carlot prices on track are: No. 1 timothy, new, \$10.50@11; No. 2 timothy, \$9.50@10; clover, mixed, \$9@10; rye straw, \$8@8.50; wheat and oat straw, \$7@7.50 per ton.

market. Bermudas are off 50c. Good stock is quoted at 95c@1 per bu. New Bermudas, \$5.50 per bbl.

Provisions.—Family pork, \$19.50@20, mess pork, \$18.50; light short clear, \$19; heavy short clear, \$20; pure lard, 11 1/2c; bacon, 14c; shoulders, 9c; smoked hams, 12 1/2c; picnic hams, 9c.

Dairy and Poultry Products. Butter.—The local deal is not active owing to high prices and to the small receipts. The price advanced a cent the past week following higher quotations at other centers.

Eggs.—This market is strong and advances have been made during the week. The receipts are decreasing while the demand continues strong. For extra fresh, case counted, 21 1/2c is being paid.

Fruits and Vegetables. Apples.—Market firm. Best grades are quoted at \$5.75@6.50 per bbl.

OTHER MARKETS. Grand Rapids. The wheat market is higher, local mills paying \$1.41 this week. Other grains are practically unchanged.

Chicago. Received today... 19,000 42,000 12,000 Same day last year... 19,204 55,663 22,073 Received last week... 45,676 132,366 63,459 Same week last year... 52,965 128,062 81,558

Pittsburg. Potatoes.—Michigan, 90@95c per bu. Apples.—Steady. King, \$6.25 per bbl; Spy, \$5@5.50; Spitzenburg, \$5@5.50.

New York. Butter.—Western factory firsts, 19 1/2@20c; creamery specials, 25 1/2@29c per lb.

Elgin. Butter.—Market continues firm at 27c per lb., which is an advance of 1c since last week.

Other Potato Markets. New York.—Per 180 lbs., \$2.62@2.87, which is last week's quotation.

Boston. Wool.—It is claimed that fully 90 per cent of the new clip west of the Mississippi has already left the hands of the producers and also about half of the fleeces from states east of that stream.

are quite well-satisfied with the prices that are made. There is no dealing in old wool and domestic offerings are small. Quotations are: Ohio and Pennsylvania fleeces—XX, 34@35c; X, 32@33c; No. 1 washed, 38@39c; No. 2 washed, 38@39c; fine unwashed, 23@24c; fine unmerchantable, 26@27c; 1/2-blood combing, 30@31c; 3/4-blood combing, 30@31c; 1/4-blood combing, 23@31c; delaine washed, 39@40c; delaine unwashed, 30@31c; Michigan, Wisconsin and New York fleeces—Fine unwashed, 22@23c; delaine unwashed, 28@29c; 1/2-blood unwashed, 29@30c; 3/4-blood unwashed, 29c; 1/4-blood, 28@29c. Kentucky, Indiana and Missouri—1/2-blood, 29@30c; 1/4-blood, 28@29c.

THE LIVE STOCK MARKETS.

Buffalo.

May 3, 1909.

(Special report by Dunning & Stevens, New York Central Stock Yards, East Buffalo, N. Y.)

Receipts of sale stock here today as follows: Cattle, 150 loads; hogs, 14,800, sheep and lambs, 13,000; calves, 2,200.

The cattle market today was active and from 5@10c per hundred higher than last week on all desirable kinds. By noon the yards were fairly well cleaned up.

We quote: Best export steers, \$6.25@6.50; best 1,200 to 1,300 lb. shipping steers, \$5.90@6.25; best 1,000 to 1,100 lb. do., \$5.60@5.85; best fat cows, \$5@5.25; fair to good, \$4@4.25; trimmers, \$2.50@2.75; best fat heifers, \$5.50@5.75; light fat heifers, \$4.25@4.50; best bulls, \$5@5.25; bologna bulls, \$4.25@4.50; best feeding steers, \$00 to 900 lbs., dehorned, \$4.75@4.90; 700 to 750 lb. dehorned stockers, \$4.50@4.75; common stockers, \$3.50@4.

Fresh cows and springers were in good demand today and sold some higher than last week. We quote: Best cows, \$50@60; fair to good cows, \$30@40.

The hog market today was about steady with Saturday and at the close about all the good quality hogs are sold but there are a few loads of the lighter weights going over unsold.

We quote: Medium and heavy, \$7.50@7.60; mixed, \$7.45@7.55; best yorkers, \$7.40@7.50; light yorkers, \$7.20@7.35; pigs, \$6.90@7; roughs, \$6.40@6.50; stags, \$5@5.25.

The lamb market today was active and higher. We quote: Top lambs, \$7.90@8; fair to good, \$7.25@7.75; culls, \$6@7; skin culls, \$4@4.50; yearlings, \$6.50@6.75; wethers, \$5.75@6; ewes, \$5@5.25; cull sheep, \$2@4.

Best calves, \$7.50@7.75; medium to good, \$6@7.25; heavy, \$4@5.

Chicago.

May 3, 1909.

Received today... 19,000 42,000 12,000 Same day last year... 19,204 55,663 22,073 Received last week... 45,676 132,366 63,459 Same week last year... 52,965 128,062 81,558

Cattle have been marketed for two weeks in succession in very small numbers as compared with recent normal years, and a bad feature was that of crowding the great bulk of the receipts into Monday, thereby giving buyers a great advantage over sellers.

Prices dropped 15@25c for most descriptions of steers, butcher stock sustaining a much smaller decline. This bad break was pretty much recovered on Wednesday and Thursday owing to limited receipts and a good demand, although market requirements have not improved materially.

Beef steers sold last week chiefly at \$5.40@6.45, with inferior to fair light steers selling at \$4.75@5.50 and a limited number of choice heavy shipping cattle bringing \$6.50@7.

A month earlier steers sold at \$4.75@7.35, a year ago at \$4.45@7.25, and two years ago at \$4.25@6.25. Buyers continued to show a preference for light-weight cattle, and there was an excellent trade in cows and heifers at \$3.50@6.25, while canners and cutters sold at \$2@2.45.

Bulls had a fair sale at \$3.15@5.25, and calves were shipped in freely from dairy regions in Illinois and adjoining states and sold at \$2.50@7.50 per 100 lbs. for inferior heavy to prime light lots.

The stocker and feeder trade was on a moderate scale owing to the higher prices resulting from the smaller offerings, with sales at \$3@5.60 for the poorest stockers to the best heavy feeders.

Milkers and springers were scarcer and higher, with a fairly large eastern shipping demand at \$30@60 per head. The future of cattle will depend on whether the receipts are held down to moderate proportions.

There was an active and firm market today, hogs selling at \$6.80@7.40. The top price of the year was \$7.60.

Sheep and lambs have been coming to market less freely than some weeks ago and in smaller volume than in recent years at corresponding dates, and further good advances have taken place in prices under the influence of an active general demand.

Colorado woolled lambs were the greatest favorites with killers, who paid extraordinarily high prices for prime flocks. There has been a great increase in the marketing of Colorado clipped lambs, however, and all the native lambs, as well as most of the sheep and yearlings, came shorn.

LIVE STOCK NOTES.

Cattlemen are, in many cases, in a serious quandary as to whether to continue to feed cattle this season, many of them having failed to profit in the industry in recent years. One great drawback is found in the competition of city butchers and packers for cattle that the feeder would like to place in his feed lot.

CROP AND MARKET NOTES.

Ottawa Co., April 29.—There has been so much cold, rainy weather during the month of April that farmers have not been able to sow any oats up to date, and the prospect at this writing does not look as tho the ground would be in condition to work for several days yet.

Calhoun Co., April 21.—The spring is somewhat backward and weather remains quite cool, which is a condition desired by fruit growers as the buds have started but little as yet.

Allegan Co., April 27.—According to the Michigan Crop Report for April, wheat is looking very bad in this county, which may be true in some sections but here a few miles north of Allegan city wheat and rye are looking fine and old seeding of clover has not killed out as badly as it usually does.

Oceana Co., April 25.—Our spring is cold and very wet. Prices very good for all farm products, viz.: Wheat, \$1; corn, 40@45c per crate of ears; oats, 60c; hogs, 6 1/2c; fowls, 10c; cows, \$40@50; potatoes, 80c.

Branch Co., April 30.—The weather for April has been generally dry and cool, but a soaker which set in on the evening of April 28 and still continues has made up all deficiencies in moisture.

THIS IS THE LAST EDITION.

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

DETROIT LIVE STOCK MARKETS.

Thursday's Market.

Cattle. May 6, 1909. Receipts, 1,179. Market active and 10@15c higher on all grades.

We quote: Extra dry-fed steers and heifers, \$6@6.35; steers and heifers, 1,000 to 1,200, \$5.50@6; steers and heifers, 800 to 1,000, \$5.25@5.75; grass steers and heifers that are fat, 800 to 1,000, \$5@5.25; grass steers and heifers that are fat, 500 to 700, \$4.50@5; choice fat cows, \$5; good fat cows, \$4.50@4.75; common cows, \$3.50@4; canners, \$2@2.50; choice heavy bulls, \$5; fair to good bolognas, bulls, \$4.50; stock bulls, \$4@4.25; choice feeding steers 800 to 1,000, \$4.75@5; fair feeding steers, 800 to 1,000, \$4@4.50; choice stockers, 500 to 700, \$4.25@4.50; fair stockers, 500 to 700, \$3.75@4; stock heifers, \$3@3.50; milkers, large, young, medium age, \$4@5.5; common milkers, \$2.5@3.

Roe Com. Co. sold Ogelthorpe 20 steers av 845 at \$5.50; to Sullivan P. Co. 1 bull weighing 1,350 at \$5, 3 cows av 1,026 at \$3.50; to Hammond, S. & Co. 20 steers av 1,100 at \$6.20, 20 do av 1,142 at \$6.20; to Sullivan P. Co. 2 bull and cow av 1,005 at \$4.50; to Caplis 3 butchers av 503 at \$4, 1 bull weighing 1,870 at \$5.

Bishop, B. & H. sold Mich. B. Co. 10 steers av 894 at \$5.60, 5 butchers av 964 at \$4.60, 15 cows av 990 at \$4.60, 2 do av 1,020 at \$3; to Sullivan P. Co. 3 do av 1,033 at \$4.75, 9 steers av 950 at \$5.75, 9 do av 806 at \$5, 1 do weighing 1,000 at \$5, 2 bulls av 1,100 at \$4.50, 1 do weighing 1,540 at \$4.50; to Mich. B. Co. 8 cows and bulls av 1,070 at \$4.60; to Sullivan P. Co. 17 steers av 1,090 at \$5.75; to Eli Cooper 2 heifers av 300 at \$3.50; to Newton B. Co. 20 steers av 1,135 at \$5.75, 1 bull weighing 970 at \$4, 1 cow weighing 1,140 at \$5, and 1 cow weighing 1,000 at \$2.75; to Regan 4 butchers av 755 2 stockers av 765 at \$4.60; to Hammond, S. & Co. 5 butchers av 1,070 at \$4.85, 10 do av 905 at \$5.60, 2 do av 1,200 at \$4.60; to Sullivan P. Co. 1 bull weighing 1,820 at \$4.50, 6 steers av 911 at \$5.60, 4 cows av 1,150 at \$5, 6 do av 910 at \$4.50, 1 bull weighing 830 at \$4.50, 10 steers av 1,008 at \$5.85, 10 do av 803 at \$5.30; to Mich. B. Co. 1 cow weighing 1,110 at \$4.75, 2 do av 1,010 at \$5, 4 do av 980 at \$4.40; to Bresnahan 2 heifers av 435 at \$4, 1 bull weighing 1,630 at \$5; to Kamman B. Co. 9 steers av 1,094 at \$6, 6 do av 946 at \$5.75; to Marx 7 do av 861 at \$5.65.

Spicer, M. & R. sold Kull 5 steers av 850 at \$4.50, 6 do av 861 at \$5.50; to Mich. B. Co. 5 do av 586 at \$3.25; to Bresnahan 1 do weighing 830 at \$4, 3 butchers av 950 at \$4, 1 steer weighing 1,180 at \$5, 1 bull weighing 1,110 at \$4.50, 1 cow weighing 1,030 at \$4, 1 do weighing 820 at \$4, 5 do av 980 at \$4; to Caplis 2 steers av 820 at \$5, 1 cow weighing 1,100 at \$4, 3 do av 1,016 at \$3.50, 2 do av 910 at \$3.25, 3 do av 1,140 at \$4.25; to Regan 3 heifers av 580 at \$4.25; to Allen 9 stockers av 620 at \$4.50; to Sullivan P. Co. 9 steers av 1,191 at \$5.85, 22 do av 1,040 at \$6, 15 do av 1,010 at \$5.65, 1 do weighing 1,190 at \$5, 1 bull weighing 1,730 at \$5, 3 steers av 810 at \$5, 4 cows av 1,175 at \$4.75, 7 steers av 1,110 at \$5.85, 1 bull weighing 1,700 at \$4.75, 8 steers av 1,016 at \$6, 2 steers av 1,150 at \$5; to Thompson Bros. 15 do av 903 at \$5.40.

McAninch sold Bresnahan 11 butchers av 650 at \$4.40. Johnson sold same 6 steers av 845 at \$5.50. Lowenstein sold Mich. B. Co. 27 cows av 1,100 at \$4.85, 7 do av 1,093 at \$4.85, 1 do weighing 790 at \$3. Henderson sold Hammond, S. & Co. 15 steers av 1,000 at \$5.85. Kendall sold Marx 3 cows av 933 at \$4.50, 2 steers av 790 at \$5.40. Henderson sold Sullivan P. Co. 22 steers av 1,123 at \$6.35, 20 do av 1,192 at \$6.10. Dennis sold same 22 do av 1,080 at \$6.25. Jedele sold same 2 do av 1,180 at \$6.25, 1 bull weighing 1,380 at \$4.75, 3 steers av 836 at \$5.50. Youngs sold same 2 do av 1,110 at \$5.65. Groff & S. sold Schlischer 2 bulls av 700 at \$4, 4 steers av 1,007 at \$6, 4 do av 782 at \$5.25.

Veal Calves. Receipts, 1,169. Market strong at last week's close. Best, \$6.75@7; others, \$4@6; milch cows and springers steady. Bishop, B. & H. sold Goose 12 av 120 at \$6.50; to Sullivan P. Co. 16 av 130 at \$6.75; to Rattkowsky 11 av 150 at \$6.75, 1 weighing 130 at \$5; to Strauss & A. 9 av 100 at \$4.50, 44 av 120 at \$6.50, 19 av 130 at \$6.75; to Markowitz 29 av 125 at \$6.50; to Newton B. Co. 2 av 105 at \$4, 17 av 135 at \$6.75, 4 av 140 at \$5.50, 9 av 150 at \$6.75; to Parker, W. & Co. 22 av 130 at \$6, 27 av 120 at \$6, 3 av 140 at \$6; to Strauss & A. 17 av 130 at \$6.50, 5 av 125 at \$6.50; to Sullivan P. Co. 8 av 120 at \$6.50, 5 av 95 at \$5.25. Spicer, M. & R. sold Youngs 9 av 155 at \$6.75, 1 weighing 130 at \$5.50; to Thompson Bros. 3 av 105 at \$6.25; to Brodloff 5 av 115 at \$6.35; to Thompson Bros. 12 av 130 at \$6.50; to Caplis 35 av 135 at \$6.25, 5 av 105 at \$4; to Parker, W. & Co. 32 av 133 at \$6.50; to Newton B. Co. 1 weighing 130 at \$5, 4 av 200 at \$6.90; to Applebaum 5 av 120 at \$5.25; to Kull 10 av 107 at \$5.75; to Applebaum 4 av 155 at \$4.25. Groff & S. sold McGuire 14 av 125 at \$6.50.

Sheep and Lambs. Receipts, 2,026. Market 15@25c higher than last week. No sale for spring lambs, not wanted. Best lambs, \$7@7.25; fair to good lambs, \$6.50@7; light to common lambs, \$6@6.25; spring lambs, \$8; fair to good sheep, \$4@5; culs and common, \$3@3.75. Bishop, B. & H. sold Fitzpatrick Bros. 3 bucks av 95 at \$3, 12 lambs av 55 at \$5.50; to Parker, W. & Co. 33 do av 99 at \$7.25, 1 buck weighing 170 at \$3; to Dutton 181 lambs av 77 at \$7.15, 99 do av 70 at \$7.15; to Parker, W. & Co. 95 sheep av 70 at \$5, 1 do weighing 110 at \$3.50; to Eschrich 2 bucks av 160 at \$3.50. Belheimer sold Fitzpatrick 3 sheep av 150 at \$4.75, 2 do av 170 at \$3.50. Leach sold Newton B. Co. 14 sheep av 90 at \$4.50, 12 do av 120 at \$3, 25 lambs av 55 at \$6.50, 177 do av 73 at \$7. Roe Com. Co. sold Eschrich 4 sheep av 105 at \$4.75. Spicer, M. & R. sold Newton B. Co. 4 sheep av 95 at \$5.50, 29 lambs av 75 at \$7; to Mich. B. Co. 2 do av 90 at \$8, 52 sheep av 83 at \$4.25; to Thompson Bros. 33 lambs av 65 at \$6.50, 15 sheep av 80 at \$5, 4 do av 110 at \$3.50, 8 lambs av 75 at \$6.25, 15 spring lambs av 52 at \$9; to Eschrich 17 sheep av 60 at \$4.50. Belheimer sold Mich. B. Co. 115 lambs av 85 at \$7.25. Vaughan Bros. sold Young 28 lambs av 85 at \$7.10, 3 sheep av 100 at \$4. Leach sold same 51 mixed av 93 at \$5.40. Kendall sold Parker, W. & Co. 9 lambs av 65 at \$6.50. Torrey sold same 101 lambs av 65 at \$6.50.

Hogs. Receipts, 4,242. Market 10c lower than last week. Range of prices: Light to good butchers, \$7.20@7.35; pigs, \$6.50@6.60; light yorkers, \$6.90@7.20; stags, 1/2 off. Bishop, B. & H. sold Parker, W. & Co. 826 av 165 at \$7.25, 579 av 175 at \$7.30, 323 av 150 at \$7.20, 167 av 140 at \$7.15. Roe Com. Co. sold same 29 av 160 at \$7.25. Spicer, M. & R. sold same 85 av 160 at \$7.15, 31 av 170 at \$7.25, 41 av 185 at \$7.20. Bishop, B. & H. sold Sullivan P. Co. 56 av 130 at \$6.95, 56 av 125 at \$6.80. Roe Com. Co. sold same 153 av 175 at \$7.30, 166 av 170 at \$7.27 1/2. Sundry shippers sold same 52 av 200 at \$7.30, 61 av 119 at \$6.85, 242 av 160 at \$7.25, 27 av 175 at \$7.35. Spicer, M. & R. sold Hammond, S. & Co. 165 av 160 at \$7.15, 26 av 185 at \$7, 113 av 160 at \$7.20, 40 av 167 at \$7.10, 344 av 175 at \$7.25. Sundry shippers sold same 107 av 195 at \$7.35, 54 av 155 at \$7.10.

Friday's Market. April 30, 1909. **Cattle.** Market steady at Thursday's prices. We quote: Extra dry-fed steers and heifers, \$5.75@6; steers and heifers, 1,000 to 1,200, \$5.50@5.65; steers and heifers, 800 to 1,000, \$5@5.35; grass steers and heifers that are fat, 800 to 1,000, \$5@5.35; grass steers and heifers that are fat, 500 to 700, \$4.50@4.75; choice fat cows, \$4.50; good fat cows, \$4@4.50; common cows, \$3@3.75; canners, \$2@2.25; choice heavy bulls, \$4.50; fair to good bolognas, bulls, \$4@4.25; stock bulls, \$3.50@4; choice feeding steers, 800 to 1,000, \$4.50@4.85; fair feeding steers, 800 to 1,000, \$4@4.50; choice stockers, 500 to 700, \$4.25@4.50; fair stockers, 500 to 700, \$3.50@4; stock heifers, 3.25@3.60; milkers, large, young, medium age, \$4.5@5.5; common milkers, \$2.5@4.0. **Sheep and Lambs.** Market steady with Thursday. Best lambs, \$7; fair to good lambs, \$6@6.50; light to common lambs, \$4.75@5.25; wool lambs, \$7.50@8; fair to good sheep, \$4.50@5; culs and common, \$2.50@3.50. **Hogs.** Market 10@15c lower than on Thursday. Range of prices: Light to good butchers, \$7.20@7.30; pigs, \$6.60@6.85; light yorkers, \$6.75@7; stags, 1/2 off. Spicer, M. & R. sold Sullivan P. Co. 90 av 145 at \$7.15.

VETERINARY.

(Continued from page 520).

In feed three times a day and enough castor oil or epsom salts to keep her bowels open. Also give a teaspoonful of ginger in feed twice a day. Apply equal parts turpentine, aqua ammonia and sweet oil to back once a day. She should have been exercised, perhaps kept in a dryer place and not fed quite so much grain. Feed her some vegetables.

Enlarged Glands—Cough.—I have a 6-year-old mare that has a bunch in her throat and coughs some, which is perhaps the result of distemper. I do not believe that she has the heaves, but her wind seems to be short. C. W. C., Kingston, Mich.—Feed your mare no clover, nor musty, badly cured fodder of any kind and wet her feed with lime water which is made by adding a pound or two of lime to a bucket of water; pour off the first water, then refill and use. Give a tablespoonful of the following compound powder: Powdered licorice, ground ginger, powdered fenugreek and muriate ammonia at a dose in feed two or three times a day.


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leaves because the self-expanding throat allows hay to pass freely onto wagon without wadding, tangling or jamming. An apron at top keeps hay from spilling or blowing off side of load. Wheels set underneath so it can be taken through gates and operated close to fences, can be coupled on without crawling under wagon, uncoupled without getting off load. No ropes, cog gears, crossed chains, crooked crank shaft, or other traps to cause trouble, delay and expense. Simple in every respect, light draft and durable. USE THE DAIN SIDE DELIVERY RAKE and have air cured hay. Such hay has better color, is sweeter, rich in natural juices and nutriment. Worth more to feed or sell. It's a Tedder and Rake in one, more and better than either. The three sets of teeth on a slowly revolving reel gently deliver two swaths of hay upside down in a loose continuous windrow so that every bit is exposed. The teeth may be set forward out of plumb so fluffy windrows are made in heaviest hay. Spring-supported reel-frame prevents jar and strain over roughest grounds. These two tools are famous for saving labor and improving hay. Like Dain Mowers, Sweep Rakes, Stackers and Presses, they are made of highest grade guaranteed material and will stand severe use even abuse that would ruin ordinary tools. We have specialized on building hay making machinery for over a quarter of a century and have a reputation for producing unequalled labor-saving, rapid-hay-handling, reliable tools. Ask your Dealer to show you the Great Dain Line. Handy Reference Book "All About Hay" SENT FREE if you will tell us your Hay Tool needs. It gives valuable information for Hay Growers, write for it today.

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HOME AND YOUTH

THE MAY-TIME.

BY IDA BENSEN.

O the lovely May-time,
Fragrance everywhere,
Blossoms dancing on the trees,
Nesting birds, and circling bees,
In the sun-lit air;
The May-time, the play-time,
When all the world is fair.

O the tender May-time,
When skies are soft and clear,
Little lambs for joy are leaping,
Downy chicks from shells are peeping,
Young things far and near,
Love the May-time, the play-time,
The child-time of the year.

THE DANDELION.

BY ALONZO RICE.

"Thine full many a pleasing bloom
Of blossoms lost to all perfume.
Thine, the Dandelion flowers,
Gilt with dew, like suns with showers."
Thus wrote that good old English poet,
John Clare, of the flower that is interpreted
as standing for coquetry.

The botanist thus catalogues it: Dandelion. *Leontodon, taraxacum*. Indigenous to Europe, but naturalized in America. Blossoms early in the spring; its flowers open a little after sunrise, and close before sunset. The name is of noble origin; dent ne lion, from the resemblance of its jagged leaves to the lion's teeth. Its milky juice contains the medicinal qualities, and that in pharmacopoeian language is known as *Taraxicum Dens Leonis*—as large a name as any ornamental plant that blooms.

The geranium, from the Greek "geranos," a crane, because the long-pointed axis of its seed pods are supposed to resemble the bill of a crane, can not trace as noble an origin in its name as the dandelion which harks back to the king of beasts. Neither can the gladiolus, which derives its name from the Latin gladius, a sword, from the resemblance of its leaves to that weapon.

In short, what flowering plant is there that can point to a nobler origin for its name than the one whose jagged leaves resemble the lion's teeth? Then think of the virtues and the uses of the dandelion. It does not ask for any cultivation—only room to grow in and a square deal. It does not have to be mulched, potted nor protected in any way. It is winter-proof in any climate and hangs its yellow banner on the outer walls before other spring flowers, protected by glass, dare to step out of doors. Its leaves furnish good "greens" and salad, and its roots excellent beer of the kind the thrifty housewife knows how to make. From time immemorial its stems have furnished millions of children with raw material for making "curls," and its ripened seeds have supplied young lovers with the means of deciding their fate! What costly orchid or what imported hothouse plant has done as much?

It has been a favorite flower with the poets. Our own dear Lowell says:
Dear common flower that grow'st beside
the way,
Fringing the dusty road with harmless
gold,
First pledge of blithesome May,
Which children pluck, and, full of pride,
uphold,
High-hearted buccaneers, o'erjoyed that
they

An Eldorado in the grass have found,
Which not the rich earth's ample round
May match in wealth—thou art more
dear to me
Than all the prouder summer blooms
may be.

Then the delight of gathering "greens;"
but let our colored friend tell it:
On de fust wahm day in the uhly spring,
Dig dem, dig dem—
W'en de robin's chuned his froat foh ter
sing,
Dig dem dan'line greens!
W'en de peach tree blossoms bloomin' all
'roun,
Jes tek yoh knife an' sit on de groun'
Foh dig dem dan'line greens.

Yoh can fill yo' dishpan clah to de top,
Dig dem, dig dem,
No one gwine foh ter hollah "Stop!"
W'en yoh dig dem dan'line greens.
Tek all yoh want, de Lawd hain't po',
He doan' keep no lock on de dan'line do'
W'en yoh dig dem dan'line greens.

Oh! some watahmillions mighty sweet—
Dig dem, dig dem,
Nevah yit had's many's I could eat,
Dig dem dan'line greens.
I lubs a chicken dat roose jest right,
Easy foh ter catch on de darkes' night,
Dig dem dan'line greens.

But some watahmillion's no good at all,
Dig dem, dig dem,
'N' mos' chickens squawks we'n yoh pays
em' er call—
So dig dem dan'line greens,
'N' b'le 'em up wid er piece fat meat.
Hit's de oneses' d'innah a niggah kin eat;
Oh, dig dem dan'line greens!

THE EARLY AMERICAN AUTHORS.

BY CARL S. LOWDEN.

Harriet Beecher Stowe.

The author of "Uncle Tom's Cabin" was born in the quaint old town of Litchfield, Conn., June 14, 1812. As a child she was brilliant; and her father, a minister carefully cultivated and nurtured her intellectual yearnings and desires. When only fourteen years of age she began writing for publication and in 1836 she married Prof. Stowe. She resided in Cincinnati for some time, and her residence there prepared her for the writing of her renowned slavery epic, "Uncle Tom's Cabin," which appeared serially in the "National Era," at that time a flourishing paper. This book, tho not representing her best efforts, met with tremendous success, notwithstanding, there being 300,000 copies sold in four years. In 1856 there appeared "Dred," in many ways similar to her previous book; in 1859, "The Minister's Wooing," which Lowell and others praised very highly, came off the press. The next year she published "Agnes of Sorrento," an Italian romance, and in after years she wrote humorous tales of New England, "Old Town Folks," etc. Tho much came from her facile pen, she produced nothing equal in quality to her earlier writings; today "The Minister's Wooing," and "Uncle Tom's Cabin," from among an abyss of work, alone remain widely read. She died July 1, 1896.

This great epic of slavery has never been considered literary by the critics; but altho the elect assail its blunders and crudities, the public will not put it aside. It appeared at the psychological moment; published later or published earlier, its success would have been far less. It is dramatic, emotional and true to life. Mrs. Stowe intended to picture the evils of slavery, and she did in a vivid and terse way that holds to the mind of the reader long after he has put the book on its shelf. There is no scene in the novel more touching than this which follows:

"On the face of the child, however, there was no ghastly imprint—only a high and most sublime expression—the overshadowing presence of spiritual natures, the dawning of immortal life in that childish soul.

"They stood there so still, gazing upon her, that even the ticking of the watch seemed too loud. In a few moments Tom returned with the doctor. He entered, gave one look, and stood silent as the rest.

"When did this change take place?" said he in a low whisper.

"About the turn of the night," was the reply.

"Marie, roused by the entrance of the doctor, appeared hurriedly from the next room.

"Augustine! Cousin!—Oh!—what!" she began.

"Hush," said St. Clair, hoarsely, 'she is dying!'

"Mammy heard the words, and flew to awaken the servants. The house was soon aroused—lights were seen, footsteps heard; anxious faces thronged the veranda, and looked tearfully thru the glass doors; but St. Clair heard and said nothing—he saw only that look on the face of the little sleeper.

"Oh, if she would only wake, and speak once more!" he said; and stooping over her he spoke in her ear—"Eva, darling!"

"The large blue eyes unclosed—a smile passed over her face—she tried to raise her head and to speak.

"Do you know me, Eva?"

"Dear papa," said the child, with a last effort, throwing her arms about his neck. In a moment they dropped again, and, as St. Clair raised his head, he saw a spasm of mortal agony pass over the face—she struggled for breath, and threw up her little hands.

"O, God, this is dreadful!" he said, turning away in agony, and wringing Tom's hand, scarce conscious what he was doing. "Oh, Tom, my boy, it is killing me!"

"Tom had his master's hands between his own; and, with tears streaming down his dark cheeks, looked up for help where he had always used to look.

"Pray that this may be cut short!" said St. Clair—this wrings my heart.

"Oh, bless the Lord! it's over—it's over, dear master!" said Tom, 'look at her.'

"The child lay panting on her pillows, as one exhausted—the large clear eyes rolled up and fixed. And what said those eyes, that spoke so much of heaven? Earth was past, and earthly pain; but so solemn, so mysterious, was the trium-

Some Lightning Rod History



ORIGINALITY—Over 20 years ago Prof. Dodd was nearly killed because he was standing near the screen door when the house was struck by lightning. He is of an investigating nature and much given to scientific research, and when the thunderbolt came so near to him his thoughts naturally turned in that direction. He wondered why it was more dangerous near the screen door than some other places. He wondered why some houses were struck and others not, and to help him in his investigations he arranged a machine to make a stroke of lightning, and with this he experimented and investigated until he learned why some things were never struck, and he satisfied himself that lightning never occurs without a cause. His next step was to discover the most satisfactory means of removing the cause. It was about three years before this was done, but the record of buildings protected by the lightning rods he invented shows that his method is correct.

STABILITY—It is understood by everybody that many of our most important inventions are lost to general use because the successful inventor does not have the proper training nor the inclination to properly handle the sales of his invention, and no one cares to buy an article unless it is made by a firm with sufficient capital to stand behind the goods manufactured, and it is here that Mr. A. D. Struthers, business manager of Dodd & Struthers, has proved his mettle. When Prof. Dodd was satisfied that his invention was of value, he looked about him for a man to manage the business—someone who could finance it, buy the materials to the best advantage, look after the details of manufacturing, and direct the sales force. Mr. Struthers was just the man he wanted—he was a man of rare judgment, a keen business man, with years of experience and with success a part of his make-up. For him to take hold of a business guaranteed its success. This, however, was his biggest undertaking. The lightning rod business was in disrepute, and lightning rods were being sold mostly by men who were thoroughly unscrupulous, and his first work was to get the business on a higher plane. Prof. Dodd lectured to insurance companies, and Mr. Struthers talked with leading business men everywhere, and the result was to establish as sales agents for Dodd & Struthers a clean, honest, conscientious list of business men, and the grafters were largely driven out. Now Mr. Struthers' time is largely taken up in handling the finances of the great business built up by the combined efforts of these two men. This business now covers the largest part of the United States, and their goods are sent to the farthest corners of the earth.



QUANTITY—One of the basic principles of business is that the article sold shall be worth the price it sells for, and quality is an important factor. In buying lightning rods especially the quality must be of the very best, for the lives and property of the customer depend upon its doing the work for which it was intended, and here is where Dodd & Struthers stand in a class by themselves. In the cable they manufacture they use wire that is as pure as copper wire can be drawn, for uprights and points the material is carefully selected and no poor points can get past the inspector. For the making of couplers, and insuring them to be the best, a foundry is maintained, in fact Dodd & Struthers manufacture the goods they sell and can therefore know that they are right. In this way they can not only talk quality, but they can and do deliver it. The quality of the D. & S. goods is such that goods bearing their trade mark, D. & S., are recognized everywhere as the Standard, the acme of lightning rod construction.

REFERENCES and ENDORSEMENTS—The National Association of Mutual Insurance Companies of the United States in convention assembled endorsed Prof. Dodd and recommended the use of the Dodd & Struthers lightning rods. Many other companies, both Mutual and Stock Companies, make discounts where the D. & S. rods are used. We received the highest award at the World's Fair at St. Louis and the Jamestown Tercentennial Exposition the highest award was also received.



C. H. Martin, President Peoples Savings Bank, Des Moines, Iowa, says:
We are pleased to recommend to you the firm of Dodd & Struthers, of this city, who have been customers of ours for many years. We have always found them honorable and upright in all their dealings and would consider them perfectly good for any contract they may make.

Geis Botsford, Secretary The Commercial Club, Des Moines, Iowa, says:
Dodd & Struthers are well known to us. We have watched this business grow and we look upon them as one of the leading institutions of our city.

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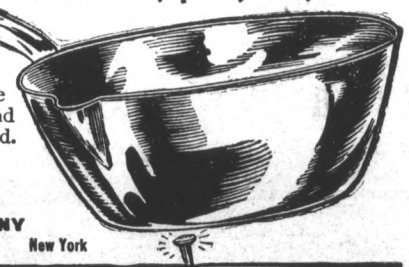
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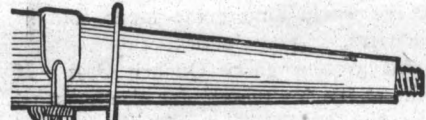
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phant brightness of that face, that it choked even the sobs of sorrow. They pressed around her in breathless stillness.

"Eva," said St. Clair gently. "She did not hear." "Oh, Eva, tell us what you see! What is it?" said her father. "A bright, a glorious smile passed over her face, and she said, brokenly—'Oh, love—joy—peace!' gave one sigh, and passed from death unto life!"

THEODORA.

BY IRMA B. MATTHEWS.

Chapter VII.—Temptation.

Don found to his surprise that the people he met at the party were the equals of those he had been in the habit of meeting in the old life and he threw off the reserve that he had kept and resolved henceforth to be one with the people among whom the remainder of his life must be spent. This soon became apparent to Dora and, never as exclusive as her brother, she rejoiced that it was so.

All of their neighbors called upon them and seemed very friendly and Dora was glad to return their calls and be one of them. "There is much more real friendliness here than in our society at home," she remarked one day to Don. "I feel that these people would not pass you by if you were in trouble."

Don pondered this question and wondered why it was so. Among all they had known in the old life there had not been one that they trusted as they did the Scotts, but why this was so was a problem he had not found the key to as yet.

"By the way, I forgot to tell you that a man called to see you while you were gone today," Dora continued.

"A man! Who could it be, and what did he want?"

"I am sure I do not know, for he made no other errand than to see you and said he would come again tomorrow."

They were both curious about the expected caller when he appeared the following day. He was a polished, smooth-talking man, but as Dora showed him into the living room and went to call her brother she decided that he did not seem just like a gentleman and she did not like him.

After a few passing remarks he said: "You have a pretty place here."

Don replied that they had. "I would like," continued the caller, to buy a little corner down at the other end where the street cars stop and am willing to pay a good price for it."

"I hardly think I care to dispose of any of our land," Don replied courteously.

"Oh, it will not interfere with you any. I only want a place large enough to set a building on and will pay you—" naming a price entirely out of proportion to the service required.

Don was astonished at the price named but answered that he must think it over as he never did things hastily.

"Oh, that is all right," and the stranger bade him a smiling goodbye, promising to come the next day for his decision.

Don explained to Dora what was wanted. "It would be a great help to us just now," he said, "and would enable me to set the trees that I was so anxious about."

Dora was thotful. "What did he want of it?" she asked.

"I don't know, and the price he offered, being so much more than the land is worth, made me suspicious. That was why I asked time to think it over and, besides, I could not sell it anyhow without your consent."

That evening, however, the matter was explained to him. He met Wayne a short way down the road who said to him: "Well, did you have a chance to sell a bit of your land today?"

"Yes," answered Don, "I did."

"And did you take his offer?"

"No, I asked time to think it over. To tell the truth, I have been puzzled ever since to know why he made so big an offer for the place. I wonder what he wanted of it."

"Didn't he tell you?"

"No."

Wayne laughed. "Well, I will then," he said. "He wants to build a saloon there."

"A saloon!"

"Exactly. You see it is a fine location, the cars all stop there and many people get on and off there. It will be a neat little sum for you anyhow, and you will never miss the land."

Don made no reply, for in his heart a war had begun to wage. He went home

but said nothing of what he had heard to Dora. He wanted to think first. What should he do? The money would help him so much, but would it not also be lending his aid to that which he had sworn not to? You are not supposed to know what he wants of the land, whispered the evil one. But you do know, declared conscience, mercilessly. You need the money and no one knows that you know but Wayne, whispered the tempter again. I wonder what Dora would say? I might tell her and let her decide, he thot; the land is really hers anyhow, but this thot was too much even for him to countenance.

Leave that girl to decide something that I am too much of a coward to decide myself? No, I will bear the burden myself. This decision did not end the battle, however. He turned restlessly in his bed and tried to dismiss the subject, saying that he would decide in the morning, but it would not down.

"Now, see here," he said to himself at last, "this thing is wrong; if it was not it would not trouble me so. He cannot have it!" and then with free mind he slept the sleep of the just.

The next morning the stranger appeared again.

"I suppose you have decided to accept my offer," he said with a satisfied smirk.

"No," answered Don quietly; "you cannot have the land."

"Sharp! I might have known it when I found I was dealing with an easterner. Name your own figures, then."

"You do not understand me. You cannot have the land at any price."

"Why not?"

"Because I understand that you wish to build a saloon there."

"A fanatic!" sneered the man.

"A fanatic if you like, but I will not be a party in any way to a business of that kind, a business that deprives men of their manhood and makes suffering for women and children. Good-day, sir," and he bowed the angry-man from the house.

"What did you do to that man, Don?" Dora asked him a short time after.

"I was out cutting some roses and he went by me looking like a thunder cloud and muttering to himself. Really, I somehow feel afraid of him."

"I did not do anything, only refuse to let him have the piece of land he wanted. Perhaps I used stronger language than I ought under the circumstances for, Dora, I am ashamed to tell you that I was strongly tempted, altho looking at it now I do not see how I could have hesitated for a minute."

Dora looked puzzled. "I thot you wanted the money so much. Why did you not let him have it?"

"Because he wanted to build a saloon there."

"A saloon! Oh, Don!"

"I thot I knew your feelings in that matter," smiled he. "We will get along without the money, I dare say."

"Much better than we would with it," said Dora decidedly.

Wayne and Lettie were over that evening. "Well?" began Wayne, "I suppose you will set your other trees now."

"No," answered Don, quietly; "not this year."

Wayne said no more but he looked surprised, and Don, seeing the look, continued: "I did not let that man have the land he wanted."

"Not let him have it!"

"No, after I found what he wanted it for."

Wayne was silent but his mind was busy, and this was what he thot: Here, at least, is a man to whom christianity is something more than a name. Then almost persuaded me. Lettie, on the other hand, was not in the least surprised; indeed, she would have been greatly disappointed had he decided otherwise, for a new force was at work in her nature and she was watching these new friends of hers anxiously lest they fail.

"I never thot I could be a christian," she told Dora one day; "but if you, thru all your troubles, can, it seems as if I, who have never had a great sorrow in my life, might."

Dora smiled. "It is when trouble comes that we need it most, Lettie. I never could have stood all that I have unaided. When trouble comes, as it must to all I suppose in time, it is a sure refuge, a firm rock."

"Don't," Lettie had said with a shudder. "It seems as if a shadow hovered over my life while you were talking."

"You are fanciful, dear," she said, but it was some time before Lettie could shake the feeling off, but from that day

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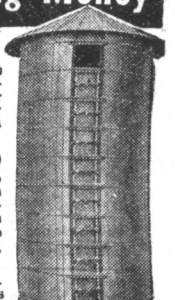
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she began to learn Dora's faith and trust her God.

Among others that Don and Dora met, when they began to mingle with their neighbors more, was a young man by the name of Howard Murray. Dora was pleased with his straightforward manner and pleasing countenance. "I feel sure he is good," she said; "I wonder why we never met him at the Scotts?"

"He may not be so in love with them as you are," answered Don mischievously, but Dora only shook her head and felt sure there was another reason.

She learned later that this was true, for, speaking of him to Lettie one day, she could not but notice her embarrassment.

"We were very good friends and he came to see us a great deal," Lettie acknowledged, "until I went to spend a winter with my aunt at San Francisco. I met Albert there and when I returned I was engaged to him and Howard has never visited us much since. It has always grieved me," she continued, "that my parents do not approve of Albert."

Dora said nothing. She had met the young soldier when she first came to California, altho he was now in the Philippines, and she had found something lacking in his face. She could not help but contrast him with Howard Murray, and she wondered if Lettie had not been dazzled by a showy uniform. She said nothing at all of this, however, for it was not her place, but she wondered vaguely if things did happen wrong sometimes.

She could not but notice, however, as the summer sped by and Lettie told her that Albert was to have a furlough to come home and they were to be married before he returned to his regiment, that a shadow seemed always on the face of Mrs. Scott, altho she strove to be cheerful. Of course, she thought, it is only natural they should dislike to lose Lettie from the home, but, altho nothing was said, she felt sure that it was because of her choice.

But the summer waned, the mountains were again brown and the preparations went steadily on. Even the wedding gown was completed.

"I am sure I do not know what I shall ever do without you," Dora said to her friend one evening.

Lettie smiled but seemed uneasy, a thing that Dora had noticed much in her friend of late. She was paler, too, than her wont and Dora wondered if she was not quite well, but she did not complain. Then came the news that cholera had broken out in the Philippines and that Albert might not be able to get away as he had planned. Dora fancied that Lettie appeared relieved and more like herself again, but she put the thought from her as unworthy.

(Concluded next week.)

PRETTY AND ARTISTIC PORCH BOXES.

BY E. E. R.

Pretty porch boxes containing bright-hued flowering plants add to the attractiveness of the home. Often this affords the only opportunity of satisfying the desire for these beauties of nature. To cultivate flowers in beds is not always convenient. To be able to tend them in boxes where they are near at hand and out of the way of poultry is gratifying. It is vexing to see an energetic hen with swiftly moving feet carrying destruction to one's pet blossoms or newly started plants, yet that is exactly what happens many times in the flower bed. The porch box, generally speaking, is secure from such depredations.

Any strong box which is of the right shape, long and narrow, with a depth of six or seven inches, makes a good porch box. It may be painted the color of the house or be of a contrasting shade. Green is always good, as it harmonizes and blends with the foliage of the plants it contains.

One of the very prettiest boxes I ever saw, and one which attracted a great deal of attention last summer, was covered with rough bark from the woods, fastened on with nails. Large pieces were selected, taken from old logs where they had fallen off or become loosened by decay. A trip to the back pasture, or any place where there is fallen timber, would undoubtedly reveal just the material necessary. If the pieces are not found of the required shape, they can easily be made so by the use of saw and axe. The deeply serrated bark with its artistic conformation and color tone, makes an ornament of the box itself. When filled with blooming plants and

trailing vines the effect is truly pleasing.

Almost any plants do well in boxes if supplied abundantly with water. The soil needs to be quite rich and a layer of fertilizer from the barnyard should be placed in the bottom or else mixed with the earth. No provision for drainage is required, as excess of moisture finds its way out thru the crevices of the boards.

Geraniums, if young and thrifty, are particularly good bloomers, but if old and scraggy may better be discarded and new ones procured from the greenhouse. It is the new plants which are most symmetrical and also the most persistent in bloom.

Petunias give abundance of bloom in boxes, as do nasturtiums. No box is quite complete without at least a few of the latter, and if they are given complete possession with a sunny exposure, they will furnish a perfect riot of vivid coloring all summer.

Foliage plants are favorites for porch boxes, and a fern or two is a pleasing addition. Those from the woods or waysides are beautiful and will not break over if transplanted early enough so growth has not progressed too far. Red and white geraniums with a fern, a few nasturtiums and a root of English ivy or any pretty trailing vine will not fail to give a satisfactory effect all summer. Crowding should be avoided. A few plants, small when set, will soon completely fill an ordinary box.

Beds of flowers in the yard may be out of the question for some who would love to have them, but there is still ample opportunity for gratifying a desire for the beautiful blossoms in the way suggested. Indeed, the back yard, as well as the front one, may be filled with bloom all summer and defiance bidden the fowls by filling different receptacles, raising them a foot or two with earth from the ground, and planting therein seeds or plants. But water must be provided and with abundance. That is the only provision after the planting.

SOME USES FOR KEROSENE OIL.

BY LAUREL KIRK.

There are few things about the home more helpful to the housekeeper than kerosene oil. The oil will remove ink and fruit stains from clothing without injuring the fabric. Soak the spots in the kerosene and then wash them in hot suds. Or, if they prove obstinate against this treatment place the garment or stained article (if of material that can be boiled) in a granite dish. Take a pailful of soft water, half cupful of kerosene oil and nearly a half bar of soap and pour over it. Boil from one to three hours. This will often take out ink stains from table linen when other methods have failed.

Bath tubs, sinks and wash basins clean easily with a cloth wrung out of the oil. Nickle-plate on a stove may be kept bright by rubbing with the oil and then polishing with a piece of soft flannel. Oilcloths and lineoleums wiped up with a cloth dampened with the oil will look fresh and new.

Kerosene is good for cleaning the rubber rollers of the wringer if they have become discolored and covered with lint. Dip a cloth in the oil and wipe off the rubbers, then wipe it with a dry cloth and they will be bright and clean.

EMERGENCY PROVISIONS.

BY E. E. BOCUE.

In our ice-room we have an "emergency" shelf, stored with some choice things that will keep well—candied fruits, nut meats, raisins, fruit cheese, a good brand of extract of beef, canned salmon, a fine brand of leaf tea, coffee, olive oil, olives, and such other extras as may be used to add a dainty touch to a hasty lunch for an unexpected guest. To reach this shelf and other high points, I have a small, light step ladder with two steps, so built as to stand firmly without danger of upsetting the occupant. A high stool stands under the pantry shelf and is often brot out to sit upon while wiping dishes, making cake, etc. A few sheets of wax paper is very convenient to use in putting up a dainty lunch—and there is no excuse for putting up any other kind. Also have a roll of wrapping paper, and coarse meat paper conveniently placed; the latter to lay doughnuts upon when warm.

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HOW THE LOCAL CLUBS ARE CONDUCTED.

One of the most interesting features of the associational meeting is the Conference of Local Club Workers, to which about two hours of one session is devoted at each of these annual meetings. The last meeting was no exception to the general rule in this respect, and this feature of the state meeting has been neglected until this time only for the reason that space did not permit it to be reviewed at an earlier date. But in this and succeeding issues we will touch upon the features of local club work that were noted by the representatives of many of the local clubs represented at this meeting. Unfortunately we will be able to do no more than hint at the central thought expressed by some of these delegates by referring to notes taken at the time, but these hints may suffice to give the members of other clubs an idea of the work which is being done in local clubs in different sections of the state, and perchance may contain suggestions of value to their own organization should they care to broaden the work now being done along the lines followed out by other clubs as expressed in this conference.

Mrs. Jennie M. Ford, delegate from the Twentieth Century Club, of Jackson Co., said that the regular work of that club had been sadly interfered with by the fact that three prominent members had died during recent months and another was on his deathbed at the time of the meeting. The work of this club is directed along all beneficial lines. The questions discussed refer to farm work and problems, legislation and the general betterment of country life. All of the talent in the club is made useful in the varied progress of the club. A fair is held as a special feature.

The delegate from the Deerfield Club, of Isabella Co., stated that the scarcity of farm labor interfered not a little with the continued progress of the organization. Political economy is a field of discussion which is not barred in this club, the members of which feel that it is every man's duty to be a politician in the best sense of the word. Political questions are for this reason discussed in a broad way, party lines being obliterated in their consideration.

Mr. M. H. Crafts, delegate from the West Blackman and East Leon Club, of Jackson Co., reported that the club holds nine regular meetings during the year. The members of this organization believe that the greatest benefit accrues from a small, live club, and that there is room for many more of this kind in the state. A special feature is made of an ice cream social in June, the receipts from which help materially in defraying the expenses of the club.

Delegate George Coyer, of the Sherman Farmers' Club, of Newaygo Co., reported that club a lively organization with forty odd members, each of which generally lived up to a resolution taken when the club was organized to take a half day off for each meeting; they aim to be there at 12 o'clock sharp, so as not to miss dinner. Socials are held as a means of adding to the resources of the club, which was reported as having a balance of \$60 to \$70 in the treasury. Rousing Thanksgiving and Christmas dinners are also given and lots of other entertainments provided which are appreciated by the members in a social way. This active club is trying to effect the organization of new clubs in other townships, and is apparently in a most prosperous condition thru the unusual enthusiasm of the members as expressed by the delegate in the Club Conference.

WHICH QUALITIES MAKE THE BEST WIFE.

Paper read at the Hickory Farmers' Club, of Tuscola Co., by Mrs. J. D. Montel.

In dealing with the subject before us, "Which qualities make the best wife," I might give the value of the women as

estimated by a little girl whose composition was written on "Boys."

"Boys are men that have got as big as their papas, and girls are women that will be young ladies by and by. Men were made before women. When God looked at Adam, he said to himself, 'Well, I think I can do better if I try again,' and then he made Eve. God liked Eve so much better than Adam that there have been more women than men ever since. Boys are a trouble. They wear out everything but soap. If I had my way, half of the boys in the world would be girls and the rest would be dolls. My papa is so nice I think he must have been a little girl when he was a little boy."

Now, as we have a high estimate placed on the girl, we must place a high estimate on the qualities of the woman. At first we might ask ourselves the question, what qualities do I want my daughter to attain? Do we want her to be a society woman or a parlor ornament, a woman that is ashamed of her mother in public or afraid to get her hands soiled and consequently lets her mother do the work and wait on her? Or, do we want her to become an all round woman? One than can preside over the parlor company, can master the musical instrument, can complete the work in the kitchen in mother's absence, is not afraid to care for and help her smaller brothers and sisters if there be such, can make her own clothing, or at least part of it and can be a help and comfort to her parents as well as an entertainer.

No doubt every mother here would choose the latter. Now the question arises, how am I to have my daughter attain to be an all round woman? Is it the college education that fits a girl to be such? I would answer, No. In so saying, I do not condemn the college education, but for the average person I would not recommend it. Of course, it tends to broaden the mind, etc. Often they are so broadened that the girl does not want to come down to the common routine of everyday life. But, nevertheless, I believe in a good education such as can be obtained at our home schools and nearby village high schools, together with practical teaching of economical housework, and also of the value of money.

I would like to say right here that it seems to me, mothers ought to get better acquainted with their daughters. What I mean by that is to take them as your bosom companions and get their affections so that they will not be afraid to tell you their difficulties and troubles and express their opinions on different subjects. Let them know you are interested in them and whatever they do, whether it be work or pleasure; be a girl with them as much as possible. Do not let them hear you say (as I have heard mothers say), "I would rather do the work myself than be bothered with her musing around." If the mother has not the patience to teach her daughter, who will?

Now the girl who is brot up to womanhood with such careful training cannot help but be the most useful woman when she is a wife. She will be qualified to do her part for the betterment of the home. She will not be above doing the mending and keeping things up in order. She will be an ever-helpful mate for her life companion, and the light of the home.

But she ought to be a christian, and then raise her standard of men. If she would say, and hold to it, 'I will not go with anyone that drinks, chews or smokes and will not marry anyone that is not a christian, there would not be so many unhappy homes and divorce cases.

CLUB DISCUSSIONS.

The Hickory Farmers' Club, which was to have met at the home of Mr. and Mrs. McDonell, was entertained by them at the home of Mr. and Mrs. Cool, (as they were preparing to move). The attendance was good, taking in consideration the condition of the roads, and all did ample justice to the sumptuous dinner the ladies had prepared, after which the meeting was called to order by President L. D. Cool, and opened by the usual exercises. We then listened to a paper on a very interesting subject, "Which qualities make the best wife?" by Mrs. J. D. Montel. All that Mrs. Montel's ideas of a good wife were fine. Several others gave their opinions which were very much in the same line. Mr. Griffin was assigned the subject of "How to keep the boys on the farm," which seemed an easy subject for him to handle and if we would all follow his advice it would no doubt be better for both parents and boys. Mr. Dowling also gave us some good thots on the subject. Mrs. E. B. Reavy gave an appropriate solo entitled, "Stay on the Farm." Then came the question box, and a good social time was enjoyed by all. The next meeting will be held in the afternoon of May 27th, at the home of Mr. and Mrs. R. P. Reavy in Caro.—R. W., Cor. Sec.

GRANGE

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

THE GRANGE AND SOIL FERTILITY.—I.

Three pictures come to my mind when I think of the soil and our relations to it: One picture is of a little man, still in dresses, who is pouring Lake Michigan sand from an iron spoon into his tin pail. He is intently watching the clean, shiny grains as they fall; but who shall tell what thots he thinks? It is the idle play of life's untaught and inexperienced hours.

The second picture is the common one of the springtime—a man holding a plow as it cuts the sod and turns furrow over upon furrow. I have heard this man say, "I like to plow, for as I follow the team I think of what it means, this bringing of soil and plant food into new combinations; of how they will act and react upon one another; how the moisture can now make fresh paths down to the seed-roots and start new processes astir there. I feel I am having a part in a great work."

The third picture shows a man, old with years and bent with long days of farm labor, whose eyes have a shine of something like affection in them as he looks down at a handful of earth he holds, and he seems to say to it, "I have worked long with you but I am only beginning to know your secrets. I, and my fathers for generations, have practiced the art of handling your acres, but our sons must now enter into your science. We have been baffled by your many-sidedness, but they will begin with what we have learned by failures. They will teach others, also, what they learn by real study in the field and laboratory. We deemed you simple, cheap, inexhaustible. They will know you to be wonderful, costly and easily squandered."

In these pictures are three types set forth; first, the thotless child playing with unawakened agriculture; second, the man who has begun to think upon world-old processes of farming; and, lastly, the farm-seer, filled with reverence for the marvels centering in one handful of ordinary soil, looking into the future with assured hope.

Aroused public sentiment has demanded a national policy for conserving the resources of the soil. The humblest farmer must have such a policy also if he is to operate his acres profitably and contentedly. This is the heritage of agriculture. What more fitting instrument for taking an aggressive part in meeting these demands can be found than already exists in the Grange? Is there a greater duty laid upon the Grange today than to assist in realizing these demands?

JENNE BUELL.

AMONG THE LIVE GRANGES.

Crawford Grange, located at Grayling, Crawford Co., moved into its new home on March 20, which home is reported as being in one of the finest Grange halls in the state.

Thomas Wilde Grange.—Deputy John Wilde organized a Grange at the Town Hall in Hendricks township, Mackinac Co., Thursday evening, April 23. This Grange was organized on the birthday of Deputy Wilde's father and was named in his honor. The following are the officers: Master, Allan Parcels; overseer, B. H. Lockwood; lecturer, J. J. Derusha; steward, Chas. Lockwood; ass't steward, Edward Parcels; lady ass't steward, Katherine Lockwood; chaplain, George Ryerse; treasurer, Ray Derusha; secretary, John F. Struble; gatekeeper, Damon Tilden; Ceres, Rowena Parcels; Pomona, Mrs. J. J. Derusha; Flora, Beatrice Derusha. Next meeting of Thomas Wilde Grange at the Hendricks township hall, Tuesday evening, May 11.

Planning for Fair and State Grange.—Members of Summit Grange, of Grand Traverse Co., at a recent meeting, discussed plans for its second annual fair, which event will occur in September or October. Last year a creditable exhibition was conducted on a notice of two weeks. This year's show is to outdo the former effort. The question of how extensive an exhibit the Granges of this corner of Michigan should make at the time of the State Grange at Traverse City next December also came up. Nearly every Patron at the meeting spoke upon the subject and the members were practically unanimous in the opinion that there should be a display. One member suggested that fruit, grains and potatoes be put on exhibition. It was urged by one speaker that the corn grown in this region is of a better quality than that produced in southern Michigan from which part of the state the larger number of delegates to the big meeting will come, and that therefore the visitors would enjoy inspecting a good corn display. A sister suggested that the hall in which the State Grange meets be decorated

so as to have a rustic appearance, stalks of corn, sheaves of grain and pumpkins being used.

Brevort Grange.—Deputy John Wilde organized a Grange of Patrons of Husbandry at Allenville in Brevort township, Mackinac Co., Tuesday evening, April 27, with the following officers: Master, John Summerby; overseer, Samuel Burton; lecturer, Ethel Summerby; steward, Chas. Litzner; ass't steward, Wm. Shimkovitz; lady ass't steward, Fern Kelly; chaplain, Margaret Martin; treasurer, Wm. Luepnitz, Sr.; secretary, Adam Litzner; gatekeeper, Hiram Kelly; Ceres, Susan Erskine; Pomona, Lena Yatt; Flora, Johanna Brown. Next meeting May 10.

Practical Topics Well Handled by Butter-nut Patrons.

The last meeting of Butternut Grange, of Montcalm Co., was a good one. Master Patterson was absent on account of illness and the lecturer presided, an excellent program being carried out.

The first number on soil fertility, "Plant food, its nature and source," was taken up and discussed generally. It brot out the fact that our soils are like our banks—we cannot draw out unless we put something back—and that the yield of our crops can be doubled at one-half the cost per acre. Total or partial exhaustion of the soil is caused by farmers not understanding what plants need to feed them. Experiments show that 300 lbs. of water pass thru the plant for each pound of dry matter, and the most important factor in raising good crops is moisture to tide over times of a scanty rainfall. Nitrogen, hydrogen and carbon from the air, and potash, lime, phosphoric acid, magnesia, iron and sulfuric acid minerals are what the plants need. It was proven that nature turns all her plants back upon the soil to furnish more food for the next set of plants. Man sells or destroys his crops, thus "robbing the soil."

Bro. Boyer, in a short talk, said that what the Grange is demanding in the way of legislation is a parcels post, a higher tax on telegraph and telephone companies, a good primary law, the Torrens system of land transfers and practical good roads legislation.

"Child Life—His Senses," the first of the series of studies on child life outlined by State Lecturer, was made the subject of a paper by Mrs. Wm. Huyck. She described a physically normal child and gave position children should be taught in reading, viz., sitting with the light shining over the left shoulder. She described some of the causes of deafness, one of which was a growth behind the nostrils. In discussion it was brot out that poor light, fine print, cigarette smoking and unhealthy home conditions are to blame for much of the defective eyesight among children, and it was held that one child out of four is somewhat deaf in one ear or both.

This was the meeting at which the sisters were to present recipes for cookies, with samples made according to the recipes. Only three responded, but this feature of the program proved an interesting one. The recipes submitted were the following:

Frosted cream cookies, by Mrs. Neuman: Cup of sugar, cup of molasses, cup of shortening, cup of sour milk, 2 eggs, (leave whites for frosting), 2 spoonfuls of soda and flour to make thick paste. Ginger, spices to suit taste.

Poor man's cookies, by Mrs. Eli Mack: Two cups sugar, cup of sour cream, 1 egg, flour to make thick paste, 2 teaspoons baking powder, ¼ teaspoonful soda. Flavor to suit taste.

Cream cookies, by Mrs. E. W. Johnson: Two eggs, 1½ cups of sugar, cup of sour cream, ½ cup of butter, 1 teaspoon of soda, flour to make thick paste. Flavor to suit taste.

Strength of the Grange in the Grand Traverse Section.

There are 98 subordinates and eight Pomona Granges in the ten counties in the northwestern corner of the lower peninsula of Michigan. Wexford county ranks first, it having 20 subordinates, and Leelanau county ranks tenth, it having but one Grange. The counties and the number of Granges in each are as follows:

Wexford	20
Charlevoix	16
Antrim	14
Kalkaska	12
Grand Traverse	10
Emmet	8
Missaukee	8
Manistee	5
Benzie	5
Leelanau	4
Leelanau	1

There is a Pomona or county Grange in each of the counties save Benzie and Leelanau. It is expected, however, that Benzie will have a Pomona by fall.

COMING EVENTS.

Pomona Meetings.

- Grafton Co., with Arcadia Grange, Saturday, May 8. State Master Hull, State Speaker, Masters' and Lecturers' Conference.
- Ingham Co., with Alafedon Grange, Friday, May 14.
- Antrim Co., with Ellsworth Grange, Wednesday and Thursday, May 19-20.
- Charlevoix Co., with South Arm Grange, Thursday, June 3.
- Lenawee Co., with Madison Grange, Thursday, June 3.
- Wayne Co., with Flat Rock Grange, Friday, June 4. Prof. R. S. Shaw, State Speaker.
- Kent Co., with Oakfield Grange, Wednesday, June 23. Miss Jennie Buell, State Speaker.
- Chippewa Co., with Rosedale Grange, in June.
- Cass Co., with Redfield Grange, in June.

Here it is

A Gasoline Engine Which Attaches to and Forms Part of Any Standard Pump

Beats a windmill to a frazzle and **costs less**. Needs no towers—no cement foundation—no anchor posts—no special platform—no fixings of any kind.

Just set it up alongside any pump anywhere, bolt it in place, and it's ready for work. It takes only a few minutes. Then you are **sure of water when you want it** and in **any amount you need** for practically a lifetime.

This little wonder-worker is a pigmy in size but a Giant in strength. Pumps water from a well of **any ordinary depth** 31 strokes a minute. We can't begin to more than **hint**, in an ad like this, about how much time and money it will save you—but the catalog will tell. The coupon will bring it.

Fuller & Johnson Farm Pump Engine

This is the only practical and reliable Farm Pump Engine. It took us years to perfect it. Then we tested it thoroughly on our farms to know that it was **right**. Now we can supply your urgent need and give you an engine that will be a money-saver, a satisfaction and convenience for you as long as you live.

Don't compare this sturdy engine with any of the cheap, untried contraptions which may be offered you and which are **built to sell**. Remember, it's made by the Fuller & Johnson Mfg. Co., of Madison, Wis., who for years have been manufacturing Farm Machinery and Gasoline Engines of the highest quality.

You will do yourself an injustice if you consider buying **any kind of an engine** for pumping, or **any kind of a windmill**—or even repair the one which has blown down—before you get our **price**. You can afford to replace a good windmill with the Farm Pump Engine if only to **save your back** on the hot summer days. It's then that your stock needs the most water, and the wind sometimes doesn't blow for weeks.

And—remember this—the Farm Pump Engine **can't blow down**. Reports show that the windmill loss during the February blizzards alone total up **hundreds of thousands of dollars**. If Fuller & Johnson Farm Pump Engines had been used, the farmers of the northwest would now be **just this much money in pocket**, for there would have been no loss whatever.

Windmills are dangerous, too. **If you have had to climb to the top of a tower to fix something and nearly had an arm sheared off—or got your clothing caught and just escaped being thrown to the ground—you will know what we mean. You would be surprised to know how frequent such accidents are.**

There are dozens of other things we would like to tell you about this wonderful engine and the varied uses to which it can be put by those who have other uses than pumping. They are so important and so vitally interesting that we urge you most earnestly to write for the book and learn them all. Do it today, before you forget. The coupon below is for your convenience.

HOW WE SELL

The Farm Pump Engine is sold through dealers **only**. It has been so recently put on the market, however, that many dealers are not yet supplied. If not yet in stock with your dealer, write us today sure for catalog and **price**.

FULLER & JOHNSON MFG. CO., 220 State St., MADISON, WIS.

For 30 Years the Leaders in Standard Farm Machinery
Manufacturers of a full line of Open Jacket Engines for Farm Use. Also Standard Farm Machinery, Plows, Corn Planters, Cultivators, Tobacco Transplanters, etc.

Mail this Coupon to Fuller & Johnson Mfg. Co.

Please send catalog telling all about the Fuller & Johnson Farm Pump Engine, and if factory is clogged with orders tell me how soon you could ship _____ of these engines.

Name _____

Town _____

State _____ R. F. D. No. _____

My Dealer's Name is _____

of _____ MF

To Dealers

If you have not arranged to carry the Farm Pump Engine, you should **act quickly**. We shall appoint **only one dealer** in a town, and all things being equal it will be **"first come, first served."** We have only just started to advertise, yet these long-wanted engines are **already selling like wildfire**.

Write Today

BE SURE TO READ THIS

The Farm Pump Engine requires no special foundation. Any good well platform is sufficient. A few minutes after you unload it from your wagon, it's in place and at work.

You need no pump jack, no belts, no arms, no shafts—simply tighten four common nuts and you have a perfect pumping outfit.

It runs quietly and practically without vibration.

You needn't have a tank unless you want it. The Farm Pump Engine always starts at once and will fill the stock trough in a few minutes. By connecting on a piece of common pipe for extra air chamber or "head," you can throw water over any ordinary building direct from the pump. This gives protection against fire. It is geared so that the crank will lift 1,000 pounds—half a ton—31 strokes a minute. This is sufficient to work in any ordinary well. Length of stroke is adjustable.

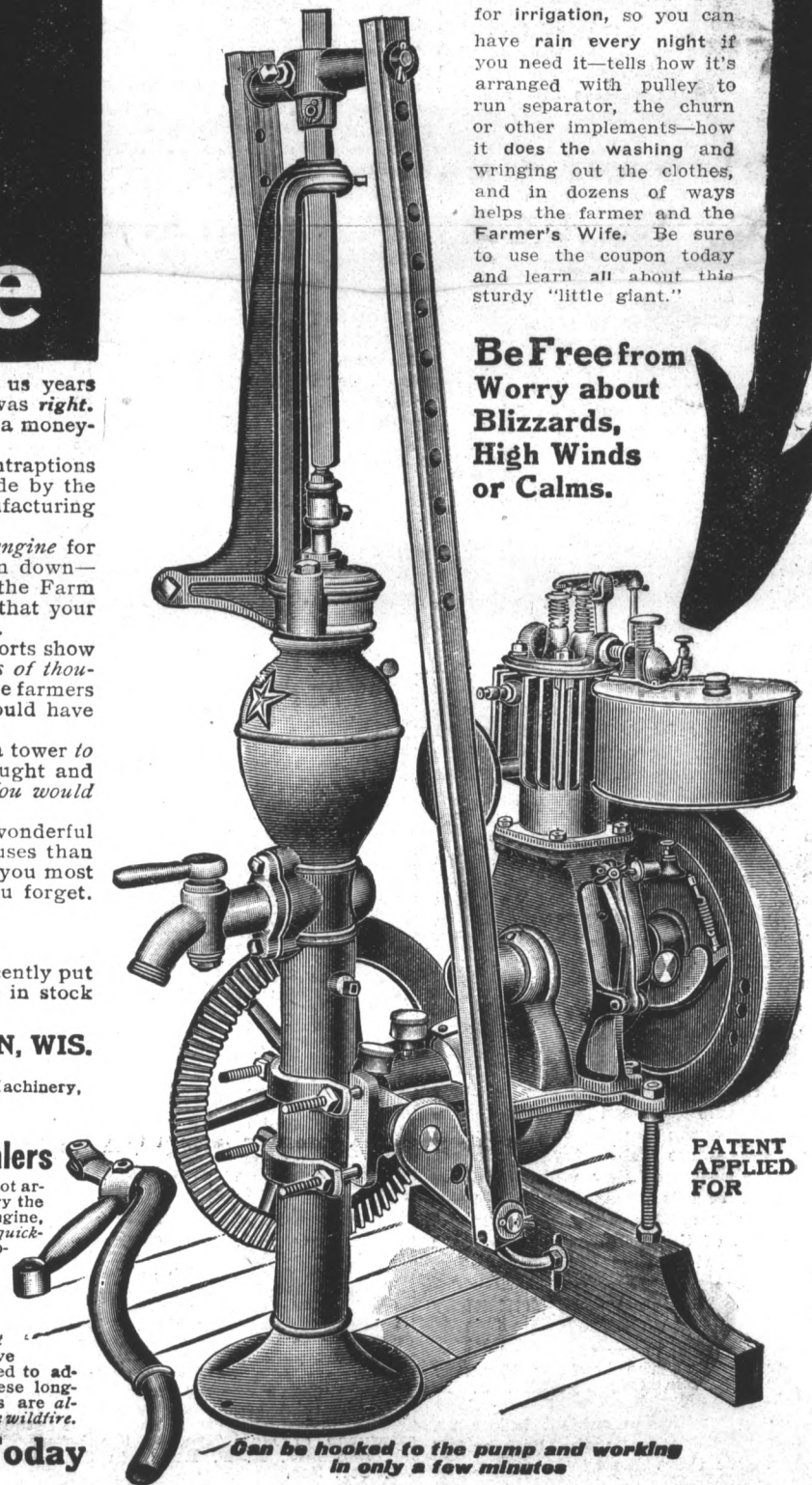
It has run all day in midsummer with the thermometer 90° in the shade. And it has pumped all night in zero weather.

We have buried it in snow and it melts its way out. It runs steady and without undue heating, with the thermometer 90° in the shade. It's as persistent as a bull pup and won't let go until you shut it off or the fuel runs out.

We can't begin to tell you here of all the uses of the Farm Pump Engine aside from pumping. The catalog goes into

that—tells how it's used for irrigation, so you can have rain every night if you need it—tells how it's arranged with pulley to run separator, the churn or other implements—how it does the washing and wringing out the clothes, and in dozens of ways helps the farmer and the Farmer's Wife. Be sure to use the coupon today and learn all about this sturdy "little giant."

**Be Free from
Worry about
Blizzards,
High Winds
or Calms.**



Can be hooked to the pump and working in only a few minutes