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FARM NOTES.

Planning and Execution of the Spring Work.

While the plans for the season's campaign have doubtless been made in a general way for some time, yet when the season comes for putting them into execution, these plans nearly always have to be changed somewhat owing to unlooked for conditions or complications. This year, for instance, with the exceedingly warm March weather, is an example of the unexpected conditions which are often met with and which necessitate the alteration of previously laid plans to some extent. When the season crowds and there are many things which should be done at once, it is an important factor in good business management of the farm that the most important task be given precedence. Consequently the man who has his work best in hand and who is able to decide quickly and logically this question of the relative importance of different tasks, which demand early accomplishment, is the man whose neighbors envy because he is always well ahead with the season's work. What is true when the weather is fine and conditions are ideal for forwarding the spring work, is true to an even greater extent when unfavorable weather conditions come and the regular routine of work is unavoidably broken up on this account. Then this faculty of good management is at an even greater premium than under conditions which have prevailed during the early part of this spring. This question of planning and executing the spring work from day to day and week to week is one which can not be too closely studied by the average farmer, since a clear perception of the relative importance of the tasks in hand is a prime factor in the ultimate results of the season's work.

Applying Lime.

The field we are putting into oats this spring will be sown to wheat next fall and seeded to clover next spring. We wish to apply lime to benefit the clover especially. Which would be best, to apply now with the oats or to apply next fall with the wheat? Would it help the oats much? How shall we apply it, not having a drill? The soil varies from clay loam to stiff yellow clay.

Van Buren Co.

E. I. W.

Our knowledge of the question of liming soils is quite limited notwithstanding the fact that the practice has been followed to some extent for a great many years. However, in a case of this kind is the writer's opinion that the best time to



Reinforcing a Wall with Concrete. (See Concrete Wall Reinforcement, page 394).

apply the lime would be the spring, since the soil would be helped mechanically, which would probably be beneficial to the oats. It is claimed by some who have used lime on oats that they are benefited materially by its application. Probably the principal benefit to the clover plant and other legumes from the application of lime is due to the fact that lime gives the soil an alkaline re-action which is favorable to the presence and activity of the bacteria peculiar to and essential for the success of the clover plant. Hence the earlier this physical condition of the soil can be brought about the better for the prospective crop of clover and, as the effect of lime upon the soil is supposed to last for some years, it is probable that the results on the clover sown in the wheat would be quite as good in case the lime was applied this spring to the oats as would be the case if it were applied to the wheat in the fall. However, there would undoubtedly be a beneficial effect upon the clover if it were applied

at either time, provided the soil is in an acid conditions or provided the clay spots need the flocculating effect of the lime to place them in a better mechanical condition. The writer hopes to know more about the benefits to be derived from applying lime to the soil during the coming year, having planned some experiments to determine its value on different crops.

Destroying Weevil.

Would you please give me through the columns of the Michigan Farmer, a treatment that will destroy the bugs which have attacked my seed field peas?

Oakland Co.

G. O. L.

The most effective remedy for destroying weevil in peas as well as other grain is carbon bisulphide. This is a colorless and odorless liquid which is very volatile, being readily converted into gas on exposure to air, the gas being destructive to insect life. The method of treatment is to pour the liquid into shallow dishes and set same on the grain, which should be confined in a tight bin or box for the

purpose. The gas produced by the liquid is heavier than air and will settle down through the bin, which should be made as tight as possible and be kept closed for 24 to 48 hours. This gas is highly inflammable and care should be taken not to go near it with a lighted lantern until after the bin or granary has been thoroughly aired out. It should be used at the rate of one pound to 100 bushels of grain, where the grain nearly fills the box or bin in which it is treated. Where the grain is treated in a large granary with considerable unoccupied space, a larger amount of the liquid should be used although by covering a bin the gas can be confined quite largely to it, but it should be remembered that the effectiveness of the treatment depends quite largely upon the thoroughness with which the gas is confined to the area to be treated. Where the grain is treated in a deep bin some of the liquid may be run down into the grain through a gas pipe without damage.

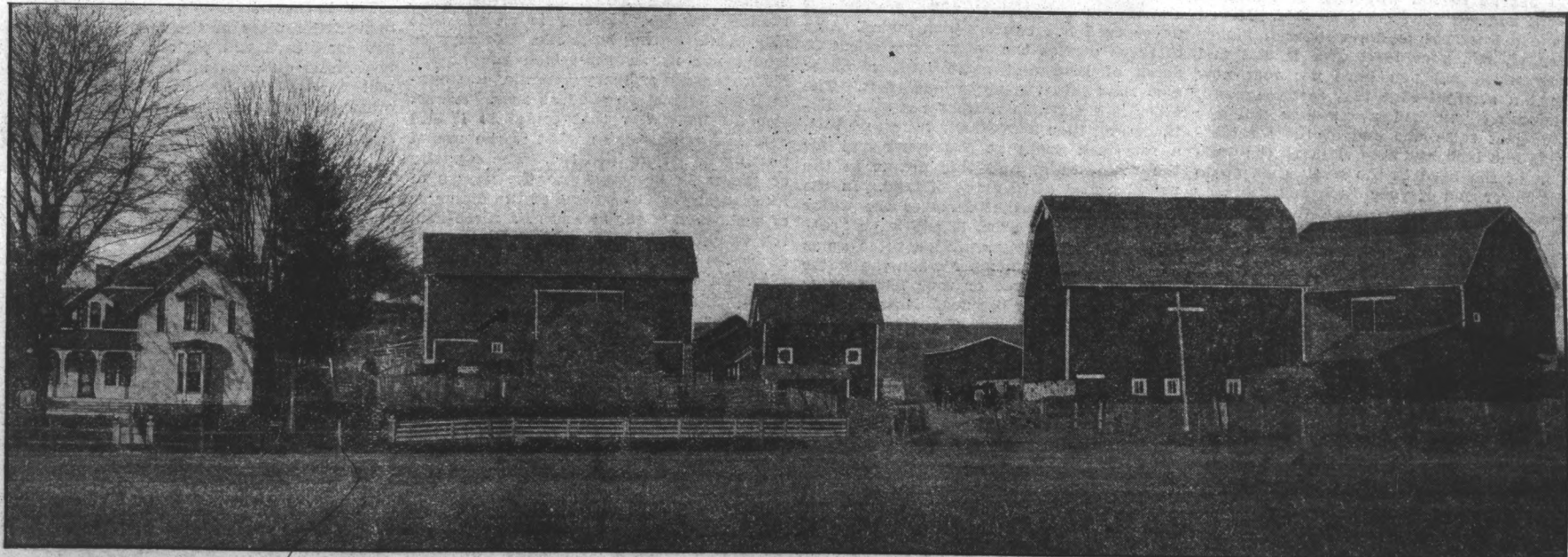
Sand Vetch for Michigan.

I wish to learn through your valuable paper about sand or hairy vetch. Will it do well in Manistee county, and does it make a good class of hay when cut green, and do sheep do well on it? Also what will it yield per acre and how much seed is needed per acre?

Manistee Co.

W. W.

As before stated in these columns, the practice of sowing sand vetch upon Michigan soils, which are in the condition of fertility to grow clover successfully, is one of questionable value. Sand vetch is undoubtedly a good soil renovator and will sometimes grow thriftily upon land where it is difficult to get a catch of clover. It is, however, inferior to the clover as a forage crop, its trailing habits of growth making it difficult to harvest. It is also inclined to become a weed where it is grown and allowed to seed, which fact, together with the usual high price of the seed, has not contributed to its popularity in this state, although it is highly valued by the farmers of some sections. It is a leguminous crop and to make a profitable growth, the bacteria peculiar to it must be present in the soil or supplied by inoculation. About one bushel per acre is sown and it may be sown either in fall or spring, but is an annual and lasts but a single year. It should be experimented with on a small scale where the grower is not familiar with it, instead of depending upon it for the main hay crop. It is well adapted to use as a cover crop in orchards and is used for this purpose in some sections.



One of the Neat and Commodious Farmssteads Characteristic of the More Progressive Class of Michigan Farmers. Home of C. A. Newman, of Oakland County.

CONCRETE WALL REINFORCEMENT.

The use of concrete for reinforcing cellar walls is so simple and effective that a cut of a farm house where it is in use is presented on page 1. Many farm houses have foundation walls laid up with field stone and lime mortar. Time has affected the wall until the mortar is well nigh gone, leaving an unsightly foundation, through which frost penetrates to the cellar. Even where the walls are comparatively good, the sill and wall are not closely joined and the cold winds sweep up under, making what women call cold floors. Banking the farm house is usually a preparation for winter, with all of the attendant annoyance and with varying degrees of unsightliness from the use of sawdust to stable manure. When the spring comes the material has to be removed or, as is often the case, is left to decay and is not only unsanitary but mars the appearance of the building. The use of concrete is so effective and cheap that this article is given to the Michigan Farmer that everyone may use it. (See first page illustration). Mixing concrete has become so common that it is unnecessary to advise on this point. The whole of the reinforcement should not be of concrete which in and of itself is not a good protecting element from frost penetration. A core of earth or sand, tightly packed, makes the best core. After excavating about 12 inches for a footing, pile the earth against the wall and tamp well. Any of the proprietary roofings or tar paper makes a good insulating material on top of the earth. From three to four inches of concrete is then applied, the pitch being a matter of taste and wall height. It is well to crease the concrete, or block it every 18 inches, so that in case of cracks they will follow the blocking line. The application of cement wash to finish is necessary to waterproof the concrete and maintain the dry core. The absence of eave spouts or leaky spouting does no harm, as the falling water is deflected. There are often conditions when a concrete gutter made at the base of the reinforcement may displace the use of eave troughs entirely. While it is not always possible to protect the cellar from surface water, yet concrete wall reinforcement can be of service in this direction.

Shiawassee Co. JAS. N. McBRIDE.

SIZE OF TILE AND LAYING OF SAME.

On reading Mr. Lillie's string method of laying tile, in the Michigan Farmer some time ago, I was tempted to say something, and now, after reading Mr. Markley's ideas, I feel that I must say it.

With all due respect to these two writers, I want to say that there is a better method of laying tile than by a string over the ditch, and that is to grade the bottom of the ditch just ahead of the tile with a spirit level. I don't see what could be simpler than this, and there is certainly no way of doing it more accurately. A string is bound to sag more or less, and water and uneven ground will deceive the eye, hence the raise and drop of which Mr. Markley speaks, but none of these things affect a spirit level in the least and if Mr. M. would like to see a man who can lay tile without a raise or drop, all he needs do is to find one who lays by a spirit level, and this is a very simple matter.

I see no reason why any man able to work and see good can't do this. If you have a low spot to drain through higher ground, run your level over it and find how much fall you have per rod; now level a straight-edge 16½ feet long and, supposing you had a one-inch fall per rod, just raise one end of the straight-edge one inch, and note or mark the position of the bead in the level; then go to the lower end of your ditch and begin by grading a little more than three feet of the bottom of your ditch (according to the marked bead), with your tile scoop, lay two tile, stand on them, grade bottom for two more and the length of scoop besides, lay two more and so on. Be sure and not lose any of your fall. It is better to carry a little with you and have it to lose on the upper end than to lack a little.

You may have to shave the bottom several times to get the proper grade at first, but don't get discouraged. After you have graded a few spaces you will be able to cut it nearly right at the first cut. If you grade in this way there can be no drops or raises, which are the cause of so many tile not working properly, and this in turn causes men to say the tile are too small and that three-inch

tile are not worth laying, when, as a matter of fact, a three-inch tile well laid will do more good than a larger one poorly laid. And all I have to say of a man who has to lay a four or five-inch tile to carry a two or three-inch stream of water, is that there is a chance for him to learn something, and he ought to do so before laying many more tile, either for himself or others.

I don't want Mr. M. or anyone else to take it that I think a three-inch tile is large enough for all places, and I don't think that Mr. Lillie means anything of the kind either. Now, we have two systems of about 1,200 three-inch tile each. One has three branches and the other four, and they are large enough, for they run some distance through dry ground to drain a wet spot above. Then we have another system with four-inch main laid many rods on dead level to get low enough in a swamp above, and having branches of three-inch tile in same. This system has been working well for several years and is none too large. And we have still another system of five-inch and four-inch main and eight three-inch branches. This one drains a lot of land and it is surprising to see the way a five-inch tile working right will fill an open ditch. This five-inch was the first one laid on the place; laid by a man of experience in that line, helped, watched and questioned some by the writer. The other three systems were laid by the writer and are working in good shape, or were until the advent of this March drouth and Indian summer, which has robbed them of their job as far as drainage is concerned.

In conclusion I want to say, that I can see no good reason why a man should lay a six-inch tile to carry a three-inch stream of water. Perhaps I am rather dense, and I don't know where Mr. M. gets his tile, but I have thought for some time that there was a vast difference between the cost of laying a three-inch or a six-inch as well as quite a difference in the price per thousand, and the cost of drawing them.

Berrien Co.

F. E. DOANE.

THE SIZE OF TILE TO USE.

A Reply to A. L. Markley.

Mr. Markley's criticism in The Farmer of March 26, with regard to my idea of the size of drain tile, merits a reply. He says one of two things is evident, either I have not very wet land to drain, or else I never had very much experience in tile draining. I have had observation and experience covering all my life in tile draining. My father drained our old homestead before there was any such thing as drain tile in this part of the country, using boards and two-by-fours laid in the bottom of the ditch. These finally filled up and rotted in places so that I have had to redrain all the fields, using tile drains. I don't suppose our land is as wet as some, and yet under-draining it makes much difference in the land for crop production. We have about as much rainfall in Michigan, I think, as they do in Illinois, and consequently I think we have about as much water to carry off, so I think my experience there would count as well as Mr. Markley's. I am of the opinion that Mr. Markley does not take into consideration the fact that our land in Michigan is somewhat more rolling than is the land in Illinois, and consequently we do not have such a large area to drain into one main drain as they do in Illinois. Now this would make a great difference. In all of my experience with draining, I never used but two six-inch mains. One of these carries the water from about 30 acres of land and some surface water also runs into the upper end of it. The other is a six-inch drain for a short distance and then a five-inch drain and then a four-inch drain at the upper end for the main drain, and this drains in the neighborhood of 15 acres of land. In the drainage system that receives the water from the 30-acre area, is one large "cat-hole" that probably contains three acres of land. I can remember when the water used to stand three or four feet in this hole before it was drained. Now, a four-inch tile starts from the six-inch and runs up to a small cat-hole, and then a three-inch tile runs up to the large cat-hole mentioned. This drain has been in operation for some 12 years. Through the large cat-hole are some two or three branches, all three-inch tile that enter into this one three-inch tile, so that really the water from this three acres runs through a three-inch tile, then into a four-inch, then into a six-inch. I have, after a heavy rain, seen the water stand two feet deep in this cat-hole and yet I never knew the water to stand long

enough there to injure a crop to amount to anything. One summer it did injure a crop of corn to a slight extent, but I have put wheat on this field many times and never yet has the wheat been killed out by the water being allowed to stand too long.

Last spring I ditched 40 acres of land. This naturally divided itself into two systems, so that each system drained about 20 acres. One 20 would be considered excessively wet land. It contained three large depressions. Two of these had never been drained in the world. All the surface water remained in them. One of them was wet enough so that muskrats built houses in it. Up to this depression, or cat-hole, which was not very large, we run a four-inch drain, and then three short three-inch drains through the cat-hole. Last summer after we had this drain made we had an excessively heavy rain and to my certain knowledge water did not stand in this cat-hole to exceed three hours. It all went into these three-inch tiles and down the four-inch into the five-inch, and the water from all of the rest of the 20 acres run through the five-inch main and the tile didn't run full. Now, I know it is good advice to encourage the laying of large sized tile for the very reasons that Mr. Markley gives, but what is the use of laying tile larger than is necessary. He says it doesn't cost much more to lay six-inch tile than it does four-inch. But the first cost of six-inch tile is double that of four. Not only that, but it costs considerable more to dig a ditch and bottom it up for a six-inch tile than it does a four. You have to throw out a great deal more dirt and it takes more time. The point he makes that, when tile settles, or the bottom is not true, you don't have the full capacity of the tile, is well taken; but, on the other hand, I do not believe in the encouragement of using large tile so that the layer can be a little bit careless and not think it will make much difference. The bottom line of every ditch ought to be trued up to a grade line stretched up tight over the top of the ditch. When this is done, there is no chance for depressions and consequently you get the full benefit of your tile.

The most of the land in our section is rolling enough so that a main would not carry the water from over ten acres, of land, and my judgment is, both from observation and experience, that a four-inch tile will carry all the water from a ten-acre field and do it nicely and get it off in time so that you will not lose any crop. Now, if it will do this, what is the use of laying a six-inch tile. In Illinois, from my observation of that state in passing through it, a great deal more territory would be put into one tile drain system. The main would carry the water from a great deal larger system, and I have no doubt that while a four-inch tile might be entirely practical and of sufficient size to use in this country, where the area drained by a main is comparatively small, it would not be practical in Illinois, where it might require a six, or eight, and in some instances a 12-inch tile. I advocate in the Michigan Farmer what I put in practice on my own farm and nothing else, and if from my observation and my experience in tile draining I did not think that for an ordinary ten-acre field a four or five-inch drain was large enough, I certainly would not advocate it, and if I thought they were large enough I would not advocate a man putting more money into tile because it would be practically money thrown away. Nevertheless, I realize that Mr. Markley is on the safe side in advocating large tile. He says he would not use a three-inch tile at all. Now, for all ordinary laterals, a three-inch tile is just as good as four. It carries all the water that comes to it and carries it on time, so what is the use of putting in a four-inch tile. The capacity of tile is in proportion to the square of its diameter. The square of the diameter of a six-inch tile is 36 and of a three-inch tile is nine. Now, a six-inch tile would carry the water from only four three-inch tiles. In other words, if you had a main drain with a six-inch tile, you could have only four laterals of three-inch tile running into it, and if you use four-inch tile for laterals you could get no more water through your six-inch tile than you could by using three-inch laterals. As a matter of fact, a six-inch tile, on land that I have had experience in draining, would be sufficient to carry off the water from a great many three-inch tile. The reason is because there is not sufficient water so that the six-inch, or main tile, has to carry to its full capacity. As a matter of fact, it takes a good many three-inch laterals to overwork a four-inch tile. A

tremendous amount of water will run through a four-inch tile.

COLON C. LILLIE.

THE FARM HELP PROBLEM.

The agitation about the high cost of living which brought out the fact that production was being curtailed by a scarcity of farm help in many sections does not appear to have flooded the farmers with applicants for farm labor. Many farmers have not as yet been able to secure help for the coming summer, and there are very few day men to be obtained in the country. There are quite a number in our villages and cities ready to work in a gang at almost any job for a part of the time, but who could not be induced to work on a small farm for any price. It is evident that the price of food stuffs is not to a point where the average city laborer is ready to forego his city advantages, get into the country, take advantage of the fair prices prevailing, and help to produce more foodstuffs. A farmer from our section succeeded in convincing a company of Chicago laborers who were complaining at the high cost of living that they could save considerably more money on a farm at the prices paid for farm labor than they could save at their work in the city, but he got no applications for a job. The food trusts may need some regulating, but I believe the law of supply and demand is the surest regulator of the value of both foodstuffs and farm labor.

Calhoun Co.

S. B. H.

FERTILIZER FOR OATS.

I would like to ask through the Michigan Farmer what would be a good fertilizer for a piece of land I want to sow to oats this spring. The land is light ground and has been cleared about five years. Part of it is hardwood land and part is pine stump land. Sixty acres had manure on it last year and four acres had a June grass sod. I have a book that says to use nitrogen, 10 lbs.; phosphoric acid, 8 lbs.; potash, 31 lbs., to raise 25 bu. per acre more. Please let me know what you think of it.

Newaygo Co.

SUBSCRIBER.

Using 10 lbs. of nitrogen, eight lbs. of phosphoric acid and 31 lbs. of potash per acre would be using more fertilizer to the acre than we use here in Michigan. In fact, I would not think it profitable to use 10 lbs. of nitrogen and 31 lbs. of potash per acre. Not that this would not produce a much larger crop of oats, but because it would not be practical from the fact that it would not pay, and I do not believe that the oat crop would consume anywhere near that amount of potash, or nitrogen either. I do not, however, consider eight pounds of phosphoric acid excessive. It is hardly enough. My experience and observation is that our Michigan soils need phosphoric acid more than either nitrogen or potash. I would consider this formula would be unbalanced for an oat crop on our soils. My idea would be to use a good general brand of fertilizer containing about one to two per cent ammonia, eight per cent phosphoric acid and two to three per cent of actual potash. Then I would use from 250 to 350 lbs. to the acre, owing to the condition of the soil. This, I believe, would furnish plant food to grow a good crop and would be using as much fertilizer as one could afford to and make a profit from its use on the oat crop.

COLON C. LILLIE.

CARING FOR THE HARNESS.

The harness is usually one of the most neglected factors in the farm equipment, yet good care will prolong its period of usefulness quite as much as proper care will extend the serviceable life of any other part of the necessary farm equipment. At least once each year it should be thoroughly washed and well oiled. All breaks should be promptly repaired in a workmanlike manner, and it will be much improved in appearance by an occasional cleaning and dressing. This is good work for stormy weather and need not interfere with more important work. But it should not be neglected and will not be on the well managed farm. However, like all jobs that can be postponed it is often neglected longer than it should be for the good of the harness. The average man will appreciate a well-kept harness and will take better care of his team when provided with one, so that a double profit is ordinarily derived from keeping the farm harness in good condition.

Henderson's Farm Manual for 1910, published by Peter Henderson & Co., 35-37 Cortlandt St., New York, is a 50 page book describing and illustrating the product of their large line of farm seeds and specialties.

USING FERTILIZER ON FALL SOWN GRAIN.

We have a field that was in corn last year and after putting the corn in the silo we disked the ground both ways and after dragging it thoroughly drilled it into rye and fall speltz. Now I want to seed to clover early this spring and would like to know if broadcasting fertilizer and dragging it in with the clover seed would be likely to injure the grain. If not how much of the fertilizer should be sown to the acre? This is a sandy loam soil and in fairly good condition as to fertility.

J. A. B.

Whether it is a good thing to broadcast fertilizer on fall wheat is a question that I am not familiar with. I never tried it. My idea is that fertilizer will give the best results when sown in the fall and mixed thoroughly with the soil. I am of the opinion that considerable more fertilizer will be needed to give the same results if sown this spring. On the other hand, I do not think there would be any loss of fertility, for if the wheat did not use as much of the fertilizer, the balance would be in the soil for the benefit of the grass crop which follows. If you want the effect of the fertilizer for new seeding, then I think the best way would be to sow it broadcast in the spring. About 200 lbs. of good general fertilizer is the amount usually used on grain in season.

Harrowing Wheat in the Spring.

Now, as to whether harrowing the grain in the spring will injure the crop or not, I am not very familiar with this factor either. I know of farmers who seed their grass seed in the spring on fall sown wheat with a disk drill. They go crosswise of the drills of wheat. This covers the clover seed and enables them usually to get a good stand, but it destroys some of the wheat. They claim that it does not seem to injure the yield of wheat. In fact, some have said that while some of the wheat was destroyed, that which was left did enough better so that they believed it was a good practice. I have also talked with people who harrowed in the grass seed on the wheat in the spring, and they claim that by harrowing the wheat both ways that they get better results than they would if they did not harrow it, and they get a good stand of grass. Now, my land is different. It contains a large amount of clay. I sow the clover seed on frozen ground early in the spring. In fact, it has all been sown now, the middle of March. It is obvious that it would not do to drag this ground after the ground gets dry enough to drag, because some of this seed would have germinated and that would be killed. Consequently, I am deprived of the privilege of harrowing or disking the wheat for any benefit to the wheat, but on sandy land it is not a good practice to sow the seed with the expectation that it will be covered with the freezing and thawing of the ground, and the seeding must be deferred until later, until the ground is dry enough to harrow in order to cover the seed, and I am sure that the fertilizer would give better results under these conditions than it would if sown broadcast on top of the wheat.

While this factor of top dressing wheat in the spring with commercial fertilizer is one that I am not familiar with, a new book just published by Mr. Bowker advocates this practice. He claims that it is one of the best ways of benefiting the wheat crop. Sow the fertilizer on broadcast in the spring. My advice would be, however, to sow only a portion of the field with fertilizer and note results. If you put fertilizer on the whole field, you will never know whether you get any benefit or not. If you put it on a portion of the field and note results, and results on sandy land ought to be noted by harvesting the wheat separate and threshing separate, so that you know whether you get a larger yield or not. By performing a few careful experiments in this way, one can determine whether it pays to use fertilizer in this way or not.

COLON C. LILLIE.

FREE BOOK ABOUT CANCER.

The Leach Sanatorium, of Indianapolis, Ind., has published a book on cancer, which gives interesting facts about the cause of cancer; tells what to do in case of pain, bleeding, odor, etc., instructs in the care of the patient, and is in fact a valuable guide in the management of any case. The book is sent free to those interested who write for it, mentioning this paper.

The Michigan Farmer Sells Bulls.

F. S. Kenfield, Augusta, Mich., the well-known breeder of Holstein Friesian cattle, writes as follows: "Please discontinue my advertisement, all sold out. The Michigan Farmer sell bulls to beat the band."

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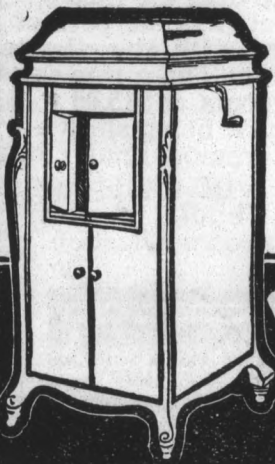
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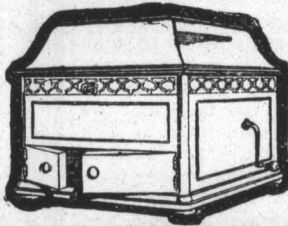
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W. W. P. McCONNELL.

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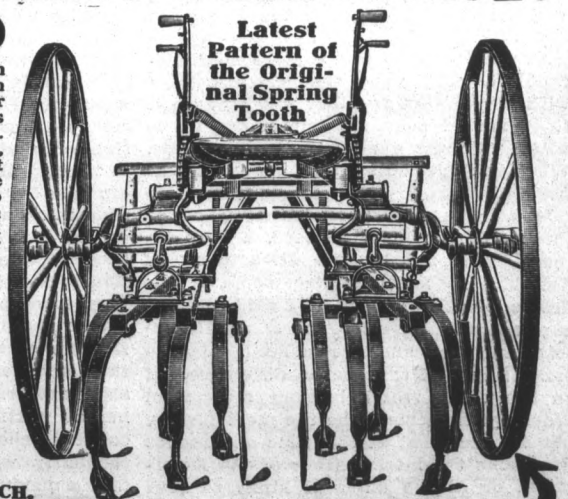
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LILLIE FARMSTEAD NOTES.

Untimely March Weather.

I think all will admit that we have been having very untimely weather for the month of March. Never before do I remember such summer heat in the month of March as we have had this year. Some people will tell you that 12 or 14 years ago we had just such a spring, but that is not my remembrance. I will admit that about that time we had dry weather in March, dry enough so that many of us put in our oats, but it was not warm. There is the difference, and it's a great difference. I have known several years when the ground was dry enough in March so that it could be properly worked and oats have been put in. In every instance we have had cold weather following; but this year we not only had dry weather, but we had excessive summer heat in March. I was not prepared to go to work on the land as soon as the land was in shape because we are never ready in this country to begin putting oats in in the middle of March. Then we thought that the weather would change and that we would have a freezing spell. I am rather of a conservative turn of mind anyway, and hesitated. In fact, I was afraid to sow oats. Many of my neighbors were not as conservative and put their oats in. As the days went by I caught the spring fever and made up my mind that it would be necessary to get in some peas and oats and other crops, if we raised anything this summer. Consequently, at this date, March 30, we have 20 acres of peas and oats in. But some sowed their oats a week ago. As things have turned out, they were probably right, and yet what the outcome will be, no one can tell. The weather permitting, we shall continue seeding until we have finished.

The ground has been very dry. Pastures, even with the warm weather, and meadows and new seeding clover and wheat, have made no growth. Wheat on clay is suffering very much. Tonight, March 30, we had a nice little shower, just enough to a little more than lay the dust, which will do a world of good. What we need is a good steady, soaking rain. Wheat and new seeding clover was injured somewhat by the freezing weather after the snow left, but this freezing weather continued such a short time that no serious damage was done. Had we had a proper amount of moisture, at that time, it would have made a rapid growth. As it is, it has practically done nothing since the snow went off. With timely weather from now on there is no question but what these crops will rapidly recuperate from this dry spell and prospects are promising.

Alfalfa.

When the snow went off, the fore part of March, I could not see that any of the alfalfa on the eight acres I sowed last August had been injured by the winter. Every plant seemed to be alive. A late examination, however, shows that on clay spots in the field, the alfalfa has been seriously damaged, either by frost or dry weather, and probably by both, but on the sandier portions of the field, I can see no damage done at the present time. The plants all look healthy and thrifty and are growing nicely. The field is getting green and looks quite promising. On the portion where I sowed other grass seed in connection with the alfalfa, the other plants are also doing well, and I cannot see as yet that they retard the growth of the alfalfa. The plants in the combination of seeds seem to be as thrifty as those sown alone, and if I was to make a guess at the present time I would say that I will have a much heavier cut of grass where I have the mixture of seeds than where I have the alfalfa in alone.

At the present time I can see no difference between the seed that was inoculated with nitroculture and that which was not. It is not of sufficient importance to be noted with the eye at the present time. What will develop later, of course, I cannot tell.

It will be remembered that I sowed three different kinds of seed, a sand lucerne, sent me by the Department of Agriculture at Washington, some of the Grimes alfalfa seed which I paid 50 cents a pound for, grown in northern Minnesota, and Montana grown seed. At the present time, I can see no difference. If anything, the sand lucerne sent from Washington seems to be the most thrifty, but I realize that at this time one cannot determine the merits either of the inoculation or of the different kinds of seed because the crop is not far enough ad-

vanced as yet. I shall inspect the crop carefully from time to time and keep the readers of The Farmer informed as to results.

Sweet Clover.

I have procured a small amount of sweet clover seed and I propose to test this as a forage plant in connection with alfalfa. As I have before stated in The Farmer, I propose to sow some alfalfa seed early this spring, some of it will be sown without a nurse crop, and some of it will be sown with oats, in the same manner as I would seed red clover. I want to find out whether alfalfa will grow under practically the same conditions as red clover or not. I propose to treat the sweet clover in practically the same way. Some of it without a nurse crop and some of it with oats, to see what growth that will make. During the last year or two I have become very much interested in this plant, sweet clover. It is claimed that if it is sown thickly and a good stand secured, and if the plants are not allowed to get too old before cut for hay, or if they are pastured, that stock relish the plant, that it is an exceedingly vigorous grower and will supply a large amount of forage for stock. I want to know something about this.

Condition of the Soil.

The soil is certainly in splendid condition to work. Last year, with the excessive rains, the ground was packed down so that it was extremely difficult to loosen it up with a disk harrow. It took lots of horse power to do it. We never worked our teams so hard in the world as we did last spring and it was largely on account of the fact that the ground was so packed down by excessive rains. Now this year it doesn't seem to take much more than half the power to pull a disk harrow through the soil that it did last, all owing to the fact that we have had no such excessive rains to pack it down. Even during the hot weather of the past few days, a three-horse team on a good disk harrow would easily pulverize five acres a day and lap half, and they didn't seem to work very hard either. Now we couldn't do this last year. The teams couldn't stand it. With two three-horse teams on pulverizers and two teams following with springtooth cultivators, we can fit ten acres of oat land every day and then another team on the drill puts it in. If the good weather continues it will not take more than a week to finish our entire seeding, and if the weather does not change and ruin the crop so that we have to sow over again, the prospects are that we can get our crops in this year on time. What I am afraid of now is that we will get them in before time.

Another point that I am worrying about is our new seeding of clover. We sowed clover on our wheat field the very first days of March. Now this warm weather will cause many of the seeds to germinate and if it changes and freezes, the seeding is gone. Probably some of the seed was buried deep enough by the action of the frost so that it has not germinated.

COLON C. LILLIE.

AGRICULTURAL EDUCATION.

In speaking upon this subject at the recent Round-Up, Prof. W. H. French who occupies the chair of Agriculture of Education at M. A. C., dwelt upon the subject of Agricultural Education as it is or may be properly taught in the high schools and rural schools of the state. Under Prof. French's administration agricultural courses have been introduced in six high schools in Michigan, and there are more applications now on file for such courses in other high schools than there are teachers available who may be supplied to give such instruction. Prof. French expressed it as his opinion that next year there would be at least a dozen high schools in the state in which regular agricultural courses would be taught. He spoke of the benefits to be derived from such educational work, not the least of which will be the preparation of teachers who will be equipped for teaching elementary agriculture in the rural schools of the state. A feature of these high schools which has given much satisfaction in some of the neighborhoods where they have been established is the short course lectures, which are open to the farmers of the community and of which they have taken advantage to a considerable number. Prof. French is enthusiastic in this work and his familiarity with the country schools of the state makes him peculiarly well fitted for this work, so that a maximum of good results are to be expected from his efforts.

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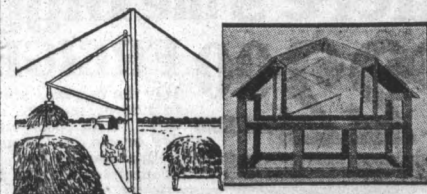
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LIVE STOCK

FEEDERS' PROBLEMS.

Raising Calves Without Milk.

Can you tell me how to raise calves without milk?
Wayne Co.

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While it is generally considered as absolutely essential to have milk for the proper raising of calves, yet there is no doubt but that calves can be reared practically without milk, although it is very important that some milk be available to get them well started. The writer once had a Grade Shorthorn calf that would not learn to drink milk readily and for some reason absolutely refused to drink milk after it had found the water tub in the calf pasture, at which time it was less than two weeks old. Some oil meal was supplied in a feed box near this tub and the calf soon learned to eat it, after which time it never had any milk or other feed except the oil meal and other grain supplied later and the good clover forage which was available in the calf pasture. This calf was very thin and made very little growth for some weeks, but when it once got started it grew thriftily and made a very large cow. This proved conclusively to the writer that calves can be reared without milk after they have had a start on fresh milk for a few days.

Undoubtedly, better results could have been secured by a better system of feeding than this calf received, although the ultimate results were satisfactory in this case. If the writer were to attempt to rear calves without milk he would try to have a limited supply of milk for a few days and to gradually supplement or displace this with hay tea, made from clover or alfalfa hay cut fine in a feed cutter and steeped for some time over a slow fire, then strained through a sieve. This may be gradually substituted for the milk, feeding in small quantities and preferably several times a day at first. After the calf is a week old, flaxseed gruel or jelly made from ground flaxseed meal may be added to the liquid. This would be a much more suitable feed than oil meal, which the writer used as above described, because it contains the fat of the flaxseed, which is an essential element of whole milk. This should, of course, be fed in small quantities at first, gradually increasing it until perhaps a gill is given at a feed. A little later cooked oatmeal and wheat middlings may be added until such time as the calves can be learned to eat dry meal, after which the dry meal may be gradually substituted for the cooked feed.

There are also some proprietary feeds now upon the market for which strong claims are made, and which have the advantage of being all ready for use. With these or with a proper combination of the feeds suggested, with fresh, green pasture when available, or bright clover or alfalfa hay and some thinly sliced roots where the green food is not available, it will be possible to attain fairly good results in the rearing of calves without milk, although it is an unnatural and less satisfactory way to rear them. Plenty of skim-milk is a valuable asset in the rearing of calves, and none should attempt to raise them without, unless they are prepared to give them the closest of attention and best of care.

BREEDING PURE-BRED SWINE.

Feeding the Breeding Herd.

The fact that the modern hog has been the farthest removed from its natural environment of any species of domestic animal makes success in feeding dependent, to a large degree, upon artificial methods. Yet there are certain physiological laws that cannot be ignored if we succeed in maintaining the health, vigor and fecundity of our swine. The successful breeders and feeders of today are men who have made a correct interpretation of nature's laws and adopted a system of feeding that corresponds with the natural habits and appetite of the hog, so far as is consistent with the demands of the present day markets for an early maturing animal.

The long, lank, muscular hog is a thing of the past and in its place we have in considerable numbers the broad backed, smooth, even quartered, early maturing individuals of the improved breeds that come in the early springtime and gain from one to one and one-half pounds a day until ready for market along in the fall or early winter. What has wrought this great change in the form and type of these leading breeds of swine? Chief

over all has been a judicious system of feeding. Environment has caused variation and intelligent feeding has caused a change for the better, making possible improvement by selection. Since judicious feeding has been largely responsible for improvement in the past, it is reasonable to assume that it will be just as important a factor in the work of further improvement of the breeds. Breeders who are producing the very best type of swine are men who feed liberally. Unless good breeding is supported by liberal feeding—improvement halts for want of sustenance—retrograde movements follow, heredity retreats by the route of scrub ancestry and development is vanquished.

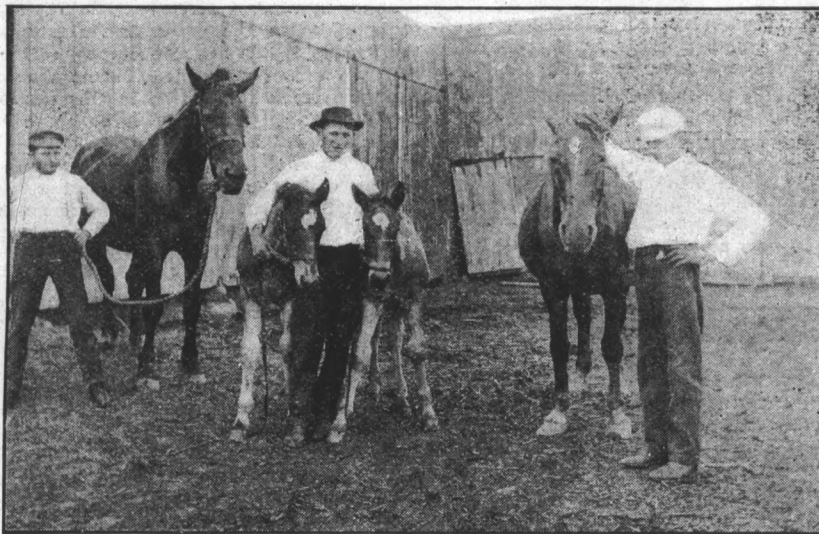
In the feeding of the breeding herd we are confronted by two questions, viz., how much shall we feed and what feeds will promote the health, vigor and fecundity of the animals. As to the amount we are limited on the one hand by the actual physiological needs of the animals for the best development, and, on the other by the increased cost of feeding a liberal grain ration and the possible danger of impairing the breeding qualities of the animals by excessive fat.

In feeding swine, the same as in feeding other live stock, food will produce satisfactory results only when fed in a ration that is properly proportioned, so that all parts of the animal will be well nourished and the digestive system kept in a healthy condition. The deficiency of corn as a sole ration has been made emphatic. Results of numberless experiments emphasize the fact that rations containing a large amount of ash and protein are better adapted to promote the growth and development of breeding swine than corn alone. However, the increased cost of concentrated protein feeds

root crops and vegetables. Such feeds are usually inexpensive, very desirable and valuable in feeding the breeding herd at all seasons of the year. These succulent and bulky feeds have a loosening and relaxing effect upon the flesh and are excellent for the brood sow toward the time of farrowing as they overcome the tense condition of the muscles resulting from a dry grain diet.

If the number of brood sows is considerable, the feeding of high-priced grain food cuts largely into the profits. The mature sow that is not sucking a litter of pigs does not require heavy grain feeding. If she is provided with plenty of pasture and forage crops she will thrive with but very little grain food. During recent years the importance of having an abundance of forage and pasture crop for the breeding herd is more and more apparent. By setting aside a number of acres and growing proteinaceous forage and pasture crops the cost of feeding the breeding herd may be greatly reduced and the animals will be more thrifty and vigorous.

In planning a system of forage and pasture crops we should plan to have the ground growing some crop at all times. Rye for late fall and early spring pasture is unexcelled; this may in turn be succeeded by alfalfa, clover, oats and peas, cowpeas, sweet corn and rape and rye again for late in the fall. The droppings from the swine being plowed under with the forage crops that are not eaten up clean will soon put the land in an excellent state of fertility and there will be no filthy yards and mud holes for the swine to wallow in. Many acres of poor land may be rejuvenated by growing proteinaceous forage crops and pasturing them with breeding swine. The drop-



"Boys on the Farm"—Colts Seven and Nine Weeks Old, from Photo Taken on the Farm of George W. Claxton, Genesee County, Michigan.

makes their use in large quantities very expensive, but fortunately it is easy to obtain these elements in an economical way by utilizing proteinaceous forage and pasture crops and providing the swine with large yards and good grazing.

An ideal combination of feed for the breeding herd consists of clover, alfalfa and blue grass pasture, supplemented with a limited amount of grain food. Skim-milk is an excellent feed, and mixed with wheat middlings in the form of a thick slop, makes an ideal feed for breeding swine. A small allowance of corn may be safely fed to brood sows and animals that are lacking in condition. In many cases when pasture crops and skim-milk are not available the protein problem may be solved by feeding a small amount of digester tankage. Oil meal is an excellent source of protein, especially when the ration is deficient in laxative properties. Other concentrates may be used with excellent results, the chief point being to feed bone, blood and muscle building food in the right proportions. When pasture and green forage crops are not available clover or alfalfa run through a feed grinder or cutting box and mixed with mill-feed in the slop will give the necessary bulk and succulence to the ration.

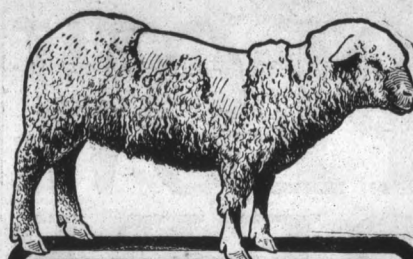
The value of bulky and succulent feeds is recognized by the most intelligent feeders. Succulence balances the effect against the dry, concentrated feeds—it possesses general tonic and corrective qualities and stimulates the appetite for a more economical consumption of other feeding stuffs. Bulky foods act as dividers in assisting in the more complete digestion of concentrated foods. Succulence and bulk are furnished by such foods as forage crops pasture grasses,

pings from the swine and the nitrogen gathered by the forage crops builds up the soil rapidly.

In the feeding of the herd boar the same principle holds good. Since the breeding boar represents as great a factor in breeding as thirty or forty sows, it is very much more economical to feed the one sire than thirty or forty sows. The breeding boar cannot be too well cared for. He should be kept in a good, vigorous condition and in as comfortable quarters as possible. Feed him the kinds of feed that are adapted to his requirements and vary the amount according to the services he is required to perform. It is necessary to feed him with foods that will produce lean as well as fat and give health and vigor. With such grain foods as ground oats, wheat middlings, oil meal and a very little corn, supplemented with such bulky and succulent feeds as alfalfa, clover, peas and roots, he will be vigorous, thrifty and serviceable for many years. Succulence and bulk in his ration will prevent injury from overfeeding and he will be more contented than when he is fed a less bulky ration of more concentrated foods. The practice of confining the breeding boar in a small pen and feeding him a ration of fat-producing foods cannot be too strongly condemned. The character of the feed, important as it is, is not the only thing which needs attention in the care of the boar. Give him plenty of room for exercise and if he does not exercise freely himself, take a horse whip and walk him around occasionally. Ordinarily, however, if he is given a good sized pasture or yard he will take sufficient exercise, without resorting to this trouble.

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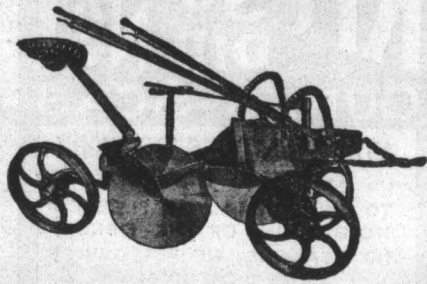


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KEEP THE OLD BROOD SOWS.

At what age and how long have you found it profitable to keep a brood sow for raising pigs? I have a Poland-China sow that is now seven or eight years of age. She is good yet and very prolific, always showing us the best of pigs.

Lapeer Co. M. A. C. The limit of a brood sow's usefulness depends altogether upon her individuality. Generally speaking, the brood sow's that have proven their value in the breeding herd should be retained as long as they continue to demonstrate their ability in this direction. Sometimes they get so big and lumberly that they will not exhibit the quality as mothers which they showed in the earlier periods of their usefulness, in which case they should, of course, be discarded. However, the sow that continues to produce good big litters of fine pigs and feeds and mothers them well should not be discarded because of her years. There is, of course, an age limit at which they will cease to do this, but that limit will vary greatly with different individuals, so that the question resolves itself into one of the individuality of the animal. But it is certain that the tried old sows of the average breeding herd are the profitable ones. Their presence is generally due to the principle of "the survival of the fittest," and so long as they remain the fittest from the standpoint of profitable pig production it will not prove profitable to discard them for younger ones that have not yet demonstrated their ability in that direction.

GROWING PIGS.

I have found by experience that there is more profit in hog raising than any other industry on the farm. Not all farmers keep enough pigs and other young animals on the farm to consume the home grown crops. Instead of feeding their crops to young animals at a profit they put them on the market and the stock feeders buy them and make the profit. But the farmer can over stock with pigs. It is a fact that it is better to tend a small piece of ground and tend it well than to plant large fields and only half cultivate them. This principle can also be applied to pig raising. It is better to feed 10 pigs and feed them well, than it is to feed 20 and only half feed them. The pig that makes profitable gains is the one that has all the feed that it can consume and grows vigorously, without stunt or check, from start to finish. The pigs should never be allowed to sleep in straw or dust in the summer, as this is liable to cause thumps and cough. Thumps can be cured, or better yet, avoided, by giving the pig plenty of exercise. Care should be taken to keep the pig free from lice. When lice are discovered they should be washed with some efficient lice killer.

Illinois.

C. C. M.

LIP-AND-LEG ULCERATION OF SHEEP.

The disease known as lip-and-leg ulceration of sheep, which has prevailed in Wyoming and other western states to such an extent as to cause the secretary of agriculture to place a federal quarantine on sheep from certain counties in Wyoming, is the subject of a publication just issued by the Department of Agriculture. In this publication Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, describes the work of his bureau for the suppression of this disease, and Dr. John R. Mohler, Chief of the Pathological Division of the Bureau, describes the nature and cause of the disease and prescribes treatment.

The investigations of the Bureau of Animal Industry as well as those made by other authorities in this and other countries show that lip-and-leg ulceration is contagious and is one of the various manifestations of a disease which affects various species of animals. The disease in sheep as found in the western states varies all the way from a mild sore mouth, which often heals without treatment, to a serious and virulent ulceration of the lips and legs and other parts of the body, which in aggravated cases is sometimes practically incurable. All the various forms of the disease, however, are due to the same germ, which is known as *Bacillus necrophorus*.

Many sheepmen have been inclined to doubt the contagious character of the affection known as sore mouth in lambs, claiming that the lesions were simply the result of injuries caused by eating frosted grass, coarse forage, etc. But even in cases of this kind Dr. Mohler has shown by his investigations that the wounds

readily become infected with the germs in regions where the infection exists, and that mild cases are liable to develop into a more serious form.

The disease may not only spread among sheep and go from the mild to the virulent form, but is also easily communicable to pigs, calves, and other animals. Cases are cited where calves have become infected by being placed in a corral where sheep with lip-and-leg ulceration have been, and also where sheep have contracted the disease by being placed on a farm where necrotic stomatitis had occurred in hogs.

The department considers it important for the welfare of the live stock industry that the disease should be suppressed, and believes that the place to suppress it is on the range. It is recommended that all diseased or recently exposed sheep, including even the so-called sore mouth lambs, be held back, and that only those animals which are unquestionably healthy be shipped to market.

The Bureau of Animal Industry, Department of Agriculture, Washington, D. C., would like to be informed of the occurrence of lip-and-leg ulceration among sheep, and will send to any applicant free on request a copy of the publication referred to (Circular 160) prescribing in detail methods of treatment.

TURNING THE CATTLE TO PASTURE.

Present prospects indicate that grass will get to a size that will make good feed much earlier this spring than in ordinary seasons. This will indeed be a welcome outcome of an early spring to the farmers of Michigan in a season when hay and other forage is as scarce and high in price as at present. However, there is ever a tendency to make the change from dry feed to pasture too abrupt. When the grass first starts in the spring, it has little substance, and is such a very succulent food that an abrupt change from a dry ration to this excessively succulent pasturage is almost certain to bring about digestive disorders which cause a loss in flesh. Of course, in the end, this may be a good thing for the health of the animal, but much better results can be secured by making the change from dry feed to pasture a gradual one, keeping up the grain ration for a time as the stock is turned to pasture and feeding a little good hay as long as the animals will eat it. This is a much better plan than the too common one of turning the cattle and other young stock to pasture direct from the yard without any preliminary feeding to prepare them for the change or supplementary feeding to make its effect less violent upon the digestive system. This is an economic proposition, and it will pay to make this change from dry feed to grain gradually and with proper supplementary feeding as above advised.

Oakland Co.

A. R. F.

Recent sales of fancy cows and heifers on the Chicago market have broken all high records of the past, owing to their great scarcity and the big demand for the cheap and medium-priced beef trade. Odd lots of heavy beef cows have sold within a short time for \$6.85@7.35, while heifers found ready sales at \$7@8, a load of South Dakota heifers bringing \$7.85. Steer cattle of superior quality are scarcer than ever and on the up-grade, being in urgent demand by packers.

While killers are complaining that hogs are too dear, they are not out of line with cattle or mutton on the hoof. Naturally, there have been sharp reactions since prime swine reached the \$11 mark not long ago in the Chicago market, but declines have been followed by advances, and it is observed that whenever the market breaks to any considerable extent supplies are at once curtailed.

Farmers should not fail to heed the warning of a hog shortage resulting from marketing the breeders when prices were unusually high. It is mighty bad business policy to sell off your good brood sows simply because they will bring a high price in the market, yet this is what has been done, and now a hog shortage that is phenomenal is the result. Now that the injury has been done, farmers in all directions are trying to increase the hog supply, and with this end in view, they are withholding their young sows for breeding purposes, extremely few having been marketed last winter. Young sows are apt to mean small litters, but even small litters will be extremely welcome at this time, and there is general interest in the outcome of the spring pig "crop" throughout breeding districts.

Cattle sellers in the Chicago market have been saying that the upward trend of prices has only fairly started and are pointing to much better things coming if cattle feeders will be careful and avoid crowding the market with half-fat and "warmed-up" stuff. Recently the best markets of the year, so far as the medium to good killers were concerned, have been seen, with choice beefs selling a little lower than at the high time in January. But the cattle which were graded as choice at that time were considerably better than those which now come within that description.

Did You Ever Try to Send a Mail Order Buggy Back?

If you have, you know what a peck of trouble it means. The mail-order house gives you alluring promises of "free trial," "return privilege," etc., but, just the same, they do everything in their power to make it stick when you tell them you are dissatisfied. People everywhere have been caught by the mail-order evil. Some have kept the mail-order vehicles, after getting tired of fighting about it. Avoid this trouble.

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VARIETY OF FEED FOR SHEEP.

One of the vital requirements of successful sheep husbandry is supplying pasture for the flock during the entire grazing season. Most flock owners depend largely upon pasture for a subsistence for their sheep from rather early in the spring until late into the fall. With our uncertain season in this country we are never positive that a sufficient rainfall will favor pasture growth to insure a suitable supply of nutritious forage for the flock during each month of the pasturing period. To depend entirely upon meadow seedings for pasture for the flock is imprudent and likely to bring on ruinous results to the fullest development to both growing lambs and breeding ewes. Meadow pastures are always excellent sources of forage supply for sheep grazing, but in case the weather is dry and intensely hot the supply is limited and of an unpalatable nature. It is obvious that in order to insure a variety of feed for the flock at all times during the summer season much thought must be directed to have growing an adequate supply of palatable forage to meet the needs of the flock.

The first matter of importance that should command consideration on the part of flock owners in planning supplementary forage for their sheep is to select and sow their forage crops in such a rotation that will not only supply pasture, but variety of feed as well. Sheep are fond of variety of diet and not infrequently will take to a poor growth of pasture rather than graze upon good forage on account of their greedy appetite for variety of food. I have at various times observed my flock leaving excellent clover pasture and grazing upon a short, natural growth of forage in order to satisfy their disposition for a variety of food. Variety of food is an economical and practical means of stimulating the digestive system of sheep and so long as continued, sickness will be practically unknown in the flock. A great many flock owners encounter disease among their sheep and think that some medication is necessary while in reality variety of food would check the trouble. Sheep by nature are active animals and demand two things in their daily diet and they are succulency and variety. Without them, no matter how well the ration may be balanced, derangement of the digestive tract will become more or less manifest.

Most flock owners find it necessary, during the fore part of the pasturing season, to confine their flock to limited pasture. If the forage is of a June grass nature it will carry the flock along until into June, but by this time some other arrangements will be necessary. As a general rule, June grass makes very good sheep pasture for a month or six weeks during the spring time, but as droughts come on it becomes less palatable and nutritious. Old pasture lands are more readily affected by dry weather and can not be relied upon but for a short period during the early part of the growing season. The flock owner who is desirous of encouraging a strong flow of nutritious milk to force the lamb crop forward as rapidly as possible, should lay plans to supply the flock with plenty of supplementary forage. It is also prudent that such plans be laid as early in the season as possible to allow plenty of time for the crops to come to pasturing maturity.

There is a wide range of forage crops well adapted to nearly all kinds of soils throughout this and adjoining states that can be grown for supplying a variety of feed for the flock and they ought to be more universally sown by flock owners. Rape is perhaps one of the most valuable forage crops for sheep grazing purposes. Wherever it has been properly tried it has been proclaimed a wonderful sheep forage, not only highly palatable, but nutritious. When rape is grown for pasture purposes it should be sown in drills if possible, as it does much better and produces a larger amount of forage. While a great deal has been said and written regarding the merits of rape for sheep feed there are yet a large number of farmers who know very little of the feeding value of this plant. Surely its forage value for sheep merits its fullest trial and no farmer can afford to go into the summer without sowing at least a small acreage.

There are also other excellent forage crops adapted to our varied soils and climatic conditions that can be grown with good results. Rye, if sown the previous season, can be pastured in the spring and depended upon to supply the flock with a variety of excellent supplementary forage. Oats and peas are well suited to

clay loam soils and produce a large amount of feed highly relished by sheep. The secret of securing a rapid growth of nutritious forage from sowing supplementary forage crops is to have the soil in a high state of tilth and full of available plant food. Soil to grow large tonages of green forage must be excellent clover land. I have never been successful in growing satisfactory crops of supplementary forage on soil that would not grow large yields of other farm crops. Therefore, see that the soil is well prepared and full of the essential plant elements.

Shiawassee Co. LEO C. REYNOLDS.

LIVE STOCK NOTES.

Charles Goepper, the well-known hog buyer at the Chicago stock yards, says: "A large percentage of the pigs born this spring will be saved, because they are worth saving. Every pig that can be raised will be needed, however. Just as soon as they can be weaned and the sows dried up and fattened I look for a material increase in the supply, as the temptation to market a 300-lb. sow at anything like present prices will be irresistible, although if I were doing it I would breed my sows again."

The first shipment of grass cattle from the San Angelo country down in Texas was reported on March 24, their destination being Oklahoma. Cattle in the San Angelo region are in good condition and will be ready to ship to market somewhat earlier than usual. There is not much cattle trading, as high prices have resulted in putting the Montana and Dakota buyers out of business. It is stated that Kansas and Oklahoma will receive the larger share of the Texas grass cattle, stockmen varying in estimating the number that will be sent to such pastures. It is claimed by well-informed men on such matters, however, that there will be a shortage, although others who are in a position to speak intelligently say there will be as large shipments as a year ago. Two-year-olds are bringing \$30 per head, while four and five years ago they sold for \$19 to \$21.

O. C. Strocher, a prominent live stock dealer of West Virginia, says: "Lambs for July and August have been about all engaged here at 75c to \$1 per 100 lbs. higher than a year ago. Stock cattle are very scarce this spring."

Stags sell extremely high all the time in the Chicago hog market, but boars are poor sellers, as they are apt to be condemned by the inspectors.

It has happened in the Chicago cattle market frequently of late that commission firms have had many buying orders for good feeding steers which they were unable to fill, because choice cattle of this kind were not available. It has been remarked that in 1902, when feeders brought \$6 per 100 lbs., the steers which went at that high price were far superior to the kind that brought that figure recently. There has been such a keen demand for prime heavy feeders that sales have been made all the way up to \$6.75 per 100 lbs. There is a lively demand for well-bred feeders of strong weights that can be matured for the market quickly, but it happens that killers have a longing for these same cattle for their cheap beef trade, and this means strong competition to secure them. With the highest prices paid on record for feeders, as well as for good stockers, there is still a lack of these cattle, and slaughterers persist in making heavy inroads on the future supply of beef cattle.

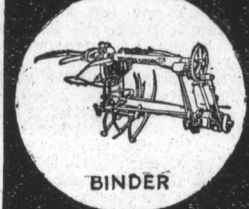
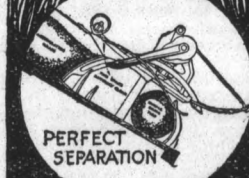
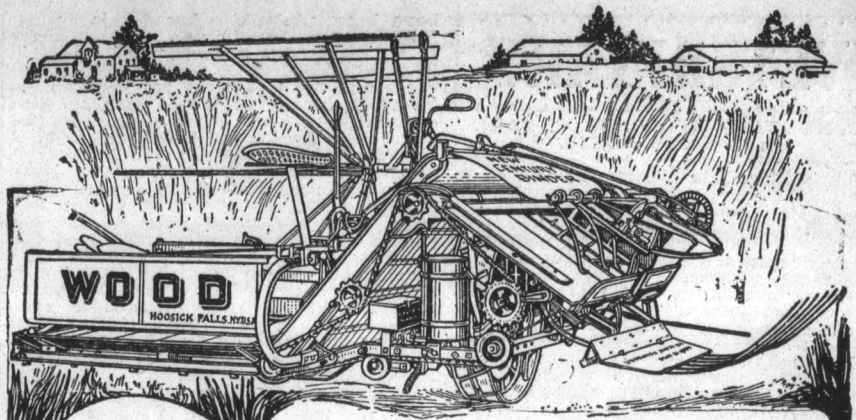
A year ago sheep exporters were taking a lot of sheep and helping the Chicago market out. This year prices are far above an exporting basis, but these buyers are not missed, for there are nowhere near enough sheep and lambs to meet the urgent domestic demand.

The demand for lambs for shearing and finishing has been extremely large in the Chicago stock yards recently, and record prices have been attained. Buyers seem to have perfect confidence in the future of the market for finished muttons on the hoof. Colorado has been furnishing the bulk of the shorn and woolled lambs.

Moses Weinberg, one of the best informed live stock men in the central states, showed up in the Chicago market recently with a consignment of four cars of cattle and hogs. He remarked that never in his long experience had he seen live stock as scarce throughout Schuyler county, Illinois, and the adjoining counties as at the present time. He said hogs were being shipped out from one to four months ahead of the time they were intended to be marketed, and few hogs are being matured. He predicted a greater shortage of hogs during June and July than has been experienced so far. Mr. Weinberg is said to have shipped as much live stock to the Chicago market as any one man in the state of Illinois during the past quarter of a century.

Many special orders for mules have been filled in the Chicago horse and mule market at the stock yards for distribution to eastern cities in recent weeks, and at least one car load was sold recently to be placed among Ohio farmers. Many farmers have been in that market making individual purchases of new supplies of farm horses for this season's farm operations, the purchasers giving the preference to such blocky mares as were offered at \$140@175 per head.

In the opinion of Benjamin Preston, president of the Northern Colorado Sheep Feeders' Association, the feeders must get 9c per lb. to break even, and everything above that is profit. In discussing the situation, Mr. Preston said: "There are only 275,000 lambs in the whole of northern Colorado. High prices will continue, no one knows how long. The shortage of alfalfa and high price of corn make fattening an expensive process. The cutting up of the range into small farms is one of the chief causes of the meat shortage both in sheep and cattle, and there will be no cheap meat for years."



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Dept. N, Kansas City, Mo.

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.

Fungus the Result of Wire Cut.—I would like some advice regarding my mare that met with an accident last fall. On the inside of hock joint there is a fungus growth about the size of a hen's egg, which seeps pus from its center. Can the growth be taken off and the wound healed? R. B. C., Berle Mont, Mich.—A chronic fistulous opening of this kind would indicate that the joint had either been opened or some foreign body had lodged in the tissues and still remains. I believe your is a case which demands careful investigation; therefore, I would suggest that you call a veterinarian. The bunch should be cut off and the wound dusted with equal parts oxide of zinc, powdered alum and borac acid twice a day.

Chronic Garget.—I have a two-year-old heifer that came fresh January 22, and at that time was in good order, but since then has not done well. Her udder was badly caked for the first two or three weeks, but finally got in fairly good shape. She gives a good mess of milk, but her milk sours in about five hours. She eats heartily, is fed cornstalks, oats and peas that were cut green for roughage. I also give her a mixture of corn and bran twice a day and a pair of roots, either turnips or carrots. A. L. K., Carp Lake, Mich.—There still remains some bacterial infection in your cow's udder or else her milk picks up bacteria after it has been milked. Give her 1 oz. hypophosphite of soda and 1 oz. of bicarbonate of soda at a dose in feed three times a day. Salt her well; apply camphorated oil to udder once a day. Without suitable instruments you cannot irrigate her udder; therefore, it is needless to suggest an antiseptic; however, if she does not recover in two weeks, write again.

Abdominal Abscess.—My nine-year-old horse had an abscess on his side near flank which our local Vet. opened three months ago. It has never healed, but the bunch is some smaller. After it was opened I washed it out with carbolic acid and water. C. G., Pulaski, Pa.—After injecting one part peroxide hydrogen and three parts water slowly, inject a small quantity of tincture iodine once or twice a day for a few days and the discharge will perhaps cease; if not, pack the opening with equal parts calomel, powdered alum and iodoform.

Indigestion—Rheumatism—Abscess.—I have a seven-year-old horse that is thin and hide-bound; he must be sore on account of shifting from one foot to another. Our local Vets. fail to help him. I also have a flock of ewes due to lamb soon, several of them are thin and weak. Two of them had abscesses form under jaw which I opened, but they both died. W. J. L., Munith, Mich.—Your horse suffers from indigestion and rheumatism; give him two tablespoonful of the following compound powder at a dose twice a day: Powdered sulphate of iron, ground ginger, bicarbonate of soda and fenugreek. Your ewes are in an unhealthy condition, perhaps the result of lack of proper food supply. Feed them more nutritious food, plenty of ground oats and clover hay will help them fully as much as drugs. Salt them well and give a teaspoonful of equal parts of ground gentian and ginger at a dose in feed twice a day.

Indigestion—Blocked Quarter.—Chickens are inclined to pull the feathers out of each other, especially the feathers about the head. Very little milk came from one quarter of my cow's udder after she had been milked for a few weeks after calving, but now she is gaining in milk supply, but still the quarter is not clear. M. A. K., Port Huron, Mich.—By giving your cow 2 drs. iodine potassium at a dose in feed night and morning for 15 days it will have a tendency to clear her udder; besides rubbing the udder twice or three times a week with iodine ointment will also help him.

Warbles, Grub in the Back.—What can be done to cure grubs in cattle? Besides, what can I do to prevent them? J. M., Lake Odessa, Mich.—The treatment for warbles or grubs consists in opening the skin, squeezing them out and if all the grubs were killed that would end the matter; however, it is the new crop of bot-flies that causes them and I am inclined to think that they will never be all killed off.

Injured Udder—Bloody Milk.—I have a cow that has been giving bloody milk from one teat for the past two or three months and she seems to be getting worse. There is a soft growth or lump about the middle of teat. Cow is not hard to milk. L. B., Schoolcraft, Mich.—If milking her causes hemorrhage, use a milking tube. Perhaps by suspending that quarter of her udder, she might be helped. However, drugs do not cut much figure in the treatment of cows that give bloody milk for it is usually the result of an injury or a tumor that is injured when the cow is milked. Apply iodine ointment three times a week.

Chronic Heaves—Breeding. Two-year-olds.—I have a 14-year-old mare that contracted a cold last winter from which she has never recovered. She has had a hacking cough ever since and during the past four weeks has developed a bad case of heaves. The mare being with foal, I am afraid to give advertised remedies and would like to know if Fowler's solution would prove injurious to her colt. I also have a two-year-old filly that I

have been advised to breed this spring. Do you advise breeding as young as that? L. H. B., Berrien Springs, Mich.—Arsenic is a valuable drug if prescribed in small doses and the treatment not kept up too long. It is one of those poisons called cumulative poisons; therefore, it is bad practice to give it too long for fear of it acting as a poison. You had better discontinue feeding any clover, musty, dusty or badly cured fodder; feed your mare mostly grain, silage or vegetables and later feed her grain and grass. She should be fed very little bulky food but it must be of good quality and wet with lime water, which is made by dropping a pound or two of lime in a bucket of water, pouring off the first water, then fill and use. If your two-year-old filly is of good size and you feed her well while in foal it will perhaps prove a profitable investment to breed her.

Leucorrhoea.—I bought a cow a short time ago that was bred in August. Two weeks ago she came in heat. She has a whitish discharge that keeps up continually; besides she is very thin. R. G. L., Kalkaska, Mich.—She will not get with calf until the leucorrhoea is cured. Dissolve 2 drs. permanganate of potash in a gallon of clean water and use not less than one quart at a time, injecting her daily. The solution had better be at tepid heat when used.

Navel Infection—Infected Udder.—My lambs, when nearly a week old, begin to drag their hind legs; very soon after they grow weak and appear to die of paralysis. I also have a Jersey cow that gave clotted milk before she was dried. Will her milk be stringy or clotted when she comes fresh? A. M. W., Howell, Mich.—Your lambs died as the result of infection which makes its way into the body through navel opening. Apply one part carbolic acid and 30 parts water twice a day to young lambs' navels. Your cow will perhaps give milk of normal quality when she comes fresh.

Chronic Lymphangitis—Grease Heel.—My 12-year-old mare was taken with what our Vet. called lymphangitis and he treated her for it, but her leg remains swollen and the back part of leg is cracked open, the edges of sore being covered by a hard scab. All the treatment the leg has had has failed to help it much. O. R. T., Otter Lake, Mich.—Your mare first had lymphangitis, now she has chronic grease heel. Apply one part oxide of zinc and three parts vasoline to sore leg twice a day. Give 1 dr. iodine potassium at a dose in feed twice a day and give ½ oz. Fowler's solution at a dose once daily.

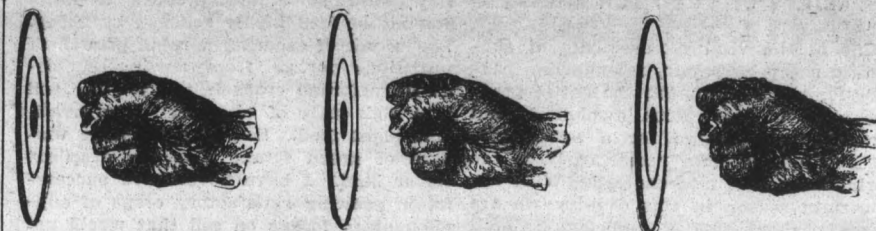
Eversion of Vagina.—I have a cow due to calve in about a month which has for the past two weeks been troubled with a sort of casting of her womb; she shows it most when lying down, very little can be seen when she is on foot. F. W. R., Ypsilanti, Mich.—Your cow no doubt suffers from eversion of the vagina. If you keep her in stable, stand her with hind legs four or five inches higher than fore and the parts will return to their proper place. Also inject some of the following solution into vagina two or three times a day. Dissolve 1 oz. acetate of lead in a gallon of water, adding 8 ozs. tincture of opium.

Barren Sows.—I have two sows that fail to get with pig and I would like to have your advice regarding them. A Subscriber, Alderson, Mich.—Dissolve 2 ozs. bicarbonate soda in a gallon of water and inject the sows night and morning. If they are barren on account of an acid condition of the genital tract this will help them. If they discharge mucus, dissolve 1 dr. permanganate potash in a gallon of water and use this lotion twice a day.

Partial Loss of Power.—I have a brood sow that will farrow May 1. She seems to be losing the use of her hind legs; when down she requires a little help to get up, then when she walks she wobbles and is inclined to put one foot in front of the other. She is two years old and weighs 200 lbs. This will be her second litter; she has been running in the barn yard all winter with the cattle and some shoats. Did not know but she had met with an injury; her food supply has consisted of separator milk and corn. W. W., Alamo, Mich.—Give her ½ of a teaspoonful ground nux vomica and a teaspoonful of fluid extract of buchu at a dose in feed three times a day. If her bowels do not move freely feed her vegetables, and I might say that vegetables, oats and oil meal is a good food for her. Corn is not the kind of food she should be fed. Apply spirits of camphor to spine from root of tail to center of body twice a day.

Azoturia.—I have a mare that was taken sick while traveling on the road. I thought she had colic. Her hind quarters appeared to become paralyzed; she was down and unable to get up for 10 hours, then she traveled very lame in one hind leg. W. F., Isabella, Mich.—Your mare did not suffer from colic, although she showed symptoms of colicky pains, but she suffered from azoturia and has doubtless recovered from the acute attack. This ailment usually follows generous feeding on grain without giving the animal sufficient exercise. Her hind leg will doubtless remain weak for some time. Give 1 dr. ground nux vomica and 4 drs. ground gentian at a dose in feed twice or three times a day and apply equal parts turpentine, aqua ammonia and sweet oil to hip and stiffler daily.

Indigestion.—I have a two-year-old heifer that came fresh December 4, that has been giving on an average of eleven quarts of milk per day. Monday morning she gave five quarts of milk her usual amount; Monday night about one pint, which was dirty and of a yellow color. Tuesday morning she failed to give any milk and has been dry since. Her bag is not caked and she eats fairly well. F. L. M., White Cloud, Mich.—Your cow suffered from indigestion and should have been given not less than 1 lb. or 1½ lbs. of epsom salts as soon as she failed to give milk. Also give a tablespoonful powdered satpeter at a dose twice a day. Also give ½ oz. ground gentian root three times a day.



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UNICORN DAIRY RATION

a test and find it to be a superior feed for making milk. Send for booklet and prices to
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Swollen Sheath.—I have a six-year-old horse that is troubled with a swollen sheath and I have also noticed some twitching of the muscles of the fore leg, but the horse is not very sick. I read the veterinary column every week and appreciate it very much. C. A. T. Harbor Beach, Mich.—Swollen sheath is not a disease and it is not always the result of sickness, but usually results from generous feeding and want of sufficient exercise. Give 2 ozs. Glauber's salts and a teaspoonful powdered saltpeter at a dose in feed twice a day. If he is foul wash out sheath and oil inside with good vaseline.

Warts on Cow's Tongue.—My 11-year-old cow has grubs or something growing on her tongue which interferes with the chewing of food. She does not appear to grind feed as well as she should. W. W. Remus, Mich.—Give her a teaspoonful flowers of sulphur at a dose in feed three times a day and dissolve ¼ lb. alum in 1 gal. water and wash out mouth twice a day. If any of the warts have much of a neck cut them off.

Looseness of the Bowels.—I bought a cow last fall that had been dry since August; she calved in January and since then has been too loose in the bowels. I have fed her stock food and changed her feed, but she remains thin and I would like to know what to do for her? H. B. A. Cloverdale, Mich.—Give her 2 drs. sulphate of iron, ½ oz. ginger and 1 dr. powdered catechu at a dose in feed three times a day.

Curb.—My six-months-old colt has a small curb which I would like to have removed. How can it be done? A. B. Detroit, Mich.—Apply iodine ointment three times a week.

Weakness.—Pigs come without hair, live two or three days and die. Some of the sows go a few days over time. G. S. Dexter, Mich.—The pigs that are born too soon are generally weak and unless they receive good care and proper food die. Drugs will not help much in this case; however, I suggest that you disinfect the pen and make it as clean as possible.

Barren Mare.—I have a mare that raised two colts which has failed to get with foal for the past three years. She is only 12 years old and comes in heat every two weeks. J. E. B. Fremont, Mich.—If you are sure that she comes in heat every two weeks instead of one, then I doubt if she will ever breed; however, if she comes in heat every three weeks inject her with the following solution once a day: Dissolve 2 ozs. baking soda in ½ gal. clean water and inject her daily through a rubber tube, using a rubber tube and tin funnel to pour it through. The yeast treatment proves satisfactory in many such cases and you might be making no mistake in giving it a trial.

Chronic Cough.—I have a 10-year-old horse that has been coughing for more than a year and I fear that he will get heaves. Can you tell me what to do for him? A. C. Allegan, Mich.—Give ½ dr. powdered opium, 2 drs. muriate ammonia and 1 dr. powdered lobelia at a dose in feed two or three times a day.

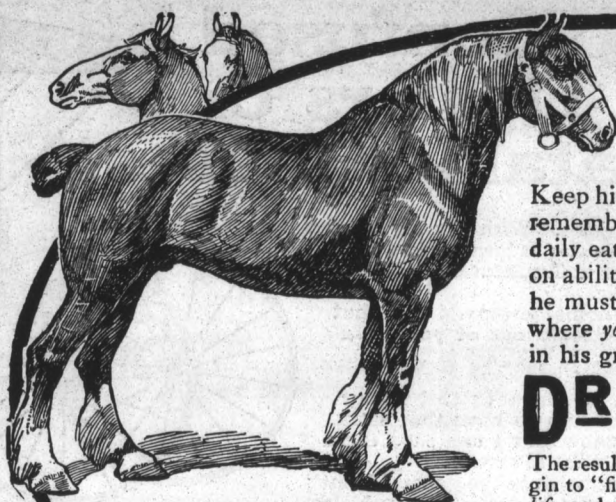
Asoturia.—Have been a reader of the Michigan Farmer for twelve years and have derived a great deal of benefit from its veterinary column. Now I wish you would give me treatment to not only prevent, but cure asoturia. O. F. Shepardsville, Mich.—By increasing a horse's exercise and decreasing his grain allowance he will seldom have asoturia. Feeding idle horses too much grain usually brings it on and this ailment is most common in the winter months and usually affects fleshy, idle horses that are highly fed on grain. Keep the bowels and kidneys active and exercise your horses every day, not over-feeding them, and none of them will have asoturia.

Contracted Feet.—I have a 12-year-old horse that has badly contracted feet and have been treating him according to your prescription and he is improving. However, he is far from well. J. E. Mount Pleasant, Mich.—Blister coronet with cerate of cantharides once a week and stand him in wet clay two or three hours a day.

Cow Does Not Come in Heat.—I have a cow that does not come in heat; therefore I would like to know what to do. F. Y. B. Albion, Mich.—Give 15 grains powdered cantharides and ½ oz. powdered capsicum at a dose in feed twice a day for ten days.

Fractured Leg—Egg Laying Chickens.—I have a horse that met with an accident and broke his leg before I bought him. He has been lame ever since. What would you advise me to do. Also what breed of chickens are the best egg producers? A Subscriber, Mooretown, Mich.—When the horse broke his leg it was not properly treated, consequently a fibrous union took place instead of a bony union, which accounts for the soreness and weakness. There is not much choice in several breeds for egg producers; more depends upon the care and management of poultry in producing eggs. Cows that are perfectly healthy and do not calve before the proper time, generally clean all right. However, if they do not it should be taken away by hand not less than 24 hours after she gave birth to her calf. Giving drugs before calving to assist their cleaning is poor practice. It will pay you better to buy some vegetables, instead of bran to feed with clover hay to your cows.

W. E. Miner, the well-known lamb feeder of Colorado, is optimistic on the future of the lamb market. Most of the lambs fed in Colorado have been shipped out, but there will be some flocks left to string along, as usual, until late in May. Mr. Miner says there will not be enough lambs from that, or other sources, to hold the market down, and predicts high prices. He says: "To be sure, present prices are very satisfactory now to the Colorado feeder, but when one has to pay drug store prices for hay and corn lofty prices are needed to make the owner any profit. I believe we are in for an era of high prices for all kinds of live stock. I have been over Nebraska, and other western states quite extensively and never saw hogs and cattle so scarce. Empty feed lots are to be seen in every direction where there were formerly thousands of stock on feed."



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Keep him vigorous, full of power and ambition. Your horse, remember, takes a small ration compared with the great bulk daily eaten by a steer or cow. His "fitness" therefore, depends on ability to get *all the nutrition* out of this smaller feed. Plainly, he must have a *strong and regular power of digestion*. Here is where you can help your horse. Give him, morning and night, in his grain, a small dose of

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The result will be almost instantly noticeable. If thin, your horse will begin to "fill out"; his dull coat will show gloss; his eyes will sparkle with life, and your dispirited, dragged-out "hack" appear with the "get up" of a prize winner. All because Dr. Hess Stock Food acts upon increasing growth and milk production by improving digestion, is "The Dr. Hess Idea." The dose is small and is fed but twice a day. Sold on a written guarantee.

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Give a little of Dr. Hess Poultry Pan-a-ce-a to your laying hens every morning; and don't forget the growing chicks, or the old fowls you're fattening to sell. Pan-a-ce-a is a wonderful help—in fact, it's the *necessary basis* on which to build a *successful* poultry business. It increases the hen's power of digestion so that a *large* percentage of her food goes into eggs and flesh—that means *economy and profit*. In the same way (by aiding digestion) it helps the little chick and the old fowl. It also cures Gapes, Cholera, Roup, etc. A penny's worth feeds 30 fowls one day. Sold on a written guarantee.

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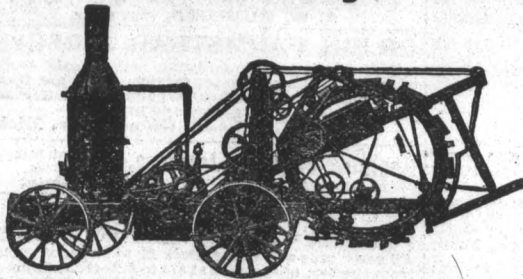
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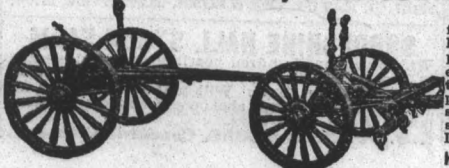
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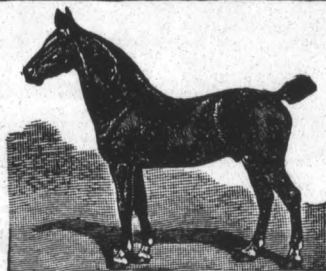
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We have some splendid young bulls for sale. Some of them are old enough for service. They are from cows with records of 300 to 425 pounds of butter last year. Write for description and prices.

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BIDWELL STOCK FARM. **FOR SALE**—10 Reg. Shorthorn Bulls.

All good, reds and roans, from 12 to 24 months old. Some of the best of breeding at \$75 to \$125 each. Some of them Scotch and Scotch-topped, of the herd heading type. Also, young cows and heifers, all ages. Fifty head in herd. Farm—Two blocks from Lake Shore Station. L. I. BIDWELL, Tecumseh, Michigan.

DAIRY BRED SHORTHORNS—No stock for sale at present. Visitors welcome. **J. B. HUMMEL**, Mason, Mich.

SHEEP.

Oxford-Down Sheep and Polled Durham cattle for sale. A. D. & J. A. DEGARMO, Muir, Mich.

PARSONS OXFORDDOWNS also registered Hornless National Delaines and Black top delaines. Romeyn C. Parsons, Grand Ledge, Mich.

OXFORD DOWNS A few good field rams for sale. H. J. De GARMO, R. No. 1, Clyde, Mich.

ROCKLAND FARM DELAINES—A few ewes bred to choice rams for the 1910 trade. Prices right. D. E. TURNER & SONS, Mosherville, Mich.

SHROPSHIRE HALL STOCK FARM Will import one hundred yearling ewes and 15 rams in June for Michigan and the same for Boise, Idaho, Branch of this Farm. Will make a fair price on yearling ewes or rams, also on some aged ewes with lambs at side, for 60 days.

L. S. DUNHAM & SONS, Concord, Michigan.

130 Reg. Rambouillet Ewes for sale, descended from the best flocks and bred to a pure Van Hometer and a ram sired by a Gilbert ram and imported dam. All in perfect health. In lots to suit buyers—none reserved. J. Q. A. Cook, Morrice, Mich.

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LARGE ENGLISH BERKSHIRES.

Have a fine lot of spring pigs, both sexes. The type for profitable pork production. Vigorous and strong and of best blood lines. Satisfaction guaranteed.

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WON 189 PRIZES IN 1909. Stock of both sexes and all ages for sale. Breeders of Guernsey Cattle, M. B. Turkeys, Barred Rock Chickens, Pekin Ducks. GEO. C. HUPP, Mgr., Drawer A Birmingham Michigan.

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BERKSHIRES of the most fashion able type and strains. C. S. BARTLETT, Pontiac, Mich.

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DAMS BROS. Litchfield, Mich., breeders of Improved Chester White and Tamworth swine. Pigs, either breed, by 1st prize State Fair winners. Buff Rock, Buff Wyandotte eggs \$1 per 15; W. Orington \$3 per 15.

Improved Chesters—Bred sows all sold. A for service. Orders taken for spring farrow. W. O. WILSON, Okemos, Mich. (Both Phones).

DUROC JERSEYS

CAREY U. EDMONDS, Hastings, Mich.

WALNUT HILL FARM Herd of Durocs. Bred sows all sold. 35 fine fall sows, 15 fine fall boars ready for service. 100 spring pigs to date. Write J. C. Barney, Coldwater, Mich.

MULE FOOTED HOGS—All ages for sale. Largest herd in the U. S. Five big herd boars. **JOHN H. DUNLAP**, Williamsport, Ohio.

O. I. C. bred sows all sold. Have a few boars still on hand. **GEORGE P. ANDREWS**, Dansville, Mich.

O. I. C. REGISTERED PIGS, 10 to 12 weeks from World's Fair winners. **Glenwood Stock Farm**, Zeeland, Mich. Phone 94.

O. I. C.—A few bred sows. Orders booked for spring pigs from very choice stock, pairs not akim. S. J. COWAN, Rockford, Michigan

O. I. C.—Orders booked for spring pigs from State Fair winners. **C. J. THOMPSON**, Rockford, Mich.

30 P. C. Fall Pigs—by two champion boars. Booking orders for weaned pigs by 10 different boars. **WM. WAFFLE**, Coldwater, Mich.

HEAVY BONED POLAND-CHINA PIGS at reasonable prices. Eggs from big, business Barred Rocks \$1 per 15. **ROBERT NEVE**, Pierson, Mich.

Prize Winning POLAND CHINAS. Japanese and Buff Turkeys. Zach Kinne, Three Oaks, Mich.

POLAND-CHINAS—Booking orders for spring pigs. Nothing else to offer. **WOOD & SONS**, Saffee, Mich.

Large Improved English Yorkshires. The hogs that make good. September gilts bred to farrow next August or September. Spring pigs of either sex. Pairs not akim. Satisfaction guaranteed. **COLON C. LILLIE**, Coopersville, Mich.

THE DAIRY

CONDUCTED BY COLON C. LILLIE.

CHEAPER PROTEIN DESIRED.

As I have been a reader of your valued paper for some time I would like to know if there is a cheaper way to secure protein than to buy gluten at \$1.65 per cwt. as we are now paying? Analysis: Protein, 24 to 27 per cent; fat, 2.50 per cent; fiber, 8.50 per cent. How would this compare with oat and pea meal, or pea meal alone? Or could you advise some other cheaper way of securing the protein for roughage? I feed clover hay and corn fodder.

Newaygo Co.

D. R.

Feeding stuffs certainly are exceedingly high and I cannot blame dairy farmers for figuring on getting cheaper sources of protein to balance up a home-grown ration. And if these high prices of feeding stuffs simply set farmers to thinking, they will undoubtedly succeed in reducing the cost of rations which will reduce the cost of production. Gluten feed at the price quoted by Mr. Roush probably furnishes digestible protein as cheap as you can get it in any of the commercial feeding stuffs, like cottonseed meal or oil meal. Perhaps you could get it a little cheaper in cottonseed meal. But the manufacturer of these commercial feeding stuffs generally figures to have the protein cost about as much in one as in the other. There is certainly very little difference. Cottonseed meal in this respect in past years has been considerably cheaper than other feeds but the advance in price of that puts it more nearly on a par with the rest of them this year. The farmer certainly wants to get all the protein he can out of the roughage which he grows on his own farm, consequently, he should grow the right roughage as near as possible. He ought to grow all of the good clover hay, or alfalfa hay, that his cows will eat. There isn't any question but what the protein you get out of the clover or alfalfa hay which you grow upon your farm is the cheapest kind of protein that is available. These foods, however, are too bulky to get best results without feeding some concentrated grain in connection with them; hence, the idea of growing Canada field peas in connection with oats. Oats are not overly rich in protein and we sow oats with Canada peas simply to have the oats hold the pea vines up so they can be more cheaply harvested by means of a modern self-binder. That is the only reason that oats are put in. What we want is the peas which are rich in protein, containing 20 per cent of digestible protein.

Now, if you can raise good crops of peas and oats, I have no doubt but that the protein thus obtained is cheaper than any concentrated food that you can buy. But on the other hand, if you raise small crops of peas and oats, it will be dear protein, so it all depends upon the skill of the farmer and the production of the crop. If you can raise 50 bushels of peas and oats to the acre, you can get fairly cheap protein, but if you only raise 20 bushels to the acre you have got dear protein. If you raise only 20 bushels of peas and oats to the acre, it is probably cheaper to buy gluten feed at \$1.65 a hundred than it is to grow peas and oats. It all depends upon the yield. While the cost of feed is exceedingly high the dairyman ought not to be discouraged because the price of dairy products is advanced in proportion to the feed. If he could make money a few years ago with cheaper feeds at the price he then received for his products, he should be able to make money now because he is getting proportionately better prices for dairy products. Hence, there is no excuse for cutting down the ration of the dairy cow. She ought to be fed liberally just as well now with high-priced feed as she was years ago with low-priced feeds.

SOY BEANS FOR PROTEIN.

I saw in The Farmer an article on soy beans for hog feed, stating that it contained 30 per cent of digestible protein. Now, would this take the place of cottonseed meal with ensilage for milch cows and is it a good grain for cows? Is so, about how much seed should one sow per acre? My soil is a sandy loam. Will cottonseed meal cause abortion?

Wayne Co.

E. A.

Soy beans are rich in protein and would make an excellent food to mix with corn silage to make a balanced ration for the dairy cow. The only trouble with soy beans is that they do not do well in this climate. They grow well in the south, but here the seasons are too short to produce best results. If you have extremely warm

land, and a good, dry, warm summer, you can grow good crops of soy beans, but the crop is not reliable. If you have never grown them, I would advise you to grow a small acreage at first until you learn something about the plant and what you can do with it. If you have mature soy beans to grind into soy bean meal, you can substitute this, pound for pound, with cottonseed meal and get splendid results. No one can tell anything about what yields you can get of soy beans.

As to whether cottonseed meal tends to produce abortion in cows or not, some people are suspicious that it does, but those who have never fed cottonseed meal have abortion in their cows. We never had any direct evidence to show that it has any such effect.

DOORS FOR SILO, ETC.

I am getting out material for my lath and plaster silo. Would like to ask a few questions through The Farmer. The silo is 12x36 ft. I would like to know how large the doors should be and how far apart. Are the doors hinged or loose? If the doors are made to fit tight, it occurs to me that they will swell and be inclined to spread the silo. Do you think the cylinder type of ensilage cutters are as satisfactory as the fly-wheel cutters? I expect to hire a threshing engine to fill with. What size filler should I buy and which would be preferable—one of the cylinder type cutters with the enclosed steel carrier or the fly-wheel cutter with blower? Would you buy the traveling table? How would you build the ladder for the silo? Did you use building paper? Isabella Co. SUBSCRIBER.

We made the doors in our silo three feet square and put them three feet apart. That is, we put the first ones three feet from the bottom of the silo, and then put in a door three feet square, and then went up three feet farther and put in another door, and so on. The doors are not hinged, but are made so that they can be taken out and put in. As I explained before in The Farmer, we set the studding where we wanted the door, with a slight flange, having the wide opening toward the silo. Then we made our door frame with a flange both on the bottom and on the top, and then the door is made double boarded with tarred paper between. The opening of the door being a little larger in toward the silo than out, we have no trouble in getting the door out when we come to remove the ensilage. They have never swelled sufficiently so that there was any danger of spreading the silo. In fact, the doors are made of matched lumber, one layer put in the opposite direction from the other, which acts very much like veneering and keeps the door from spreading, or getting larger. Making the jamb of the door at a bevel in this way, gives you a chance to have the door fit perfectly tight.

A cylindrical silo is very much better than a square or rectangular silo. There are no corners in a cylindrical silo for the ensilage to spoil in. Corners are not packed as well as other parts of the silo, the ensilage does not settle as well where there is liable to be a little spoiled ensilage, but with a cylindrical silo this is entirely done away with. Then, with the same amount of material you can build a stronger structure in the form of a cylinder than you can with angles in it. Build a round silo by all means, nothing else should be built.

Buy a good-sized ensilage cutter, one that has a capacity of cutting 100 tons. There isn't any danger in getting one too large. If you are going to have a gang of men you want an ensilage cutter with capacity enough so that you can keep them to work. I don't know much about ensilage cutters with knives on the fly wheel. I have heard people say that those with the knives on the fly wheel did not cut the ensilage as short as the other kind, but I cannot see why this would be so. If you buy an ensilage cutter, get one with a traveling feed table. It is extremely hard work to feed an ensilage cutter all day long if you haven't got a traveling feed table. Otherwise the man who does the feeding has to lift every bundle of corn and place it in the roll while, with a traveling feed table this is all done by the engine.

The best place to put the ladder for the silo is in the silo chute. You want to build a little chute about four feet square up over the door of the silo, extending from the top to the bottom. This protects all the openings from weather, gives you a chance to go up on the inside of this chute and get into the silo. Now, on one side of this chute build your ladder. Then you climb up this ladder and get into your silo. This is the only practical place for the ladder. I did not use any building paper in the construction of my silo except in making the doors. These were

THE BEST INVESTMENT ANY COW OWNER EVER MADE



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That's what makes the DE LAVAL CREAM SEPARATOR the best investment any cow owner ever made, and an investment no cow owner can have sound reason for delaying to make.

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Year in and year out they run without
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THIS OFFER IS NO
CATCH. It is a solid, fair
and square proposition to fur-
nish a brand new, well made
and well finished cream separa-
tor complete, subject to a
long trial and fully guaran-
teed, for \$15.95. It is dif-
ferent from anything that has
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1 quart of milk a min-
ute, hot or cold, makes thick
or thin cream and does it
just as well as any higher
priced machine. Suitable for
small dairy, hotel, restaur-
ant and private families.
Any boy or girl can run it
sitting down. The crank is
only 5 inches long. Just
think of that! The bowl is a
sanitary marvel, easily
cleaned and embodies all
our latest improvements.
Gears run in anti-friction
bearings and thoroughly pro-
tected. Before you decide
on a cream separator of any
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erous terms of purchase will astonish you. Our own
(manufacturer's) guarantee protects you on every
American Separator. We ship immediately. Western
orders filled from Western points. Write us and get
our great offer and handsome free catalog. ADDRESS,
Box 1061
AMERICAN SEPARATOR CO., BAINBRIDGE, N.Y.

THE ROSS SILO

The only thoroughly manufactured
silo on the market. Full length slats.
Continuous door frame complete with
ladder. Triple beveled silo door with
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hoops at bottom.

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Makes winter feed equal to June
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ALUNDUM GRINDER

STEEL FRAME—FOOT POWER
With Emery Dresser,
Wrench, Mower Wheel
Clamp, Alundum Wheels
for sharpening Mower
Knives, Tools, Saws, Disks,
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known. So hard it cuts
glass like a diamond, grinds
ten times faster than emery
without drawing temper.
Price complete... \$9.50
WESTERN IMPLEMENT CO.
266 Park Street
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double boarded, with tarred paper be-
tween. But in making a lath and plas-
tered silo there is no need of paper, if
you lath on the inside and then plaster.

CAPACITY OF COW STABLE.

Will you kindly advise me through the
columns of your paper, in the building of
a cow barn. At present I have a sheep
shed with dimensions 24x30 feet. This
I wish to move nearer the road, at which
place the cellar is being dug. Would like
to place a row of stanchions on two sides,
facing each other. They will have to
run the short way of barn. Will build
silo on north end, and cement will be
used on cellar bottom. How many cows
could this barn, so arranged, accom-
modate?

Lenawee Co.

T. J. C.

Thirty feet in width is hardly wide
enough to have two rows of cows in a
stable with a drive alley between, having
the cows face the outside. Thirty-six
feet is just about the right width. I
would sooner have it 38 feet than nar-
rower. I think if I only had 30 feet in
width for the two rows of cows I would
have the cows face the center with a nar-
rower feed alley, and then have two alleys
back of the cows and use a manure car-
rier to convey the manure out doors. I
think this would be better with this width
of barn than to attempt to get the alley
back of the cows wide enough to drive
through a manure spreader. This stable
which will only be 24 feet long will only
hold 12 cows, six on a side. You cannot
get along with a cow stall much less than
three and one-half feet from center to
center. This would give you room for
six cows on a side and then leave an
alley three feet wide to pass from the
rear of the cows to the head of the cows
in feeding. This would leave you no
room for box stall or for any calf pens.
They, the calves, will have to be kept in
a separate building and when a cow is
sick, for instance, at time of parturition,
you ought to have a box stall and this
must be located in some other building.
The only difficulty in locating this box
stall in another building is that that
building is not apt to be of the same tem-
perature as the one the cow has been
used to living in, and there is danger of
her contracting a cold. Otherwise it will
work all right. In some respects it is
better to have a hospital away from the
living room of the cows. Animals affected
with contagious ailments are safer re-
moved from the others.

THE MODEL STALL AGAIN.

Will you kindly give me instructions for
making model cow stall?

Van Buren Co.

O. A. I.

I have attempted to describe the model
stall a number of times in the Michigan
Farmer, but it seems that I made poor
work out of it because people do not un-
derstand it. I suspect, however, that we
are having new subscribers from time to
time and they do not all see this de-
scription. The model stall is constructed
as follows: Make a cement feed manger
four inches deep, having bottom on a level
with the floor the cow stands on, the
floor slanting from this manger back to
the gutter, say a half inch or perhaps an
inch every five or six feet. Eighteen
inches above this feed manger (or grain,
or ensilage manger, as it is usually
called), have the bottom of your hay
manger. This should be narrow, not over
six inches—people usually make it out of
a 2x6. On the side of this toward the
cow, make the hay manger out of four-
inch slats slanting back toward the
cow at an angle of about 45 degrees. On
the other side of this hay manger you
board it up till your manger is four feet
and one-half high from the floor. The
slats on the cow's side of manger should
slant back so that from the boards to the
top of the slats it is two feet and a half.
This gives ample capacity for hay. For
a partition between the cows put a 2x4
from the top of the slats back, to say a
foot back of the cow, and this is attached
to a 2x4 which is put permanently on the
cement floor by having spikes bedded in
the cement. Then this is boarded up for
the partition between the cows. It is
not necessary to have a gutter with the
Hoard model stall. The gutter is simply
used by most people, myself included, as
the handy place to throw manure until it
is hauled out, but the gutter has nothing
to do with keeping the cow clean. When
the cow is standing up in her stall eating
out of the lower manger, eating her grain
or ensilage, she is just as far ahead as
she can possibly get. You notice where
she stands with her hind feet. Then you
put a 2x4 across the stall edgewise, just
in front of the cow's hind feet and tack
it on the sides. Now the space between
that 2x4 and the grain manger gradually
fills up with bedding and gives the cow a

mattress four inches deep to lie upon.
The cow cannot get onto this with her
hind feet to soil it, and when she lies
down she must step up and lie upon this
bed, or else she must lie over the edge
of the 2x4. This is not a very comfort-
able position and she soon learns to step
up and lie on the clean bed. This is the
philosophy of the Hoard model stall. A
clear idea of the stall can be had by
carefully noting the illustration run in the
Dairy Department of last week's issue of
The Farmer. That stall is not identical
with the one here described but is con-
structed after the same principle.

GRADING MILK AND CREAM.

The agencies such as our dairy and
food department, city inspection bureaus,
etc., created to discover the causes of
poor milk and cream, and empowered to
supervise such regulations as will over-
come or aid to overcome those causes are
sufficient evidence that there exists a real
need of better conditions in the average
dairy for the production of these products.
Much has been done by way of education.
But educational influences have been
nullified in part by the fact that careful
men are given the same price for their
milk and cream as are offered the careless
dairy for the production of these products.
clean milk than it is to produce dirty
milk. The manufacturers and distribu-
tors, therefore, by giving one price to
every producer, really gives a premium
to the careless producer and encourages
him thereby to continue producing milk
in a filthy stable whereas, the party who
is of a disposition to improve his sur-
roundings is discouraged in that the cost
of his more expensive apparatus cuts
into his net profits. From this it seems
that about the only way to remedy the
situation is to grade the cream and milk
and pay the farmers according as their
product is classified in a high or low
grade.

It is altogether probable that much ex-
perience would already have been had in
this regard if an exact scheme for grading
the milk quickly was had. The Babcock
tester has enabled the purchasers to
grade according to the amount of butter-
fat contained in the milk. The exactness
of this test has done much toward secur-
ing a better class of cows throughout
the country, but to date there has not
been a test submitted to the public and
accepted for determining the purity of
milk offered for sale. The recent an-
nouncement by the Wisconsin experiment
station that a test designed to determine
rapidly and accurately the amount of
sediment in milk perhaps approaches
more closely than any other scheme a
way whereby manufacturers of dairy pro-
ducts and milk distributors can know the
exact amount of foreign material that has
gotten into the milk after having been
drawn from the udder of the cow. This
test involves the filtering of a pint of
milk through an absorbent cotton disc,
which collects the sediment showing the
relative amount of dirt in the lot of milk
from which the sample was taken.

If this or any other test that will ac-
complish the classification of dairy pro-
ducts successfully, can be put into use
then there will be a basis for buyers to
pay premiums for the better grades and
discriminate against the poorer ones.
This would be a perfectly equitable ar-
rangement. The party who builds and
maintains sanitary stables would and
should get pay for his pains, while the
man who is indifferent to the kind of
milk he puts upon the market, would be
securing a lower price. Nothing brings
a man to realize the advantage of certain
things quicker or more effectively than
when he sees the party having them get
a superior price for the product secured
through their use. It would have this
effect upon the dairy interest. We there-
fore believe that the next great improve-
ment in the dairy business, so far as the
general producer is concerned, is the find-
ing or invention of a test that will enable
buyers to determine exactly upon the
grades of milk and cream.

The canning business has encouraged
the growing of peas in many sections.
Formerly the vines were cast aside after
the peas were harvested. But as dairy
feed became higher and more scarce the
vines were made use of to help diminish
the scarcity. They can be cured as hay,
fed to the stock in the fresh state, or put
into the silo. As a roughage they have
a high value—being considered superior to
clover hay. Dairy men favored by being
near where peas are grown to supply
canning factories, should investigate this
source of feed for their animals.

Driven Home

This personal, unsolicited letter is
from the first purchaser of a

Sharples Tubular Cream Separator

in Kearney County, Nebraska. You
could not ask a better one.

"Minden, Neb., March 1st, 1910.

To Farmers: I bought the first Sharples
Tubular No. 4 that was sold in Kearney
County, 11 years ago. This machine has
been in constant use ever since and I be-
lieve it is as good as the day I bought it. I
have been milking from 6 to 14 cows during
these years, until two years ago, when I
turned the machine over to my son, who is
still using it on the farm. This machine
has not cost us one cent for repairs of any
kind. It turns easy and skims perfectly. It

is easy to
oil, as you
just pour a
cup of oil
on the
wheels and
the wheels

run in oil. It is easy to clean, as there are
only two pieces to the bowl to wash. It is
always in shape, as there is less machinery
about it than any other machine.

PETER SODERBERG."

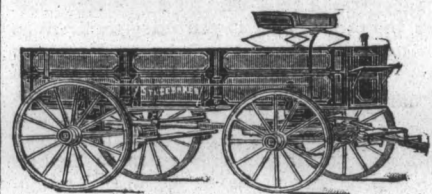
Tubular superiority has driven home to
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THE DEVELOPMENT OF A GOOD DAIRY COW.

A cow is nothing more than a machine. She consumes quantities of food and converts it into milk. Like other machines, good ones and bad ones will be found. Poor cows are the result of carelessness and mismanagement. Good cows are the result of care and attention. The care and attention must always begin with the calf. A good dairy cow must be so brought up that she will manufacture the food she consumes into milk and not into flesh and fat. Of course, it is easier to make a good cow from a well-bred calf than it is to make one from a common scrub, but the latter may often be turned into a valuable cow if the proper judgment is used.

The calf should subsist on its mother's milk during the first week, after which skim-milk may be substituted in part. Gradually increase the amount of skim-milk until the calf is two weeks old when it may be given skim-milk entirely. When the change is made to skim-milk a small amount of oil meal gruel should be added, beginning with one teaspoonful per day and gradually increasing the quantity. Feed ten or twelve pounds of milk per day to the calf while young. Increase the quantity as the calf grows older. Feed three times per day and at stated intervals. Induce the calf to eat hay as soon as possible. Oats should be fed also. Such food as this will serve to develop a large stomach and a great capacity for handling and digesting food, which is an essential quality of a good dairy cow.

A very important thing is to see that the calf has clean, dry quarters and is well supplied with fresh air and sunlight that it may become properly developed, physically. If dairymen would pay a little more attention to the rearing of the calves, there would not be so many worthless cows.

Ohio.

S. C.

ROOTS FOR THE DAIRY COWS.

The practice of feeding roots to dairy cows is not so general in this country as in Europe. There it is an important part of the ration and much attention is given to see that the bins or cellars are well filled with roots in the fall. Here dairymen have learned that silage is a good substitute both as to providing a succulent food for the animals and one containing elements that will go to make milk economically. Largely because of this knowledge the Americans are neglecting the production of root crops for their dairy herds.

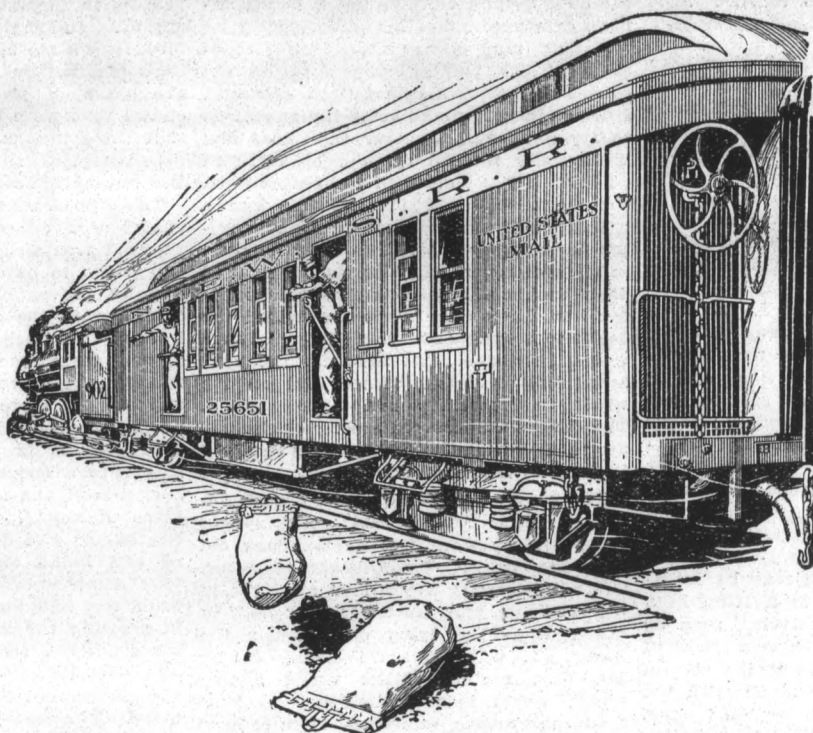
A long line of experiments have been carried out that either directly or indirectly cast light upon the economy of silage and roots. There are conflicting results and different opinions as the showing of these tests. There appears to be a majority of experimenters and practical dairymen who have placed themselves in a position to compare the two without prejudice, that silage is the better feed of the two in that it can be provided at less expense and milk is produced cheaper through its use. In spite of this conclusion it is a matter of expediency for some to grow roots. Obstacles often prevent particular persons from doing the things they are convinced are most economical. Where silage cannot be provided roots should be. A patch of sugar beets, carrots, turnips, rutabagas, mangels or other roots can be arranged for in practically any rotation providing ground suitable for their production is available. Roots are gross feeders and require a liberal supply of available food in a loose well-conditioned soil that is not lacking in nitrogen content. A plot that has recently received a liberal supply of barnyard manure and is in general good tilth, or a piece of new ground is sure to grow a heavy crop of roots and will under such conditions ordinarily make a cheap feed because of the abundance of the yield. Just now, before spring work is well under way is the time to see that the best ground available is set apart for this purpose. A winter feed yard can often be converted into a root plot and the accumulated plant food is always a boon to crops of this nature.

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What is commonly known as the richness of milk depends upon the amount of butter-fat it contains. There is so much difference in the composition of milk from different cows that many large butter and cheese factories now test all the milk they buy, and pay for it according to its butter-fat content.

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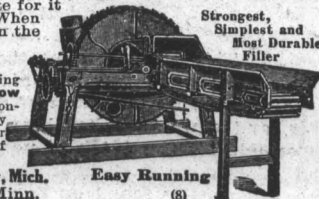
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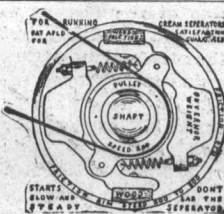
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POULTRY AND BEES

GETTING SOILED EGGS READY FOR MARKET.

To prepare eggs for market when they are stained from coming in contact with wet straw or earth, takes considerable time at best. However, the work may be considerably lessened by handling the eggs in the following way: Put all dirty eggs into warm water. Have ready a large cup that will hold two eggs and enough water to cover them, to which has been added a tablespoonful of muriatic acid. The eggs that will not wash clean in the water are placed, two at a time, in this preparation, and left for about a minute or until the soiled spots rub off easily. When a soiled egg is washed in this way it looks just as nice as when first laid. This washing saves the producer the embarrassment of bringing in a soiled looking lot of eggs just because the weather happened to be rainy the previous week.

If one has reason to suspect that the eggs are not good, or have been covered by broody hens, the truth may be determined by holding them to a lamp in a darkened room. An egg tester, such as every incubator owner has, or a piece of pasteboard with a hole in it the size of an egg, or just a circle made with the thumb and finger, will do for the testing.

If one makes a practice of marketing the eggs every week, tests all eggs that are under suspicion and washes all that need cleaning in the manner just described, he need not be ashamed of the egg basket on market day.

Barry Co.

T.

(This is one of the places where prevention is a whole lot better than cure. The fewer soiled or stained eggs one finds in the basket the better, consequently the importance of taking every precaution to keep the number down to the lowest possible limit. While, as this correspondent explains, it is not such a difficult matter to remove soil and stain so that the eggs will make a good appearance, it must be remembered that this cleansing does not return the eggs to the market basket in as good condition as when first laid. Wetting the eggs, and especially immersing it, removes that natural coating of the shell which is known to be so essential to the egg's keeping quality. The removal of this coating is regarded of so much consequence that buyers of eggs for cold storage plants never fail to reject washed stock, and this fact should warn all producers of the danger in attempting to preserve eggs of this kind throughout the summer. In fact, when the poultryman is so unfortunate as to have many soiled eggs he should promptly clean them up without wetting the shells any more than just necessary, and then either use them at home or sell them for immediate consumption. At all events they should not be distributed through a crate of strictly fresh eggs that retain their natural "bloom," since their discovery will unquestionably lower the price per dozen on the entire crate.—Eds.)

WHITE DIARRHOEA IN CHICKS.

Just now there is wide discussion of a disease which is held responsible for a steady increase in the chick mortality rate during the past few years. Scientists connected with the various experiment stations have given much time and hard work to the investigation of this rather mysterious trouble, with the result that, as yet, the "doctors" do not fully agree in their diagnoses and conclusions. For a time it was believed that this disease, which has been called "white diarrhoea," was peculiar to incubator-hatched chicks, and artificial incubation was therefore held to be at fault. Further investigations, however, have shown that hen-hatched chicks are almost equally susceptible. All apparently agree that it is the most serious trouble with which the poultryman has to contend, and some claim to have evidence that it is not only the cause of heavy losses among chicks, but that it is responsible for blackhead in turkeys.

Some students of this problem claim to have traced the source of the disease to infection of the egg before hatching, but the majority hold that infection occurs after hatching and is due to improper rearing hatchling and is due to improper regard for cleanliness in caring for the chicks. A close study of this trouble, made by Dr. H. M. Cushing, a Canadian scientist of high repute, brings out some facts which seem to point to a

very likely source of infection upon many farms. At all events his findings are of interest as indicating one source of trouble—one which every poultryman may easily guard against when he understands the danger—and we give below Dr. Cushing's own account of his investigations:

Having read some interesting discussions in the poultry magazines on the cause of "white diarrhoea" in chickens, I determined to make some investigations to try if I could discover the cause and incidentally a cure for the epidemic in question. The history of the epidemic on the farm which I investigated was a repetition of what occurs on many poultry farms every year. The early hatches, in spite of severe climatic conditions, had done well, comparatively few chicks being lost, but as the season advanced the death rate increased. Sometimes a brood would be almost exterminated, the next brood might largely escape, but on the whole the mortality had steadily risen. The deaths all occurred among chicks under three weeks old; if the chicks survived that age they almost invariably escaped.

The symptoms of the disease were not very definite. The broods would appear quite healthy until five or six days old and then deaths would begin to occur. Often the chicks would look all right in the evening and next morning half a dozen would be lying dead under the hover. If watched more closely during the day, certain chicks would appear weak, would have a tendency to keep near the warmth, sometimes seem to have slight difficulty in breathing, and would finally lie down and expire within a few hours after the first weakness was noticed. Many, but not all, showed signs of diarrhoea; the droppings looked like curdled milk, and the chicks became pasted up behind. The older chicks, i. e., about two weeks old, were usually ill longer, and might be observed to be ailing for several days; they appeared thinner and smaller than the rest of the hatch, and finally died of exhaustion, sometimes with signs of diarrhoea. At times the virulence of the disease was remarkable; a whole brood of a hundred chicks, when about a week old, would perish in two or three days. More often there would be a steady death rate of three or four a day, lasting from the end of the first week until the end of the third, by which time half the brood would have perished; then the survivors would escape, growing up strong and healthy.

The chicks on this farm were all hatched in incubators and reared in brooders, partly indoors and partly outdoors. They had most hygienic surroundings, with the most modern appliances, no expense being spared. The pens had been cleaned and sterilized, the food varied in every possible way, but nothing seemed to affect the mortality.

I commenced investigations by examining the bodies of a number of chicks which had died at various ages and in various pens. Here I met my first difficulty; instead of having difficulty in finding a cause of death, the question was how they could have lived so long. There was a curious diversity of findings; yolksacks, intestines, liver, heart and lungs were all found diseased in different chicks, until I wondered if they had all died of different diseases. However, on putting all the results together, one fact was obvious—whatever other evidence of disease they had, all without exception had little, hard, yellowish nodules in the lungs. In the youngest chicks these were very small and few and hard to detect; in the older ones, two weeks old, they were numerous and as large as a large pin's head, giving the lungs an appearance as if affected by tuberculosis. Turning my attention to these nodules, I examined the lungs from a large number of chicks by various methods, and had no difficulty in determining that the nodules were associated with the branching filaments of a fungus.

Common Mould Found in Straw Litter.

To determine the nature of this fungus, which I believed must be the cause of the trouble, I secured some sick chickens, killed them and immediately removed some of the nodules from the lungs with the strictest precautions to prevent contamination, inoculated them on various materials and placed them in an incubator. In nearly every case, within 24 hours I obtained a profuse growth of a fungus which was readily recognizable as *Aspergillus fumigatus*, one of the common moulds. This was not altogether a surprise, as the mould was recognized nearly a century ago as the cause of disease in birds, and since then has been noted as responsible for the death of nearly every kind of bird or fowl kept in captivity. Although usually found on decaying ani-

mal or vegetable matter, it can cause disease in many animals.

On examining other organs affected in the chicks, I had no difficulty in recognizing the same fungus as the cause of little nodules in the intestines, liver and other organs. In short, the conclusion was forced upon me by repeated examinations that infection by *Aspergillus* was causing the death of practically all the young chicks that were dying on the farm, and that the symptoms and signs of the disease varied with the age of the chick and the organs affected.

The appearance of the lungs of the chicks was enough to convince anyone that all treatment was useless. If anything was to be done, it must be in the way of prevention and this turned my attention to the source of the infection. I could not believe that the infection spread from one chick to the others through the excretions, as I never found any signs of spore formation in the bodies of the chicks, and, further, the course of the epidemic in any one brood pointed rather to a common source of infection. I examined the incubators and eggs for signs of mould, without results; brooders, hovers and dishes were also inspected and found absolutely clean. I next took samples of all the foods used but could not find any mustiness or succeed in growing the mould from any sample. Finally, my attention was drawn to the straw used as litter in the brooders, and the solution of the problem became obvious. The straw had become moistened at some time and was distinctly musty. Moreover, on microscopical inspection, it showed an abundant growth of the very mould in question. I even found particles of straw infected with the mould in the chickens' crops. The unfortunate chicks were really living and sleeping on a regular hotbed of what was for them a deadly disease. How any could have escaped infection was a mystery, but perhaps some are naturally immune.

The experiment was now tried of clearing all the brooders of infected litter and using only clean, fresh hay. An immediate decrease in mortality was the result.

Wishing to determine whether this was an exceptional experience on this farm, or whether the disease was really widespread, I had dead incubator chicks forwarded from four farms where they had been losing many chicks. In every case I succeeded in finding the characteristic nodules and determining the presence of *Aspergillus*.

THE SPRING FEEDING PROBLEM AS TWO MICHIGAN BEE MEN SEE IT.

Spring feeding, in my opinion, should be done in the fall as much as possible. I mean by this that bees should be supplied with enough honey in the fall to carry them over until the following honey flow is available. No trouble about their building up if there is plenty of honey in the hive and other conditions are right. To be sure, some of our most successful bee-keepers have advocated taking the honey from the bees and feeding it back to them in daily rations, making conditions thereby as nearly as possible like a bona fide honey flow. Now we all know that this is just the thing to start the brood-rearing instinct of the bees into activity, and the faster brood is reared the faster the colony will build up, of course.

Then why should not the plan be a success? Well, let us look into the conditions under which these successful bee-keepers did their spring feeding. Take the case of the late E. W. Alexander, of

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STANDARD BRED R. I. REDS—both combs. Eggs \$1 and \$1.50 per 15; R. C. pens, selected winter layers, 1 pen Sharmans 240 egg strain. S. C. Reds \$2 per 15; R. C. cockerels \$2. W. T. FRENCH, Ludington, Mich.

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R. C. R. I. Reds—Stock selected from the best layers for 5 years. Great egg record. Farm range. Eggs 15 \$1; 100 \$5. F. M. Knapp, Berlin Heights, R. I., O.

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40, \$2; 15, \$1—Smith select eggs, good measure from world's best strains, Rd., W. & B. R. R., R. & S. C. Reds, S. C. White, R. & S. C. Br. Legh's; Pk. Dks.; bred to win lay & pay. Strong baby chicks 15c each. Years of experience. Poultry my business & study. Care, W. J. CRAWFORD, R. 4, Frazeeburg, Ohio.

EGGS from my prize-winning Single Comb Brown Leghorns at easy prices. Cockerels, hens and cock birds for sale. CHAS. W. RUFF, St. Clair, Michigan, Dept. M. F.

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Y. B. BRAND—S. C. W. Leghorns. Bred to lay. \$1. per 15; \$5 per 100. C. W. YETTER, Alto, Michigan.

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Collie Puppies sable with white markings thirty to-day for prices. W. I. ROSS, Rochester, Mich.

New York state, for instance, who made a wonderful success at the business and was perhaps the strongest advocate of this plan of feeding. Buckwheat honey was his main flow, and so all his energies were bent on having his colonies in proper condition to meet the flow. This flow did not begin with him, in earnest, until about the first of August. Then when was the spring feeding begun? About the first or the middle of June, when bee-keepers in Michigan must be ready for their main honey flow. They were fed until about the first of July and then sometimes divided for increase, the divided colonies having plenty of time to get built up for the flow.

Now, suppose we Michigan fellows were to try spring feeding. In order to have it be of benefit we should be obliged to begin feeding about the first of May. If the weather is warm when we begin, a few days will see the brood nest enlarged wonderfully and the smiles will spread all over our faces as we think of the bountiful harvest we shall receive from such a force of bees as prospects seem to indicate we shall have.

Suddenly there comes one of those miserable cold nasty spells of weather which we so often get at this time of year, and when the sun shines out again we once more look over our booming colonies, with their promise of riches for us in the coming season. As we look into first one and then another the smile gradually wears off as we come to the realization that our hopes of future riches are being dragged out by the bees, along with the dead brood we have used valuable feed to obtain.

Our brood nest now is a sad affair, for the bees have attempted to cover too much of it and they have lost below what they would have had if they had been left to themselves. This is not idle theory but hard-earned experience, for I've been "through the mill."

My practice now is to lay by some combs of honey. If in the spring I find some colonies short of stores I set in enough of these stores to see them through. Sometimes, if the flow does not open up as early as usual and the weather has become settled, I do some feeding, along in June, on the daily plan and it works very well, tiding the bees over what would otherwise be a disastrous spell with them.

Mecosta Co. L. C. WHEELER.

What to do when Colonies Are Short of Stores in Spring.

Undoubtedly more colonies of bees perish during the raw spring weather than at any other season. The sudden changes from warm to cold, wet weather; the depleted condition of the colonies and short stores all contribute to the losses. Bees stored in cellars should not be moved out too early. Hives containing small clusters should be covered with papers and old blankets to keep in the warmth of the colony. When moved out of doors they should be covered with some waterproof material, such as tar paper or oilcloth.

Colonies short of stores should be fed. A good way to feed, if one has empty combs, is to make a syrup of equal parts water and pure granulated sugar. Place the combs flat in a large dish or tub and, holding the receptacle about a foot above them, pour it into the combs. By handling carefully the combs can be turned over and the other side filled in the same way. The combs should then be hung up and allowed to drain before being put into the hives. It is wisest to put them into the hives just as the cool of evening comes on, to prevent robbing. Do not divide the brood nest but place these combs next to the cluster.

If the weather is so cold that it is unwise to open the hives to insert the combs, it will be best to feed a candy made from pure granulated sugar and water. Pour a little water over the sugar and boil until the candy will "crack." To tell when the candy will "crack" dip the finger into cold water, then quickly into the syrup and again into the cold water. If the candy cracks when the finger is bent it is done, and ready to be poured into greased pans. The cakes of candy should not be over three-eighths of an inch thick. These cakes can be placed directly over the clusters of bees by raising the hive cover and blanket, and laying it on the frames. The blanket and cover should be replaced quickly to prevent chilling, and the hive covered with papers, old blankets and some waterproof material as before suggested. A little care now will save many a weak colony that might otherwise perish.

Ogemaw Co. H. B. FULLER.

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EACH farmer knows what share the rest of his family has taken in preparing for the grain harvest. Also the responsibility that rests upon him alone to choose the machines which will give the greatest amount of grain from his fields for the cash market.

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They are the best that most expert workmen and machinery and high grade materials can make them. They have been improved every year 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.

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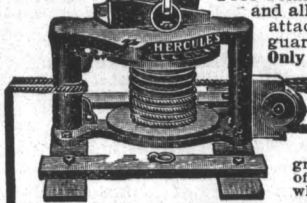
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The Lawrence Pub. Co., Detroit, Mich.

DETROIT, APRIL 9, 1910.

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CURRENT COMMENT.

A bill is now pending in the upper house of congress, providing for uniform Federal inspection and grading of grain. It is said that representatives from the boards of trade at large market centers are in Washington actively opposing the bill. The reason for this activity is said to be due to the fact that the powerful elevator interests at the terminal markets do most of the actual buying and exporting of grain, and that while there is more or less general complaint from growers and sellers of grain that their product is graded too low, there are also loud complaints from European buyers that our grain is graded too high. It is even asserted by some who have investigated the matter that grain of a given quality is graded higher at New Orleans which is a port from which a great deal

of grain is exported to Europe, than grain of similar quality is graded at Chicago. While this may or may not be true, it is apparent that absolute uniformity in grading can hardly be expected where this important function is performed by a local organization at each of the big terminal markets as at present. Undoubtedly, uniformity of grading, is desirable for the producer of grain, to the end that he may not only receive a maximum value for his product, but that the foreign purchaser may have the benefit of equally fair grading, to the end that our foreign market for American grain may be thereby stimulated. It would thus appear that grain growers have nothing to lose and probably much to gain through the establishment of a system of Federal inspection. The standardization of a product is always an advantage to its producer. Thus it would seem to be the part of wisdom for the grain growers of the country to interest themselves in this bill, and to advise their representatives in congress of their views in the matter, as the organized grain dealers have already done.

The Development of Co-operative Enterprises.

A business man was recently heard to remark that the fruit growers of western New York were badly in need of an organization and that they were failing to reap anywhere near the possible profit from their enterprise because of their indifference to and lack of organization. This business man remarked that if some person were to organize the fruit growers of that section and conduct a selling agency for them upon a 10 per cent basis, he would not only make a handsome profit for himself, but that there would, as well, be a much larger profit for the fruit growers in question.

Undoubtedly co-operation is badly needed in this department of production. The grape producers of Van Buren county found that they could make little or no profit without co-operative selling, and their imperfect organization has brought about good results in improving their market and saving to the growers a fair share of the legitimate profit on the production of their specialty. The apple growers of the west have learned a lesson in this respect and a large part of their fruit is marketed on the co-operative plan; but the growers of citrus fruits in the state of California afford the best example of the benefits to be derived from co-operative organization. The orange growers of California passed through strenuous experiences in the development of their industry and, while the industry was still small, they learned from dear experience that in order to make a dependable profit their product must be marketed in a co-operative way, as under no other plan of distribution could a fair profit be derived from the production of their perishable fruits. After some preliminary discussion, an organization was effected, but the established dealers in the trade succeeded in practically breaking it up by the same tactics which they have followed in other similar cases. But upon the experience gained from these early efforts, a successful organization was finally effected and today a very large percentage of the citrus fruits grown in California are marketed through what is known as the California Fruit Growers' Exchange, which is a central organization composed of 14 district organizations and managed by 14 directors, one of whom is elected from each of the district organizations. These district organizations are in turn composed of a number of local organizations, each one of which has a packing house at which the fruit of its members is delivered and packed for market. The central or state organization sells practically all of the fruit for all of the growers, its contract being with the several district organizations which, in turn, control the business of the local organizations of which they are composed. The extent of the business conducted by this purely co-operative enterprise runs well up into millions of dollars, over 40,000 carloads of oranges, lemons and grape fruit being marketed by this organization each year.

What by some would be considered a weakness in this organization is its real strength. The local organizations control their own shipments, sending them to such markets and at such times as they see fit. The central organization has agents and accredited representatives in the large markets throughout the country, so that sales and collections can be made to the very best advantage. There is also a great advantage in the buying of packages and other supplies essential

to the packing of the fruit, so that a great advantage accrues to the members of the organization through their membership, and yet they practically retain the control of their product through the local association, the central organization keeping them posted at all times on market conditions and handling their product for them at its destination when and where they may desire to ship it.

All this has taken years to accomplish. The first really successful move toward organization was made in 1893, and the present effective organization has been the development of the intervening years. The co-operative grain elevators, mentioned in a previous issue have joined in no such effective central organization as yet, because they have found the conditions which surround distribution in their line to be more tolerable, but there is now said to be a feeling among the leading spirits in this movement that something should be done toward invading the centers of distribution in the way of providing terminal facilities for the handling of grain marketed in a co-operative way.

But in all this there is a valuable lesson for Michigan farmers. These several examples afford further proof of the already well established fact that co-operative organizations operated along lines of community production can be made successful, even in isolated communities and that when these local organizations become sufficiently numerous a further and even greater advantage is offered by associating them together for mutual advantage in the conduct of their business. Michigan is well to the front in several lines of production. She ranks first in the production of beans, is well up in the list in the production of potatoes, has a well earned reputation as a great fruit state, and in certain sections produces large quantities of grain, hay, and other staple commodities which are sold in the open market. Undoubtedly co-operative organization holds as great advantages and opportunities in these several lines of community production as it has for the fruit growers of the pacific slope or the grain farmers of the central west. These opportunities but await improvement by our producers, and we are glad to note that in a few communities, at least, Michigan producers are awakening to a realization and appreciation of them. It augurs well for the future of Michigan agriculture and the continued and increasing prosperity of Michigan farmers.

Where Conservation of Hickory Trees Should Apply.

It is not an uncommon thing to see good, sound hickory trees cut for firewood upon the farms and in the woodlots in this state. Unquestionably, good, sound hickory wood makes nice fuel, but it is not good economy to use it for that purpose, at least that portion of hickory trees which are marketable for commercial purposes. The United States Department of Agriculture has recently completed a census of the principal hickory-using establishments to ascertain their annual requirements. The figures gathered show that there is an annual consumption equivalent to 131,600,000 board feet of hickory divided among special uses as follows: For spokes, 45,000,000; for handles, 29,000,000; for poles, and shafts, 18,000,000; for rims, 16,000,000; for singletrees, doubletrees, neckyokes, and bolsters, 16,000,000; for axles, 6,000,000; for sucker rods, 1,000,000; for vehicle gear woods, 600,000 feet. In addition to the hickory which is thus made directly into these special forms, there is manufactured each year 200,000,000 feet of hickory lumber to be re-worked later into various products. Thus the total amount of hickory cut in the United States each year is estimated to be equivalent to not less than 330,000,000 board feet. According to the reports of the Bureau of Census, the average value of hickory lumber at the mill is about \$30 per thousand, while the high-grade material which is necessary to the special uses listed above is worth at least \$50 per thousand. Thus it will be seen that it is not good economy to cut good hickory trees into firewood.

There are considerable quantities of hickory growing in Michigan. Hickory is a widely distributed wood, although it does not constitute more than two to five per cent of the total stand of timber in our hardwood forests. Owing to the more scattering stand of hickory in our Michigan hardwood districts, which are confined largely to farmers' woodlots, the cutting of hickory on a commercial scale has not been a very large factor in our production of lumber, but as the supplies in Arkansas, Tennessee, Indiana, Kentucky and Ohio are becoming rapidly depleted by commercial cutting, the scatter-

ing hickory of our own state will certainly be in demand at advanced prices within a very few years, since in the last few years users of hickory lumber have become very much alarmed over the decreasing supply and because of the fact that no other lumber has proven suitable under test, for the special uses to which hickory is particularly adapted as above enumerated. Thus the saving of our hickory wood until it comes in demand for commercial purposes, as it surely will within a very few years, should be a part of the conservation program of every farmer who has a woodlot in which hickory trees are even a small factor in the stand of timber, particularly if those trees have not yet reached their prime, since hickory will undoubtedly rival the famous cork pine which was once so common and cheap in Michigan in market value within a very few years.

The Potato Market.

As the season advances the potato situation becomes more embarrassing to growers who have held all or a portion of their crop for the late market. Undoubtedly the unseasonable March and early April weather has tended to further demoralize an already weak market, until from no point comes any atom of encouragement to the well nigh discouraged potato grower. From all appearances and reports it would seem that there is a large surplus of potatoes held in growers' hands for the season of the year, and unquestionably the market is practically dormant. However, there are features of the present situation which should not escape the attention of the unfortunate holder of potatoes at the present time. Reports from both official and private sources indicate that stocks in dealers' hands in distributing centers are smaller than usual, and all are anxious to unload what they have. But with the spring work at hand, farmers who have potatoes will hardly rush them to market at present prices, and when the need of more potatoes for consumption is felt it would seem to be a safe prediction that a reaction would occur. A good many potatoes are being fed to live stock, and a good many marketable tubers will be planted, so that with a good two months ahead before new potatoes will begin to be a factor in the market, there is certainly a chance for better prices. At any rate if holders refuse to sell at present values a reaction must soon come, and just as many potatoes will be required at double the present quotations as at the figure now offered. Present prices are at a level which leaves nothing to lose by holding longer, as they will little more than pay the cost of marketing at 10 cents per bushel, hence those who have played a waiting game up to the present time are justified in seeing it through, a policy which, under present conditions, would seem to be "good business."

Reading For the Busy Season.

A great many farmers who make a practice of reading farm papers and periodicals during the winter season feel that they have no time for such reading during the busy summer season and either allow their subscriptions to lapse or else neglect to read the papers which they receive, for the reason above noted. This, however, is a mistake which no progressive farmer should make. A good trade paper is just as essential, if not more so, during the active campaign of any business than during the slack time. The agricultural paper, for instance, that is worthy of its name and place in the farmer's home, will keep abreast with the season in the character of the matter which it publishes and many helpful suggestions and ideas will appear in every issue which can not but be of benefit to the careful reader. If we all knew all about the best methods to follow in our business and all did the best we knew how in every case, then this necessity would not be so apparent. But the more capable we are in our business, the more we recognize our own short-comings both in the matter of our knowledge regarding the best methods and practices, and our promptness in putting that knowledge into practice. The up-to-date farm journal will be worth many times more than its cost, by way of seasonable suggestions alone, to say nothing of the valuable experience of our contemporaries presented in its columns, which will save us both time and money in the matter of personal experimentation to arrive at conclusions which are thus presented to us. Undoubtedly the farm paper, like the trade paper of the merchant or manufacturer, should be read as carefully and thoroughly during the busy season as during the slack season in the business in which we are engaged.

HAPPENINGS OF THE WEEK.

Foreign.

Because certain conditions were required to be agreed to on the part of Colonel Roosevelt before arrangements for an audience with the Pope could be completed to which the former president of the United States would not submit, a meeting of the two persons will not take place during Mr. Roosevelt's visit in Rome. The conditions required was that the ex-American executive should not have a date with the Methodist colony in Rome previous to his date with the Pope. King Victor Emanuel received the ex-President on April 4, in the morning, and on the evening of the same day a reception was given at the palace.

The recent release of two Japanese spies who were caught inspecting the American military fortifications in the Philippines, has aroused the war authorities to encourage congress to pass a law protecting the state against trespass of this kind.

Arrangements have been made between the governments at Ottawa and Washington for the purpose of negotiating a reciprocity and trade treaty between the two countries. The treaty will settle for all time the various open issues regarding the water and land boundaries between the United States and Canadian possessions, the fisheries, the preservation of seals and the tariff relations.

The United States has assumed the right to act as a protectorate of Liberia in Western Africa. The German gunboat anchored off the coast of that country immediately departed when the announcement came that America had taken this stand.

The Irish leaders in the British house of commons announce that they have joined forces with the liberals in the fight against the house of lords. The combination of these two forces will probably not only gain for the popular house the authority they pray for, but also makes more hopeful than ever, the success of the Irish cause on the floor of the British legislature.

Three men were killed and a fourth seriously injured in an accident with a balloon in Northern Germany, the balloon being caught by a hurricane, causing the passengers and crew to fall into the Baltic Sea.

Recently affronts made against the Peruvian legation at Quito by Ecuadorians, has aroused the citizens of Peru, and large demonstrations have been held, especially at Lima, in which the government of Ecuador is asked to make immediate and satisfactory amendments.

In 1887-8-9 when revenue cutters captured a fleet of sealing vessels in Behring waters claims were made against our government by both American and British claimants. The latter were paid over \$463,000 for the damage suffered, but the Americans never recovered the losses sustained by them. Now a bill is being presented to congress arranging for the proper adjudication of the matter.

It is rumored that a proposed treaty between the United States and China provides for assistance being rendered to the latter country by the former in case of war between China and other nations.

To protect the baronetcy of England from imposition, a careful role is being made of all who are entitled to recognition to that class. In order for those not enrolled to gain admittance their right must be clearly established thereto.

National.

A cyclone visited Youngstown, O., Monday, tearing down a dozen residences, injuring a score of people and causing a general loss of \$100,000.

The operators of the street railway companies of Philadelphia have withdrawn their offer to receive back all the old employees who apply for work.

The bill providing for the publication of campaign contributions has been favorably reported to the lower house of congress.

The New York Assembly adopted a resolution Monday declaring for an investigation of all insurance companies other than life and providing for a further investigation of the New York fire exchange.

Indianapolis will entertain President Taft on May 5.

Official announcement was made by the Bethlehem Steel Company that an advancement of 50 cents per ton will be paid puddlers working in their shops.

Explicit instructions have been given a grand jury to make a thorough investigation into the charges of bribery made against members of the Kentucky legislature.

The action by the state of Kansas requiring that carriers furnish shippers cars within five days after an order is placed has been declared unconstitutional by the United States Supreme Court.

The Texas law fixing the tax on oil, naphtha, etc., at 2 per cent of the gross receipts has been pronounced by the supreme court of the United States to be constitutional.

By a vote of 132 to 122 the house of representatives incorporated an amendment to the legislative bill providing that returns made by corporations under the terms of the corporation tax law shall be made public only on the order of the president. The purpose of this amendment is to exempt the small corporations from the stringent rules which seem necessary to apply to institutions of the quasi-public character.

The New York Central railway has granted a raise to the employees of their road east of Buffalo.

The street railway employees of Detroit voted on Monday by a very decisive majority to quit work unless the operators advanced their wages to 30 cents an hour.

The great storm on the Japanese coast in March is now known to have resulted in the death of 1,100 fishermen and the loss of 84 vessels.

On Monday of this week, 36 counties in the state voted upon the question of eliminating saloons within their limits. Twenty of these counties voted dry, according to the latest information we have. Only two counties out of 10 where the

question was resubmitted, voted to go back to the wet column. The main stronghold of the wets appeared to be in the larger cities.

A \$1,000,000 gymnasium is being planned for Harvard College.

Practically all of the countries of the world that do any trading with the United States have been admitted to the minimum rates of the recent tariff law.

It is expected that another British election will be held some time in May.

During the fall and winter months there were lost in the coast trade of New England, New Foundland, and Canada, 225 persons and 83 vessels.

CROP AND MARKET NOTES.

Emmet Co., March 28.—The weather for the month has been all that one could wish for. Snow is practically gone and grass is beginning to show green. Wheat and rye are both in first class condition. The same is true of meadows and pastures so far as winter injury is concerned. Farmers have started plowing fields favorably located for there was no frost in the ground upon the going of snow. The weather we are now having compares favorably with that of the same time in April of last season. Hay and feed stuffs are so fearfully high that it will be a blessing to farmers if the present weather conditions make good. Some dressed porkers going to market and are bringing 11@11½c. Dressed chickens, 16@17c per lb.

Washtenaw Co., April 4.—At this date while it has been extremely dry, we are having some light showers which are having a beneficial effect on grass and wheat. The new seedlings throughout the country look very promising but not so with wheat, which is badly winter killed and has suffered from the dry March just passed. With favorable weather from now on it may make a 70 per cent crop. Owing to the favorable spring a large acreage of oats will be sown, in fact, at this date many farmers have a large part of the crop in the ground. It promises to be a favorable season for pushing all kinds of farm work along on time, which is a great factor in a bountiful harvest. Everything brings a fine price except the potato, which is certainly a drug on the market. The hog stock, whether mature or suckling pigs, bring almost fabulous prices.

Clinton Co., March 31.—March has been an ideal month for doing farm work such as clearing, drawing manure, fencing, and trimming fruit trees, which has been a much neglected feature of farm work. Farmers are being awakened to the importance of pruning and many old and long neglected orchards are being pruned this spring. Many fields of oats have been sown on the high rolling land these beautiful March days. A good many lambs have been dropped during the month, few losses reported. A great many sheep have been shorn during the month. Men are scarce and wages high. Farmers are paying \$25 to \$29 and board per month, and there are not men enough to go around. Late sown wheat is poor, but new clover seeding is fine.

Genesee Co., March 31.—For the most unusual season the present one beats all records. Since March 1, weather has been warm and at this date a large proportion of the oat crop has been put in and some fields are already growing. Too dry, is the only complaint. Rain is badly needed. Roads nicely settled and too dusty for pleasure. Grass growing well but needs a warm rain. Hired help very scarce. Scores of farmers looking for men. Market prices as follows: Wheat, \$1.15; corn, 45c; oats, 47c; beans, \$1.90; dairy butter, 24c; eggs, 20c; potatoes, 30c; dressed hogs, 13c lb; beef, \$9@10; baled hay, \$12@14. Horses and milch cows both high. Many potatoes held over by growers. Loss to farmers in this way is considerable as prices are 20c less than last fall.

THE WRONG BOX NUMBER.

Did You Write Them?

In the issues of the Michigan Farmer for March 12 and 26, through a compositor's error, the box number of the Walter A. Wood Mowing & Reaping Machine Co., as given in their advertisements, was 332, instead of 232, as it should have appeared. This company has an arrangement by which their mail from different sections of the country is directed to different boxes, by which means they are able to keep a check on their inquiries from different sources. Thus, while a letter directed to them as the address appeared in these advertisements would reach them, the inquiry would be credited to other territory and the paper in which they appeared would get no credit as the advertising medium. For this reason we will appreciate it as a special favor if any Michigan Farmer reader who has written them would drop this firm another card directed to the Walter A. Wood Mowing & Reaping Machine Co., Box 232, Hoosick Falls, N. Y. Those who have not already written for their catalog should do so at once, as it contains valuable information to prospective buyers of harvesting machinery.

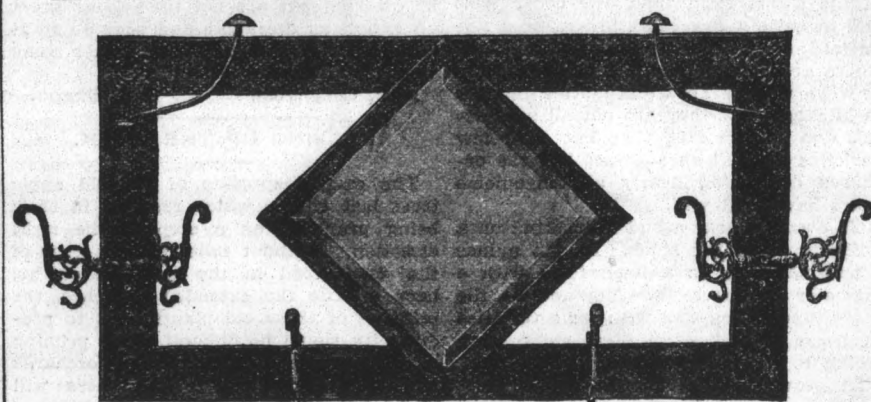
DETROIT WILL HOLD INDUSTRIAL EXPOSITION.

Plans have been completed for the holding of a great industrial exposition in Detroit, from June 20 to July 6, 1910, under the auspices of the Board of Commerce. The arrangements for this exposition are being made by a committee of 275 manufacturers, which representative committee insures that Detroit industries will be properly exhibited. The slogan selected for the occasion is, "One for all, and all for Detroit." The exposition will not only be educational, but entertaining. Large bands will furnish concerts afternoons and evenings, and the decorative and illuminating features will be of a high order.

Additional Premiums

Given away FREE to the Pony Contestants. First list of premiums appeared in issue of April 2. Ask for a copy if you haven't one.

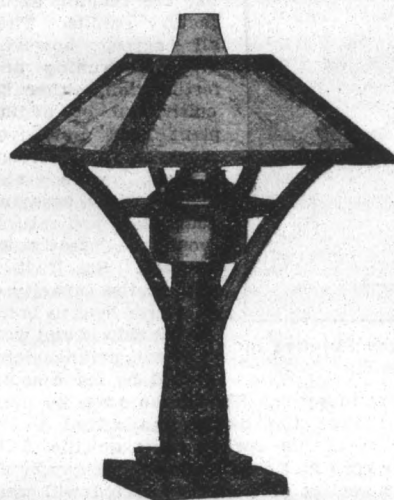
DIAMOND WALL RACK.



This is one of the most useful and desirable premiums ever offered; a necessity in the home. Its artistic design and beautiful finish make it a favorite with all who see it. Made of best quality non-corrosive metal, electro-copper plated and finished in Antique Oxidized (like illustration) or in Gun Metal, highly polished. Hooks are neatly designed and so arranged that the handsome French Plate Mirror can not be covered by any garment. The two steel swing-hooks are for ladies' hats, yet will support a heavy overcoat. All hooks detachable, yet easily locked into position for use.

When in use the rack hangs flat against the wall; takes up no room yet has a large hanging capacity. Frame is 31 in. long x 16½ in. wide; mirror is 10 in. x 10 in. with ¾ in. bevel. Constructed with patent locked, reinforced corners. Will last a life-time. Retail for \$6.00. Our price, \$2.75, or 46 points.

MISSION LAMP



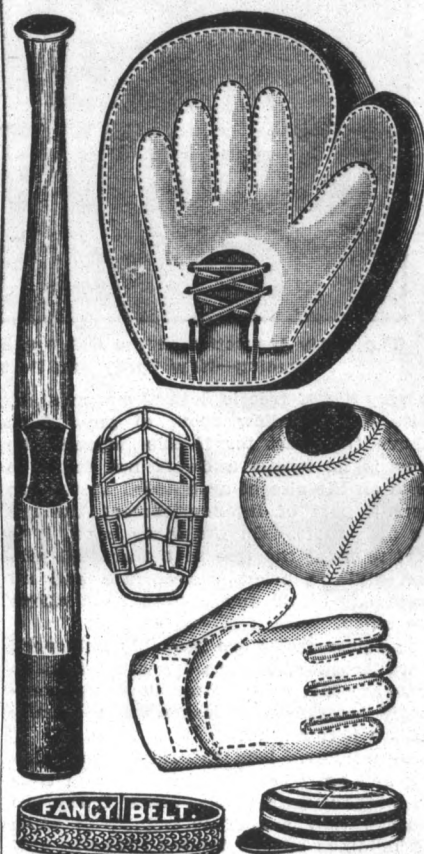
Wood parts are oak. Shade of granite glass richly colored, for either oil or electricity. A splendid lamp to read or sew by. Retail at from \$5.00 to \$6.00. Our price, \$3.00, or 50 points.

Not Grandfather's but the 20th Century Hall Clock.

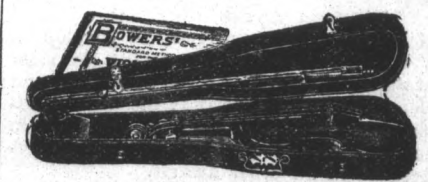


Retail price, \$16.00; our price, \$7.00, or 120 points.

Baseball Outfit.



The above outfit, glove, mitt, mask, ball, bat, cap and belt. A splendid outfit for any boy. All of the pieces in this outfit are of good material, and will please you. Given for 40 points.



A VIOLIN, Case, Bow and Instruction Book.

Complete Outfit. Cash Price \$3.75 or 75 Points.

For particulars address PONY CONTEST EDITOR, MICHIGAN FARMER, Detroit, Michigan.

HORTICULTURE

THE DWARF PEAR AND ITS IMPORTANCE.

In a previous issue of the Michigan Farmer, "The Dwarf Apple" was discussed as to its merits and it was noted that it was not a success commercially but was well worth growing in a fruit garden. This is also true of other dwarf fruits. The pear, however, is grown more in the dwarf form than any other fruit and in quite a few cases has made a financial success on a commercial basis. There are many orchards of dwarf pears in western New York and quite a number in Michigan but they are not all successful, due to the fact that but very few varieties do well as a dwarf but the orchards containing nearly all Angouleme pears have paid well.

To dwarf a pear a bud is inset on a quince root, as the stock. As the quince grows naturally in a bush form with a diameter of but a few feet and at the same time taking well with some varieties of pears it makes an ideal stock upon which to dwarf the pear.

In growing them certain points must be borne in mind. A quince does best upon a rather heavy soil so that it is seldom a success upon light sandy soils. It

rally to the pyramidal form, often lives for fifty years, is improved in flavor, size and color by dwarfing and is especially desirable for the small fruit garden or home orchard and is grown to a greater extent than all other dwarf fruits, and is even grown to a considerable extent on a commercial scale. It can be planted eight feet apart, bears fruit in a very few years, and the tree, as a whole, can be cared for much more easily than a standard tree. But few varieties do especially well as dwarfs, the Angouleme doing best, Anjou and Bartlett nearly as well.

The peach, plum and cherry may also be dwarfed but are not used to as great an extent as the apple and pear as standards of these are naturally rather small when fully developed.

Agri. Col., Mich.

O. I. GREGG.

KEEPING UP THE WORK.

The early inspection of the old apple trees last winter which resulted in their being pruned, was a step in the right direction. Without relieving the trees of the dead wood in the top and cutting back a little the extended branches, the bringing of these old plants back to productivity would be difficult. The pruning is all the attention that many orchards will receive, no doubt, and there will likely be much disappointment because little, if any, good results will come from that work alone. It is like the man "who

plows and plows but never sows." Other work is needed. It is not yet too late to begin spraying even for the scale, and spraying is counted by many as being the most necessary operation in orcharding. Some of our best informed men are taking orchards on shares and by simply doing a thorough job of spraying are reaping satisfactory results. They all agree, however, that if pruning and fertilization, either by cultivation or adding plant food by cover crops or from foreign sources, were also given with spraying that their net returns would be greatly increased. So, if it is beyond the capacity of the farm help to break up the old sod and work it down, arrangements should be made some-

how to spray. Should the scale be present then the owner can afford to let some of his spring work on the fields for corn and oats be delayed a day or so, for neglect of trees so affected will work a permanent injury as certainly as the job is put off, while a delay of a day on the preparation of the oat ground may work no damage, or at the most, will be a drawback for but a single season. So spray. Then there is scarcely a farm where the old apple trees cannot be given a few loads of manure. This was done last winter in a good many instances, but the trees will profit by present applications in that some fertility will be set free for this season's growth while the mulch will rot the sod and protect the trees by conserving moisture for their use. Cultivation would help. But if the manure is added and the hogs are turned into the orchard almost equal results can be obtained. Should the hogs fail to root, as is their nature, the depositing of a few kernels of corn in holes about the orchard will soon start the work. Our word is, then, to continue giving attention to the trees. They are good profit payers when rightly treated and no man with anything like promising trees on his premises can afford to neglect them for his ordinary farm crops if he is working his ground for the money there is in it.

PREPARATION FOR AN ORCHARD.

Making ready the soil for setting an orchard is so far-reaching in its effects that the importance of it cannot be overestimated. If any crop demands a deep, even, finely pulverized seedbed surely it is trees. Ante-planting remissness stands out in visible reproach to arboreal old age. Two physical conditions are indispensable; the one perfect capillary circulation, the other a total absence of disintegrating lumps, soon to crumble and leave cavities that will dry out the roots. If sod ground is to be transformed into



The Early Inspection of the Old Apple Tree Resulted in Pruning—Now Spray and Fertilize It.

a very dwarf tree is desired one must be sure not to allow roots to grow from above the graft for if this happens the tree is no longer a dwarf but tends to take on the size of a standard as the top gets a part of its nourishment through its own roots. On the other hand, it is best to plant the tree so the grafted portion will be below the surface and all roots cut off if any appear from above the union.

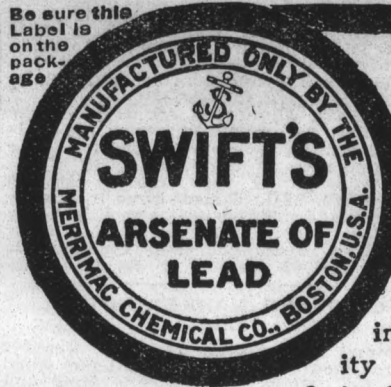
The pear fruits are probably influenced more by dwarfing than any other fruit as they are markedly better in flavor, generally considerably larger, and usually have a better color.

Dwarf Pears lend themselves to training and grow better upon walls and trellises than nearly any other fruit. In Europe they are often trained to walls of buildings and enclosures either in a U form or horizontally. The American, however, is generally too busy to take time to train them to special forms and prefers a more natural method of growth and we can well believe that "in European horticulture as much time is given to the care and training of one small branch as an American gives to an entire tree." Naturally, the pear tends to develop in the form of a pyramid and it is most easily trained to this form, either tall and slender or rather broad at the base—coming to a point at eight or ten feet in height. Severe pruning must be practiced as in all other dwarfs.

There are but few varieties of pears that do especially well as dwarfs, the Duchess de Angouleme, or Angouleme, or Duchess, as it is often called, being by far the best. This is an early winter pear of fine quality when grown to a large size. Anjou, Bartlett and Louise Bonne do nearly as well. Other varieties can be obtained from reliable nurserymen but are not as liable to succeed as well as those mentioned above.

To summarize: The pear is dwarfed by using the quince as stock, grows natu-

Be sure this Label is on the package



Do You Spray?

Tens of thousands of trees sprayed with Swift's Arsenate of Lead produced last year *not one* wormy apple. Innumerable farmers have greatly increased both quantity and quality of yield from vegetables and fruits by spraying with Swift's. You

are standing in your own light if you don't take advantage of this wonderful insecticide. One spraying with Swift's outlasts two to four sprayings with other materials because it takes a torrential rain to wash it off. It can't burn or scorch. It doesn't clog the pump. It mixes readily with water and stays in suspension. It is fatal to every leaf-eating pest.

Send for valuable book on leaf-eating insects. Give your dealer's name.

Merrimac Chemical Co., 23 Broad Street, Boston, Mass.

THE JOHNSTON "CONTINENTAL" DISK HARROWS are durable, workable, economical-indispensable. They not only prepare the soil, but also cultivate the crops. They are labor savers, crop increasers, and money-makers. No up-to-date farmer should be without one or more of these common-sense tools. Built of steel and malleable iron. Solid or cut-out disks; 22 sizes and styles. Equipped with Tongue Truck when ordered.

THE JOHNSTON LINE OF HARROWS are backed by 20 years of Harrow-making.

Orchardists and vineyardists are realizing more and more every year that the extension head harrows are more practical for their work than any other tool. The Johnstone Orchard Disk Harrows are strong, steady, durable, simple in construction, light in draft, and easy to operate—work perfectly. This tool will positively increase your fruit crops—will pay for itself several times in a single season in increased crops. Made in four sizes, 4 ft. 4 in. to 5 ft. 6 in., 16 and 18 in. disks, solid or cut-out disks.

JOHNSTON HARVESTER CO., Box 106-H BATAVIA, N. Y.

\$225 an Acre from Potatoes

Early potatoes are one of the best-paying crops raised in Southern Alabama, Western Florida, Tennessee and along the Gulf Coast. Good prices are always obtainable and demand for same beyond the supply. Read what a farmer at Summerdale, Ala., has to say on this crop:

"My yield of salable potatoes this year, per acre, was 150 bushels, which sold readily at \$1.50 per bushel, this being the first crop on the land. I followed this crop with sweet potatoes and sweet corn and then planted cow peas. I raised three crops on the land in one year, all of which brought good prices."

Sweet potatoes produce big returns and are usually planted after Irish potatoes have been dug. Two to three hundred bushels an acre are produced and bring from 50 cents to \$1.75 per bushel. Let me send you our illustrated booklets and learn what can be done in a country where fertile land can be purchased cheaply and where there are 312 working days a year. Low round-trip fares 1st and 3d Tuesdays each month.

G. A. PARK, Gen'l Ind. and Imm. Agt., Louisville & Nashville R. R. Room 213 Louisville, Ky.

Guarantee an Increased APPLE CROP

More apples and better apples; better prices and bigger profits—the success of the man who sprays right. Orchards, gardens, vineyards, potato fields, show vastly greater results after using a

DEMING SPRAY PUMP—the outfit that's made fruit-growing profitable. Our Nozzles are standard. Catalogue free. Deming Hand and Power Pumps, for all uses, sold by leading dealers.

THE DEMING COMPANY
754 Depot St., Salem, O.

Spray Your Fruit Trees AND VINES

Destroy the fungi and worms, and thus be sure of large yields of perfect fruit.

Excelsior Spraying Outfits and Prepared Mixtures are used in large orchards and highly endorsed by successful growers. Write for our money-saving catalog, which also contains a full treatise on spraying Fruit and Vegetable crops.

WM. STAHL SPRAYER CO.,
Box 108-D, Quincy, Ill.

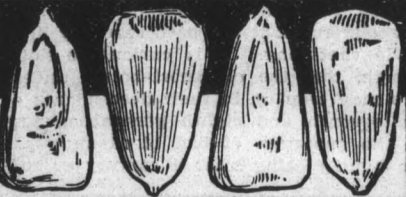
CYPRESS TREES For Beauty CATALPA TREES For Profit
Free booklet tells all about them. **H. C. ROGERS, 214 Mechanicsburg, O.**

RATEKIN'S 100 BU. OATS

Ratekin's Big Banner 100 Bushel White Oats—The biggest, prettiest, plumpest oat in existence. Side by side with common sorts they yield 100 bushels per acre where other sorts make but 25 to 35 bushels. Strong, stiff straw; sprangled heads; ripens early; never rusts, blights or lodges. There is none like them, and when our stock is exhausted there is no more to be had. Samples mailed free. Also our Big Illustrated Catalog of farm, field, grass and garden seeds. A postal card will bring them to your door. Address:

RATEKIN SEED HOUSE, SHENANDOAH, IOWA.

\$500 in Gold For a Good Corn Name



Speak up now! Name our new Corn! Get \$500 in Gold! Just get a sample packet of our Nameless Corn or, name it without getting a packet.

This paper will publish the name of the new corn when selected by the judges, and the winner of the \$500. Will it be your name or somebody else's name because you did not try?

Awaken to this remarkable offer! You have a few days yet in which to act. Enter now the Big Contest! No Nameless Corn for sale this season! Too scarce. Send 4c. if you want a sample.

SALZER The Prince of Seedmen

Get in touch with Salzer. Do not order a single pound of Farm or Garden Seed till you have heard from Salzer; till you have seen his stupendous 1910 Offering of Reliable, Guaranteed, Pedigreed Seed. He will save you money and you will be better contented to know you have planted the seeds that grow biggest crops. Salzer's Grand 1910 Seed, Plant and Tool Catalog is free. On pages 101-102 of catalog will be found full particulars regarding Salzer's famous White Bonanza Oats. Better send for a copy and see what he has to say about it. Send name for Nameless Corn and get in on the \$500 prize offer. Should another person offer same (acceptable) name as you offer, the prize will be equally divided. Contest closes May 10, 1910.

JOHN A. SALZER SEED COMPANY
135 S. 8th St., LaCrosse, Wis.

CIDER PRESSES

The Original Mt. Gilead Hydraulic Press

produces more cider from less apples than any other and is a BIG MONEY MAKER. Sizes 10 to 400 barrels daily. Also cider evaporators, apple butter cookers, vinegar generators, etc.

CATALOGUE FREE.
THE HYDRAULIC PRESS MFG. CO.
131 Lincoln Ave., Mt. Gilead, Ohio.



EMPIRE STATE CIDER & WINE PRESSES

Hand and Power.

Illustrated and described in our catalog—is the best money can buy. They are Big Money Makers. Catalog free. Manufactured by The G. J. EMERY CO., Fulton, N. Y.

SPRAY FRUITS AND FIELD CROPS

and do whitewashing in most efficient, economical, rapid way. Satisfaction guaranteed if you use BROWN'S

HAND OR POWER Auto-Sprays

No. 1, shown here, is fitted with Auto-Pop Nozzle—does work of 3 ordinary sprayers. Endorsed by Experiment Stations and 200,000 others. 40 styles, sizes and prices in our FREE BOOK—also valuable spraying guide. Write postal now.

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



The Berlin Quart Our Specialty

A WHITE package which insures highest prices for your fruit.

Write for 1910 catalog showing our complete line, and secure your BASKETS, CRATES, ETC., at WINTER DISCOUNTS.

The BERLIN FRUIT BOX CO.,
Berlin Heights, Ohio.

Grass Seeds

FOR ALL KINDS OF
Clover and Field Seeds,

ALSO A FULL LINE OF
Garden Seeds & Implements.

Write this old Reliable House.
Catalog Free and Price List of
Grass and Field Seeds mailed
you on application.

THE HENRY PHILIPPS SEED & IMPLEMENT CO.,
TOLEDO, OHIO.

LATE PETOSKEY SEED POTATOES

The coming main-crop potato.
Pleasant grower and eater.

CARPENTER BROS., R. 1, Williamsburg, Mich.

FRUIT TREES, Roses, Grapevines,
Strawberries, Raspberries, Blackberries, etc. Catalog free. Wood
bine Nurseries, W. A. ALLEN & SONS, Geneva, O.

Peach Trees 3c, Cherry 12c and up. Apple, Pear,
Plum, Quince, and all kinds of
Trees and Berry Plants. Peach Blow Potatoes,
B. P. R. Chickens and Eggs. Cf. Free.
ERNST NURSERIES, Moscow, Ohio.

SENSATION OATS—Extra choice; crop aver-
aged 68 bushels per acre
in 1909, \$1 per bushel. Send for sample.
E. A. STARR & SON, Royal Oak, Mich.

SEED CORN—Send to Headquarters and the
old original firm for PURE
LEADING SEED CORN. Address
J. S. LEAMING & SONS, R. 2, Waynesville, Ohio.

Seed for Sale

Swedish Select
Oats, Pedigreed
Manchuria and
Oderbrucker Barley, Golden Glow Corn. Rural
New Yorker and White Victor Potatoes. Clover
and Timothy Seed. Write for prices.
J. P. BONZELET, Eden, Wis., Fond du Lac Co.

Choice Strawberry Plants
Carefully grown, Leading Sorts. Send for 1910
list GEORGE E. STARR, Royal Oak, Michigan.

CLOVER SEED Grown in
Michigan on good land free from obnoxious weeds.
Clean and new quality. C. A. CAIN, Hillman, Mich.

orchard soil by a previous season's crop-
ping, the disc is properly the first imple-
ment to be employed in breaking. By
over-lapping half the sod is cut fine
enough to become amenable to the har-
row, which should follow till there is
nothing left to be desired in the way of
fineness. Subsequent plowing is thus
made easier, a fine soil is turned to the
bottom of the furrow and the after work-
ing perfects a deep, even seedbed most
acceptable to the immediate crop and
extends its benefits indefinitely to the
orchard. A top dressing of manure on
the sod would be cut and mixed with
the soil by the disc and later find its way
to the bottom of the furrow there to be
transformed into plant food.

The following year, when the final prep-
aration is to be given for orchard setting
a literal repetition of the last season's
procedure, not forgetting the manuring,
could not be improved upon.

Oceana Co. M. A. HOYT.

POINTS TO KEEP IN MIND WHEN PLANTING NURSERY STOCK.

As soon as nursery stock arrives, un-
pack, separate the trees and "heel in" in
a well-drained shady place. This is done
by digging a trench and covering roots
with soil. When ready for planting dig
the hole and be sure it is large enough,
do not allow roots to be exposed to the
air but a few minutes. Prune off all
roots that are very long, to uniform
length, those crossing and all injured
roots. Plant the tree slightly deeper than
when in the nursery. Place a slight
mound of earth in the center of the hole,
place tree upon it, spreading all roots
out naturally. Fill in partially with good
soil, working it about the roots, tramp in
remaining soil firmly, leaving the soil at
the very last in a loose condition. The
top should then be pruned so as to leave
from three to five scaffold limbs that are
well distributed about the trunk, no two
limbs starting from the same point. The
first limb should be started about two
feet from the ground. Cut these scaffold
limbs back to fourteen inches or less.
If the tree has been properly planted and
the limbs properly selected a well formed,
thrifty tree is pretty sure to be the result.
Agril. College, Mich. O. I. G.

SPRAYING CHERRY TREES.

A number of inquiries have come to the
office asking about the materials required
and the time for spraying cherry trees.
These inquiries are somewhat indefinite,
in that they do not particularize as to
what insects or diseases are affecting
the trees. It is presumed, however, that
the plants are troubled with rot, curculio,
aphis, slug, and perhaps leaf blight.

The different sprays required for these
troubles are copper sulphate, Bordeaux
mixture and some arsenical poison. By
the time this information reaches our
readers, it will be too late in many sec-
tions to apply the copper sulphate solu-
tion as it should be applied. The mix-
ture is compounded by using 2 lbs. of
copper sulphate to 50 gallons of water.
This strength should be used when the
trees are dormant or just before the buds
open. Where the buds have not developed
too much, it may still be used, but should
be applied with caution.

The Bordeaux mixture is made by using
about 4 lbs. of copper sulphate, 6 lbs. of
fresh unslaked lime to 50 gallons of water.
Dissolve the copper sulphate in a small
amount of water, slake the lime and add
sufficient water to make a milk of lime
of it. Dilute both of these elements to
25 gals. and then pour together into a
third vessel simultaneously. Use wooden
or earthen vessels for mixing this solu-
tion, the copper sulphate will act upon
iron or tin. There are other methods of
making it, but the above is one of the
standard ways.

The arsenical poison is made by using
2 lbs. of arsenate of lead to 50 gals. of
water or if one desires to use Paris green
use 1 lb. of the poison to each 150 gals.
of water. Since the application of the
poison can be made at the same time as
the application of Bordeaux mixture, the
two can be combined. In doing this,
count the Bordeaux mixture as so much
water, when adding either the arsenate
of lead or the Paris green as above in-
dicated.

Spraying should begin when the buds
are about to open. For the first applica-
tion use the copper sulphate above men-
tioned. For the second application spray
with the combined Bordeaux mixture and
arsenate of lead or Paris green. This ap-
plication is made about the time the fruit

sets. A third application of the same
mixture as is used for the second one, is
made from ten days to two weeks later,
especially if there are signs of rot or
slugs. About two weeks after this last
spray, a fourth application might be
necessary. This spray should consist of
the copper sulphate solution reduced
about five times the above mentioned
strength, i. e., one lb. of copper sulphate
to from 150 to 250 gals. of water. Where
there is evidence of leaf blight, a fifth ap-
plication should be made after the crop
has been gathered. Use the Bordeaux
mixture at this time.

If the grower of cherries faithfully fol-
lows the above program, he is quite cer-
tain to free his trees and fruit of the
troubles mentioned, or at least, to get
them under such control as will give his
crop a chance to compete for premium
prices upon the market. It should be re-
marked in this connection that efficient
spraying of any kind of fruit is usually
not done until the owner or person in
charge gets a clear idea of the pests he is
endeavoring to destroy. Until then his
work may be more or less effective, but
he is groping in the dark.

USE OF SOD IN TRANSPLANTING.

A scheme that is practiced quite ex-
tensively is to plant seeds under cover
on small pieces of sod. When the plants
have attained the proper size for trans-
planting, the sod and all are carried to
the garden and put into the ground. The
plan is commendable in that there is
practically no disturbing or breaking of
the roots by tearing them from the hot-
bed soil. Beans, cucumbers, squashes,
melons, and other plants that do not
transplant well readily lend themselves
to this treatment.

By working a plan of this kind it is
possible for the gardener or farmer to
have these crops much earlier. He can
carry many tender plants through a sea-
son when frosts threaten, and give them
an advantage that will be appreciated
when the crop is harvested. The time
necessary to do work of this kind is very
small. The only essential is to get
at it.

THE ART OF WATERING.

Watering is one of the most critical
operations of greenhouse work, requiring
both knowledge and judgment. The plan
of going round with a watering pot and
giving a dribble to every plant, whether
it wants it or not, is most injurious.
Many a time it happens, when leaves are
noticed to be flagging, that more water
is given, when in reality the soil is satu-
rated and the plant is already suffering
from over doses which it has not the
power to assimilate. In potting sufficient
space should be allowed below the rim
of the pot to hold water. In hot dry
weather this space may have to be filled
up two or even three times, in order
that the soil may be thoroughly moist-
ened, especially when the potting has
been as firm as it should be, after which
it will probably need no more for a day or
two. Arums being water plants are all
the better for standing in a pan of water
during growth, and a drop hanging from
the point of the leaf is a sign of perfect
health. Heaths, though they must never
be allowed to become dust-dry, will not
bear sodden, water-logged soil which will
decay the fine root fibres and it is a mat-
ter of experience to keep the happy mean.
Succulent plants, on the other hand, must
be kept dry rather than moist, and in
winter as a general rule, require no water
at all unless they show signs of distress
by becoming shrivelled.

Almost all plants however, during
their growing season will take ample sup-
plies, because it must be remembered that
all food reaches them in liquid form.
When active growth begins to lessen, and
life shows signs of ebbing, it is better
gradually to withhold water. Bulbs, es-
pecially those which lose their leaves,
require a season of complete rest and
usually have to be kept dry.

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WOMAN AND HER NEEDS

Don't Quarrel With Work, You Need It to Keep You Straight.

THE blessing of work is not a theme which the average young person can appreciate. When we are young, we are prone to sigh for ease and pleasure, to count those of our young friends happy who never have to turn their hand to do a thing, and to consider ourselves hardly used that we must earn our bread by the sweat of our brow. It takes age and experience to bring us to the point of looking upon the necessity of hard work as the greatest gift the Creator could have bestowed upon us.

By hard work, of course, I do not mean drudgery, constant toil with no moments for fun and meditation or reading, but the actual necessity of keeping at work day in and day out, either because we must earn our living out in the world, or because our hands and help are needed at home. The great majority of ruined lives are caused by one of two things, idleness or drudgery at low pay, and it is hard to say which causes the most shipwrecks.

But necessary work in just the right measure, has been the salvation of countless thousands of young people. For although it is a trite saying, it is a wofully true one, "Satan finds some mischief still for idle hands to do." If you do not believe it, look at the mischievous lives of the leisure class. With no actual work to keep them busy, these healthy young people with active brains and hands, will certainly find something else to occupy their time. Late evening parties, with wine and cigarettes, flirtations and affinities are a part of their diversions which have no place in the lives of young men and women who are obliged to work.

It is not a pleasing thought, perhaps, that we must have work in order to keep us straight. But it is true of nine-tenths of us. Suppose that you had plenty of money and were not obliged to work, do you think for one moment that you would keep in the beaten track of rectitude and high morality? Perhaps your habits are so strongly formed by this time that you might, but I doubt it. You would find it so easy to allow yourself a bit of laxitude here and a bit more there, your money would get you in with people who held your ideals lightly, your old friends would be hard at work and would have no time for you, and the first thing you would know you would find yourself hand in glove with the set you now despise.

People often wonder that the children of fine parents and with comfortable homes so often go wrong, while boys and girls with no particular home training and no money back of them become successful men and women. It is no surprise to me at all. The young people from the good homes have good blood and that is all. Often they have not good training, for our American fathers and mothers of the professional or merchant class are sadly lacking in their knowledge of how children should be brought up. The children have plenty of money and no responsibility. Of course, they go wrong. What else could they do? It is much more of a surprise to me to see young men and women who are helped to an education really making something of his or her life, than it is to see them fritter their chances away.

On the other hand, here is a boy or a girl from a poor family, with nothing, apparently, to encourage them to rise. But the abject misery and squalor they see in their home is the very thing that is needed to spur them on. They see where their parents failed, and they resolve that their lives shall be different. Their poverty and hardships serve to keep them in the straight way. They miss the temptations that come to young people with more money and the result of sin and folly as it has been revealed to them in their own childhood's home, keeps them straight. They succeed, because they have seen the curse of failure. Of course, they deserve credit, but not so much as the young person who has had to fight the curse of money and ease.

Poverty is painful; hard work is wearing. But if any who reads this is repining at such a lot, remember that it may be what you need to keep you straight. This world is full of people who can't stand prosperity. Give them a taste of it, and they are lost. I actually believe that that is the reason so many of us are kept grinding away the greater share of our lives. The Providence which watches over us can see where we would finish, were we once to get beyond the necessity of work.

This has been a comforting thought to me, when I grew tired of the long days of toil. Here's hoping it may prove of equal value to some other woman who is sick of her lot.

DEBORAH.

Michigan Country Women as Money Earners.

No. 3.

Raising Persian Cats Has Proven Pleasant and Profitable to a Wayne County Woman.

"Why couldn't country women raise Persian cats?" queried Mrs. P. Franklin of the Abbotsford Cattery, when she was approached about the advisability of

for another they have ever so much more room. The more room the cats have the better, and larger they grow, and the larger they are the more valuable. On the back end of a city lot, the cats really do not have enough room to do their best. I have a portable runway for mine, which I move everywhere on my lot, but I could do much better if I had the 'all out doors' of the farmer's wife."

And if anyone is in a position to know what is best for the breeding of Persian cats, Mrs. Franklin should be that woman. She has been in the business for years; has taken first prizes at different state fairs; has been president of the Detroit Cat Club, and is consulted daily by women who are starting in the business and meet with some of the difficulties which beginners in every line of work are bound to meet. Surrounded by her beautiful cats at her home, she gave some information as to how one should start in this fascinating line of money making.

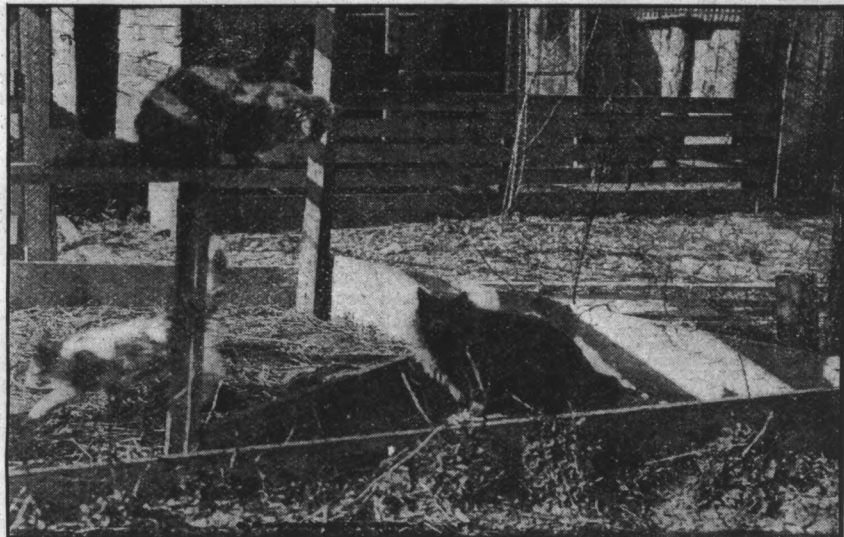
"A good breeding cat may be purchased for \$25," said she. "Of course, you could get a kitten for \$10 or \$15, but it is better to pay more and get a cat, as you never really know what a kitten will be until it is a year old. In 65 days the kittens are born, and in a couple of months, they may be sold at from \$10 a piece up to as high as you dare ask and are able to get. There are usually from two to six kittens, though sometimes there are

eight. It is better to let the mother raise only four, and keep a common, short-haired cat to mother any others. They should not be weaned under two months, to get best results, though some wean them younger.

"After they are weaned feed them milk three times a day, I always scald the milk, until they are a year old. After that I feed them porridge and milk in the morning, and a meat meal once a day, beef, mutton, liver, heart, anything but pork. I feed a great deal of beef heart. They are fine mousers, and if you have a

bred. Then the colors will be about equal.

Of course, you want your cats registered, as a farmer registers his prize stock, and only line-bred cats can be registered. You must be sure there is no common blood, though after four generations a cat with common ancestry may be registered if it has been carefully line-bred that long. It is curious to note, though, that the old short-haired ancestors may crop up in their descendants of the seventh and eighth generation, just as the one drop of bad blood shows in the human being after a century or so."



A View of Mrs. Franklin's Cattery.

Persian cat around you will never be bothered with mice. They love grass and catnip, too, and I have a bushel of catnip dried every fall for mine.

"Persian cats are no harder to raise than ordinary alley cats, no matter what you may hear as to their delicacy. You can keep them out doors all winter if you want, in fact, the stud cat must not be brought in. They must be kept dry, but the cattery need not be heated. Build shelves so they can climb, study them as you do your babies and treat their little ailments much the same. In my experience I have never had to call a veterinary more than once or twice. There are two or three magazines devoted to the subject and a woman who goes into the business can take one of them and learn for herself how to take care of her stock.

"In picking out a queen, the woman must be careful to look for what we call 'type.' The cat, above all things, must be broad between the eyes, must have a short nose, small ears, a cobby, or low broad body, short legs, a short tail and a long coat, the longer the better. Blue, yellow, and black and yellow cats, must have yellow or orange eyes; silver cats must have green eyes, and white cats should have blue or amber eyes. When the kittens come, though, do not be discouraged if your blue cats have blue eyes for all kits have blue eyes. The color changes during the first year to the shade required by 'type.'

"I have found all colors equally hardy. So far as I can see, a white cat is as hardy as a blue or a tortoise shell or a silver. In breeding it is best to breed color to color. If you do not the color of the sire will predominate if he is older and line bred, unless the queen is also line

The cats are remarkably intelligent, and seemingly understand everything which is said to them. In disposition they are much like people, many of them being loving and good natured, while others have the veiled claw in the paw of silk ready for offenders. If you have been in the habit of calling these long-haired beauties "Angoras," stop it. They are "Persians."

SHELVES FOR KEEPING PLANTS.

My husband cut two six-inch boards just reaching the outside edge of the window casing. From a furniture store we got a bundle of pieces of red and green window shades—trimmings from the edges—and which they gladly gave away. I covered the boards with the green, fitting it smoothly around corners and fastening with small tacks.

Then two screw eyes were screwed into each end of the boards, half an inch from the end. In the window casing an inch and a half from the ends of the shade was placed another. No. 2 picture wire was fastened securely to the back screw eye on the first board, up to the one in the casing, and when I had decided how high I wished the shelf, wound securely around it, and down to the front screw eye. The other end was treated the same, care being taken that it hung even. The lower shelf was fixed in the same way.

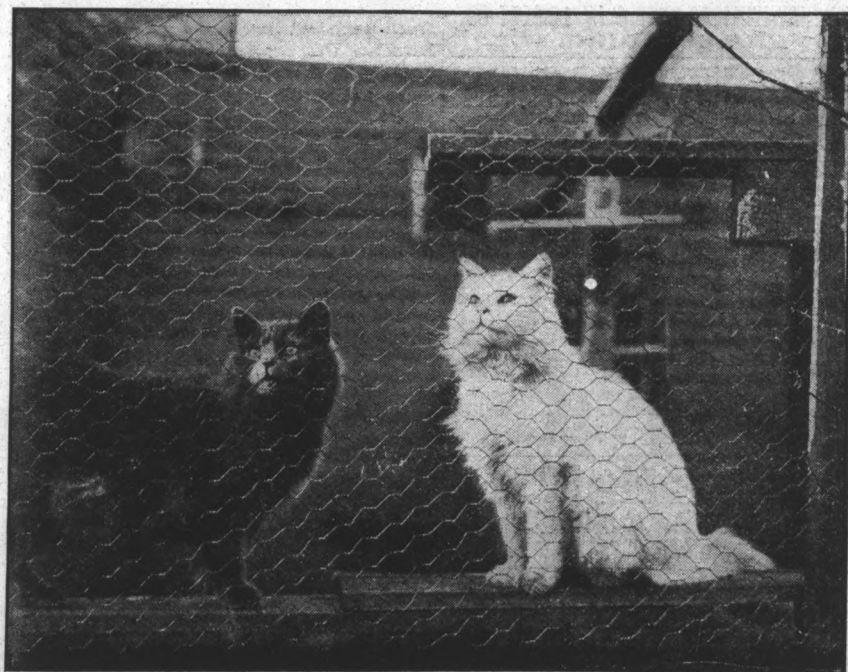
I then took the red pieces and made covers for the cans containing my plants. I cut strips just the height of the cans allowed for lapping. With red san silk I sewed them, making them loose enough so I can slip the cans up out of them easily when I wish to set the plants in the sink for a shower bath.

M. M. N.



Mrs. P. Franklin.

women on the farms taking up that line of money making. "There's no reason on earth why they couldn't, and every reason why they should be more successful than city women. They have better milk for the pussies for one thing, and



A Fine Type of Persian.

SHORT CUTS TO HOUSEKEEPING.

This department is opened as a means of exchange of new and successful ideas in homemaking. If you have learned something in cooking, sewing, child raising, fancy work, economy, anything which is helpful, and new, send it in. Twenty-five cents will be paid for every article used, but none will be returned. Keep your suggestions short.

I will tell you of my way of washing by which I have my clothes all on the line by 9:30 a. m. Have a family of five, one a baby of a year, to wash for. In the first place, I wash Tuesday, leaving Monday free to pick up, etc., which the house always needs after Sunday. I also sort my clothes, first taking them out on the porch and thoroughly shaking them, each piece till entirely free from dust, lint, etc. Right here let me say that I consider half the washing is in this thorough shaking and using plenty of rinse water, changing it for fresh if it gets soapy. Before going to bed I fill my boiler nearly full of soft water and set on back of stove. Shave in from one-half to three-fourths of a bar of soap, add two or three tablespoons of washing powder. Into this I put the best lot of white clothes. In the morning I get my breakfast started, then get my wash bench and two tubs out. Into one I put about two pails of comfortably warm water from the reservoir. To each pail full I add one tablespoon each of powdered borax and ammonia. Into this I put my flannels, soaping each piece with a good white soap, cover with an apron or other cloth and leave until after breakfast. Into the other I put more warm water and put in the outing flannel night dresses, etc., soaping each piece as I did the flannels. Now I finish the breakfast. The last thing before sitting down to the table I pull the boiler to the front of the stove. After breakfast I clear the table and pile the dishes in dishpan and set away till washing is done. Now I rub out my night-dresses and put through the wringer. Empty the tub, add more water, (cold this time), and rinse outings thoroughly; again empty tub. Put in warm water, same temperature as the flannels are in, add same amount of powdered borax and ammonia. Rub flannels on washboard and put immediately into rinse water. I know this is contrary to all teaching but I always rub soap on each piece and rub on the washboard. My flannels do not shrink and are as soft when worn out as when new. When flannels are washed I put in stockings, which are turned wrong side out and washed only on that side as that keeps the lint from right side. After all are rinsed and put through wringer I hang them out, hanging each kind by itself according to size. Now I empty both tubs. One I fill nearly full of cold water and add bluing. Make my starch, and by this time the clothes in the boiler should be boiling. Stir thoroughly; dip out into empty tub and add cold water enough to rub them out. Put the next lot in the boiler. It will not set the dirt if the water is boiling when clothes are put in, but water which is just hot will. Rub out clothes that are in tub, putting each piece at once into bluing water and rinse thoroughly. When all are rubbed wring out of bluing water. By rinsing each piece as put in you can turn wringer with right hand, feed with left and not have to stop. Proceed in this way till white clothes are all out, adding a little sal-soda to water in boiler before putting in kitchen towels, cleaning cloths, etc. Now put colored clothes to soak in suds in tub while you starch any pieces that need it and hang them all out. Then rub, rinse, starch and hang out colored ones. After all the clothes are out of the boiler I put my mop in to scald as this keeps it sweet and free from germs. Now empty and clean boiler, tubs, wringer, etc., and put away; mop floor and wash dishes. In summer when we wear cotton underwear and white night dresses I wash dishes, etc., while the clothes are coming to a boil. I have done washing by this method for five years and am always congratulated on the snowy whiteness of my clothes. If the flannels and outings are shaken thoroughly and stretched into shape when hung on line, then folded and hung on clothes bars immediately on taking down, they look as well without ironing, besides being healthier as the oxygen in them is not killed with the hot iron. I lay a clean paper on top of reservoir and warming oven to stove, fold towels, sheets, etc.,

and lay on these papers. Put a clean board which I keep for this purpose on top and weight it down. Leave till the clothes are smooth. They will look as if ironed and it is so much quicker and easier.—Reader.

RICE IS THE MOST DIGESTIBLE STARCH.—No. 10.

BY MRS. ALTA LITTELL.

TO the American housewife who occasionally serves boiled rice with cream and sugar, or a simple rice pudding, it seems strange to reflect that rice forms the principal food of one-third of the human race. Yet it is true that our brothers in Asia who constitute a third of the world's population use rice as the principal article of food.

Rice starch is the most easily digested of starches. In fact, Cutter ranks it first among cooked food in point of digestibility. It contains 77 per cent starch and about seven per cent protein, and is four times as nutritious as potatoes, according to some authorities, while others claim it is only equal in nutritive value to potatoes. Rice is poor in fats and salts. During digestion, 96.1 per cent of the rice is absorbed by the body, leaving only a small per cent to be rejected.

For many babies rice water is a far better food than the oat meal water so many mothers give with the milk. Oat meal contains nearly eight per cent of fat, and is loosening to the bowels, whereas rice contains less than one per cent of fat and is constipating. The mother should study her own child, and decide which of these foods would be best for her baby, instead of blindly giving the little one anything a neighbor advises.

Rice should always be washed carefully through three or four waters before cooking, and then boiled in about four times as much water. Cook until it takes up all the water, and to avoid burning use a double boiler towards the last.

For a change from the inevitable boiled rice, try a combination of rice with salmon. Line a mold if you have one, if not a small bread pan, with warm cooked rice. Fill the center with salmon which has been boned, flaked, and seasoned with a dash of nutmeg, pepper and salt, cover with rice and steam an hour. Serve on a platter garnished with parsley, cress, or, if you have neither, with tiny celery leaves.

Other starches which are much used for puddings and foods for invalids and infants, are arrowroot, tapioca and sago. Arrowroot is obtained from a tuberous root found in the West Indies and may be cooked either with milk or water. Arrowroot biscuits, or cookies, are made by baking companies and are much used by many mothers for babies instead of wheat flour crackers.

Sago is obtained from the pith of the sago palm. It is used in puddings and soups. Tapioca, which is more generally used by housekeepers, is obtained from the roots of the cassava plant, a plant which is highly poisonous. The poison is all removed in the manufacture of tapioca for market, and a delicious food is the result. Tapioca is marked in two forms, pearl tapioca, which must be soaked, and minute tapioca which requires no soaking. Pearl tapioca is preferred by many housekeepers, who claim it gives a more delicious pudding than the other sort. It should be soaked several hours and boiled until it is clear and transparent.

Tapioca custard pudding is made by every cook. How many make apple tapioca? Soak a half cup of tapioca over night in a cup of water. In the morning add a pint of water and boil until clear, adding a half teaspoonful of salt when you put it over and a half cup of sugar towards the last. When the tapioca is clear, slice six tart apples into a pudding dish, sprinkle with sugar and pour over all the boiled tapioca. Cook in the oven until the apples are done.

Another good pudding is made by cooking a half cup of tapioca in three cups of boiling water and a half teaspoon of salt until transparent, and then adding one-half cup of sugar and one tumbler of jelly. This should be poured in a mold and chilled before serving.

HOME QUERIES EXCHANGE.

Can some of your readers tell me the exact receipt for making a pork cake?—Mrs. A. D.

Mrs. R. B. Canandaigua:—The surest way I ever found is to put on fresh lard on the ink-stained spots and rub them with your hands.—Mrs. A. D., Elmira.



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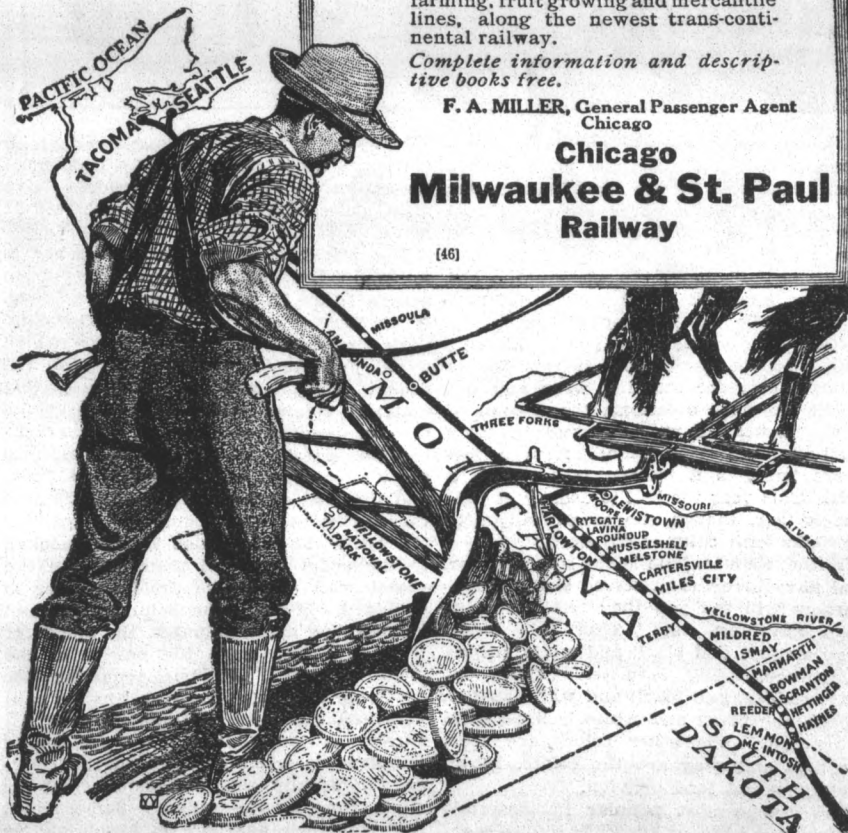
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What The Season Shows in Suits.

THAT ever old, ever new question, "What shall I wear this season?" is again agitating the hearts of womankind. For long ago American women decided that to be out of style was a piece of carelessness which needed not to be tolerated if one only took the pains to keep one's eyes open. And never has the question been so easily answered as this spring, for never has there been so little a variety from which to choose so far as the cut of the garments is concerned.

To begin with, everything is severely tailored as to suits. There are no frills, or undersleeves or puffs of any sort, just plain mannish-looking coats of hip length, and neat, pleated skirts. The coats are almost without an exception the 27-inch jackets. The sleeves are plainly tailored, and the lapels a bit longer, wider and deeper than last year. For the most part, the coats are single breasted, some with two buttons only, others with four. Often the collar, lapels and cuffs are of black silk or satin, or of a fancy cloth, or of Persian bands. Again, they are of the cloth like the coat, brightened with a contrasting braid, and still again there is no touch of color on the coat, the cuffs, collar and lapels being of the cloth of the suit.

Skirts are, without exception, pleated. They may be pleated all around, or the pleats inserted in clusters at the sides, or the back and front. As to length, they should be two or three inches from the

the distinguishing note about all this year's goods.

The first illustration shows a typical spring suit, with the broad collar and deep lapels, the single breasted coat and the pleated skirt which distinguishes this season's garments. The second cut shows a more fancifully cut coat, while the third is the serviceable Norfolk.

In choosing her clothes every woman should consider first of all her circumstances. This comes before the all-important question, "What is in style?" If you can have but one suit in a season, perhaps in two or three seasons, get one which will not attract attention either in cut, cloth or color.

POSSIBILITIES OF THE FIRELESS COOKER.

BY EDNA SKINNER.

TO recent household invention has proven more valuable in the saving of labor and fuel than that of the fireless cooker. To become familiar with its possibilities is well worth the effort of any housewife. Not all foods may be prepared in it but those requiring long cooking at a low temperature may reach a state of perfection here, especially soups, stews and cereals.

The fireless cookstove, or cabinet, is a chest the interior of which is divided into compartments. In each of these compartments is a vessel which is tightly covered and surrounded on all sides, top and

through evaporation; in fact, some foods are more delicate and delicious in flavor when prepared by this method. Especially is there great gain in delicacy of flavor if cereals and certain cuts of meat are cooked slowly.

As a matter of fact, the printed directions on all packages of cereal give too short a time for the cooking. It requires several hours to properly cook most cereals and make them digestible, but it is impracticable and almost impossible on an ordinary flame stove. It is preferable to cook them over hot water after the first five minutes, and a double boiler may be improvised for use in the cabinet by placing a smaller vessel in the regular "fireless" kettle containing boiling water.

The following recipes are well adapted for the fireless cooker and may suggest others: Cereals:—One cup rolled oats; two and one-half cups boiling water; one teaspoon salt. Put boiling water and salt into smaller vessel. Add slowly the rolled oats, stirring gently with a fork. Cook directly over the flame for three to five minutes, stirring frequently. Then place the vessel on a rack in the larger kettle containing boiling water; cover tightly and continue cooking for five minutes. Then without disturbing the cover, place quickly in the fireless cooker. Leave six hours or longer.

Cream of Wheat:—One cup of cream of wheat; four cups boiling water; one teaspoon of salt. Cook the same as rolled oats.

Cereals for breakfast may be prepared while the kitchen range is being used for the evening meal, and left in the fireless cooker over night. In the morning place over the flame until the water in outer vessel has boiled for several minutes.

Meats.

Cooking does not add to the nutritive value of meats and it may destroy the texture and lessen the digestibility. The most expensive cuts are not necessarily the most nutritious, and if one understands how to prepare the cheaper kinds, it is possible to have a tender and juicy piece of meat at a comparatively small cost. The secret of making tough meat tender is by slow cooking, which means, of course, at a low temperature.

Braised Beef:—Three pounds of beef, upper or lower round; two slices of fat salt pork; one-quarter cup of onion; half cup carrot, half cup celery, half cup turnip, cut in cubes, sprig of parsley, six peppercorns, three cloves, one bay leaf, three cups boiling water. Cut pork in strips; try out fat and remove scraps; wipe meat with damp cloth; brown on all sides in hot fat, being careful not to pierce meat with fork while turning, lest some of the juices escape. Dredge with flour, sprinkle with salt and pepper. Place in fireless kettle, add vegetables, seasoning, and boiling water. Cover closely. Boil over flame for 20 minutes. Without disturbing cover, remove to cabinet, and let it remain for five hours. Serve in sauce made from the liquor.

Pot Roast:—Four pounds beef from the rump; two tablespoons suet; three to four cups of boiling water. Try out suet, remove scraps; wipe meat with damp cloth, brown in hot fat; remove meat to fireless kettle; surround with boiling salted water; cover tightly and boil over the flame for 30 minutes. Without removing cover, place in fireless cooker for five hours. After removing from the cooker, add a little of the liquor to the fat, place in meat and brown for a few minutes. Thicken the gravy with flour.

There are several good fireless cookers on the market, and many of these claim the great advantage of cooking vegetables such as cabbage and onions, as there is no danger of the resultant odor permeating the entire house. This is a grave mistake for one of the essentials in the proper cooking of such vegetables is thorough ventilation that the strong smelling gases liberated by the high temperature may be carried off in the steam. To accomplish this the water should be kept boiling all the time in a vessel only partly covered, both these conditions being impossible with a fireless cooker.

But it does have its place in the household, and those who have learned its proper use find it indispensable. One may have hot water in the house at any time and milk for the baby at any hour of the night. Because of the moderate temperature there is no danger of overcooking, and food can neither be burned nor scorched. The heavy cooking of the day may be done in the morning and the meal be ready to serve with only a little further attention, which is worth a great deal in the warm summer weather, to say nothing of the saving of fuel.



Practical Suits for the Busy Woman.

ground. Many skirts show an overskirt effect, simulated by the use of bands, but the skirts of suits never show the real overskirt. All skirts are inclined to be narrow.

This is the suit for the woman who has but one, which she must wear for all occasions. She who can enjoy the luxury of two, may choose for a second the suit with a Norfolk jacket, but as this coat is suitable only for morning wear and not at all for dress occasions, the woman of one suit will do well to avoid it. The Norfolk, as you remember from a few years back, is a pleated jacket with a belt. This year the belt is usually of patent leather, though one occasionally sees Norfolks with belts of the cloth.

Without doubt, blue is the leading color, and navy blue the preferred shade. Shopkeepers will tell you they sell more blue than anything else. After this comes gray stripes, and black and white stripes, years ago, being favorites. There are gray stripes, and black and white stripes, though the black and white is little seen. Of course, some other colors are seen, but blue and gray are the colors, brown having passed into oblivion.

Serges are most popular in materials though by no means the only things seen. There are diagonal worsteds and homespun, and soft broadcloths for the woman who never feels right unless her suit is of that cloth. The serges are not so wiry as in former years, but have acquired that softness of texture which is

bottom, by material which is a good non-conductor of heat. Many people have most successfully made these cabinets at home.

The principle of the fireless cooker is to retain the heat which has first been generated on an ordinary coal, gas, wood, or oil stove. The vessel should have no projecting handles, lids, or clasps which would prevent its fitting snugly into the pocket of the cabinet. The insulating material retains the heat and prevents the surrounding atmosphere from reaching the interior of the vessel, therefore the temperature is lowered very little, and the food continues to cook until it is thoroughly and evenly done.

Prepare the food which is to be cooked in the usual way and then place in the vessel with which the fireless cooker is equipped. Heat to the boiling point and keep boiling a few minutes, the length of time depending upon the nature of the food material. Without removing the cover, quickly place the vessel in the cabinet and close the lid, fastening it securely. All food must be at the boiling temperature when removed to the cooker. It usually requires about twice as much time as an ordinary flame stove. But inasmuch as there is absolutely no consumption of fuel or gas, and no further attention is required, the added time is a gain rather than a drawback. Furthermore, the flavor and attractiveness of the food are not affected by this long process of cooking, as there is no loss

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EDUCATE BOYS TO BE HUSBANDS.

Editor Woman's Department:—In answer to the article in Michigan Farmer of February 26, signed "Deborah," would like to say: I think she has a mistaken sense of where a woman's place is, or rather, what her duties are. She admits she has no taste for a domestic life because she was given an education, and as I understand from the article, thinks girls should have a limited knowledge of books, so they will be contented to be merely housekeepers and man's slave.

The Bible says, "God created woman for a help-meet to man," that is, a companion, and why don't man treat his wife as such? But not so. He considers when married, his wife belongs to him, body, soul, mind, and pocket-book. He will, by one pretext or another, manage to get all she possesses when married, and whatever may fall to her later, and appropriate it for his own use, while she is obliged to be contented with whatever crumbs he chooses to throw out to her.

Why does he not treat her as well as he would a business partner, divide the profits, or pay her for her work? What man would be contented to work hard all his life, and let someone else draw the pay and be obliged to ask, yes, and beg, for money enough to buy necessary articles? And perhaps be growled at, that he dared to ask that.

This is woman's position in nine-tenths of the homes today. It is no wonder she needs to be kept ignorant, in order to keep her contented. There are but few women who do not enjoy home life, if they are treated fairly. There is no one who will do more for her child than a mother, or who will sacrifice more for her children, husband and home, than she. But she has a right to something more than crumbs grudgingly given her.

The present need is not so much for girls whose sole aim is housekeeping, as for men who have been taught their wives are companions and partners, and should be treated justly. With Deborah I agree, girls should be taught home-making, cooking, sewing, etc., but I also believe there is a greater need, that our boys should be taught they have duties and responsibilities in the home, if they expect to have happy homes, and contented wives.

Charlotte, Mich. Mrs. I. C.

A YOUNG MAN'S OPINION OF THAT SCHOOL LAW.

Dear Editor:—I am a young man of twenty-eight and having been a member of our district school board for the last two years, I have had a chance to be somewhat in touch with the school laws of Michigan. After reading the article entitled, "A Father's Opinion of the School Law," in your issue of February 19, I could not help thinking his article ought to be commented on in another issue and perhaps a few of his points criticized a little to make the law more clearly understood by the reading public.

In the first place, I think that if our friend would consult Dorothy's article again that he had reference to, and would go to one of the members of his school board and ask him for a copy of the new school law now being distributed through the state, he would have a broader knowledge of the meaning of the school truant law. In the second place, I think if our friend would attend the county meeting of education conducted by Mr. Wright, superintendent of public instruction, or his deputy, Mr. Keeler, held for the benefit of the officers of the different school boards, he would not say it is such an unjust law after all.

It is true that for years men and women have grown up and received a good education and been able to fill some of our most honored positions in life from the hands of fond and well educated parents that needed no compulsory school law. It is also true that men and women have grown up to the mercy of the rough waves of life at the hands of fond, but uneducated and unlaw-abiding parents, because there was no compulsory school law compelling them to receive a reasonable amount of education to put them on a more level basis with the more educated citizen of our country.

It is this latter class of citizens that help to fill our state penitentiaries to a greater or less extent, because of their ignorance of the laws placed before them. I also think that this will offset "the self-sacrificing spirit" our friend speaks of as being wrested from the parents of the better educated.

Our friend then says, "There will be nothing for our poor fathers and mothers

to do but to grub and dig to raise funds for the state to turn out, in a few years, a lot of machine-made men and women," and then he asks the question, "Will they be outclassed by the old-fashioned product?" I, for one, at least, answer in the affirmative, "Yes." Our friend, I think, will have to admit that since history began each generation has outclassed the preceding generation by quite odds in almost, if not in every, line of business in our busy world. He then says, "The state is going a little too far when the judgment of our fathers is entirely ignored as to physical ability to attend school." It's not the law-abiding citizen's judgment that is entirely ignored, it's the unlaw-abiding that this phase of the law is aimed at, as quoted by Dorothy in her article in issue of January 29.

And then, as far as a bright child being compelled to attend school from the age of seven years until he or she has attained an eighth grade diploma, this will rarely bring on insanity, as our friend claims, an "outrage on such a law." I think he will find there are few cases of insanity brought on by an eighth grade education, which any child in our land should have, to say the least.

I think if our correspondent could be shown a little more light on this compulsory school law if he is a fair minded man he would sing praises for it and wish it had been in force when he was a boy, compelling him to go to school rather than being home digging potatoes. He would not be "despising it," as he now says he does.

I sincerely believe every child should have an eighth grade diploma, and still better to have a twelfth grade high school education. As one of our prominent statesmen said at our farmers' institute a short time ago, "Send the boy to school anyway and see how he turns out, but don't put a \$1,000 education in a \$25 young one, or give a \$1,000 young one a \$25 education." Suppose a boy has attained twelfth grade education and is still working on the farm, this education is not going to hurt him if he has received the proper training previous to his passing his examination. Then suppose this boy has grown up into manhood and by accident, or perhaps sickness, is disabled for manual labor for life, is he not more able to cope with the circumstances surrounding him, than the boy that did not even receive an eighth grade education, as far as mental labor is concerned?

So far, we have been perhaps a little one-sided in placing the blame for some of our young men and women of today having a reasonable education on their parents, when, if the truth were known they themselves are partially, if not wholly, to blame. In speaking of my own experience as a boy in school back 13 or 14 years ago, which was about the last schooling I got, I find that I did not appreciate the value of a better education then as I would now. Of course, our district schools then were not graded as they are today, if they had been I, with five or six of my schoolmates, could probably have passed the sixth grade and possibly the seventh grade examination. Our parents were not too blame. We thought we had enough, but we had no compulsory school law compelling us to have at least an eighth grade education, if we had to go until we were 16 years old, to get it. All I regret is, that this law did not come 20 years ago. That is the way I feel about it and think there are others that feel the same way.

Of course, I am not whining about my lot. I'm thankful I've got what education I have, for there are others worse off than myself, some that actually quit school at the age of 14, and in their third reader.

When I buy or sell a load of hay, corn, oats or wheat or hogs, I can figure them up comparatively easily, but when it comes to being able to stand up before a crowd for a toast, as one is sometimes called on, "I am not there with the goods," and it is pretty embarrassing, too. Spelling, composing, and good penmanship is where I am again handicapped, unless I consult a dictionary freely.

I. R. B., Homer.

Buy five cents worth of citric acid at the drug store, and put about a level half teaspoonful in a bottle with two table-spoonfuls of hot rain water. When the crystals are dissolved it will remove stains from the hands made by fruits or vegetables. Rub the stains till they disappear then wash the hands in clear, warm water. It is perfectly harmless, being the same as lemon juice, and cheaper and more convenient to use.

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MARKETS

DETROIT WHOLESALE MARKETS.

April 6, 1910.

Grains and Seeds.

Wheat.—The week has been an anxious one for both sides of the market—the dry weather scaring the bears as long as it continued, for each day without rain was permanently damaging the crop, while the coming of moisture put the bulls on the defensive and gave houses that had sold short, hope of securing grain at lower figures. In the southwest the crop has been relieved by general showers; and growers in the northwest were enabled to put in full time in the fields preparing for the spring wheat crop and sowing same. The acreage sown is reported large and the earliness of the sowing gives the grain a splendid chance to mature early. The bulls have been pointing to the wisdom of their stand but the late receipts have proven large with the result that the supply is now only about 7,000,000 bushels short of the figures of a year ago. Flour is only in fair demand. At this date in 1909 No. 2 red wheat was quoted at \$1.33 per bu. Quotations for the past week are:

	No. 2	No. 1	Red	White	May	July
Thursday	1.17½	1.17½	1.18½	1.09½		
Friday	1.18	1.18	1.18½	1.09½		
Saturday	1.17	1.17	1.17½	1.08½		
Monday	1.16½	1.16½	1.17	1.08		
Tuesday						
Wednesday	1.15	1.15	1.15½	1.06½		

Corn.—There has been a weakening in corn values partly due to the bearish feeling in wheat circles, but also influenced by the progress made with spring work in corn states, improvement of grass and liberal receipts of the grain. The local market is slow and quiet. There was a decrease of over a third of a million bushels in the visible supply. One year ago we were paying 68½¢ per bushel for No. 3 corn. Quotations for the week are:

	No. 3	Yellow
Thursday	61½	62½
Friday	61½	62½
Saturday	60½	61½
Monday	60½	61½
Tuesday		
Wednesday	59½	60½

Oats.—The favorable weather for the early seeding of this crop has been a bearish feature of the trade. Much sowing has already been completed. The local receipts were large early this week, causing a quiet market at prices a cent below the average of a week ago. Visible supply shows slight increase. The price for No. 3 white oats one year ago was 57½¢ per bu. Quotations are as follows:

	Standard
Thursday	46½
Friday	46½
Saturday	46½
Monday	46½
Tuesday	
Wednesday	45½

Beans.—The bean trade is still dead. Dealers are not exchanging the legumes and prices here are only nominal. The following are the figures:

	Cash	April
Thursday	\$2.08	\$2.10
Friday	2.08	2.10
Saturday	2.06	2.08
Monday	2.06	2.06
Tuesday		
Wednesday	2.06	2.09

Cloverseed.—After the big slump of last week this market recovered part of the loss and remained steady. The trading is still active and quite a fair volume of business is being done. Quotations for the week are:

	Prime Spot	Alsiike
Thursday	\$7.25	\$7.00
Friday	7.25	7.00
Saturday	7.20	7.00
Monday	7.35	7.00
Tuesday		
Wednesday	7.65	7.00

Rye.—Market dull and steady. No. 1 is quoted at 80¢ per bu., which is last week's quotation.

Visible Supply of Grain.

	This week.	Last week.
Wheat	29,004,000	27,620,000
Corn	13,774,000	14,176,000
Oats	9,915,000	9,662,000
Rye	686,000	685,000
Barley	2,990,000	2,734,000

Flour, Feed, Provisions, Etc.

Flour.—Flour market is steady with the values given a week ago. Quotations are as follows:

Clear	\$5.30
Straight	5.80
Patent Michigan	6.15
Ordinary Patent	5.95

Hay and Straw.—Last week's prices prevail. Quotations are: No. 1 timothy, new, \$18; No. 2 timothy, \$17; clover, mixed, \$17; rye straw, \$8.50; wheat and oat straw, \$7 per ton.

Feed.—Prices are steady on last week's basis. Carlot prices on track: Bran, \$27 per ton; coarse middlings, \$27; fine middlings, \$30; cracked corn, \$27; coarse corn meal, \$27; corn and oat chop, \$25 per ton.

Potatoes.—There is no encouragement for the holders of potatoes other than that the market remains about where it was a week ago. There are plenty of offerings and only a fair demand. Michigan grown are selling in car lots at 25¢ 30¢ per bu.

Provisions.—Family pork, \$29@30; mess pork, \$28.50; medium clear, \$28@30; pure lard, 15¢; bacon, 20¢@22¢; shoulders, 15¢; smoked hams, 18½¢@19¢; picnic hams, 14¢.

Hides.—No. 1 cured, 11¢; No. 2 cured, 10¢; No. 1 green bulls, 8¢; No. 1 green calf, 14¢; No. 2 green calf, 13¢; No. 1 cured calf, 14¢; No. 2 cured calf, 13¢; No. 1 horsehides, \$3.50; No. 2 horsehides, \$2.50; sheepskins, as to wool, 50¢@82¢.

Dairy and Poultry Products.

Butter.—There has been an improve-

ment in the offerings of butter, and prices are a cent lower for creamery stock with dairy goods on a par with last week's quotations. Extra creamery butter is quoted at 31¢ per lb. First, 30¢; dairy, 22¢; packing stock, 20¢.

Eggs.—There is a splendid demand for eggs and in spite of the fact that offerings are liberal prices remain on the same basis as last week. Thus far practically no stocks have been accumulated. Fresh receipts, cases included, are quoted at 21¢ per dozen.

Poultry.—There has been no change in values for either live or dressed poultry during the past week. The supplies are smaller and demand fair. Quotations are: as follows. Live.—Spring chickens, 16½¢@17¢; hens, 16½¢@17¢; old roosters and stags, 12¢@13¢; ducks, 16¢@17¢; geese, 13¢@14¢; turkeys, 17¢@18¢. Dressed.—Chickens, 17¢@18¢; hens, 17¢@18¢; ducks, 19¢@20¢; geese, 15¢; turkeys, 20¢@24¢.

Cheese.—Michigan, late made, 15¢@15½¢; Michigan, fall made, 16½¢@17¢; York state, 18½¢; Limburger, Wisconsin, 18¢; New York, 19¢; bricks, 18½¢@19¢; Swiss, domestic block, 20¢; Swiss loaf, 22¢@23¢.

Calves.—Lower. Choice to fancy, 12¢@12½¢; ordinary, 10¢@11¢.

Fruits and Vegetables.

Apples.—Market on last week's basis. Spy, \$4@4.50; Baldwin, \$3.50@4; Steel red, \$5; Greening, \$4@4.50 per bbl.

Cranberries.—Cape Cod berries selling at \$2 per bu.

Onions.—Domestic, 80¢@85¢ per bu; Spanish, \$1.90 per crate.

Cabbage.—\$1.75@2 per bbl.
Vegetables.—Beets, 60¢ per bu; brussels sprouts, 25¢ per qt; carrots, 50¢ per bu; cauliflower, \$2.25@2.50 per bu; celery, 45¢@50¢ per doz; eggplant, \$2@2.50 doz; green onions, 15¢ per doz; lettuce, hot-house, \$1.50@1.75 per doz; mint, 25¢ per doz; parsley, 25¢@30¢ per doz; radishes, 25¢@30¢ doz; spinach, 90¢ hamper; turnips, 50¢ per bu; watercress, 40¢ per doz; wax beans, \$4.50 per bu; pieplant, 45¢ per doz.

OTHER MARKETS.

Grand Rapids.

Eggs are higher, jobbers paying the country trade 19¢@20¢ this week. The large amount of eggs going into storage accounts for the rise, and lower prices are bound to come soon. Dairy butter is off a trifle, with quotations at 24¢. Creamery has slipped off 1¢ and is worth 30¢. Dressed hogs have not changed materially in price, and are bringing 11½¢@12½¢. On account of better inquiry from outside shipping points, live fowls, chickens and ducks are 1¢ higher, dealers paying 15¢. Other poultry brings the following prices: Old cocks, 10¢; turkeys, 16¢; geese, 8¢. Grain prices are as follows: Wheat, \$1.11; corn, 61¢; oats, 46¢; rye, 72¢. White beans, machine screened, are quoted on a \$1.80 basis; red kidneys, \$2.60.

New York.

Butter.—Market firm and active at lower prices. Western factory firsts, 22¢@23¢; creamery specials, 32¢.

Eggs.—Market is steady around last week's basis of prices. Western prime quoted at 23¢@23½¢ per doz.

Poultry.—Dressed, quiet, with prices on a par with those of a week ago. Western chickens, broilers, 16¢@17¢; fowls, 14½¢@19½¢; turkeys, 17¢@23¢.

Chicago.

Wheat.—No. 2 red, \$1.18@1.20; May, \$1.13½; July, \$1.06½.
Corn.—No. 3, 57½¢@58½¢; May, 60¢; July, 62½¢.

Oats.—No. 3 white, 41½¢@43½¢; May, 42½¢; July, 40½¢.

Butter.—Creameries are a shade lower and dairies a little stronger on a steady market. They are: Creameries, 26¢@32¢; dairies, 22¢@28¢.

Eggs.—Prices are improved a fraction with demand excellent. Prime firsts, 22¢; firsts, 21¢; at mark, cases included, 18¢@20¢ per doz.

Hay and Straw.—Market is weak. Quotations are: Choice timothy, \$17.50@18; No. 1 timothy, \$16.50@17; No. 2 do. and No. 1 mixed, \$15@16; No. 3 do. and No. 2 mixed, \$9@14; rye straw, \$8@9; oat straw, \$6.50@7; wheat straw, \$6@6.50.

Potatoes.—Values are on a par with a week ago, fancy and choice stock selling at 26¢@28¢ per bu., while fair to good grades are quotable at 22¢@25¢ per bu.

Beans.—Market has an easy undertone. Choice hand-picked are quoted at \$2.13@2.14; fair to good, \$2.10; red kidneys, \$2.75@3.10 per bu.

Boston.

Wool.—This market is showing the first weakness since early last fall and it appears that the change is due largely to lack of demand from manufacturers. The concessions are greatest in the territory stocks, although fleece wools are apparently suffering in the same way. The impression is, however, that the lowering of prices is for a moral influence upon growers, suggesting that the trade will not sustain the high values being asked upon the farms for the new wool clip. However this may be it is certain that the amount of wool held over is very small and nothing but promise of a large 1910 crop should materially influence the trade. The following are the leading quotations for domestic grades: Ohio and Pennsylvania fleeces—No. 1 washed, 40¢@41¢; delaine washed, 37¢@38¢; XX, 36¢@37¢; fine unmerchantable, 29¢@30¢; half-blood combing, 35¢; three-eighths-blood combing, 35¢; quarter blood combing, 33½¢@34¢; delaine unwashed, 29¢. Michigan, Wisconsin and New York fleeces—Fine unwashed, 24¢@25¢; delaine unwashed, 28¢; half blood unwashed, 33¢@34¢; three-eighths blood unwashed, 33¢@34¢. Kentucky, Indiana and Missouri—Three-eighths blood, 35¢@36¢; quarter blood, 34¢@35¢.

Elgin.

Butter.—Market firm at 31¢ per lb., which is 1¢ below the quotation of a week ago. The sales for the week amounted to 464,400 lbs., compared with 456,200 for the previous week.

THE LIVE STOCK MARKETS.

Buffalo.

April 4, 1910.
(Special report by Dunning & Stevens, New York Central Stock Yards, East Buffalo, N. Y.)

Receipts of sale stock here today as follows: Cattle, 175 cars, hogs, 10,400; sheep and lambs 11,000; calves, 2,400.

One hundred and seventy-five cars of cattle on our market here today. All cattle weighing 1,200 and up with fat and quality, sold steady with last week. Cattle below that weight sold 10¢@15¢ per hundred weight lower, and, in fact, fat cows and bulls fully 25¢ per hundred lower. Yards were well cleaned at the close of the market, and feeling steady at present prices.

We quote: Best 1,300 to 1,450-lb. steers, \$8@8.50; good 1,200 to 1,350-lb. steers, \$7.50@8; best 1,100 to 1,200-lb shipping steers, \$7.50@8; medium butcher steers, 1,000 to 1,100, \$6@6.75; light butcher steers, \$5.50@6; best fat cows, \$4.75@5.50; fair to good cows, \$4@4.75; common to medium do., \$2.50@3.75; best fat heifers, \$6.25@7; good fat heifers, \$5.50@6; fair to good do., \$4.75@5.50; best feeding steers, \$5.50@6; medium to good do., \$5@5.50; stockers, all grades, \$4@5; best bulls, \$5.50@6; bologna bulls, \$4@4.50; best milkers and springers, \$5@6.50; common to good, \$2.50@4.50.

With 65 cars of hogs on our market today, market opened up about a nickel lower on all kinds than Saturday's best time, and closed steady at the opening, with a good clearance.

We quote prices as follows: Mixed, medium and heavy, \$11.20@11.30; light to good weight yorkers, \$11.15@11.25; pigs, \$10.90@11; roughs, \$10.20@10.25; stags, as to quality, \$8.25@9. Few choice deals of hogs, mostly sorted, \$11.35.

The lamb market opened up slow, with most of the best lambs selling at \$9.85@9.90; few at 10¢. The market closed steady, and about all sold, and if receipts are not too heavy, we look for a little improvement in prices on handy stock the balance of the week.

We quote: Best lambs, \$9.85@9.90; fair to good, \$9.25@9.75; heavy lambs, \$9@9.40; culls, \$8.50@9; skin culls, \$6@7; yearlings, \$9@9.25; wethers, \$8.25@8.50; ewes, \$7@7.50; cull sheep, \$4@6; handy clipped lambs, \$8.85@8.90; heavy clipped do., \$8.40@8.65; clipped wethers, \$7.25@7.50; clipped ewes, \$6@6.50; clipped yearlings, \$7.75@8.25; clipped cull sheep, \$3@5; veals, choice to extra, \$9@9.25; fair to good do., \$8@8.50; cull to common, \$6.50@7.50; light thin calves, \$5@6.50; western calves, \$4@5.50; heavy fat calves, \$5@6.50.

Chicago.

April 4, 1910.
Cattle. Hogs. Sheep.
Received today11,000 19,000 17,000
Same day last year..23,184 41,062 24,426
Received last week ..45,492 71,108 44,038
Same week last year..47,072 125,960 65,360

The week opens today with a remarkably small cattle supply, and to considerable extent good lots went a dime higher, not many being offered and the best sale took place at \$8.65. Trade requirements were small, however, and trade was slow most of the day, with plain and medium cattle selling no better. Hogs, too, were scarce, leading to some early trades a nickel higher, but before long the improvement was all lost. Heavy packing and selected shipping hogs went at \$10.65@10.95, light packing and selected shipping lots weighing 140 to 195 lbs. at \$10.40@10.80 and pigs at \$9.40@10.40. Stags were taken at \$11.35@12.25 and boars at \$5@6. Hogs received last week averaged in weight 220 lbs., compared with 208 lbs. a year ago, 212 lbs. two years ago and 226 lbs. three years ago. Sheep and lambs were extremely dull, and prices were largely 25¢ lower, after last week's slump of 50¢@60¢. Clipped flocks were salable as follows: Lambs, \$7.50@9; wethers, \$7.25@8.15; ewes, \$6.50@8.

Cattle, in common with sheep and hogs, have been affected very unfavorably recently by the greatly decreased consumption of beef, mutton and hog products resulting from the warm weather and unusually high prices. The advent of spring usually brings about a temporary decline in the use of meats, eggs and vegetables being purchased largely as substitutes, and this year the custom has been greater than ordinarily in consequence of the remarkable dearthness of meats of every description. There was a good rally in prices last Thursday resulting from a marked falling off in the offerings, and good heavy butcher stock was especially higher, but prior to that day the moderate cattle supplies failed to check the general weakness, and by Wednesday a poor eastern trade had cut down shipping orders to such an extent that the bulk of the beefs sold 50¢@75¢ under the recent high level, while butcher stock was off 50¢@55¢ as a rule. Beef steers have been selling largely at \$6.50@8.10, with poorer light steers going at \$5.60@6.60 and the better class of shipping cattle of good weight at \$7.50@8.50, while on Monday there was a very fair showing of cattle at \$8.15@8.75. The decline looked big to country shippers, but even at the lower figures cattle sold very much higher than a month ago and far above prices realized in former years. Cows and heifers have been selling at \$4@7.25, with sales of canners and cutters at \$2.50@4, and bulls at \$3.50@6.50. Calves had a spurt upward on good buying orders, with sales at \$3.50@9.25 per 100 lbs., the rise being in choice light vealers. Milk-ers and springers were unchanged, with moderate offerings and demand at \$30@70 per head. Stockers and feeders were less active and lower, stockers selling at \$4@6 and feeders at \$5.75@6.60, while early in the week prime heavy feeders were taken as high as \$7 for shipment to Indiana.

Hogs made a new record at the opening of last week by selling at \$11.20 for prime heavy barrows to local speculators, being 15¢ above the previous high level. There was a quick decline, however, as regular

buyers refused to operate at such prices, and it was difficult to put the market up to \$11 for the best grade, the lack of a good eastern shipping demand enabling local packers to hold prices down much of the time. The receipts continued to fall off in volume, but such droves as did show up graded well as a general rule, stockmen having a powerful incentive to make their swine good and fat. The hogs marketed have weighed up well, and farmers have made big profits, even at the high price of feed. Fresh pork and provisions have sold extremely high, and bacon has sold at 30¢ in the Chicago retail meat markets. The scarcity of hogs everywhere is favorable for continued high prices, but widely extended strikes of coal miners are a very unfavorable feature. However, hogs could be sold at very much lower prices and still be extremely high compared with former years.

Sheep and lambs had undergone such highly sensational advances for several weeks in succession that a lively reaction seemed to be inevitable, and it showed up last week in spite of the continued small receipts. The unsatisfactory condition of the Buffalo and other eastern markets brought about a poor eastern shipping demand, and local slaughterers were in a position to insist upon lower prices, even for the choicer consignments, while the unduly large offerings of thin stock sold especially low compared with recent weeks. Still sheep sold much higher than a month ago, and both sheep and lambs were much higher than at corresponding dates in former years. Buyers operated best after the market had declined sharply, but they were discriminative and neglected the half-fattened stock or made purchases only on their own terms when fat was lacking. Receipts came largely shorn, and buyers showed a strong distaste for woolled stock, refusing in numerous cases to make bids. The decline in prices has checked marketing in various quarters.

Horses have been bringing very much higher prices than a year ago, the receipts usually falling short of the numbers seen at that time, while the demand is active in a general way. The worst feature of the market is the offering of inferior animals at times, causing declines in such horses, for the demand is for good horses. The best markets are experienced as a rule during the first half of the week, when out-of-town buyers are in large attendance at the public auction sales at the stock yards. Plain, work-worn and blemished horses are discriminated against, and sales are made as low as \$75@100 per head, while medium weight animals of good quality are in active demand from farmers all over the country at \$140@175, with some sales as high as \$200. Eastern buyers want a good many heavy drafters at \$175@250, and drivers are in better demand at \$150@300.

LIVE STOCK NOTES.

It is believed that the shortage of hogs to be marketed in this country for the next three months will be approximately 25 per cent less than a year ago, and the fact is taken into consideration that many more sows are being held back than was the case a year ago, for good gilts, as well as old brood sows, are valuable property these times. It is reported that pigs are being born at the rate of half a million a week, and the gilts are claimed to be producing on an average seven pigs to the litter. The general condition is the reverse of that of a year ago, when farmers were selling their brood sows.

Silage-fed cattle are making good returns to their owners these times. Recently a consignment from Monon, Ind., of fat heifers, cows and steers mixed sold extremely well on the Chicago market. All of the cattle had been fed corn silage since the first of last November, this being an experiment that worked well. The other feeds used were broken corn and wheat straw. The owners said they were enabled to cut the regular corn ration without silage down fully 50 per cent, and yet the cattle made the best gains they ever saw, notwithstanding one of the worst winters in their long experience.

An experienced Nebraska sheepman of the old school, who was brought up in Scotland, where he associated with some of the most renowned sheepmen, is of the opinion that the sheep and lamb feeding business is fast getting into the hands of men who handle small flocks and who raise most of their feed. He thinks the big feeder is under too heavy an expense and taking too much risk to continue operations on an extensive scale many more years.

Reports from Kentucky state that sheepmen have lost fully 30 per cent of the spring lambs that have been dropped, while about 15 per cent of the ewes have died. Buyers have been paying \$7 for June delivery of spring lambs and \$6.50 for July delivery, while a good many sheepmen decline to put prices on their lambs at the present time. Better reports come from Tennessee, lamb losses being only about 10 per cent, with very little loss in ewes.

H. P. Rusk, of the Indiana Experiment Station, marketed at Chicago recently 14 head of cattle at \$8 per 100 lbs., and during the 120 days they were fed no other roughage than silage was used. The test showed that silage is a very economical feed. They made a daily gain of 2.54 lbs. and feed used per lb. of grain and shelled corn was 6.9 lbs., cottonseed meal 1.06 lbs., corn silage 12.67 lbs.

Reports from Grant county, Wis., say that both cattle and hogs are extremely scarce and where in former years it was comparatively easy to pick up a load of hogs in the course of a day, three to four days are required to gather up enough to fill a car. Corn last year was a good crop, many farmers securing from 50 to 60 bushels per acre, while oats yielded from 35 to 45 bushels, but the average quality of the corn was not good. Lots of snow lay on the ground during the past winter, and for some time hay cost up to \$20 per ton, but good hay can be bought now for \$12@14 a ton.

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. April 7, 1910.

Cattle.

Receipts, 996. Market active and 50¢ 75c higher on bulls; all other grades 25c higher.

We quote: Extra dry-fed steers and heifers, \$7.50; steers and heifers, 1,000 to 1,200, \$6.75 to \$7.25; steers and heifers, 800 to 1,000, \$5.75 to \$6.50; steers and heifers that are fat, 500 to 700, \$5.25 to \$5.50; choice fat cows, \$5; good fat cows, \$4.50 to \$4.75; common cows, \$3.25 to \$3.50; canners, \$3; choice heavy bulls, \$5.25 to \$5.50; fair to good bolognas, bulls, \$4.50 to \$5; stock bulls, \$4; milkers, large, young, medium age, \$4 to \$5.50; common milkers, \$2.50 to \$3.50.

Roe Com. Co. sold Sullivan P. Co. 1 canner weighing 800 at \$2.50, 2 steers av 1,165 at \$5.50, 5 do av 902 at \$6.50, 2 do av 610 at \$5; to Mich. B. Co. 19 butchers av 700 at \$5.80, 2 do av 1,035 at \$5.50, 1 do weighing 550 at \$4; to Newton B. Co. 19 steers av 1,037 at \$6.90, 1 cow weighing 1,170 at \$4.75, 1 do weighing 820 at \$3; to Bresnahan 2 heifers av 410 at \$4.50; to Breitenback Bros. 28 steers av 740 at \$6; to Rattkowsky 2 cows av 905 at \$3.75, 2 bull and cow av 920 at \$5; to Mich. B. Co. 2 butchers av 800 at \$4.50, 21 steers av 990 at \$6.75, 23 do av 930 at \$6.40.

Bishop, B. & H. sold Hammond, S. & Co. 2 cows av 1,070 at \$4, 2 do av 1,200 at \$4.75, 2 do av 960 at \$3.75, 10 steers av 728 at \$5.25, 15 do av 810 at \$6.25, 3 do av 983 at \$6.65, 2 do av 905 at \$6.50, 1 bull weighing 1,300 at \$4.75, 1 do weighing 1,000 at \$4.25; to Mich. B. Co. 9 butchers av 644 at \$4.75, 23 steers av 881 at \$6; to Graves 2 do av 1,015 at \$6.25, 2 cows av 1,085 at \$4.15; to Sullivan P. Co. 16 steers av 781 at \$6.15; to Kamman B. Co. 4 do av 692 at \$5.25; to Sullivan P. Co. 1 bull weighing 1,100 at \$5, 5 steers av 1,243 at \$7, 26 do av 1,053 at \$6.75, 2 do av 1,070 at \$5, 1 do weighing 1,150 at \$7.25, 3 do av 977 at \$6.75, 4 do av 950 at \$6.75, 1 cow weighing 1,130 at \$3.50, 2 do av 1,185 at \$3.50, 9 heifers av 733 at \$5.25, 7 steers av 910 at \$6.50, 2 do av 750 at \$5.50; to Thompson 2 cows av 950 at \$4.50, 4 do av 787 at \$3; to Sullivan P. Co. 12 do av 975 at \$6; to Sullivan P. Co. 1 bull weighing 1,660 at \$5.25, 2 do av 890 at \$4.50, 6 steers av 1,123 at \$7.25, 6 do av 621 at \$4.75, 8 do av 1,165 at \$7.50; to Graves 18 do av 1,090 at \$7, 2 do av 825 at \$6; to Hammond, S. & Co. 3 do av 1,143 at \$7.50.

Spicer & R. sold Sullivan P. Co. 2 cows av 745 at \$2.75, 7 do av 936 at \$4.50, 2 do av 890 at \$3.50, 1 bull weighing 1,200 at \$4.50, 1 do weighing 600 at \$4, 5 steers av 914 at \$6.50, 4 do av 962 at \$5, 13 heifers av 546 at \$5.15, 13 steers av 1,060 at \$6.75, 4 do av 800 at \$5.40; to Gerish 14 do av 928 at \$6.50; to Mich. B. Co. 33 butchers av 771 at \$5.75, 9 cows av 824 at \$4.50, 6 do av 1,000 at \$4.50, 5 bulls av 1,100 at \$4.50, 3 cows av 1,016 at \$4.25; to Sullivan P. Co. 20 steers av 1,005 at \$6.75, 5 cows av 974 at \$3.50, 1 do weighing 1,110 at \$2.50; to Lacalt 7 steers av 930 at \$5.75, 1 cow weighing 1,090 at \$4.75; to Bresnahan 2 bulls av 1,725 at \$5, 4 steers av 887 at \$6, 18 do av 1,060 at \$7.25; to Newton B. Co. 2 do av 1,130 at \$6, 4 butchers av 750 at \$4.50.

Haley & M. sold Schlischer 9 butchers av 622 at \$5.15; to Sullivan P. Co. 2 cows av 990 at \$4.40, 1 do weighing 850 at \$2.85, 2 steers av 660 at \$4.50, 10 do av 1,045 at \$6.55, 6 butchers av 1,021 at \$5.50; to Hammond, S. & Co. 5 cows av 986 at \$3.65, 4 bulls av 1,172 at \$4, 2 steers av 790 at \$5.75, 14 do av 832 at \$6.25; to Thompson 1 cow weighing 1,210 at \$5.50; to Kamman 1 do weighing 1,130 at \$5, 1 do weighing 1,200 at \$4, 2 oxen av 1,650 at \$5.40.

Johnson sold Breitenback Bros. 9 cows av 955 at \$4.25.

Sharp & W. sold Graves 19 steers av 960 at \$6.60, 2 do av 785 at \$6, 1 cow weighing 1,070 at \$4.50.

Same sold Bresnahan 7 steers av 743 at \$5.25.

Kendall sold same 13 do av 1,000 at \$6.40.

Groff sold Schuman 2 butchers av 1,210 at \$4.75, 4 do av 725 at \$5.75.

Sharp & W. sold Goose 1 bull weighing 1,090 at \$4.50.

Lowenstein sold Mich. B. Co. 6 cows and heifers av 1,050 at \$5.

Robb sold same 2 cows av 1,090 at \$4.50, 1 do weighing 670 at \$4.

Besancon sold Kamman 11 steers av 836 at \$5.75.

Johnson sold Gerish 2 steers av 1,110 at \$6.40.

Same sold Sullivan P. Co. 3 butchers av 733 at \$5.50.

Penton sold Newton B. Co. 9 steers av 913 at \$6.50, 5 butchers av 668 at \$4.25.

Veal Calves.

Receipts, 1,189. Market opened 25¢ 50c lower, closing 75c lower than last week. Best, \$8.25 to \$8.50; others, \$4 to \$7.50; milch cows and springers steady. Closed \$7.50 for the very best, which is 75c lower than the opening and 1.25 lower than last week.

Bishop, B. & H. sold Newton B. Co. 2 av 130 at \$6.50, 7 av 135 at \$8.25, 4 av 105 at \$6.50, 14 av 140 at \$8.25; to Mich. B. Co. 36 av 130 at \$8.25, 14 av 135 at \$8.25, 2 av 120 at \$8.25; to Nagle P. Co. 20 av 118 at \$7.10, 3 av 100 at \$5, 16 av 135 at \$8, 41 av 130 at \$8, 3 av 120 at \$7.75, 2 av 160 at \$8.25; to Parker, W. & Co. 32 av 135 at \$8.25; to Markowitz 6 av 130 at \$8; to Burnstine 4 av 140 at \$8.50, 3 av 145 at \$8.50; to McGuire 73 av 130 at \$8.25; to Parker, W. & Co. 3 av 145

at \$8.25; to Rattkowsky 13 av 135 at \$8; to Newton B. Co. 24 av 130 at \$8.25; to Applebaum 5 av 125 at \$6.

Spicer & R. sold Sullivan P. Co. 7 av 150 at \$8, 17 av 140 at \$8; to Newton B. Co. 4 av 140 at \$7.75; to Nagle P. Co. 8 av 120 at \$8; to Rattkowsky 6 av 125 at \$7.90; to Pragg 5 av 135 at \$7.75; to Burnstine 15 av 130 at \$8; to Rattkowsky 12 av 135 at \$7.75; to Costello 6 av 118 at \$8.

Haley & M. sold Hammond, S. & Co. 4 av 225 at \$5, 15 av 135 at \$7.50; to Thompson 6 av 125 at \$8, 3 av 115 at \$7.50, 18 av 130 at \$8.25.

Roe Com. Co. sold Mich. B. Co. 31 av 135 at \$8.40; to Barlage 20 av 110 at \$6.85; to Nagle P. Co. 25 av 120 at \$7.50, 46 av 130 at \$7.75, 20 av 140 at \$8.

Wagner & A. sold Bresnahan 19 av 120 at \$7.50.

Johnson sold Rattkowsky 12 av 130 at \$8.

Duelle sold Burnstine 27 av 135 at \$8.

Lovewell sold same 10 av 136 at \$8.

Boyle sold Sullivan P. Co. 7 av 135 at \$7.25.

Walker sold same 10 av 126 at \$7.

Cheney & H. sold Hammond, S. & Co. 30 av 128 at \$7.50.

Sheep and Lambs.

Receipts, 2,092. Wools steady; clips dull and 10¢ 15c lower; quotations are for clipped stock.

Best lambs, \$8.45 to \$8.50; fair to good lambs, \$7.50 to \$8; light to common lambs, \$4.50 to \$5.50; wool lambs, \$9.70 to \$9.80; fair to good sheep, \$5.50 to \$6; culls and common, \$4 to \$5.50.

Spicer & R. sold Newton B. Co. 6 clip sheep av 60 at \$6, 1 do weighing 150 at \$4, 11 clip lambs av 75 at \$8.25, 15 do av 90 at \$5.75, 17 do av 70 at \$6.75; to Sullivan P. Co. 7 lambs av 77 at \$9.50; to Newton B. Co. 7 sheep av 80 at \$5.50, 43 lambs av 77 at \$8.60; to Mich. B. Co. 2 sheep av 160 at \$6.50, 1 do weighing 120 at \$4.

Bishop, B. & H. sold Hammond, S. & Co. 210 lambs av 90 at \$9.60, 51 clip lambs av 58 at \$7.50; to Nagle P. Co. 210 do av 91 at \$9.60, 68 do av 70 at \$8.25, 15 do av 90 at \$8.50, 2 sheep av 100 at \$5; to Mica, B. Co. 10 lambs av 100 at \$7.50, 30 do av 65 at \$8.50, 10 sheep av 120 at \$7, 28 lambs av 58 at \$9; to Sullivan P. Co. 11 sheep av 90 at \$6.75; to Mich. B. Co. 7 do av 100 at \$5.50; to Sullivan P. Co. 256 wool lambs av 70 at \$9.80; to Fitzpatrick Bros. 39 do av 75 at \$8.30.

Haley & M. sold Mich. B. Co. 3 lambs av 55 at \$8.50, 7 sheep av 120 at \$6.50; to Thompson 1 buck weighing 190 at \$4.50, 8 lambs av 80 at \$8.25, 8 do av 80 at \$8.25.

Waterman sold Nagle P. Co. 339 clip lambs av 70 at \$8.45.

Hertler sold same 210 do av 80 at \$8.40.

Hogs.

Receipts, 4,282. Market 25c lower than last Thursday.

Range of prices: Light to good butchers, \$10.50 to \$10.60; pigs, \$10.25 to \$10.30; light yorkers, \$10.40 to \$10.50; stags, ½ off.

Bishop, B. & H. sold Parker, W. & Co. 234 av 200 at \$10.60, 1,057 av 180 at \$10.50, 138 av 150 at \$10.40, 38 av 140 at \$10.35.

Spicer & R. sold Hammond, S. & Co. 185 av 200 at \$10.60, 65 av 190 at \$10.55, 235 av 175 at \$10.50.

Haley & M. sold same 150 av 165 at \$10.45, 65 av 150 at \$10.35, 40 av 180 at \$10.55, 55 av 190 at \$10.60.

Roe Com. Co. sold Sullivan P. Co. 344 av 200 at \$10.60, 287 av 180 at \$10.50.

Bishop, B. & H. sold same 119 av 185 at \$10.55, 16 av 210 at \$10.60.

LIVE STOCK NOTES.

The extraordinarily high prices paid at the present time for finished beef cattle are tempting farmers to offer fancy prices for well-bred feeders, and recent sales have been made in the Chicago stock yards as high as \$6 to \$6.65 per 100 lbs. The great demand all along has been running on the choicer class of feeders carrying a good deal of weight, intending purchasers calculating on not feeding them more than one hundred days and getting them returned to market as prime beefs and obtaining fancy prices. It has happened that these cattle have been especially popular with killers, as they came in handy for making cheap beef, and it has happened frequently that stockmen switched over to moderate-weight stockers, the marked increase in this demand causing them, too, to sell unusually high.

South Dakota is doing quite a large amount of breeding of draft horses, and farmers have found the industry sufficiently profitable to encourage larger breeding operations. Large numbers of draft chunks find a market in Chicago, where they usually bring satisfactory prices, and increasing numbers are shipped to the western and Pacific coast states, as well as to the Canadian northwestern provinces. Of late, numerous far western dealers have been canvassing South Dakota in search of horses for distribution among farmers.

Professor R. C. Obrecht, of the University of Illinois, has been canvassing the country districts of Illinois for horses for the university, and he says he never saw so few sound, high-class horses in the breeding regions or so many mediocre animals. He attributes the scarcity of good horses to the thoroughness with which the country has been scoured by professional buyers to supply wholesale markets. Professor Obrecht has issued a bulletin showing the experiment work of the university in fattening horses for the market.

A stock feeder recently shipped out a drove of 1,097-lb. feeder steers from the Chicago stock yards that cost him \$6.50 per 100 lbs., his plan being to give them a short feed. They were not as good as the feeder steers which cost \$6.60 in the same market in the previous week for shipment to Pennsylvania. Eastern sections have been much the largest buyers of high-grade feeders, although Illinois stockmen have been liberal buyers of good grade 800 to 900-lb. steers, paying as high as \$6 per 100 lbs. for the heavier lots, while feeders averaging less than 1,000 lbs sold as high as \$6.40.

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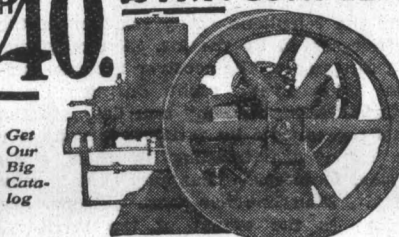
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HOME AND YOUTH

LONELINESS.

BY LALIA MITCHELL.

Is it lonely in the country,
When the wild winds blow?
Is it lonely in the country,
When the roads are deep with snow,
When the breezes o'er the meadow,
Whisper dirges for the year,
Or in sudden sweep of frenzy
Bend the branches brown and sere?
When the sleet against the window
Dashes like the ocean spray,
And the very brooklet, prisoned,
Sleeps to wait a fairer day,
Is it lonely in the country?
Tell me this before we part,
And your question shall be answered,
Is it lonely in your heart?

Is it lonely in the city,
When the night is darkening down;
When the sombre buildings mock you
With their brick and granite frown;
When a thousand passing footsteps
Beat a tattoo without end,
And you know that as you listen
Never one is of a friend?
When the cold of winter mocks you,
And the storm of winter chills,
And the soulless white of marble,
Shuts from view the distant hills,
Is it lonely in the city?
Say but this and test my art,
For I'll tell you, answer truly,
Is it lonely in your heart?

Little matters snow or tempest,
Little matters cold or storm,
Where the walls of home encircle,
Where the hearth is bright and warm,
Little matter silent vistas,
Or a street where traffic roars,
Mountain silences or thunder
Of the surf on trembling shores.
Are there those you love to bless you?
Are there friends with voices kind,
Are there kindred ever waiting
In your presence joy to find?
Winter is not dark or dreary,
Winter plays no tyrant's part,
Country, city are not lonely
If there's summer in your heart.

A GENTLEMAN IN HOMESPUN.

BY EDGAR, WHITE.

"For the soul that gives is the soul that
lives,
And bearing another's load,
Doth lighten your own and shorten the
way,
And brighten the homeward road."
—Washington Gladden.

Some writer has tersely defined a gentleman as one who cares for others besides himself. Accepting the definition as correct, you would travel a long way before you found a better representative of that honored class than a certain snowy-haired farmer up on Brush Creek, in western Macon county, Missouri. "Uncle"—even those who outrank him in years bestow the prefix—Peter V. B. Cox wouldn't strike you as much out of the common run until you heard him laugh. That laugh, if there were nothing else about him, would make him a noted character. In describing him a native of Brush Creek always begins, "You just ought to hear him laugh!"

They tell it, and with serious faces, that a constable was sent out from town on Sunday morning to arrest some parties for disturbing religious worship. He returned without any prisoner, but whispered to a deacon that some fellow had been telling Uncle Peter a new joke. And his little home is a good two miles from town! But they say it happened the wind was exactly in the right direction.

Mr. Cox was born in Virginia 70 years ago, but has been a Missourian the past forty years. He owns a fine farm up on Brush Creek, and has a splendid family. The only time he ever got mad at one of his children was when the lad told his father he was going to get married. The old gentleman said it was all foolishness, that he had a good home and might as well stay there and be happy. But the boy was obdurate, and his father never quite forgave him for his "disobedience." You ask the people of Brush Creek what there is about "Uncle" Peter that makes them take to him so and they will instantly reply: "Oh, because he's so good to everybody!"

Christmas with "Uncle Peter" is sacred to the cause of generosity and hospitality. For a week ahead, invitations are sent to his friends throughout the township. It is the event of the year to the farming people of Brush Creek and their little ones. Parents may forget their children at that time, but "Uncle Peter" doesn't. The biggest evergreen obtainable in the forest is erected in the large parlor or reception hall in the farm home. Everybody invited is remembered on that tree by some handsome token. "Uncle Peter" acts as Santa Claus and has a regular program to amuse his guests. If snow is on the ground the character of the friend

of children is made more realistic by driving to the house in a sleigh to the jingle of bells, and Santa Claus climbs through the window with a pack on his back.

After the Christmas tree exercises, supper is served, and this is followed with "music by the orchestra." The entertainment is given every night during the holidays so that all the philanthropist's friends—children and big people—can see the show. The house, large as it is, won't accommodate but a small percentage of the neighbors at one time.

In his costume of "Santa Claus," Mr. Cox gathers up his bow and violin and begins work. As a fiddler of the old school he takes a back seat for no man on earth. His "music box," as he calls it, is as much a part of him as his generous heart and rugged honesty. In the "auditorium" is a telephone, and the musician stands near it so those sick and unable to be present may enjoy that part of the program.

"Uncle Peter" has a regular "fiddling season." It begins with the first frost in autumn and runs till Easter. It never touches the instrument from Easter to frost time. The philosophy of it he won't discuss. And he will not, under any circumstances, play on Sunday.

After the festivities of the holidays, the old musician plays nightly to his friends



Eccentric "Uncle Peter."

over the telephone. Any resident of the district served by the Mt. Zion telephone line can step to the receiver between certain hours every night during "Uncle Peter's fiddling season" and listen to the excellent concert by father and sons, for the latter are treading in their sire's musical footsteps. That may explain why the Mt. Zion line has more patrons, according to the extent of the territory, than any other country system in the county. Everybody has a 'phone, and the East Linn county farmers are trying to get the line extended into their section.

Mr. Cox made his comfortable fortune by farming in the primitive style. He is unalterably opposed to innovations. He will not tolerate a steam thrasher on his domains. The haystacker he regards as a nuisance, and all his hay is handled with pitchforks. No political party or creed of any kind ever won his support. He believes in the broad doctrine of "Do unto others as ye would that they do unto you," and his life is purer than the rules of any sect could make it. Dances and card games of all sorts are an abomination to him.

"Where on earth can you find a game as interesting as conversation between intelligent people?" he asks. "If a man can't say anything worth listening to, or do anything to keep his brain from rotting, there may be some excuse for him to hop around over the dancing floor, or fool with colored cards. But for a gentleman—bah!"

"Uncle Peter" will not permit his children to attend parties where dancing, "kissing games," flinch or any other sort of cards are the order. The gathering must be devoted strictly to edifying conversation, recitations, or music, if his boys and girls are to be there. He's arbitrary on this point.

Mr. Cox is guardian for Mrs. Sarah Fenson, an old lady of 83, who lives back in the woods a ways, with a great lot of dogs, cats, rabbits and birds as her fam-

ily. Mrs. Fenson has not encouraged associations of the human kind since she was robbed of some money a few years ago by a man on a pretended friendly errand. Her husband died in 1888, and, having no children, she was alone in the house. From the date of robbery Mrs. Fenson has run up the black flag against the whole human race, except "Uncle Peter," her guardian. She knows he's honest, and thinks he's about the only man that is. She had to have something to talk to, so she has gathered around her an immense colony of domestic animals—great hunting hounds, black and gray cats, rabbits, squirrels and hundreds of birds. These live around in boxes and cages, both in the house and outside. Every animal has a name, and each day receives attention from its mistress. The dogs are fierce, and census enumerators and others who have occasional business with the woman hermit have a hard time getting by the four-footed guardsmen alive.

A gentleman who was compelled to visit the old lady on business recently, from the vantage of a tree-top, had to lift his right hand and declare on his hope of eternal salvation that he was no robber, before she would call off the dogs. Then he was permitted to climb back to earth and enter the house in peace. A chair was placed for each dog, cat and squirrel, and a crow perched on the back of one. After all the "family" were comfortably seated, the stranger was permitted to tell why he came. Every animal glared suspiciously at the visitor, and during the interview he felt like a man under fire. He says if business ever calls him that way again he's going in an armored vehicle.

ALBERT'S X-RAY DREAM.

BY SOPHIE H. MCKENZIE.

It was Albert's first week in school, and he didn't like it. He thought he knew now how people felt who were shut up in prisons. Every session since the first one he had begged his mother to let him stay at home. But she said, "No, you are six years old, a big, strong boy, and you must go to school every day unless you are sick."

The next morning after his mother had mentioned that sick excuse, Albert complained of a bad headache, and that he didn't feel able to study. "Very well," said his mother, "I will give you some oil, and you must lie down on the couch."

Oil—how he hated it—but he hated school worse; and lying, on the couch wasn't any fun, but it wasn't as bad as sitting still on a hard seat copying "I's" and "a's."

So he swallowed the oil even cheerfully, and let his mother tuck him up on the couch. But soon after the clock struck nine the headache suddenly disappeared and Albert began to romp with his pet dog. When mother found that her young son could play so lively she started him for school at once, though he argued that he felt the headache coming on worse than ever, and even offered to take more oil. But mother was firm this time, and to school he had to go.

On Monday afternoon of the second week Albert walked home with his playmate, George Ames. The two boys agreed that it was cruel to have to stay indoors those beautiful days. What could they do to escape? Finally George announced a bold plan—to run away the next morning and spend the whole forenoon down by the brook.

This seemed a fine idea to Albert until he thought of what might happen if his mother found it out. But George assured him she would never know.

"What will the teacher do?" was the next question.

"Do nothing," replied George, "she won't know, either."

"But, s'posin' she asks?"

"She won't; and if she does, we don't have to tell," was the comforting answer.

Both boys were too young and new to school ways to know that they would have to bring a written excuse from home to explain their absence. So they parted with the understanding that they would meet on a certain corner and be out of the village before the other boys started for school and saw them.

Albert's father was a physician. That night at supper he was telling his wife about using the X-ray to find a bullet in a man's arm. Albert was much interested and wanted to know what an X-ray was. The doctor believed in answering his son's sensible questions, so he explained to him, as simply as he could, the use of the X-ray; that it was a machine

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with a very powerful light by means of which you could see into the flesh.

Albert wished his father owned an X-ray so he could see how it worked. He asked a great many questions about it, and thought about it after he was in bed. Then, just before he fell asleep, he remembered the plan to run away from school.

Peacefully he slept until toward morning, when he had a strange dream. First he dreamed that he had a terrible pain in his stomach and that his father turned on the X-ray and saw inside two mince turnovers (which he had eaten secretly) having an awful fight. Then he dreamed that he was running away from school with George Ames, and they had such a good time playing in the sunshine by the brook. Suddenly the scene changed. They were back in school again. The teacher was saying, "Albert, come to my desk!"

Albert came very slowly, trembling.

"Why were you absent this morning?" asked the teacher.

Albert hung his head and did not answer.

"Very well," said the teacher, "if you will not tell me I must put the X-ray on your mind and see for myself."

With that she took from her desk a machine, out of which came a most peculiar light, and placed it on Albert's head. It burned like fire, but he couldn't get away from it.

"O, I see," exclaimed the teacher; "the X-ray shows me that Albert ran away from school this morning and played by the brook. That is why he wasn't here. He must stay after school a half-hour every night until he has made up the time. Besides, I shall write his mother a note and tell her about it. You may take your seat now, Albert, and I will use the X-ray on George."

But as Albert went crest-fallen to his seat he stubbed his toe and awoke with a jump.

As he opened his eyes, mother was telling him to hurry and dress or he would be late for school. But he wasn't going to school; and then that awful dream came before him. Did teachers, he wondered, use X-rays on boys' minds the same as doctors used them on people's bodies? He didn't dare ask his mother for fear she might question him as to why he wanted to know. George Ames couldn't tell him, for his father was a florist and didn't know about either bodies or minds. He would ask Norah, the new cook.

So he dressed quickly and, while his mother was busy with the breakfast table, he rushed into the kitchen to Norah.

"Norah," he whispered, "do teachers use X-rays on boys' minds?"

"An' what be X-rays?" shouted Norah.

"Ssh, Norah, talk low; they're what doctors use to see the inside of your body. Do you think teachers use them to see inside your mind?"

"Sure, they do if they wants to," responded Norah; "teachers can do anything they likes! You better be after bein' a good b'y!"

Mother was calling him, so there was no time to discuss the matter with Norah. He ate so little breakfast that his mother was afraid he was really sick, and she said perhaps he had better stay at home. To her great surprise, he said he couldn't stay, he must hurry away to school at once.

Soon he was running down the street, and as he rushed around the corner where he was to meet George he nearly tumbled over him.

"Hi, there!" cried George, as he saw Albert heading for the schoolhouse, "where are you going; have you forgotten?"

"I'm going to school," screamed Albert, "and you better go, too! The teacher has an X-ray in her desk, and she can tell what you're thinking about." And he re-doubled his speed, while George called after him, "Fraid cat! afraid cat!"

But Albert didn't stop until he was safely seated at his little desk, with his feet squarely on the floor and his hands folded.

All the day he was so quiet and obedient that his teacher said, as he passed out that night, "I hope the same Albert who has been in school today will be here tomorrow, and every day."

Albert glanced timidly at the desk drawer from which, in his dream, had come the terrible X-ray, and he replied, "Yes'm, thank you, I'll be here every day."

Happiness is based on reality. It must be earned before we can come into its possession.—David Starr Jordan.

THE DEAL IN CALVES.

BY HOWARD DWIGHT SMILEY.

I rode into the town o' Red Horse quite innocent and unsuspecting. Not that I had any reason for riding into Red Horse—I hadn't the slightest excuse nor business for so doing; but, then, I am eternally doing things that I ain't no business to.

"Hello, Billy!" somebody sings out as I was dismounting in front o' the hotel, and looking over my shoulder I see Zeke Johnson and Ike Walters tumbling off the porch and toward me like I was a long lost brother.

Now by them signs any sensible man would 'a' knowed that it was time to hot foot it for open country again; but did it strike your Uncle Billy that way! Oh, no! I can be just as much o' a plumb idiot as the next man when it's most necessary for him to use what little intellect he's got, and instead o' lighting out for safety, like I'd oughter, I returned the greeting with open arms.

"Come in to see the show?" inquired Zeke, after the shake.

"What show?"

"Why, ain't you heard? Abou Ben Hatti, the great Hindu juggler, right fresh from the desert fastnesses o' the Orient, is going to give an exhibition o' dago legerdemain in the plaza this afternoon. They do say that he's a corker."

"That's too bad," says I. "I'd sure like to stay and see him, but I can't. My boss got a hurry-up order for a trainload o' veal, from Chicago, and as he was short a couple o' carloads, he's sent me out into the landscape with three hundred dollars o' real money in my jeans to buy up what I can find and hustle 'em back to ship with the others. I couldn't stay, nohow."

"Calves!" snorted Zeke disgustedly. "Why, man, you ain't going to let a little thing like that interfere with your having a good time, are you? You won't have no trouble getting calves; they're as plentiful as grasshoppers! All you've got to do is to get out on any corner and say 'moo,' like a bossy cow, and they'll come at you from all directions. Why, sure you're going to stay, Billy."

"Yes, and look here, Billy," put in Ike, "when three old pardners like us ain't got together for nigh onto two years, it ain't no business for you to go cavorting off before we've hardly had time to say how-de-do. Stick around and let's get acquainted again."

Well, there ain't no use trying to argue with them two, so o' course I stayed.

"What're you two driving at now?" I inquired.

"Raising goats," answered Zeke very important like. "That's going to be the next leading industry o' this here country and we're getting in on the ground floor. We've got five hundred o' the prettiest little Angoras you ever see, pastured out on the Squaw creek flats."

"What're they good for?" I asked.

"Good for! Why, man, they're—"

"There's that Hindu feller, now," interrupted Ike.

I turned around and at once had reason to feel surprised. A little brown, wizened up critter was standing on the hotel porch, looking straight at us, as if he'd been listening to the conversation. He was dressed in a cross between a mother-hubbard and a nightgown and had a bed sheet wound around his head for a hat.

"Why, hello, Hattie," cried Zeke as soon as he spied him. "Where've you been all the time? I've been wanting to get acquainted ever since I heard about you. Put her there."

He walked over and grabbed hold, o' the feller's hand and began pumping it, whereupon the Hindu jerked it indignantly away and jabbered out something in a foreign lingo.

"Why, what's the matter?" inquired Zeke in a surprised tone. "We just want to be sociable. You ain't got no cause to be offended, Mr. Hatti."

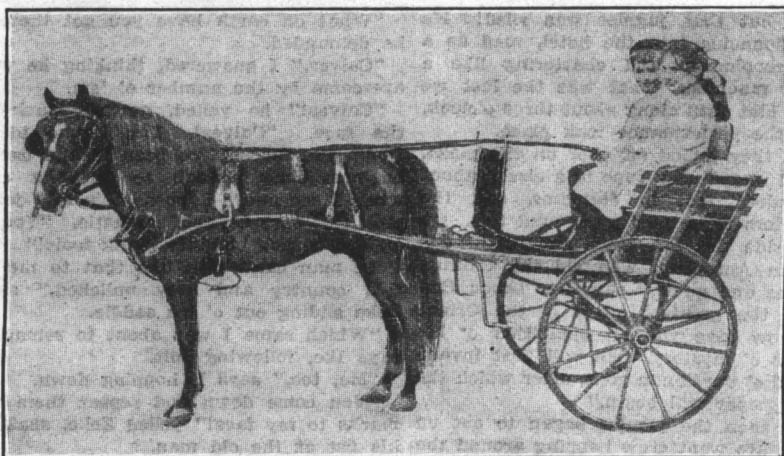
"Get out," growled the Hindu, handing Zeke a look o' scorn that would 'a' curled a Injun's hair. "Go 'way you 'Merican dog!"

"What!" roared Zeke, riling up. "You talk like that to a free born citizen 'o these United States? We'll see about this," and he made a grab for the little feller. The Hindu was too quick for him, however, and before Zeke realized what was coming the dago hauled off and pasted him a whack on the ear that knocked Zeke's hat off.

Zeke straightened up and glared in amazement at the Hindu. He stands six foot two in his socks, and never, since he had come into the west, had he met up with the man who had the courage to

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Pony Contest Editor, Care of the Michigan Farmer, Detroit Mich.

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NAME..... R. F. D.....

P. O..... STATE.....

hand him a wallop like that. He was plumb at a loss for words for the time being.

"Why, you blame little oriental son o' a hop toad, you!" he finally roared. "Who do you think you're slapping, anyway?"

He didn't make any miss this time and before the feller realized it Zeke had him by the neck and across his knee, and calling on me and Ike to help hold him, which we did, he proceeded to administer a genuine old-fashioned spanking, which lasted for five minutes and sounded like someone shingling a house with a sledge hammer.

"There, you blame little locust eater, mebbe that'll teach you not to insult honest and well meaning American citizens next time," says Zeke as he let him up.

Say, but that juggler was riled! He went flouncing into the hotel, mad as a wet schoolmarm and chattering like a sewing machine. That was the last we saw o' him until along about three o'clock, when the performance took place.

This they pulled off over on the plaza. They'd rigged up a rope in a circle, about a hundred foot in diameter, and the spectators were lined up around this. On the inside was Mr. Hatti and his assistant, an American, who did the talking. "Ladies and gents," says he, "Abou Ben Hatti, the greatest adept o' the Orient will now give you an exhibition o' his powers o' mystery. He will first invoke the aid o' the Hindu gods, after which the show proper will begin."

And then the juggler began to cut up didos. He went crow hopping around the inclosure, like a locoed steer, waving his arms and rolling his eyes and "wa wa wawing" in his native lingo.

I noticed that he gave particular attention to us three, prancing up and down in front o' us and wriggling his fingers and making faces at us like he thought we cared.

Then he got down to the real show, and I'll have to admit that the little feller handed out some interesting stunts in the line o' sleight o' hand performance such as none o' us had ever witnessed before. He kept us busy guessing for a full hour, after which the assistant passed the hat around and it was all over.

A little later, while me and Zeke and Ike were lined up in front o' the ablation counter at the hotel, I suddenly remembered my job.

"Well," says I, "I 'low it's time for me to go moseying along and buy up them calves. I've wasted half a day already and the old man don't stand for no procrastinating."

Someone tapped me on the arm just then and I turned around to find a little bow-legged greaser standing beside me.

"You look for calves?" he inquired.

"I sure am. Have you got any?"

"I got some ver' nice calves I sell cheap for cash."

"I'm your ducky then; show 'em to me."

"They pasture 'bout eight mlie out. We go look at 'em?"

"Sure. I'll get my pony and we'll start right now."

"Ain't you going to ask us to go, too?" inquired Zeke in an aggrieved tone as I started for the door.

"Why, sure," I answered. "Come right along; the more the merrier."

An hour later we galloped up to the pasture, where the greaser had his calves, and they were sure a handsome lot. There must 'a' been five hundred in the bunch and every one looked to be a thoroughbred.

"You've got more'n I need there," says I, "but I'll buy part o' 'em. What do you want a head?"

"Me no sell 'less you take 'em all. I sell whole lot for five hundred dollars."

"What!" I yelled, plumb astonished.

"Why, man, there's at least five hundred in that bunch! That's only a dollar a head!"

"I know, but I gotta raise money quick an' sell for that if you buy now."

I looked at Zeke and he nodded back and wunk. "Sure," says he, "buy 'em. Your boss'll never say a word. Tell him you paid two dollars a head and clean up five hundred for yourself on the deal."

"But I only got three hundred dollars." "That's all right. I'll lend you the balance," and Zeke dug for his roll. In five minutes the deal was closed and the greaser moseying back to town.

I don't know what put it into my head, but I decided to drive them calves home that night, notwithstanding that it was nigh to sundown then. Zeke and Ike volunteered to help, and in thirty minutes we had 'em rounded up and were on the way.

Before we'd made five miles we were telling each other that we'd never realized what pesky, contrary critters calves were until that night. In spite o' our best endeavors they scattered hither and yon over the whole territory and kept us on one continuous hump keeping 'em together. Luckily it happened to be full moon and 'most as light as day or we'd lost three-fifths o' 'em before morning.

It was eight o'clock when we finally rounded the critters into the front yard o' the old man's domicile, and if three tired and mad and thirsty cow punchers ever come out o' the west, we was them.

The old man heard the racket and came out on the front porch, and I wish you could 'a' seen his face when he saw you we had. He just stood and gaped for a good five minutes before he finally spoke.

"What on earth have you got there?" he demanded.

"Calves," I answered, thinking he was overcome by the number o' 'em.

"Calves!" he yelled, getting black in the face. "Calves! You blame idiot! Don't you 'spose I've been in the cattle business long enough to know a calf when I see one? I 'spose this is a joke, ain't it?" says he, real sarcastic. "You're all drunk, you blankity blank fools!"

"A man can't talk like that to me in this country and stay unlicked," says Zeke sliding out o' his saddle.

"Which same I was about to remark," says Ike, following suit.

"Me, too," says I, hopping down.

"You come down and repeat them remarks to my face!" yelled Zeke, shaking his fist at the old man.

Before the boss could reply, one o' the calves suddenly put its head down, gave a hop-skip-and-jump and butted Zeke a wallop in the small o' his back that landed him on his ear ten feet away.

This tickled Ike so that he forgot to be mad and doubled up to laugh, but promptly straightened out again when another o' the critters caught him in the same region and landed him on top o' Zeke.

That was too many for me and I started to haw haw, too, when, biff! I caught it and went sailing under my horse instead. This was altogether too interesting and I scrambled up and into the saddle in jig time.

Some how or other my head seemed to feel different after that bump, as if I'd just woke up from a sound sleep and was still a little woozy; when I looked around for the calf that had done the business, however, I received a shock o' surprise that caused the hair to rise upon the back o' my neck and the cold chills to chase down my spine.

My gaze wandered around the yard, and the more I looked the more convinced I got that I had suddenly gone plumb locoed. Instead o' calves the yard was full and running over with goats—just plain old Angora goats!

I looked at my pardners and at once saw that they were on the same wagon with me. They both wore expressions o' blank amazement and their eyes were sticking out so far that you could 'a' hung your hat on 'em.

"If them ain't my goats I'll eat 'em," says Zeke bewilderedly.

"Just what I'm thinking," says Ike; "but where'd the calves go to?"

At this point Artie Lewis, who works on the Lazy T ranch, four mile above us, came galloping up from the direction o' Red Horse. When he see us and the goats he let out a yell o' delight that told us he knew more o' the details than we did.

"By cricky! He did do it, didn't he?" says Artie as he pulled up.

"Do what?" demanded Zeke.

"Why," says Artie in surprise, "ain't you found it out yet?"

"Found out what?"

"Why, how that Hindu hypnotized you three. He came into the hotel last night after he returned from your ranch and had his assistant tell all the boys how he'd got even with you for spanking him in public."

"Was that Hindu and that Greaser one and the same party?" demanded Zeke.

"Sure he was. He heard Billy telling you two about how he was out buying calves and he heard you tell Billy about the goats. After Zeke spanked him he framed up this little deal all on his own hook, and during the performance he just naturally hypnotized all three o' you without you even knowing it, and after the show he sort o' inquired around among the boys as to the location o' your ranch and then looks up you three and takes you out there and sells you them goats for a dollar a head, making you believe all the time that they were

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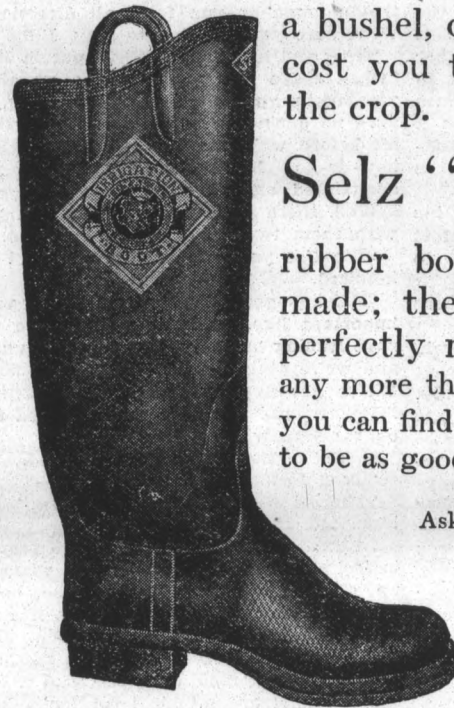
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ders. Steady work. GRANT CO., 5, Springfield, Ill.

calves. Haw, haw, haw! This is the
best ever."

It was some time before we could get
the matter clear in our minds, but when
we finally did there was a flow o' lan-
guage around that vicinity that would
'a' been instructive to listen to, if it
hadn't been so earnest.

"Now wouldn't that crimp you?" says
Zeke to me finally. "Sold you my goats
and made me help pay for 'em to the
extent of two hundred good iron plunks
into the bargain! This is too much! I'm
going to wander off into the horizon in
search o' that Oriental—I have a sort o'
sneaking idea that I'd like to meet up
with him just once more."

"And I believe that I'll just join the
little expedition," says Ike.

I sat in my saddle and watched 'em
ride off down the road. Then I looked
around at them goats, and the old man,
standing there looking at me, grim as a
Aztec idol, and a sudden yearning seized
a hold o' me.

"I reckon that here's where I quit,"
says I. "You can keep what wages I've
got coming to help pay for what damage
I've done, and I'll just join that little ex-
pedition, too," and with that I galloped
away in the wake o' Zeke and Ike.

A GREAT ARBORICULTURIST.

BY S. R. COOK.

Mr. John P. Brown, of Indiana, is a
man whose whole soul and life has been
devoted to advocating the importance of
planting trees. He was born Jan. 19,
1842, was a civil engineer, and originated
the International Arboricultural Society,
of which he is now secretary and treas-
urer, that society receiving a Commemo-
ration Medal at the St. Louis World's
Fair.

This man has been responsible for the
planting of 20,000,000 trees for future use
as railroad ties and building material.
"If nothing in this way is done," he says,
"America will have no timber in two de-
cades!" Two million laborers are now
dependent upon the continuance of the
wood industry. The inland commerce of
our nation is borne upon 1,000,000,000 rail-
way cross-ties, while 200,000,000 are re-
quired annually to renew those exhausted
from decay. In a quarter of a century
500,000,000 ties will be demanded for such
renewals. It is time for America to stop
and think about making provision for
systematic planting of the most import-
ant of the timber varieties of trees, and
for better protection of remaining forests.

There are now standing 1,475,000,000-
000 feet of lumber in the United States,
and figuring the amount required for pub-
lishing papers and books; for telegraph
poles, cross-ties, and domestic use; be-
sides the wood destroyed by fires, thus
75,000,000,000 feet of this precious, grained
fiber are consumed each year.

Mr. Brown not only writes extensively
but he travels and helps select proper
ground and trees, then superintends the
planting of timber in various sections of
the world. He advises the cultivating of
catalpa, for it grows faster and endures
longer than any other timber. There are
three kinds of catalpa; Kemperli, from
Japan, introduced into America in 1852;
bignonioides, a native of Virginia. Neither
of these varieties has great economic
value, yet both have been broadly dis-
seminated throughout the world, and to
a very large extent mistaken for the
Catalpa speciosa. The first two men-
tioned are dwarfed and crooked, while
speciosa is a tall, upright forest tree, of
magnificent proportions and grows in ev-
ery section of the country. There are
records of Catalpa speciosa trees that a
century ago measured twenty-one feet in
girth with a height of one hundred and
fifty feet.

Australia, New Zealand, Japan, Korea,
France, Germany, Italy and Great Britain
all feel the influence and importance of this
man's great work. Ten thousand trees are
being planted daily in the various states
of the south under the direction of Mr.
Brown, and a million trees have been put
out in the south for timber purposes.

It is time the northern, eastern and
western farmers are getting in line to
sustain or maintain their supremacy in
this valuable industry. Every catalpa
set out now for a fence post may be
worth a treble price in a few years as a
cross-tie, telephone pole, or an adjunct
to your domicile. Frederick Weyerhaeuser,
of Minnesota, became a very rich
man by capturing timber lands and mer-
cilessly cutting the wood down; but John
P. Brown the original and sincere arbor-
iculturist, will make America the wealth-
iest nation in timber if she follows his
wise counsel.

I WONDER WHY.

BY MRS. ANNA STERNS.

I wonder why we mortals fret and worry.
Why trifles light as air disturb our
peace;
Why all our strength is lost in rush and
hurry
And little carping cares that never
cease.

For close about us is many a peaceful
haven,
Where we our craft might anchor in
the calm;
Where our tired souls could rest and
dream of heaven,
And all our many woes find healing
balm.

I wonder why we do not prize more dearly
The friends who love us and the joys
of home;
And why our eyes do not observe more
clearly.
How precious is their presence till
they've flown.

For life's so short, and hearts so sadly
yearning
For love's sweet tokens while they yet
are ours;
And better far for memory to be turning
To living, loving deeds, than funeral
flowers.

I wonder why our hearts are always
sighing
For green fields and pastures far away;
Why we ignore the homely blessings
lying
So thickly around our busy feet each
day.

I wonder why we are so slow in learning
Life's sweetest lessons God would have
us know;
Why from the truest joys we're often
turning
To that which can no lasting peace
bestow.

THE COCHINEAL INSECT.

BY ALONZO RICE.

One of the most useful insects in sup-
plying the wants of man is the cochineal.
It was formerly Poland, but now South
America that furnishes the best quality
of dye afforded by this insect.

As early as 1518 the Spaniards found
the natives of South America using this
dye to color their garments, feathers, and
other ornaments. However, its real worth
was not fully developed until about two
hundred years later. It had been pre-
viously imagined the dye was the result
of a grain, and not the product of the
insect's body.

The cochineal feeds upon the nopal,
which is a species of the fig tree. The
nopal is very common in New Spain, also
in the lower parts of India. The leaves
of this tree are thick and are full of
saccharine juice.

The method by which the dye is ob-
tained is as follows: At the approach
of the rainy season the cultivators sweep
from the leaves certain well-known in-
sects which are found sucking the juice
of the green plant. These insects are
preserved in the houses of the natives,
who feed them with great care upon
branches of the nopal. At the close of
the rainy season, twelve or fourteen of
these insects, by that time grown strong,
are put in little baskets made of moss or
the down that covers the cocoonut. These
baskets are placed among the branches
of the nopal tree, and in a few days the
cochineal insects spread over the trees
and give birth to an infinite number of
young.

The cochineal insects is very small, and
has a trunk so brittle that it cannot be
moved from place to place without break-
ing it. The consequence is, that during
the whole term of its life it remains fixed
to the spot where it first settled, and
never willingly moves from the vegetable
nipple which feeds it. When the females
have attained a certain age, the males
are supplied with wings and enabled to
leave the plant on which they are
hatched. The females remain stationary,
and hatch their young on the spot; but
the latter would soon become so numer-
ous as to be at a loss for space to feed
on, while they are so delicate that it
would be impossible for them to pass
from one plant to another if nature did
not provide for them admirable means of
emigration. At the period of their birth
a multitude of spiders fasten their nets
to the leaves of the nopal, and it is along
these slender threads, which answer the
purpose of a bridge, that the cochineal
insect finds an easy way to a neighboring
tree in quest of food.

The insects are killed in hot water.
Their insides are found filled with the
beautiful red dust so well known to deal-
ers in dye.

In some districts of America are found
plantations containing fifty to sixty thou-
sand nopal trees. The annual export of
this dye amounts to many hundred thou-
sands of dollars.

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women. Every letter of this sort has the
most careful consideration and is regard-
ed as sacredly confidential. Many sensi-
tively modest women write fully to Dr.
Pierce what they would shrink from tell-
ing to their local physician. The local
physician is pretty sure to say that he
can not do anything without "an examina-
tion." Dr. Pierce holds that these dis-
tasteful examinations are generally need-
less, and that no woman, except in rare
cases, should submit to them.



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makers dare to print its every ingredient
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It will bear examination. No alcohol and
no habit-forming drugs are found in
it. Some unscrupulous medicine dealers
may offer you a substitute. Don't take it.
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Dr. R. V. Pierce, President, Buffalo, N.
Y., take the advice received and be well.

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DO ANIMALS REASON?

BY B. F. MACK.

The question of animal intelligence is one of special interest. The evidence, while controversial, seems to me to preponderate in favor of the higher faculty which we call reason.

I am persuaded by my own observations, as well as from the testimony of reliable witnesses, that the intelligence of animals is not only acute, but that their mentality equals reason. I have no doubt that what we call perceptive faculties in both man and the lower animals have resulted through evolution during a vast period of experiences and environments, and were primarily born of necessity in the struggle for existence. This in particular relates to that quality or faculty we call instinct.

We are told by travelers, notably Darwin, that on islands not inhabited by man, the birds and other animals, on first seeing man manifest but little fear. But after years of his destructive agency the posterity of these animals regard him as an enemy and will flee for their lives when he approaches. This tendency must be the result of transmission of fear engendered by man in seeking to destroy them. Many, especially herbivorous, animals seek protection from the carnivora by ascending rocky mountain heights where they are comparatively safe from the inhabitants of the jungle on the lower plain. Our domestic sheep still manifest this inherited tendency by their disposition, and especially the lambs when at play, to mount some rock or other elevation which gives a better view of surroundings.

These hereditary tendencies we may class as instinct. But aside from these we often see manifestations, distinct from these natural inheritances, peculiar to the animals manifesting them. Sometimes knowledge is acquired by accident. I once had a hunting dog that was especially fond of coon hunting. Sometimes he would go to the woods alone and, when he had treed a coon, would come to the house and let my brother and I know by barking. We did not always get up at once and finally, by rearing up against the door, which had a thumb latch, he once struck the latch with his paw and opened it. After repeating this a few times he so learned the trick that he

chucks had a burrow, and they would often come down a few rods toward the house. The dog had run after them many times but, as the field was open, they could see him and reach the burrow before he could catch them. One day I saw one out and called the dog. He stood for a moment watching it in trembling anxiety, and then an idea seemed to strike him. He ran to a fence which was built at right angles to the fence where the burrow was. He crossed the first fence and then followed it up to the other and crossed that. Then he followed that fence to the burrow, keeping the fence between himself and the woodchuck. He crossed the fence at the burrow, and the woodchuck, being outgeneraled, was caught and killed. If I had tried, I could not have reasoned better.

While I am on the subject I will relate a story of a mule I saw at a coal mine near the Ohio river. He was an unusually large and fine fellow, and was used to draw cars from out the mine, in the side of a hill, to where the coal was dumped onto a boat in the river. A certain number of cars made a load, and as they were run out and made up into a train they would bump one against the other. The driver told me that the mule could count and that by the number of bumps he knew when his load was complete. Also, that if an extra car was attached he absolutely refused to draw the train.

I have just read an account of a rabbit which, when pursued by an eagle, took refuge under a wire fence. When the eagle was on one side of the fence the rabbit would move just out of its reach on the other side. By changing in this way the eagle finally tired and gave it up. Evidences without number could be cited going to show that animals do reason.

JOHNNIE'S COMPOSITION.

BY HOOSIER.

Johnnie had been kept in after the regular school hours and, by way of further punishment, he had to write a composition of several hundred words. This might have been a severe task for an older pupil, but it did not daunt our young hero; the "several hundred words" came very naturally. He wrote:

"When spring comes, the flowers will bloom, because they did last spring. When



A Sturdy Little Farmer and his Well-broken Saddler.—That this boy likes animals goes without saying and it is a safe guess that he has the confidence of all his animal friends upon the farm. His name is Robert Mason, and he lives in Ohio. His brother took this snap-shot of him as he was starting after the cows on the back of his trusty "steed."

would open the door and, before we were aware of it, would be in our bedroom begging us to go with him.

Now after he had learned this he reasoned, just as all of our reason is born of knowledge. When out hunting one night, he treed a coon and, as I could not see it, I concluded to leave it. But he was very persistent and loth to give it up. After I had called him away he went back and continued barking. I finally took off my vest and spread it down near the tree, telling him to lie on it and that I would come again in the morning. I questioned whether he would stay. I got up early and called him, but as he did not appear I went to the tree where I found him lying on the vest, and the coon in the tree. Now he must have reasoned that I would come for the vest. I afterward left him in like manner and he was always faithful to his trust.

A still more remarkable case was that of another dog. About thirty rods from our house, in the field, was an elevation sloping toward the house. At the summit, where a fence crossed, the wood-

spring comes, the birds will sing and the flowers will bloom, because they did last spring and the spring before that. When spring comes, the trees will leaf and the birds will sing and the flowers will bloom, because they did last spring and the spring before that and the spring before that, etc."

A flash of intelligence came to the teacher's mind, as Johnnie was excused, and she mentally declared that he would one day be a great editor.

The new baby had proved itself the possessor of extraordinary vocal powers, and had exercised them much to Johnnie's annoyance. One day he said to his mother:

"My little brother came from heaven, didn't he?"

Yes, dear."

Johnnie was silent for some time, and then went on:

"Say, ma."

"What is it, Johnnie?"

"I don't blame the angels for bouncing him, do you?"—Judge.



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Associational Motto.—

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Associational Sentiment.—

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

YEARLY PROGRAMS.

One of the latest printed yearly programs to come to the editor's desk is that of the Hadley and Elba Farmers' Club, of Lapeer county. This is a neat booklet with a colored cover bearing the name of the club. The title page bears the name of the club, the date of its organization, (1899), and signifies that the program is for 1910. The succeeding page is devoted to a schedule of the meetings which are held on the third Thursday of each month, and which are called at 10:30 a. m., from October to April, inclusive, and at 1:30 p. m. from May to September, inclusive. The next page contains a list of the officers and on the next page is printed the regular order of business, together with the announcement that the question box is always open. The balance of the booklet is devoted to the programs of the monthly programs, one of which appears on each page. The names of the farms of members who entertain the several meetings appear with that of the host in each instance. The general topics for discussion are given, as are the principal literary features of each meeting, while the music is arranged for each meeting by a standing committee. A club picnic is held in July, and the club participates as an organization in a county farmers' picnic in August. The June meeting is "Children's Day," and a Club Fair is held in October. Altogether this program shows the club which it represents to be fully alive to the opportunities and benefits to be derived from the Farmers' Club, the subjects listed for their several meetings and the whole makeup of the program showing careful thought in its preparation and a happy fitness to the occasion for each meeting.

SPECIAL FEATURES.

Many clubs are ever interested in the special features of club work which their sister clubs employ to vary the programs at the different meetings, keep up the interest in and attendance of the club, and secure to the members a maximum of benefit from their membership. One such special feature which appears to be new is brought out in the Club Discussions column in this issue, in the report of the mid-winter fair held by the Grosse Ile Farmers' Club. This report was made at this date at the request of the editor of this department, to the end that other clubs might profit by it in settling the question of special feature work for the coming year.

CLUB DISCUSSIONS.

Agriculture and Education.—The Salem Farmers' Club held its March meeting at the pleasant home of Mr. and Mrs. Wesley McFadden. About 70 members and guests of the club gathered and enjoyed the day. A good talk was given the club by Robert Ross. He cited some of our best authorities as saying, "Much that the average schoolboy is required to learn is comparatively worthless so far as it touches his after life, except as a discipline of the mind." But if agriculture could become a part of our school curriculums, the boy would find himself in after years in possession of a knowledge that is a power in practical everyday life. The different periods of our history show different interests and industries of life coming to the front. This is emphatically the age of agriculture. Mr. Ross was followed by Mr. McAndrews, who spoke in favor of the professional life. Mr. Wooly, a former resident of Oakland county then addressed the club on the absorbing topic of local option for old Oakland. It was the place of his birth and he was in the fight to the finish. It was time every good man was lined up with others in this great fight with the American saloon which is doing more to undermine our nation than any other force in existence. The club members were fully in sympathy and gave the

speaker an enthusiastic expression of their loyalty to the cause. Good music was furnished by the young ladies' choir of Worden; also a duet by Mrs. M. Osborn and Miss Ruth Ross. Two new members were received, Mr. and Mrs. C. Slaybauch. The club adjourned to meet with Mr. and Mrs. Sylvester Atchinson in April.

Hold Club Banquet.—The Howell Farmers' Club held a banquet at the home of Mr. and Mrs. Roy Latson on March 10. The day was beautiful and the attendance large. Dinner was served at one o'clock, and the piled-up dishes of meats, salads, pickles and pastry, made it appear as though "high-priced food" was plentiful among the farm folks, that the city boy-cotters might envy. The toastmaster, S. M. Yerkes, seemed to be at his best. The future outlook for the farmer came first, responded to by Hon. S. H. Munsell. He thought that the most enjoyable time in life was when we had something to love and work for, that success on the farm was according to the love you had for the work; he recommended that children should be taught to work and the love for it encouraged; but along with work there should be time for play, that by mingling with each other we would be brighter.

"Why We Are Here." On this topic Mr. Beckwith said: "It was thirteen years ago when he joined the Farmers' Club and had always attended when convenient. That this subject comes to us all; for what purpose we were placed here—that it was for the working out of some great plan. Few of us are cast for stars in life's drama; some of us have most of the work to do and little of the applause. Most men are of ordinary intelligence and in ordinary circumstances we should make the best of our surroundings. It is the duty of the farmers to be in touch with all questions of life. There is no other class of men who are such day dreamers as the farmer. Only as you have the spirit of service will you be of service in the world. The varied experience of farm life calls for all the elements which enter into character."

"Our Ladies" and "Gentlemen."—R. R. Smith responded to the toast on Our Ladies. He said he did not belong to that class of grumblers that was always finding fault, that he believed in giving credit while we live and not save the flowers for the dead. He certainly threw many bouquets to the ladies, all of which the ladies appreciated.

Mrs. Joseph Brown then followed with the toast on Our Gentlemen. She commenced by saying that when she was small she was always wishing she had been born a boy but today was glad she was a woman because of the bouquets thrown to the ladies, of course. She knew that men had done all the great and good things and there was no use telling them and thought the Howell Farmers' Club men had not made any startling discoveries yet they really were the most courteous, good natured, unselfish, honest, good-looking men in all the country, but for fear that men would claim all the glory, she would tell them in verse, and she did really roast the men in seven verses of original poetry.

Elect New Officers.—The program and the election of officers then followed: President, S. H. Munsell; vice-president, R. R. Smith; second vice-president, E. E. Latson; corresponding secretary, Mrs. Joe Brown; recording secretary, Margery Moody; treasurer, F. W. Ellsworth; directors, Jay Marr and Jay Tooley; organist, Mrs. Fred Bucknell; chorister, Mrs. H. Reed. Resolutions on S. Hildebrand read and accepted, also to be spread on the

Mid-Winter Fair a Special Feature.—At your request I send you an item of the Grosse Ile Farmers' Club Mid-winter Fair, which was held at the residence of Mr. and Mrs. R. M. Moore in January, and was decidedly the most successful winter fair that the club has ever held. Heretofore our winter fair has been known as the Corn Contest, but this year we decided to extend it into a corn, fruit, vegetable, and seed contest and mid-winter fair. The different varieties of corn formed a good show in itself. F. D. Whitall had seven different varieties of sweet corn, A. Richardson and E. Poliskie carried off the prizes for yellow dent, J. M. Cook and F. D. Whitall for white dent; E. J. Bell and F. D. Whitall for flint, oats, first prize, R. L. Stanton; buckwheat, first, J. Trombly. The vegetable exhibit was very good. A. Groh, J. M. Cook and O. N. Webb taking the first prizes for vegetables. There were several exhibits of field beans, Miss Mae Groh winning first prize. Mrs. O. N. Webb won first on garden seed collection. Miss Marion Keith won first on flower seeds. Miss Keith also exhibited a 14-ounce lemon grown on a tree at her home on the island. This is the second year this same tree has borne fruit. Mrs. Webb had on exhibition quinces which had kept beautifully all winter in a basket in the cellar, and they won first prize as there were no others exhibited. But what seemed to please the gentlemen most was all the good things the ladies had brought to exhibit, cooked, from corn and wheat, and which, after being judged were eaten as refreshments. The ladies did themselves proud with their cooking, beautiful and useful prizes being awarded in this department. This club holds a fair on Labor Day each year that means hard work for the committee. But our mid-winter fair means pleasure for all, there being no hard work in connection with the fair. Everyone brings their own exhibits and looks after them, and it means a regular family reunion of the members, an all-evening visit with your neighbors, and the very best time of the whole winter.

The regular meeting of the club was held at the residence of Mr. and Mrs. J. M. Cook, March 24, regular meetings being held on Thursday on or before the full of the moon. The club has over 100 members enrolled. We extend to members of any Farmers' Club an invitation to attend our meetings, our fair in September or our mid-winter fair. A warm welcome will be extended to visitors.—Mrs. I. E. Webb, Sec.

GRANGE

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

THE APRIL PROGRAMS.

Suggestions for Second Meeting.

"There is a perfection of the hedgerow and cottage, as well as of the forest and palace."—Ruskin.

Farm Business.—V. The coming census: 1. Why a farm census is good business policy. 2. What questions will the government ask?

Select reading, "A Tree." What kind of trees, shrubs and vines shall we plant on Arbor Day, and where can they be obtained?

Roll call:—How make our home and school grounds more attractive or healthful this spring.

Question Box, conducted by the women.

GRANGE AND RURAL LEADERS.—II.

"Some young people have joined our Grange, from time to time, but they usually soon drift out of it," is not infrequently heard.

The name of the neighborhood where this happens is Legion. It is not difficult to get people to come together—they are hungry for social intercourse. The difficulty is to find those who are sufficiently equipped by nature or acquired ability to marshal a body of people into an orderly gathering from which both pleasure and profit shall be derived and hold the body together. In a women's congress, in connection with a farmers' institute this past winter, it was impossible, among a hundred women present, to find one who would consent to act as chairman for the next year. It certainly was not inability that made them hesitate, but they were unused to taking a leading part in smaller bodies which met more frequently and dared not undertake this. In every line of mental, social and moral organization it is often very hard to find people to "take charge." Country Sunday schools and churches overwork the willing ones. Study and literary clubs of all sorts do the same. "Because there are so few who can" is the plea under which the same person is repeatedly put into the leading office. Perhaps this is true, but it ought not to be so, and I fancy that the case where it is true is exceedingly rare. We may plan so that it shall never be so.

"Overhelpfulness encourages helplessness." Because one man or woman has led a Grange or club for years, however well, is no guarantee that no one else can ever do as well. The same degree of excellence may not be apparent at once, and why should we expect it? These things come by practice, just as do good grammar, or the habit of touching the hat when a gentleman meets a lady.

A club woman friend and I were discussing this matter not long ago. "I never doubt the ability of any woman to make a good officer," said she, "since one experience in a children's neighborhood club. There came a time when every child in the club had been president, except one. I very much doubted his ability to preside and conduct the business, and said so frankly; but my wise neighbor, Mrs. H., quietly said, 'Oh, yes, Charlie can do it, of course he can; we will elect him.' And Charlie became president and surprised us by the way he fairly blossomed out under its duties. I have never since questioned the ability of anyone, who cares enough to join a society for mutual improvement, to hold any office in it with at least a fair degree of credit."

She continued, "I have seen women who at first appeared of very ordinary ability, but under responsibility they showed forth remarkable tact and energy. I think we owe it to one another, in organizations for mutual benefit, to expect that anyone can fill any office." JENNIE BUELL.

ENTHUSIASTIC HESPERIA MEETING IN BENZIE CO.

It is nearly twenty years since Commissioner D. E. McClure, State Superintendent Pattengill, Prof. Ferris and a score or more of enthusiastic teachers, inoculated Oceana and Newaygo counties with the bacteria that later on developed into the Hesperia movement. Educators all over the United States have read and talked of this movement. From time to time magazine articles have been written about it and on one occasion Bro. McClure was invited to tell the National Teachers' Association about the possibilities of this new educational awakening. I have wondered why every county in the state did not organize an association of this kind, but up to the present year little has been done in this line outside of the two counties named above.

Prof. H. A. Lewis, formerly of Oceana county, but now of Frankfort, Benzie county, with a number of his friends, arranged a three days' meeting at that

place in connection with the teachers' institute, March 23, 24 and 25. The meeting was a splendid success, and a permanent association was established upon the Hesperia plan. Prof. Ferris, of Big Rapids, was present, and with his usual force and vigor presented his several topics in a way to interest farmers and business men, as well as teachers and pupils. Prof. Beddow, of the Central Michigan Normal gave valuable assistance to teachers and rendered a number of readings which were enjoyable to people of town and country alike. Mr. Voorheis, one of the largest fruit growers in Benzie county, gave a helpful address upon the subject, "Fruit trees from the nursery to the second year." The subject, "Farm homes and their surroundings," was presented from a very practical and helpful standpoint by Mr. G. L. Dressel, of Frankfort.

Mrs. Voorheis read a very carefully prepared paper entitled, "How should the home prepare the child for the school?" It was full of good things from beginning to end. She was followed by Mrs. Penfold, who continued the discussion of the subject in a very happy manner. Here are some of the things gleaned from her talk. "The children should be kept clean. There are times when the fine-toothed comb is needed and you need not be alarmed or surprised at what you catch. The children can help keep their own clothes in order. They should early be taught that they are partners in the work and pleasures of the home. They should be taught neatness and order. The mother should know the teacher and they should keep very close together all the time. The children should be taught punctuality and no trifling cause should excuse them from school."

The writer spoke Thursday afternoon upon "Improving the Dairy Herd." Thursday evening his subject was "The Relation of School to Citizenship," and Friday morning he talked upon "Spraying for Injurious Insects and Diseases of the Orchard." Prof. R. D. Bailey was present in the interest of the state traveling library and did good work.

The people of Benzie county have been awakened by this meeting and everyone is enthusiastic over the results. The new association is splendidly officered. The farmers and fruit growers are in the lead. Already they are planning for the next year's convention. They are to be congratulated upon the stand they have taken in this matter. Next year the Granges of the county will unite with them, and the meeting in prospect is looked forward to with unusual interest by Patrons of both Granges and schools. W. F. TAYLOR.

AMONG THE LIVE GRANGES.

An Easter Supper was enjoyed by Fairfield Grange at the conclusion of its meeting on the evening of March 19. Six candidates were given the third and fourth degrees at this meeting and two applications for membership were received.

Pulaski Grange.—Friday evening, April 1, National Deputy John F. Wilde organized a Grange, with 52 members, at Pulaski, Jackson Co. The following are the officers: Master, Chauncey Allen; overseer, N. S. McClintic; lecturer, Susie B. McClintic; steward, Donn Rice; ass't steward, Wm. Low; lady ass't steward, Leona Rose; chaplain, Hattie Loveless; treasurer, George Loveless; secretary, Judson C. Lyman; gate keeper, Archie Walworth; Ceres, Mabel Allen; Pomona, Nettie Walworth; Flora, Lizzie Hoxsie.

Gorman Patrons Give Prizes.—At its first March meeting Gorman Grange, of Lenawee Co., awarded the prize which had been offered for the best cake brought to this meeting. Mrs. Irene Kafer was the successful contestant. A prize had also been offered for the closest guess on the number of hills, three grains to the hill, that could be planted from a pint can of corn and beans mixed. This prize was awarded to Eliza Huyck.

Crystal Grange, of Montcalm county mourns the death of one of its prominent members, Bro. Geo. H. Lester. He was one of the prime movers in bringing Grange fire insurance into existence and was the first president of the State Association of Patrons' mutual fire insurance companies. At his death he was secretary and treasurer of the Patrons' company in his own county. He also served a term in the Michigan house of representatives in the early '90s.

Holt Grange.—National Deputy John F. Wilde organized a Grange at Holt, in Delhi township, Ingham county, Saturday evening, March 26, with the following officers: Master, H. E. Gunn; overseer, A. E. Welch; lecturer, Emma Bickett; steward, C. V. Keller; ass't steward, G. H. Green; lady ass't steward, Marietta Howell; chaplain, Nettie Welch; treasurer, James B. Thorborn; secretary, Wesley Weigman; gate keeper, F. S. Gunn; Ceres, Jennie Weigman; Pomona, Anna Gunn; Flora, Mrs. C. V. Keller.

Iosco Brothers Furnish Banquet.—Friday evening, March 25, Iosco Grange held its eighth annual banquet. The Grange has been conducting a very enthusiastic contest, with Mrs. W. I. Stow as leader of the ladies and A. G. Stow as leader of the gentlemen, which was to decide whether ladies or gentlemen should give the annual feast. As the ladies were successful, the gentlemen rose to the occasion, working behind closed doors, and without any aid or assistance whatever from the ladies, brought on the tables a very sumptuous spread of three courses. The hall was very tastefully decorated with bunting, flags and carnations. The speaker of the evening was Prof. Jeffery of M. A. C., who gave a very interesting talk on the Grange and its possibilities and college extension.

COMING EVENTS.

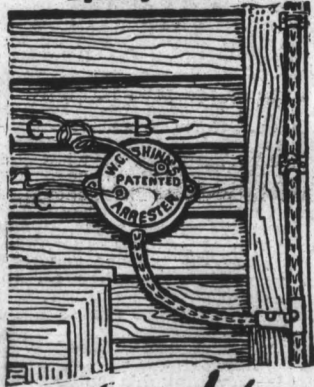
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Benzie Co., with Thompsonville Grange, Tuesday and Wednesday, May 31 and June 1.

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SHINN'S Heavy Pure Copper Cable LIGHTNING RODS

Name on the end of every roll of cable

All farm buildings—every building—should be protected against fire from lightning, for insurance statistics prove that 75% of farm fire losses of a year are caused by lightning. Are your home and buildings safe? They are lightning proof if equipped with Shinn Rods! There's no other rod in the world built by the special process that gives Shinn Rods their maximum efficiency. Any kind of lightning rod or wire rope will

do when the sun is shining, but think of the serious moment when the heavens seem to have broken—when the thunder deafens you and the vivid lightning flashes are counting time! Then is when you need the very best lightning protection there is—this means Shinn's, and under these rods you will be perfectly content. Don't wait until after the storm to get this absolute protection—get it now, before the danger threatens!

\$75,000.00 Bond Backs Shinn's Guarantee!

W. C. Shinn has posted \$75,000, in the form of a bond, with the National Bank of Commerce through the National Fidelity and Casualty Company, Omaha, Neb. This is your guarantee against loss from lightning striking your homes or buildings when they are equipped with Shinn Rods. Besides, you receive a legally binding, written guarantee, which itself is backed by this \$75,000 bond! Mr. Shinn guarantees that he will make good any loss by returning cost of lightning rods if buildings are damaged by lightning after his rods are put up!

The editor of this paper will be glad to tell you about Mr. Shinn's integrity and square dealing with his thousands of staunch farmer friends! That \$75,000 bond guarantees and assures you, when you get Shinn Rods of your dealer, that every guarantee in this or any other Shinn advertisement will be fulfilled to the letter! Who but an honest, reliable business man would dare back up his words with a fortune?

For the insignificant cost of Shinn Rods your home and buildings are insured forever against Fire from Lightning!

Thunderstorm Machine Strong Proof!

Every dealer who sells Shinn's Copper Cable Rods has Shinn's Thunderstorm Machine on exhibition. He will be glad to show how this fascinating miniature storm producer demonstrates actual protection of Shinn Rods. It shows just why no building equipped with Shinn Rods can be struck by lightning. If your dealer has not yet secured this wonderful machine, mail us that coupon, giving his name and address, and we will tell you just where you can see this device at work.

Lightning Arrester Guards Your Telephone

Shinn Lightning Arrester for telephones makes it possible, without the least trouble or danger, to use the 'phone during any storm. Your dealer will attach the arrester on the outside of your home. Lightning may run for miles along the wires, but the instant it nears the arrester it is sidetracked and shot straight into the ground! Terrific bolts are made harmless! Don't depend on the mica fuse in the 'phone! Lightning bolts that leap five miles from the sky to earth aren't going to stop because the fuse has disconnected the 'phone! They jump clear across the gap and into the 'phone.

Scientific investigations prove the Shinn Lightning Arrester is the only absolutely sure way to balk the bolts! Your 'phone is always in working order during storms. Besides, your home is protected against fire caused by lightning. Address

W. C. SHINN

128 North 16th Street

Lincoln, Neb.

Shinn Rod Cable 99.88% Pure Copper

Mr. Shinn has set the scientific world by the ears! His work of research has gained for him the title of **Conqueror of Lightning**. Learned college professors who devote their lives to this subject are amazed at his success. Among their investigations they analyzed the copper in the cable used in Shinn Rods. Here are the results of a few:

University of Minnesota.
The sample of copper cable sent to me has been analyzed and found to contain 99.88 per cent pure copper.
PROF. A. D. WILHOIT.

State University of Iowa.
The sample of copper cable, upon analysis, proves to be practically pure copper, since it contains 99.88 per cent copper.
PROF. W. J. KARSLAKE.

University of Nebraska.
I have made an analysis of the copper wire, using every precaution to guard against error. The copper present was found to be 99.8 per cent. My assistant checked the results by running an analysis independently and obtained the same figure, 99.8 per cent.

PROF. S. AVERY,
Director of the
Chemistry Laboratory.

COUPON

W. C. SHINN,
Lincoln, Neb.

Please send your book, "Lightning and How to Control It," and also name nearest dealer where Thunderstorm Machine can be seen.

Name _____

Town _____

R. F. D. _____ State _____

My Dealer's Name _____

Address _____