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The Place of the Automobile on the Farm.

IN discussing the automobile question a great many farmers approach it from a purely economic standpoint, comparing the cost of transportation by the automobile with the cost of traveling with a horse and carriage, for instance, or with the use of trolley or steam cars where same are available for contemplated or needed trips. While economic considerations should not, of course, be left out in deciding the question whether or not to purchase an automobile for farm use, yet comparisons like those mentioned above are evidence that the person who makes them has failed to consider at least one factor of this problem which argues strongly for the use of the automobile upon the farm.

One of the chief objections to farm life in years gone by has been its isolation; the lack of social advantages and other broadening and educational influences. It is true that modern inventive genius and commercial development have done much to relieve these conditions on the farm. The development of the railways and the many trolley systems, the introduction and general adoption in rural communities of the telephone, the development and extension of free rural mail delivery has placed before the farmers all the up-to-date news of the outside world, and these developments have, to some degree at least, relieved the farmer from his former isolation. All of these things have had a most beneficial influence upon farm life and have broadened the farmer's point of view to a very marked degree. To some extent they have taken him away from his restricted environment, at least semi-occasionally, and he has gotten a broader view of how the other half of the world lives.

But of all these broadening influences there is none which is more important than the automobile will be when that vehicle comes into general use upon the farm, as it is bound to do, in the writer's opinion, at no very distant date. This consideration is first mentioned because it is outside the range of economic comparison. The horse cannot compare with the automobile in its range of useful employment as a means of transportation. Nor can the steam cars, or the trolley cars, as they are restricted to the zone of their operations, while the man who owns an automobile is free to choose his own radius of travel, within reasonable limitations, and is thus possessed of means of extending his education along various lines and at the same time avail himself of an undoubted economic benefit difficult to measure either by comparison or in dollars and cents.

To illustrate, the writer has a neighbor who has an automobile. He desired to secure a new sire to head his dairy herd and started out in company with another man who was similarly situated, and visited a considerable number of dairy

herds of considerable repute in an adjoining county. In a single day these two men covered more territory, saw more cattle and doubtless made more satisfactory purchases by using the automobile as a means of transportation than they could have done in three days or even a week, by depending upon the horse as a means of transportation. Thus they secured an economic benefit which is typical of many such which will accrue from the use of the automobile in facilitating transactions for which the necessity may arise upon the farm. For example, this neighbor also finds a profitable use for his auto in delivering his milk to the shipping station during the busy season.

Also, there are other economic benefits accruing from the use of the automobile upon the farm which cannot readily be measured either in dollars or cents or by comparison. There are frequent occasions for making a needed trip to town to get repairs for machinery or supplies for the home. Frequently where this is

to the meetings of the Grange or Farmers' Club. Occasionally also, there is a special incentive to speed, as when a neighbor summons aid in case of fire, or there may be times when in case of sickness or accident, the automobile may find use which its owner would not think of measuring in mere dollars and cents.

To return, however, to a consideration of the more purely economic phases of the automobile for farm use; it is probably true that while there are many economic benefits derived from the automobile, aside from those above mentioned, yet these are upon the average farm, not so great but that the automobile should still be classed as a luxury rather than a necessity. While this fact should be taken into consideration in contemplating the purchase of an automobile, yet it will be found one of the most appreciated luxuries in which a similar investment could be made, by every member of the family. There is also no doubt but that the members of the farm family are entitled to and will be benefited by such

this is not the best or most legitimate use of the automobile upon the farm, a moderate use of this vehicle for the pleasure of the family is most desirable. It places them in touch with the beauty spots of the country at reasonable distances from their home, it enables the wider exercise of sociability among their friends and proves a most enjoyable luxury for which the economic benefits that may be derived from the ownership of an automobile will almost, if not quite, pay maintenance cost.

If used with a desirable degree of moderation and good sense, as supplementary to rather than to displace the horse as a means of transportation upon the farm, the automobile will find a profitable place upon every farm, where the investment can be reasonably well afforded, while the maintenance cost will not be high if the owner devotes the necessary time and energy to gaining a full understanding of the mechanism of the machine and takes a proper degree of interest in seeing that it is all the time in the best of condition.

The writer has owned and used an automobile for a year and would not willingly do without one, after taking careful stock of the year's experience. The economic benefits derived from its use have contributed largely toward the maintenance cost, while the pleasure and recreation enjoyed are counted cheaply secured at the balance of the expense account. This seems, also, to have been the experience of the many farmer auto owners with whom the writer has talked.

With the present general interest in the betterment of the country roads, and with a flattering prospect of national aid of, and co-operation with, the states in permanent road building, the automobile will become still more useful on the farm and more farmers will avail themselves of its advantages, hence the prediction that ere long the automobile will be considered a necessity rather than a luxury on the farm.

The auto truck, too, will find a constantly increasing use on the farms of Michigan, particularly the farms favorably located for the direct marketing of their products in adjacent cities. By this means, and with the advent of better roads, the radius of direct marketing may profitably be increased to at least double its present limitations and the profit of a large number of farmers thus largely increased. Quite a number of farmers in this county who sell their products on the Detroit market have found it profitable to substitute auto trucks for horses in drawing same, especially since the main roads running out from the city have been permanently improved. Here, again, the saving of valuable time, always an important consideration on the farm, is a big economic factor.

Oakland Co.

A. R. FARMER.



Automobiling on Beautiful Country Drives is a Most Delightful and Appreciated Recreation.

a considerable distance a half day's time is required during the busy season, when with an automobile the trip could be made at noon while the horses are eating or in the evening after the day's work in the field is done, and be a source of real recreation and pleasure to the entire family instead of an irksome but necessary journey. The saving of time in such matters, which can be accomplished by the use of the automobile as a means of transportation is an important factor, the money value of which is hard to estimate when help is as scarce as it is at present. It might mean the timely planting of a crop or of securing it in good condition when harvested, and thus prove an economic benefit which would be many times the actual wage value of the time saved.

Then there are occasional long trips

a luxury to a greater degree than those in almost any other occupation or habit of life. To the man who can afford the investment, the automobile will thus very properly appeal strongly and the time will doubtless come when it will be considered almost a necessity upon the well equipped farm, instead of largely or even partly a luxury as at present.

If we concede, then, that the automobile has a place upon the farm, let us consider what that place is. Unfortunately, like many new hobbies, the automobile becomes almost an obsession to some, and especially while it is something of a novelty they feel that they must be going somewhere all the time, and thus often neglect important duties and increase the maintenance cost of the machine to a degree by aimlessly riding about to gratify the speed mania. While

HINTS FOR THE BEGINNER ON THE CARE AND OPERATION OF THE AUTOMOBILE.

There are many essential little points about the care and operation of an automobile, which, could the novice properly understand and appreciate at the outset, would save him not only much future annoyance, but oft-times considerable in the maintenance cost of his machine. One of the first essentials in the life of any machine is proper lubrication. Some automobile manufacturers publish an oil chart showing just where their machine should be oiled, with what kind of oil and how frequently. This is a very good plan and one which more manufacturers could follow with benefit to their patrons. Lack of proper lubrication means rapid deterioration and a largely increased expenditure for new parts to replace those unnecessarily worn from this cause. For this reason the novice in automobile operation should take pains to get reliable information from manufacturers or agents upon the matter of lubrication and make a careful study of his machine from this standpoint.

Next to the matter of lubrication, the manner in which a car is operated by the novice will prove the biggest factor in the degree of satisfaction secured from it. The beginner should always drive slowly, even on good roads, until the operation of the car becomes a matter of instinct rather than thought, as by so doing accidents will not only be avoided, but also damage to the transmission gears from inexperienced handling in the changing of speeds. Care should also be taken to let the clutch in very slowly in starting and to apply the brakes gently when needed, and this habit will become fixed by driving uniformly at low speed while learning to operate the car.

This will also effect a great saving in the wear of the tires as will also slow speed, especially in turning corners and in negotiating ruts, while the driver is learning. Rapid starting and the making of quick stops by the sharp application of the brakes are very hard on the tires, as is running on slippery roads without the use of chains since, when they are spun around or slid along on the ground the friction will rapidly wear the rubber or strip the composition from the fabric of the casing.

The appearance of an automobile should be considered in its care, and in order that it may be preserved as long as possible the mud should not be allowed to remain on the paint any length of time before washing. Then if carefully washed and polished a maximum of good appearance will be retained.

In the making of adjustments the beginner should exercise considerable care. There is a tendency to experiment too much, although every automobile owner should learn at the earliest practicable date how to adjust the carburetor to get a maximum amount of power from a minimum amount of fuel. Other adjustments will be more simple and easily mastered. But it is better to go a little slow in experimenting until one has gained sufficient experience to be sure that he is doing the right thing.

The beginner in driving an automobile has a great deal to learn and has gone far toward learning it if he appreciates that fact fully, but by studious application the needed knowledge will soon be acquired. The above word of caution is sounded simply to insure that a minimum of damage will be done in the acquirement of this necessary knowledge.

Wayne Co.

C. T. H. B.

CARE OF AUTOMOBILE TIRES.

It is invariably found that the men who get the most out of their tires are the ones who are most careful about keeping their tires inflated to the proper pressure. They are the ones who do not overload their tires, who do not allow them to stand in grease and oil, who do not run in car tracks or over rough roads—in short, the men who take care of their tires are the ones who profit.

It is impossible to estimate what the mileage of a tire should be simply because you can not reduce human care to a common denominator. Every man drives a car with a different degree of care. And road conditions play a large part in determining tire life. A tire that would last long on smooth city asphalt would deteriorate much more rapidly if driven upon rocky country roads.

However, if given the right degree of care, tires under all conditions everywhere would last much longer. When men shall have learned to appreciate the

finer points of their motors, and the finer points of their tires, it will mark a great day for the automobile industry. For then, men will put oil in their gears, and air in their tires, and the petty motor car annoyances, which are, for the most part, avoidable, will be done away with. There will be no dissatisfaction with the motor car.

Ohio.

G. M. STADELMAN.

FARM NOTES.

Applying Fertilizer to Potatoes.

I wish to put in about eight acres of potatoes this year and as I have bought a fertilizer (one ton) analyzing 2-8-10, I would like to know which is the best way to use it. I covered three acres with manure at the rate of 12 loads per acre. The other five I intend to use the fertilizer on. Now would it be best to sow fertilizer before planting the potatoes, and work the ground up good, or go over them afterwards with a drill and sow on each side of the row of potatoes? I intend planting them with a horse planter. Would a spring-tooth harrow work the fertilizer in good enough for planting by running it shallow. How many pounds is best to sow per acre in either of the ways stated? The soil is a medium sod and a good sand loam.

Oakland Co.

W. W.

Where large amounts of fertilizer are applied to potatoes, it is considered better to apply part of it to the ground broadcast and part in the hill at planting time. Where a moderate amount, such as is proposed to use in this inquiry, is used many are now advocating two applications, one in the hill or by the side of the rows at planting time and a later application distributed in the same manner after the potatoes are up. In the writer's opinion, however, it makes very little difference so long as the fertilizer is applied and well mixed with the soil. There is an opportunity for an interesting experiment. When the fertilizer is applied to that portion of the field which has had no stable manure let it lap over on that portion where the stable manure was used, using it at the same rate per acre. It is a well known fact that commercial fertilizer gives best results when used in a supplementary way with stable manure, and this will afford a comparison between the portions of the field where stable manure and fertilizer and both are used.

Rye as a Green Manure Crop for Potatoes.

What do you think of plowing down green rye and planting to potatoes on medium soil?

Leelenau Co.

F. J. B.

While a good clover sod would be a much more satisfactory place to plant potatoes, yet a crop of rye can be advantageously plowed down as a crop for green manure for the potato crop, if it is not allowed to get too far along toward maturity before plowed. Also, if the ground has been previously cropped in the rotation the rye should be supplemented by a liberal application of commercial fertilizer in order to insure a good crop.

Sand Vetch for Forage and Green Manure.

I have been a reader of your valued paper for the last five years. I would like to ask in regards to a field of rye and winter vetch which I sowed last fall. It is looking good now and I want to know when is the best time to cut it for feed. I have been advised that the right time is just when the rye is in the milk, but thought it best to ask through your paper. Also, how is the best way to handle it in curing and how does it compare in food value with clover and timothy hay for cattle and horses. After I cut this crop for hay, when would be the right time to plow the vetch under for fertilizer?

Newaygo Co.

D. R.

For best results in using sand vetch as a soil improver, the crop should be plowed down the latter part of May or first of June after sowing, as in this manner it will add the greatest amount of vegetable matter to the soil as well as nitrogen gathered by the vetch plant through the nodules that grow upon its roots in common with all legumes. It is for this purpose that vetch is most commonly used and has the largest place in Michigan agriculture. It has been found, however, by some growers that where the crop is cut for hay comparatively early in June it will make a second growth which can be used for this purpose later in the season. Consequently, where the crop is to be cut as a forage crop, it is better to cut it comparatively early as it will make more palatable hay and will at the same time be more valuable in adding vegetable matter to the soil than would be the case if allowed to more nearly reach maturity before being cut for hay. The hay is rated high in digestible nutrients, but a mixture of vetch and rye would not be as valuable or nutritious hay as mixed clover and

timothy, than which there is no better roughage for live stock. It should be handled the same as clover or mixed hay, and preferably cured in bunches or cocks for best results.

Sand Vetch vs. Millet.

What crop should I sow about June 10 for a green manure crop to be plowed under for corn next spring? Soil is sandy loam, clay sub-soil. I had thought of Hungarian millet or buckwheat, or how would rape do? Would like to sow what I can get most plant food from. Any advice through your paper would be appreciated.

Cass Co.

SUBSCRIBER.

The sand or hairy vetch commonly grown in Michigan is a winter vetch, and for best results should be sown with rye in August to be cut for hay or plowed down the following year. Millet would make a better catch crop for hay, although it is not the best source of forage for horses. If fed to horses it should be cut and cured before the seed forms to any extent.

Plowing Sod Ground for Spring Crops. How should corn land be broken up? Will the habit of "cutting and covering," which, in reality, means covering a few inches of the furrow not turned over, have the effect of damaging the soil?

Gd. Traverse Co.

SUBSCRIBER.

The "cut and cover" method of plowing is not a desirable one to follow, largely for the reason that where the furrow slice breaks over a vacant space is left at the bottom of the furrow, which interferes with the capillarity of the soil. Neither is the exceedingly flat furrow desirable since it requires more labor to fit properly for crops and the continuous blanket of sod at the bottom of the furrow also interferes to some extent with the movement of the soil moisture until it becomes thoroughly rotted. The most approved method of plowing is to turn a clean furrow, the edge of which laps a little on to the furrow last plowed. Then if a plow is used which gives a rather abrupt turn to the furrow the ground will be quite thoroughly pulverized and will work up much better as the corner of the furrow slice will furnish the dirt to fill the little interstices and will give a better seed bed for planting the crop.

The relation between the method used in plowing and the yield of the crop is largely one of the control of soil moisture; anything which interferes with the natural movement of the water in the soil being detrimental to the crop and to that extent to the soil itself for the season.

Cowpeas vs. Sand Vetch for Green Manure.

I have a piece of light sand which has been pastured for two years. I intend to plow it this spring and sow to cowpeas or vetch and plow those under when still green for manure late in summer and at the same time sub-soil this ground. Which would be best for green manure? I want to plant this ground to berries next spring, and will also use some lime in spring and harrow it in.

Ottawa Co.

J. D. K.

For spring planting cowpeas or soy beans would be a better legume for green manuring purposes than vetch. The winter vetch commonly grown in Michigan should for best results, be seeded in August with rye and plowed down the following spring when it reaches its maximum growth.

SOIL AND FERTILIZER QUESTIONS.

The Second Application of Fertilizer to Potatoes.

I have bought a horse potato planter with fertilizer attachment. Have planted and sowed 350 lbs. of fertilizer. Now the question I would like to have you answer is, will fertilizer put on top of potatoes when they come through the ground burn the potatoes, as I want to use 300 lbs. more?

St. Joseph Co.

M. L.

I do not think it would be right to put the fertilizer right onto the tops of the potatoes. If these tops are covered up with earth, as I understand M. L. intends to do with his potato planter, I am not sure that it will injure them, but I should prefer putting it on both sides of the row. I know it is a common practice in many potato sections to plant the potatoes and then when they are just pushing through the ground to use the potato planter as a potato hoe and throw the dirt up over the potatoes. This kills all the weeds, protects them from bugs, makes them come up through again, and is a splendid practice, but it is better to put the fertilizer on both sides of the row, and most of the potato planters distribute the fertilizer in this way. My potato planter, for instance, distributes the fertilizer in two small streams, one on each side of the row of potatoes, and this is the way that it does when we plant the potatoes. The fertilizer is not put right on top of the seed but on each side of it. Then, when the potatoes begin

to come up and we want to put on a second application the fertilizer is distributed in two small streams on either side of the row and covered up with the disks which follow. This, I think, is the correct way to make the second application. If, however, your potato planter puts the fertilizer all in one stream directly onto the plant I would try and rig some attachment which would scatter this fertilizer or which would throw it to either side. I think you could do this by using a piece of tin or sheet iron bent so that the fertilizer coming out in a single stream would be deviated on both sides of the row of potatoes and then covered with your disks which follow.

The Best Soil for Sugar Beets.

What class of land is best suited to sugar beets? How much seed per acre should be sown? What is an average crop? Would like all the information we can get.

Maine.

J. C. H.

Undoubtedly the very best soil for sugar beets is a rich clay loam with a good per cent of humus in it. It don't want to be wet land. It don't want to be dry land. But it wants to be soil containing a sufficient amount of clay so that it is quite retentive of moisture during a drought. Broadly speaking, you can grow sugar beets successfully on any soil that will grow corn successfully, and yet some of the good corn land is a little bit too light, it doesn't contain clay enough for sugar beets. Some land that is a little bit too light for sugar beets could be put in condition to raise this crop successfully by adding a good amount of vegetable matter to the soil, which fills in the spaces between the rather coarse particles of soil and enables the soil to hold moisture. The sugar beet crop takes a lot of moisture. An average crop of sugar beets is eight to nine tons of beets per acre. Some people, however, succeed in growing 15 to 20 tons per acre. Like the corn crop or the potato crop or, in fact, any other crop, the basis for a good yield is a good stand. Vacant places in the row cut down the yield more than anything else. The Germans recommend one square foot of land for each growing beet. Suppose we are liberal and allow one and two-thirds square feet for each beet. Then one one acre of land four rods wide and 40 rods long planted to beets in rows 24 inches apart and thinned to 10 inches in the row, or 20 inch rows thinned to 12 inches, we would grow more than 26,000 beets. Now throw out 2,000 of these for mis-shapes and we will still have 24,000 beets left. If these 24,000 beets should grow to only one and one-half pounds apiece we would harvest from this one acre of land 36,000 pounds, or 18 tons, of beets. This would seem to be possible on every farm, and yet the average farmer doesn't get anything like this stand. Should the beets average two pounds, and certainly this would not be a large beet, this kind of stand would give 24 tons per acre. And yet, as I have said, the average yield of sugar beets is only eight or ten tons, and it largely comes from the fact that we haven't got a good stand. The question is how to get a good stand. Practical beet growers are agreed that it is necessary to take considerable pains in preparing the seed bed. The ground wants to be firm and solid and fine on top. One beet grower that I talked with said that the land wants to be packed enough so that when the horses are putting in the beets that their feet won't sink into the soil. If they sink into the soil then the ground is not packed firm enough. The beet seed does not want to be covered very deep. A half inch is deep enough if you can get them covered.

Speltz and Emmer.

I have read Mr. Lillie's articles on "Speltz vs. Emmer," in recent issue of Michigan Farmer. He does not give all the information I desire. He says there is a difference between speltz and emmer. A well known Jackson seed house says there is no difference. Mr. Lillie deals with emmer more exhaustively than he does with speltz and gives the feeding value of emmer very satisfactorily. Will he kindly give me the feeding value of speltz, its adaptability to our climate, etc.?

Eaton Co.

F. J. C.

Speltz and emmer both belong to the same family as wheat, but each are separate and distinct plants. By some they are said to be the same but they are not, although they look much alike. Emmer is probably better adapted to the dryer regions than speltz. Speltz is probably better adapted to ordinary conditions in Michigan than emmer, though some of our drier soils may be better adapted to emmer. They have about the same feeding value. I refer you to the Encyclopedia of American Agriculture, Vol. 2, page 664.

COLON C. LILLIE.

RIDGING NEW LAND OF STUMPS.

To the new-comer upon most of the cut-over lands of this state the clearing of the ground of logs and stumps offers an appalling spectacle of hard work to be done. Now, really, if this were all to be done by hand even a young man would grow gray haired in his endeavor to clean up a 100 acre farm. Thanks to the age of progression and invention we do not have to endure the hard work and privations that our forebears did when they sliced a home from the wilderness; instead, we have the modern stump machine, whereby one good work team on the end of a sweep exerts as much pulling power as does two of the heaviest Baldwin locomotives on smooth steel rails. We also have dynamite of any strength we desire for the work. And where one doesn't satisfy us with the work done, we unite them, and the big stumps come out.

Only occasionally some monarch stump five or six feet in diameter, with roots almost straight down, as many of these huge pines grew, offers an impediment to new ground clearing. The bulk of the stumps, that is, the greatest number of them on any area, that has been cut from 15 to 25 years may be pulled readily with a chain, or logging or skidding tongs and team, simply hook over the top of the stump, and go ahead, the tongs are best, as they are quickly adjusted and, after pulling, the stump may, without unhooking from it, be drawn quickly to the nearby heap. It is best to pull in the spring while the soil is still moist and loose, but yet firm enough to hold the team. These stumps really average small, running from pole or grub size to about 18 inches in diameter on an average. These are principally pine, hemlock, ash, elm, oak and birch. The hemlock, ash, elm

rather too large for the ordinary team, for with one or more block pulleys fixed at convenient places, one can draw or haul logs, stumps, etc., from any direction within a radius corresponding to the length of the cable to one central heap where all may be piled. These outfits, and there are several good makes, come at from \$50 to \$200, with everything complete, \$150 will get a machine that, with dynamite to loosen, will pull any stump in Michigan if properly handled.

Gladwin Co.

G. A. RANDALL.

IMPROVING OUR POTATOES.

The potato tuber was not known and utilized as an article of food by the civilized world until after the discovery of America by Columbus. The potato with corn, both natives of this country, constitutes America's chief gift as valuable cultivated farm crops to the world. Although it is but 400 years since potatoes were adopted as an article of food, their popularity has spread until they are a cultivated crop and utilized as far as civilization extends.

Although the potato is looked upon as a necessary article of food, and the crop one of the most profitable crops that is raised on our farms, the improvement of the different varieties has not, as far as I am aware, been taken up in a systematic manner. We have been taught that old varieties "run out," when the truth of the matter is, we have, by injudicious management, run them out. We have not proceeded in an intelligent manner to even maintain the desirable characteristics of productiveness and good quality. We have been chasing after new kinds as though somewhere in the dark recesses of the abode of the originators of varieties, they had turned out, or had

same is true with the buds (or eyes) on a good potato, the strong buds or sprouts, have the greatest amount of life and vigor, and consequently will maintain the best characteristics of the variety, and under favorable conditions, will make decided improvements.

After potato seed has been cut, it should be spread in a light, dry place to allow the cut surfaces to callous and the sprouts to start. If one wishes to make an attempt at beginning to improve his variety, after the seed has been cut a few days, it is the proper time to select the best sprouts from the best specimens of some of the seed cut. With a knife cut out all the weak eyes, or sprouts, and leave the flesh of the tuber to nourish the strong eye. Select a spot of ground where conditions are not only good, but very good, and plant each eye in a hill by itself. Give the potatoes in the seed plot the best of care during the summer, and when digging times comes, notice the result. All the potatoes in the seed plot will not be great, but it is safe to expect that a noticeable improvement will be made, and a start toward maintaining the good qualities of the variety planted will be discovered, as well as the possibilities of improvement. If the plan is tried and followed, year after year, the productiveness of a good variety can be greatly improved, and the potato raiser who "breeds up" his own seed, will be able to produce more abundant crops, of better quality, than will be possible if he chases after the new varieties which are praised by speculators.

Wayne Co.

N. A. CLAPP.

LILLIE FARMSTEAD NOTES.

I am short of silage this year. There is such a small amount of it left in the silo that we are not going to try to save any of it until the drought comes, because I am afraid such a small quantity would spoil, and consequently we are going to feed it once a day until it is entirely used up. That will leave me without any silage for dry weather in July and August. To take the place of this I am raising ten acres of sweet corn for the canning factory, and the early sweet corn will come in so that we will have the stalks to feed. I think in the place of silage, and later on we will have the stalks of the larger variety. I hope this will furnish succulency so that I will not miss the silage as much. Last year was a poor corn year and I did not get the growth of ensilage corn that I usually do and consequently I am short. I am, however, putting in more acres this year and hope to have enough so that there will be plenty of silage. The dairy farmer certainly wants plenty of corn silage and plenty of good clover or alfalfa hay.

Severe Frosts.

We have been having very severe frosts in May. For a week at a time there was a frost every night. Some nights it froze quite heavy ice on water. Clover and alfalfa, wheat, peas, and even willows that grow in the pasture, are severely cut by the frost. Wheat on sandy land is affected quite severely. How serious it will be, however, no one can just say. Some plants of alfalfa are cut back severely, and some clover also. It is a wonder, however, that these plants have stood the freeze as well as they have.

Late Cutting of Alfalfa.

Everybody who has had anything to do with alfalfa advises not to cut it late in the fall, that it should go into the winter with a good growth. My neighbor, however, who had a new seeding of alfalfa, cut it late last fall and fed it as a soiling crop to his cows. I told him at the time that he was running a great risk of injuring the alfalfa. He thought it wasn't good enough, however, to keep anyway. But the mild winter did not injure the alfalfa, even though it was cut down close at freezing time last fall. It has come through the winter and is making a splendid growth this spring.

It has been too cold and is too cold now, May 26, to plant corn. We have our work in hand so that we could have planted quite an area of corn had I thought the weather warm enough, but it has been so cold that the ground is cold and I am afraid that the corn will not do well, and so we are waiting until warm weather. I don't believe in planting the day of the month, I believe in waiting until the temperature is right. One cannot plant one year the same date that he does another. Of course, if there should come heavy rains now it might delay planting so that we would lose in that way, but I am going to run the risk and wait until the weather gets a little

warmer before I put the seed corn into the ground. We will keep on working the land and get it in better condition. Some fields we have harrowed and disked several times already.

ERADICATION OF DANDELION.

Please tell me if you know of a liquid that will kill dandelions or another weed we call toad plantain in lawns. Ours is getting covered with it and would like to know what to do to stop it if we can.

Saginaw Co.

SUBSCRIBER.

Since the dandelion is becoming so prevalent in most every lawn it becomes necessary to use some method whereby its growth can be checked. There is only one way to get rid of them and that is by keeping them from going to seed. I know of one party who dug out all of the dandelion plants in the lawn, the next year they came back as thick as ever.

I have been experimenting for some time with different compounds and will give the chemicals used that gave the best results. On one plot a spray was used, consisting of six pounds of iron sulphate to ten gallons of water. After the hot sun beat down upon the growth it turned the dandelion dark colored and killed the tops. The roots of the dandelion were alive after this first spraying, but as soon as they sprouted another spraying was given and killed the whole plant.

In another plot a spray consisting of four ounces of sodium arsenite and ten gallons of water was applied. This mixture did very well in getting rid of the dandelion but the grass and any vegetation present was affected. The grass came up in a short time however. Where large areas of dandelions exist these two former methods are to be used.

Ordinary orchard heating oil was applied to the crown of the plant by the use of an oil can. This method is slower in action but it is very effective. The leaves turned brown and finally the whole plant died. A still quicker and more effective material is crude carbolic acid. A small amount of this applied to the crown of the plant killed the root and leaves within five or six days. The grass was not injured. Where only a few plants are scattered in the lawn these two substances are to be recommended. By keeping after every new dandelion that may appear and by using one of the above chemicals the dandelion plant can soon be eradicated from the lawn.

Indiana.

J. C. KLINE.

GENESEE COUNTY ALFALFA CAMPAIGN.

The alfalfa campaign was staged under the auspices of the Genesee County Crop Improvement Association and the Farm Crops Department at M. A. C., from Tuesday, May 20, to Friday, May 23, inclusive.

Professor V. M. Shoesmith was present all the time and spoke at an average of two, sort of round-up meetings, a day. The remainder of the time was spent with individual farmers on their farms, looking over the ground with them, testing their soil as to acidity, etc.

The weather was a drawback to the work, as it was rainy every day. In spite of this fact, close to 400 interested men were reached with the "Gospel of Alfalfa Raising." These men in every case were representative farmers of the community.

A strong effort was made to impress on everyone the necessity of four fundamental principles for success with alfalfa.

1. Selection of proper soil and seed.
2. Necessity of a sweet soil, use of lime.
3. Preparation of a firm seed bed, free from weeds. Seeding in early summer without a nurse crop.
4. Inoculation, by use of soil from old alfalfa field or sweet clover patch, or the nitro cultures furnished by the college.

One important discovery made during the campaign was that nearly every soil tested responded to the litmus test for acidity, indicating the necessity of lime. It is hoped that all the farmers seeding alfalfa in Genesee county will try out the effect of lime on a part of the field at least. That is the only sure way to decide as to the beneficial effect of liming.

On the whole the campaign was a decided success as it fulfilled the purpose intended. A conservative propaganda of the usefulness of alfalfa, and the principles of its culture. To reach farmers who would make a success of the crop and in that way demonstrate its value as a crop for the Genesee county, farmers to raise.

Genesee Co.

W. H. PARKER.



Remains of a Monarch of the Forest on Farm of Viggo Jorgenson, Montcalm Co.

and birch are short lived and not many offer very great obstacles in the way of pulling, all rotting their roots off in 15 to 25 years, (about the length of time this country has been cut over), but the pine and many of the oak still have roots as green and firm as the day their trunks, years ago, were cut. Many of these large pine stumps occupy much more ground or space when pulled than before, in fact, they are much like an iceberg in this respect, one-third above and two-thirds submerged. To get rid of these, usually holes the size of a stick of dynamite are bored a short distance where the wood offers the most resistance, and one-quarter to one-half a charge is then inserted and fired, when they break into portions so that a team may handle them readily. Various methods are employed to reduce them in size for convenience in handling but where they can not be drawn directly to the heap this seems to be as good a way as any. One must make a large heap, the bigger the better, to burn them well, as pine, although full of pitch, is a queer wood to burn, an isolated log or stump will fairly roar with heat, burning over the outer surface and then as suddenly go out, but when piled in a convenient depression or hollow of the ground in large heaps they will all burn, leaving few ashes, for pine makes but little ash when burned. All the soggy, wet stumps and logs should be piled upon the heap last, as the drier material below will eventually burn it all when fired.

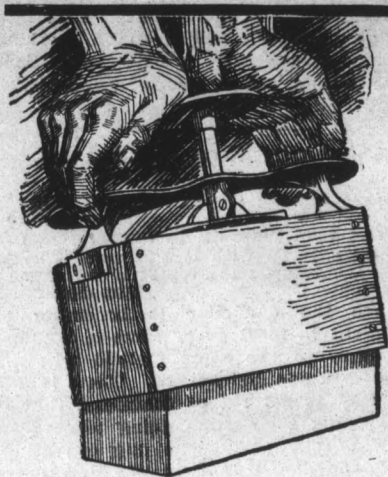
It is best, however, when buying to get a puller ample to haul the largest stumps from the soil and with something like 300 feet or more of special three-quarter inch pulling cable, then with one setting only, an acre or more of ground can be stumped before moving again. The puller is also convenient to pull extremely large, weathered logs to the heap; logs

discovered, the kind that would meet our most exacting demands.

The Correct Theory.

It has been my privilege to help in bringing forward and developing some excellent varieties of potatoes. A few of the Beauty of Hebron were sent to me the next year after they were brought from the mountains in Peru. It only required a few years of selection of the best eyes from the best specimens of the wild breed to develop a kind of potato of good shape, and good quality, that was very prolific. At first they were small, warty, prongy tubers, undesirable in appearance and general characteristics. We bred away from the warts and prongs, and soon had one of the best varieties for garden and general market we have known. The Potentate was, at first, very much like ground nuts of good quality but a light producer. By "breeding up" in size we soon had a variety that has, by its inherent vigor held a prominent place among the good ones for an all-the-year potato for family use, but not generally a heavy yielder.

Instead of proceeding with groups of eyes, whole potatoes, made up of good, bad and indifferent characteristics, like whole litters of pigs, we should undertake the improvement of any variety of potatoes by the use of good judgment in the selection of the best eyes from the tubers which are nearest our ideal of what we wish to produce. The eye is the unit for the beginning of operations, and should be taken as a bud from which to grow a new stalk, on which we may expect will appear tubers that will be a good imitation of the parent tuber. The strongest and best pig in the litter will maintain the characteristics of the breed much better than the small, weak ones, that exhibit to a marked degree, the inferior characteristics of some of the near and some of the remote ancestors. The



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Dairy.

CONDUCTED BY COLON C. LILLIE.

DAIRYING ON THE SMALL FARM.

The propriety of undertaking to carry out a dairying business upon a small farm is a question that has presented itself, and is constantly presenting itself, to that large class of farmers who have but a few acres of land. The advantage that the dairy business offers in making the fertility question easy of solution, brings this question of keeping cows upon a small acreage, back again and again even after it has been summarily discarded from the mind, and because it touches a vital point in our agriculture and also for the fact that in connection with this vital relation it brings to the farmer an attractive income when conducted along economical lines, the proposition will ever be a live theme for discussion.

In considering the practical features of the problem, the first to present itself is that of pastureage. But you can hardly afford to pasture good land that can be easily tilled, so build a summer silo and pasture your rough land, if you have any, if not, so much the better. You can grow more feed in a corn field than in a pasture, twice over, and have enough left to pay for the labor besides. Get alfalfa growing just as soon as you can on some field on that 40 acres, and plan to fit another field for this valuable forage plant, in a few years. Corn ensilage, clover, and alfalfa, with a little grain purchased, will enable you to keep a fine little dairy on the 40-acre farm. I have spoken of the man with only 40 acres in order to make it clear that nearly every farmer can own a dairy if he is so disposed. For the man with 80 acres or more, the problem is easier. He can operate a dairy, and devote a part of his area to some other purpose if he wishes to do so.

It often happens that the man on the small farm has little to do in the winter. In the summer he works too much, but in the winter he eats too much and works too little for his own good. Caring for a herd of cows is not hard work. It is a pleasant task for the writer, and he can not see why any man should not prefer to have employment of this kind rather than to be idle for the greater part of each day, and not relish the food which he comes to eat, more from habit than from necessity.

The dairy on the small farm will not be a large one, and it is all the more necessary that it should be composed of the right sort of cows. We seldom stop to think that the cow that will yield her owner a profit of \$50 annually above the cost of feeding her, is worth more money to him than 50 cows would be that would produce only a dollar each, above the value of their feed. We are looking for the net profit—the value of the finished product, above the cost of the feed that the cow has eaten. We want the cows to furnish something more than a market at home for the products of the farm. We want a profit out of the business, and we can have it if we will breed the right sort of cows.

The man with a small dairy can not afford to keep a scrub herd. If he has only six cows, and they yield him a profit of \$50 each above the cost of feeding them, he has an aggregate of profit amounting to \$300. If he has 50 cows that produce an average of \$5 each above the cost of feeding them, then he has a profit of only \$250. Which herd would you rather have?

The man who keeps ten cows as good as those in the first class, will have an annual profit above the cost of feeding them of \$500. That is to say, he will sell his hay and grain and ensilage to his cows, for which they will pay him the market price, return him fertilizer enough to pay for the labor and give him a profit of \$500.

That man is not worrying over scabby apples or potato blight this summer. He is happy for his bills are paid, and when the boys are old enough he will send them to the M. A. C. and the cows will pay for that, too.

Too many men with small dairies seem to think that they can get along without practicing the methods of the "up-to-date dairyman." This is a mistake. The man with a few cows needs just as good a sire as the man with a large dairy. He needs to feed just as carefully and as liberally. He may not be able to own and keep a sire, but he can join a co-

operative breeders' association, and have the use of as good an animal as it is possible to buy.

Speaking of the sire reminds me that a few years ago a neighbor of mine purchased a young bull of a breeder in the southern part of the state. When the animal arrived he was not in very good condition, and was hardly as large as we felt that he should be at his age. He grew rapidly, however, and became in time a very fine individual. He was kept until a large number of heifers were related to him and the need of another bull was felt. About that time we formed our breeders' association, purchased other bulls, and "Old King" was slaughtered. He brought about \$50 at the market and now it has come to light that "The goose was killed that laid the golden egg." One of his daughters began the last year at the age of a year and ten months and has finished with 315 pounds of fat to her credit. Another, a three-year-old at the beginning, has made in the year 510 pounds of fat, while another still has done almost equally well. We can not bring "King" back to life, but we can learn a lesson from this occurrence. Had this splendid animal been owned in a co-operative association, he would have been kept longer and his real worth would have been known before it was too late.

It is greatly to the advantage of the man who is dairying on a small farm if he lives in a community where the practice of dairying is general. It is harder for one man to do these things alone than for a community to work together to this end. It is a bit of good fortune for a man to live in a progressive neighborhood. But someone must make the start in those not now progressive.

Finally, don't be afraid to try dairying on a small farm. If you keep the right kind of cows, and care for them properly they will market your produce at the highest price, they will pay you a good profit besides. They will furnish you just enough work during the winter for your own good, and keep you thinking while you work. Your boy, too, can join you and use his mind as well as his muscle, in your business. For the more you think, and the more you read, the more will your work amount to and the more likely will that boy be to stay on the farm after you have finished your labors.
Oceana Co. W. F. TAYLOR.

WILL BARNYARD DRAINAGE SEEP INTO A SILO PIT?

Is there any danger of getting a silo pit so low that the drainage from the barn will work into it?

Kent Co. L. M. S.
There is not very much danger of anything of this sort. Of course, if the land on which the barnyard is located is wet land and holds moisture to any great extent and the silo should be empty for a considerable portion of the year, especially the wet portion of the year, the pressure from the water in the soil will gradually seep through the cement lining of the silo. There isn't any question about that. It will seep into cellars. It seeps into empty cisterns, and, of course, into a silage pit to a considerable extent. However, when the silo is full of ensilage there is no danger of this because there is pressure from the inside as well as the outside, and the water cannot be forced through the cement lining. But this will not occur to any great extent and will not, I am sure, occur to a sufficient extent to damage the silage perceptibly. However, it is always better to have to build the silo entirely above the ground. Then you won't have to throw the silage out of the pit. It is a good deal cheaper and easier to elevate the silage with machinery when filling than it is to throw the silage out of the pit by hand.

DISPOSITION OF LEFT OVER SILAGE.

If you can advise me what disposition to make of my silage which I will not get fed up when the time comes to refill silo, I will thank you very much. Last year I had about five tons left and filled new corn silage on top of the old. This year I will have about the same amount left in silo when time comes to fill. I am sure this will be well preserved, but thought it might contain too much acid, by allowing another new filling to be placed above it.
H. L. M.

The only thing to do with left over silage is to simply keep it in the silo and fill the new cutting of ensilage on top of it. If it should be removed from the silo it would all spoil. Just as soon as it comes in contact with the air it will sour. In this respect it is just like canned fruit. When you open a can of fruit

it wants to be used up within a reasonable length of time or else it will all spoil. A small amount of silage, like five tons, unless one has a very small silo, is a difficult amount to keep. The silage ought to be three or four feet deep in a silo anyway, and thoroughly packed in the bottom. Then there is but little exposure to the air and the silage is so well packed that the air cannot penetrate it, and only a small layer of it will spoil, even if left several weeks in the summer time. If one is feeding out of the silo when the new corn is ready to put in, so that it is all fresh, there will be no trouble about the silage keeping, because no air can get to it. If this small amount of silage was good last fall when you filled on top of it, it will be just as good next year as it was this year, because, if fruit will keep one year in a can it will keep two years or more. In fact, there is no limit to it. So I would not think there would be any trouble if you are feeding out of your silo all summer long and just get down to the amount of silage you had left over last year and it is all fresh and in good condition, which it undoubtedly will be, I don't think there will be any danger from loss if you fill on top of it again with fresh silage and keep it until the next year. In fact, this is the only thing that you can do. I don't think it will contain a higher per cent of acidity than it does now.

COMING TO MICHIGAN TO PURCHASE HOLSTEINS.

I would like this fall to buy two pure-blood Holstein cows, two heifers just bred and a bull calf old enough to use on these females. I want A. R. O. stock with very good records. I want this stock for the foundation of a dairy herd. Now we have nothing in this line in this state. Do you think I will make any mistake if I come to Michigan or Wisconsin and buy and ship to this state? Can I do any better in Michigan than I could in Wisconsin? Do you think the change of altitude would have any bad effect on the stock? Would you advise me to buy a less number to start with? About what would I have to pay for this stock? I will build a good stable this year and hope to build a silo next season.
Colorado. F. L. P.

I think this would be a splendid way to get a quick start with Holstein cattle. If one would purchase four registered females, and good ones, he would have a foundation herd which would grow into a splendid herd in a few years and give him some surplus quickly to dispose of to help pay the expense of starting the herd.

I don't think that you would make any mistake in coming to Michigan to buy your Holsteins. There are just as good Holstein cattle in Michigan as you can find anywhere in the world, and we have some of the most progressive breeders of Holsteins you can find anywhere. They have got good stuff. You will make no mistake when you come to this state after the better class of Holstein cattle.

I do not think the change in climate from Michigan to Colorado would be any particular detriment to the cattle, providing, of course, they are properly housed in Colorado as well as they are in Michigan.

Of course, if you purchase a less number of females to start with you would not have to invest so much money. It all hinges on the amount of money you can invest. On the other hand, if you bought a fewer number it would take you longer to get a commercial herd. With regard to price, I am unable to say what you would have to pay, so much depends upon the quality. If you get cattle of fancy breeding, that is, cattle from high producing families, you will have to pay good prices. Holstein cattle are on the boom, and they have merit. Consequently when you buy Holsteins now you want to have a pretty "long pocketbook" or you can't get a very big herd.

A Chicago paper works off this valuable information on its readers: "That raising stock on a scientific basis is more profitable than that of the old way, was testified to by Guy P. Phillips, of Illinois, who, besides raising many farm products buys a few Holstein cows and fattens them for the market."

CATALOG NOTICE.

American Sheet and Tin Plate Company, Pittsburgh, Pa., send an illustrated booklet entitled, "Copper in Steel, the Influence on Corrosion." In this booklet will be found information of value with regard to the many experimental tests of roofing material manufactured by this company, with a view to overcoming the deleterious effects of corrosion. It is fully illustrated and will be found a valuable booklet for those interested in roofing materials. Write for a copy, mentioning the Michigan Farmer.

INDIVIDUAL RECORDS.

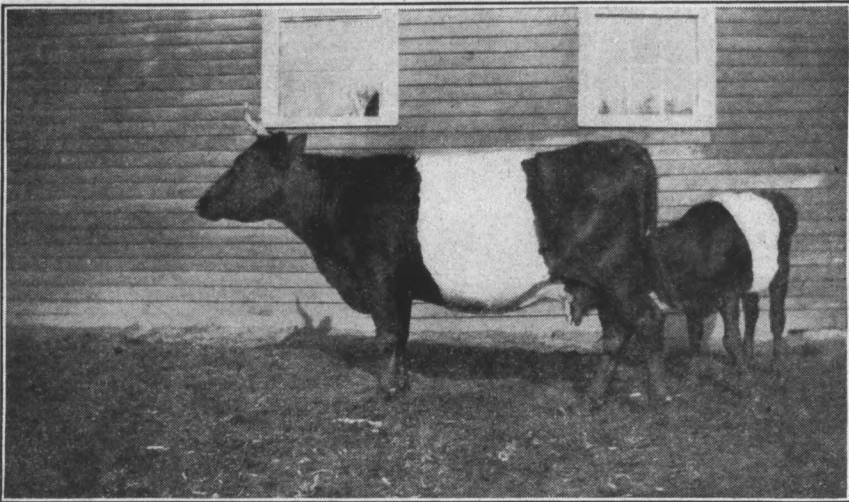
Individual records on the dairy farm are becoming more and more a necessity than a fad as some would class them only a few years ago. The dairyman of today is waking up to the fact that unless he can make a reasonably good profit from each cow something is radically wrong in the management of the dairy herd.

A dairyman must first put his enterprise on a strictly business basis, and that can only be done by keeping records of each individual cow. The working tools necessary are a spring balance milk scale, daily and monthly record sheets, and a Babcock tester. The milk from each cow must be weighed at each milking and the same recorded on the record sheet which is nailed in a convenient place in the barn. Then he may set a certain day of each month to take a sample of the night and morning milk from each cow. For instance, samples could be taken the fifteenth of each month in the evening, completing the work on the morning of the sixteenth. It is advisable to allow two cubic centimeters for each pound of milk produced from each cow night and morning to get a fair sample. A monthly test is considered a fair

will soon commence to rust; and rust is at all times to be avoided if you would have first-class milk products. If this tendency shows in a single spot, carefully remove the first traces with wood ashes or some scouring soap, and especially guard against moisture in future.

The test of what feed a cow shall be given is growing more and more to be, not what she will eat but what a person should eat. Distillery slop and other products which we would not for a moment consider fit to be taken into the human system are by no means fit food for the cow that is to transform her food into milk. She is in reality a great chemical laboratory, but without the powers of the alchemist, who strove to change the baser metals into gold. She cannot transform impure products into pure ones; and food that is spoiled must be kept out of her reach.

The general enforcement of pure food laws is making more complete renovation among dairy circles than in any other part of the farm; and while some of the rules laid down by so-called specialists are scarcely in accordance with those of the practical farmer, there are others which contain hints of value. And in any general reform it is a great deal better



Dutch Belted Cow—Buttercup and Her Calf.

sample for the whole month. The number of pounds of milk each cow produces must be added separately at the end of the month to find the total number of pounds of milk produced in that period. This amount is multiplied by the per cent of butter-fat to determine the amount of butter-fat made. For instance, if a cow gave 875.6 lbs. of milk a month, testing 4.2 per cent fat, she will produce 36.7 lbs. of butter-fat. Furthermore, he must keep a record of the feeds fed to each individual cow to get the cost of production and subtract that and other items of cost from the returns to get the net profit.

This will seem to some men an unnecessary amount of work; but unless the dairyman does this he will never know the individual cows that are sending Tom and Dick to college. At the end of a few months a close investigation of the figures will readily show which cows must be disposed of.

The dairyman must know the records of the individuals to know which calves to raise and surely he would not raise the calves from the unprofitable cows if he knew what he was doing. Of course, it is taken for granted that a man to do this, will have a pure-bred sire at the head of his herd from some of the well-known dairy breeds, such as Holstein Friesians, Gurenses, Jerseys or Brown Swiss. By this method he will raise the production many times above the cost of a pure-bred sire.

A farmer who expects to make a success of his work must know which cows are paying a profit on his money invested or in other words, which make a profitable market at home for the crops on the farm. We can class the dairy cow as a manufacturing plant, for a dairy cow of the right type will convert the roughage from the farm into a valuable dairy product at a far greater profit than the crops on the market today.

North Dakota. U. J. DOWNEY.

DAIRY NOTES.

Thoroughness should not end with the washing and scalding. It is quite as essential that they be thoroughly dried unless the period of usefulness is wilfully curtailed. In summer they may be sun-dried; but in the winter months this thorough airing is not practicable and more care must be given to the hand process. If allowed to remain damp they

to be at the head than in the rear of the procession.

The dog which persists in running at the heels of the cows is an abomination. When it is young there are various successful devices for training it to stay in its place; but when the wrong habit is acquired it is apt to persist, worrying the animal and making it mad. And then when milking time comes, you find fault because the cow is so nervous and irritable.

Some wonder why farmers sell their milk and buy butter, even though the first-class article may be rare. It is but another application of the well tested principle—anything can be done cheaper on a large scale; and so the home butter making, with its attendant trials and hardships, is in many places a thing of the past—at least during the summer months.

Penn. B. L. PUTNAM.

THE SALE OF DAIRY CALVES.

The Chicago market received during the month of April much smaller supplies of calves than in the same month of last year. It was the time for marketing spring calves from the dairy districts of the middle west, and the decreased shipments are largely accounted for by the fact that good heifer calves are being retained by dairies, while many of the steers with beef blood are being sold as stock calves, there being a much greater demand than in former years. Within a short time numerous sales of stock calves have been reported at \$7@7.85 per 100 lbs., good ones bringing \$7.50 and upward, and more could be disposed of readily than are obtainable. The best light-weight veal calves are particularly good money-makers, veal being classed among the luxuries these times.

BOOK NOTICE.

"The Farmer of Tomorrow," by Frederick Irving Anderson. In this volume the author has sought to bring together a popular consideration of the two fundamental factors affecting the business of farming. First, the floor space of the American farmer in terms of land, and second, the resources of the land itself in terms of soil fertility. The work is divided into nine chapters, is printed in large type and contains over 300 pages. It is bound in cloth and can be secured through the Michigan Farmer offices at \$1.50 net per volume. Published by the MacMillan Company.

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Live Stock.

INDIANA CATTLE FEEDERS' CONVENTION.

The Indiana Cattle Feeders' Convention is an event looked forward to by hundreds of cattle feeders in that state. Twice annually are gathered in convention the most progressive and enthusiastic stockmen of the surrounding districts, to renew acquaintances, to discuss cattle feeding, and to inspect the experimental cattle fed at Purdue Experiment Station.

The Sixth Annual Spring Convention was held in Lafayette, Friday, May 3, 1913, and was one of the most enthusiastic meetings of the organization. The attendance was 50 per cent larger than at any previous convention held.

The meeting was called to order at 10:30 a. m., by President Maurice Douglas, Flat Rock, Indiana, who, in his introductory remarks stated that the last few years have been the most prosperous in his experience with the cattle feeding business. His faith in the future of the industry is well attested by the fact that he is now erecting at considerable cost a feeding plant of sufficient capacity to accommodate several loads of cattle.

The results of the feeding trial at Purdue which had been completed, were discussed by F. G. King. The cattle used in the trial had been purchased locally and on the Chicago market. All lots except lot seven were valued at \$6.65 per cwt. at the beginning of the trial. Lot seven was valued at \$6.90 per cwt.

The cattle in lot two were fed a ration of shelled corn, cottonseed meal and clover hay. They gained in 180 days, 432.5 pounds per steer at a cost of \$9.34 per cwt. gain. The selling value of the cattle on the Chicago market as placed by Messrs. J. T. Alexander, of Chicago, and Allen Beeler, of Indianapolis, was \$8.40 per cwt. This leaves a profit of \$4.29 per steer without the pork produced, or \$11.16 per head when pork is included.

The cattle in lot four were fed shelled corn, cottonseed meal, clover hay and corn silage. They gained 435.3 pounds per head, the largest gain of any lot in the trial. The cost of gain was \$8.16 per cwt. The selling value was \$8.35 per cwt. The profit per lot was \$8.65 per steer, not including pork, and \$18.50 per head, including pork produced.

Lot six was fed the same as lot four, except the clover hay was replaced by oat straw. The rate of gain was practically the same and the cost of gain was reduced 42 cents per cwt by the use of the cheaper roughage. The selling value of the cattle was the same in lots six and four. The profit, not including pork, was \$10.42 in lot six, and \$19.05, including pork.

Lot three was fed shelled corn, cottonseed meal and corn silage. The rate of gain was 2.29 pounds daily per head, with a cost of \$8.08 per cwt. The selling value of this lot, however, was so low that the profit was not as large as when some form of dry roughage was fed in addition to the silage and grain. The selling value was \$8.25 per cwt., and the profit, not including pork, \$7.76 per head, and \$15.41 per steer when the gain on the hogs was included as a part of the feeding operation.

Lot five was fed the same as lot six, except that more cottonseed meal was fed. Four pounds daily per 1,000 pounds cwt. was fed in lot five and 2 and a half pounds in lot six. The rate of gain was 2.32 pounds daily per head. The cost of gain was \$8.56 per cwt., the selling price value was \$8.35. The profit per head was \$7, not including pork, and \$15.06 per head when this item was considered.

Lot one was fed the same as lot six, except that soy bean meal was fed instead of cottonseed meal. The cattle receiving soy bean meal tended toward "looseness" and did not relish their feed as much as those receiving the cottonseed meal. The cost of gain was \$7.89 and the selling value \$8.20 per cwt. in this lot. The profit was \$7.95 per head, not including pork, and \$15.82 per steer when this source of profit is considered.

Lot seven contained the heaviest steers in the 70 head when started on feed. They received no corn for the first 70 days. They were then full fed on the same ration as lot six. They made a daily gain of 2.20 pounds per head at a cost of \$7.92 per cwt. The profit in this

lot was \$8.12 per steer without pork, and \$16.95 per head with the pork.

After inspection of the cattle by the visitors, lunch was served in the judging pavilion. This was followed by a discussion of "Beef Production in the Corn Belt," by Prof. W. A. Cochel, of Manhattan, Kansas. The personal popularity of the speaker made his remarks especially impressive. Prof. Cochel traced the progress of cattle feeding through its history in the United States and showed that it had been the tendency of economic condition to force the growing of beef cattle to the cheaper lands. This has developed the feeding in the corn belt of cattle raised on cheaper lands. He believes that beef making has a great future. He says: "Land values have no influence in the profits derived from the fattening of cattle for the market. Just so long as the land is not too valuable to grow corn, clover and alfalfa, the fattening industry can be followed. There is little difference in the feeding value of a bushel of corn that has grown on land worth \$200 an acre, as compared with that which was grown on land worth \$40 per acre. Fattening cattle is simply a means of marketing the crop which has been produced. The feeder must determine whether this route is more profitable than the elevator."

The speaker then gave ample and convincing evidence showing that the last seven years have seen handsome profits from cattle feeding. Not only did his figures show a profit from handling cattle, but the utilization of roughage and conservation of soil fertility have such a profound influence on farm economics that "in all countries and through all times a consistent production of beef cattle has made their owners prosperous, their farms more fertile, and has resulted in the best citize.s that can be produced."

F. G. KING,
Sec'y Indiana Cattle Feeders' Assn.

VETCH AND RYE HAY FOR HORSES.

I see in the issue of the Michigan Farmer dated May 24, under the heading of "Feeders' Problems," that a reader asks a query in regard to feeding vetches and rye hay to horses.

My experience of this may be of interest.

I have fed vetches and rye hay for several years now, on my farm in England, but have never done so in America, but that fact would have very little to do with the results obtained.

I have always found the mixture made an excellent, and in my opinion, very nutritive article of food; especially so, if there is a rather larger proportion of vetches than rye in the mixture, and care is taken to cut the crop early, before the rye gets old and tough.

My system in England is to sow the mixture on disked or harrowed wheat stubbles in the beginning of September, in dry weather, and then roll the crop.

Soon after the first shower, the young crop may be seen on the move, making a fair amount of growth before winter.

During the cold weather the crop remains more or less stationary, as regards growth, but on the approach of spring, it makes a rapid growth, until the vetches are beginning to flower in May, which is the time that I cut the crop.

Part of the crop I find very useful for "soiling" to dairy cows or horses, taking care to bring the horses on to it gradually.

All that is left over, I cut for hay, which is fed to the horses in the winter, and they not only thrive on it, but appear to be very fond of it.

I have not fed the hay to cows much, as I have always considered that the somewhat tough stalks of the rye are more suitable for horses; if, however, one wished to feed it to cows, I see no reason why it should not give good results.

In making the hay, rather more care is required to get it well cured, than is the case with grass hay, as there is more probability of it becoming musty, if taken up in a damp condition.

The presence of the vetches in the hay gives the feed a high albuminoid ratio, and I have found keeps stock in fine condition, when judiciously fed, in conjunction with other kinds of food.

I suppose that the crop would be sown and treated in a somewhat different man-

ner from what I have described, but the results obtained in feeding to stock should be the same in both countries.

JOSEF CO.

R. F. L. BACCHUS.

CATTLE AND HOGS VS. BEANS AND BEETS.

Would like your advice as to the profits one could make fattening cattle and hogs, as compared with raising beans and beets. Have 200 acres with stable room for 40 head of cattle, and a silo of 120 tons capacity. About how many acres of corn would it take to winter 40 head of two-year-old steers? Have got good strong land of heavy nature, also low pasture. About how many hogs could I handle successfully to run after that many cattle? I would figure on another silo if this proposition was profitable. Also, what would make a good balanced ration of grain with corn ensilage for fattening cattle?

SHIAWASSEE CO.

SUBSCRIBER.

It would be extremely difficult for one to tell which would be the most profitable, cattle and hogs, that is, live stock farming, or beans and beets. As a matter of fact, it would depend largely upon the man and, of course, upon environment, the kind of farm which one had, the nearness to factory or market, and all of those things must be taken into consideration. Beans and beets are considered two of the most profitable crops in Michigan. On the other hand, cattle and hogs at the present prices are profitable. My idea would be to not make any sudden change in my system of farming. If I was growing beans and sugar beets and wanted to introduce cattle and hogs I would do so on a small scale, feed a few steers every winter. You can pick up feeders and try it out. If you try to raise your own calves then you are in the dairy business, which is another proposition, because it will not pay to keep cows just on purpose to raise calves, but you must milk them and dispose of the milk in some way. If you can raise good crops of beets and beans you can raise good crops of corn and clover, which are also stock foods. Now it would be better for the farm if you have a rotation of crops with corn and clover, beets and beans, in your rotation. Then you can keep cattle and hogs to consume the corn and the clover. It would be better to have this variety of products rather than to confine oneself to cattle and hogs, which is pure live stock farming, or to beans and beets, which is farming entirely without live stock. General farming is not as great a risk as specialized farming, and one can keep up the fertility of the farm better. It is a more simple thing to keep up the fertility of the farm when one keeps live stock in connection with the growing of other crops.

Ten tons of corn silage to the acre is only a fair crop, and if your silo held 120 tons then 12 acres of corn would fill the silo but it is possible to raise considerable more than 10 tons of silage to the acre. If the corn is put into the silo you will not need to feed many hogs to follow the steers because there will be very little if any, undigested corn. Hogs following steers in feeding are used and must be used where dry shock corn is fed, because there much of the corn passes through the steers undigested and would be a total loss if it wasn't for the hogs that follow. When the corn is put into the silo practically the whole of it is digestible and hogs would starve to death after silage-fed steers, so that if you raise hogs you will have to provide some other kind of feed for them and feed them the corn direct. As you have some land that is suitable only for pasture it would seem to me the best thing for you to do would be to keep at least a few cattle in connection with your bean and beet farming, but I would work into it gradually. In fattening steers on corn silage one of the very best grain rations that can be fed, especially during the early part of the fattening period, is cottonseed meal. This furnishes protein. They ought also to have clover hay. Bean pods, if the beans are gathered and harvested when they should be, also make a good roughage. Then, later on in the period of fattening you can add corn meal to help finish them off, but I would feed cottonseed meal during the first stages and, in fact, continue it during the whole fattening period but at the last stage of fattening, or the finishing of the steers, I would add corn meal. Of course, you can feed the steers shelled corn but they will not digest the whole of it and then hogs might profitably follow, but if you have not made a practice of having the hogs follow the steers it possibly would pay to grind the corn and feed the corn meal. Then there would be little or no waste in feeding it.

COLON C. LILLIE.

FEEDERS' PROBLEMS.

Grain Ration for Pigs on Rape.

I have about 20 young pigs not yet weaned and as I wish to make them grow as fast as possible with the least expense, I have two acres of rape up now and intend sowing 2½ acres more in about a week so that I can alternate them as fast as it is eaten off. I have about two acres of clover which I will use, too. Now is it advisable to feed grain and what kinds with this for pasture? Will not have much milk but would like to know if the commercial calf meal will take the place; if so how should it be fixed and in what proportion? Is middlings and corn meal good for growing pigs? Should they be fed a thin slop three times a day or oftener at first? What would be a good balanced ration to get good results? Will not spare any expense for feed that will bring quick results.

Oakland Co.

W. W. L.

Pigs should have a liberal grain ration when on rape or any other green forage in order to make satisfactory gains. There is nothing better for the base of the ration than fine wheat middlings. A little tankage and some corn meal can be fed with this profitably, using not over 10 per cent of tankage as compared with the corn meal and making these feeds a small factor in the ration at first, gradually increasing them. The pigs should not be weaned before eight or ten weeks old where skim-milk is not to be available as a factor in the ration. The writer has never used commercial calf meal for this purpose and has no data as to whether it would be a profitable addition to the ration or not.

A Fattening Ration for Hogs.

Will you please tell me how to make a balanced ration for hogs to fatten and also for pigs, without corn? Have oats, barley, rye, wheat, and will have some milk for pigs.

Montana.

A. J. M.

None of these goods are as good fattening foods for hogs as Indian corn. If you have no Indian corn, of course you will have to do the best you can with the foods on hand. Barley is the best one of the grains for this purpose, and I would recommend for fattening hogs to feed barley and rye in the proportion of two parts barley to one of rye and grind them together and feed the hogs all they will eat up clean three times a day. They will fatten all right on this ration, but it would be better if you had a part of the ration corn.

How to Feed Wet Brewers' Grains.

Having contracted for about 2½ tons of wet brewers' grain I would like to know how to feed to hogs and cattle.

Kalamazoo Co.

M. M.

Wet brewers' grains can be fed in much the same way as corn silage. That is, you can feed them alone or you can feed them mixed with other grains and other foods. As a matter of fact, you ought to have dry roughage, hay or straw or cornstalks to feed in connection with them anyway, the same as you would corn silage. You can feed corn meal or ground oats or ground barley in connection with wet brewers' grains and it would be better to place this extra grain ration on the wet brewers' grains. Put the brewers' grains in the manger, then put the meal on the brewers' grains. In this way they are mixed together when the animals eat them and I think you would have better digestion than you would if you fed the grain alone and then fed the brewers' grains alone. For hogs they can be mixed up with the other foods in the form of a slop by mixing milk and water or wheat middlings or corn meal, or anything that you wish to feed in connection with the brewers' grains. Mix them in the form of a thick slop and feed them in that way.

Growing Pigs Without Skim-milk.

On account of sending my milk to the condensary this year, I am somewhat at a loss as to how to feed my little pigs. I have plenty of corn and oats on hand and can get other feeds, such as oil meal, wheat middlings, and beans.

Tuscola Co.

F. J. L.

It is impossible to have pigs make the most rapid and thrifty growth where skim-milk is not available as a factor in the ration. However, pigs can be grown quite successfully without skim-milk if they are not weaned too young. Pigs should not be weaned before they are eight or ten weeks old and should have a run on good clover pasture, but if this is not available they should be given some tender, green forage each day. Then, by feeding a slop of fine middlings and a little oat meal, at first with the hulls sifted out and later by adding corn meal and a little tankage to the ration, very good results will be secured. A little oil meal can also be added to good advantage, but bran is too coarse a feed and contains too much fibre to be profitably made a factor in the ration of the small pigs. It will require much skill in

feeding to get a good growth without the milk, but by the use of proper judgment in feeding, excellent results will be secured from such combinations of feed as above suggested.

LIVE STOCK NEWS.

Quality and weight of recent receipts of cattle in the Chicago market did not indicate any excessive supplies of big bullocks in feeders' hands, and while it is known that Nebraska and Kansas will have fair supplies of that description to ship to market, any repetition of the unsatisfactory market conditions of two years ago is regarded as wholly unlikely. While the summer season is one usually when big, fat cattle are discriminated against by slaughterers on the whole, there is always some call for them to satisfy the high-class restaurant and hotel requirements of the eastern sections of the country, but what owners of these beeves should guard against is throwing too many on the market at one time. It is usually advisable for country shippers to ignore sudden sharp advances in prices, when they take place, as they are often brought about by the packers for the very purpose of starting a big run of cattle to market, so that buyers can break prices and load up their own terms. Looking backward, many stockmen can recall the disastrous condition that prevailed two years ago, when many big steers brought from \$6 @6.25 per 100 lbs., these prices failing to pay for the corn they had eaten. Of late much the strongest demand in the Chicago market has centered on light-weight steers that could be purchased for medium prices, with a good call for fat cows and heifers also. Several days ago a sale was made of 38 head of prime yearling heifers that averaged only 591 lbs. at \$9 per 100 lbs., the highest price on record for such baby cattle.

Washington Leavitt, head cattle buyers in the Chicago market for Swift & Co., who has been traveling throughout the east of late, has returned and expressed the opinion that tariff reductions will not effect such radical changes in prices as many people have been fearing. He fails to see that evil effects would follow free meats at a period when the whole world is facing a shortage in beef cattle that cannot be adjusted for nearly a decade. The Mexican cattle, he adds, are adapted only for the canned meat trade and feeding purposes, while the southwestern and western cattle ranches will want all the Mexican importations of cattle which can be made for several years. The supplies of Canadian cattle are too small to affect the market for beeves on this side of the international boundary line, even should cattle come in duty free, according to Mr. Leavitt. He remarks that Argentina, as well as Canada, faces a cattle shortage which is as serious as that of the United States, and the Canadians will have to produce many more beeves before their shipment to this country could seriously influence American prices, while our country's fast growth in population calls for a marked increase in the beef output. Seven or eight years of beef production gain in Argentina is required before that country can hope to produce enough surplus beef to supply its broad European demand and at the same time export enough beef here to have a strong influence on the price of the American home-grown beef. Of course, Mr. Leavitt looks at these matters from the packers' standpoint.

These recent hot days serve to remind stockmen and country shippers of hogs that the time of the year is here when increased care in attending to the moving of hogs in cars to market is essential in order to prevent losses of hogs in transit from the heat. The first appearance of hot weather is usually marked with the greatest mortality to big, fat lard hogs in transit, and it is false economy to load too many hogs in a car. Better give the occupants of the car plenty of room, for every dead hog means a big loss in these times, and it is also of importance that the cars be well cleaned before loading, while a good bedding of sand or cinders is a good thing. When the weather becomes extremely hot get a big chunk of ice and suspend from the top of the car.

Recent sharp breaks in prices for cattle in the Chicago and other lading markets of the country should serve as reminders to stock feeders that cattle well matured should be shipped out as soon as possible, for there is no telling how much lower the market will go ultimately. While marketing matured beeves especially those of heavy weights, it is most unwise to sell off cattle prematurely at a time when the pasture of the country is so unusually promising, while corn and other feed is so cheap. In fact, most farmers who are so fortunate as to own well-bred, thrifty young cattle fully realize this and are holding back cattle on the feeder and stocker order. Hence, the great scarcity of such offerings in the market and their unusual dearthness, recent prices being dangerously high.

Senator W. A. Drake, the well-known sheep and lamb feeder of Colorado, estimates that 1,425,000 head of sheep and lambs were fed in Colorado and the North Platte country during the season now nearing a close, divided as follows: Northern Colorado, 550,000; Arkansas Valley, 600,000; North Platte country, 200,000; San Luis Valley, 75,000. These are the largest feedings in these districts reported for several years, although the same country has in times past fed in the aggregate 1,750,000 during a single season. The Colorado and North Platte sheep feeders have been experiencing the most satisfactory season ever known since the sheep feeding industry was established there, nearly everything having been in their favor ever since the beginning of the season.

Veterinary.

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

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

Occult Spavin Lameness.—My nine-year-old horse went lame in right hind leg three months ago. Starts out of stable or after standing still a short time very lame, but soon travels almost sound. This same horse has a habit of kicking partition when eating grain. B. J., Rothbury, Mich.—It is possible that he bruises leg when kicking and if it is prevented he might go sound. Warming out of his lameness indicates incipient bone spavin. Apply one part tincture iodine and three parts camphorated oil to hock joint once or twice a day.

Laminitis.—Contraction.—I have a mare which has been foundered on corn and has shown foot soreness, with some contraction since last fall. She is quite lame at times, travels groggy and I am inclined to believe the trouble is in her feet. Our local Vet. wanted to nerve her, but before doing so prefer to have your advice. W. H. M., Wayland, Mich.—Apply one part red iodine mercury and ten parts cerate of cantharides to coronets in front three times a month and stand her in wet clay two hours daily. It is not always good practice to nerve a flat-footed horse that has been foundered.

Lymphangitis.—I have a six-year-old mare that our Vet. believes to be incurable. She seems to have a loss of appetite, swells in hind legs and is very tender on inside of thigh. Would it be prudent to breed her? F. G., Belding, Mich.—High feeding and no exercise is the cause of her trouble, and I know of no reason why she would not make a fairly good brood mare. Keep her bowels open and exercise her every day. If she has another attack foment swollen leg with warm water and avoid applying liniment. If she is not in foal when the attack occurs, give her cathartic medicine.

Vertigo—Spinal Paralysis.—I have a yearling colt that seems to be weak in legs, staggers and wobbles when walked. He is now in pasture, appears to be lifeless and acts dizzy. H. K., Bad Axe, Mich.—Give the colt ½ dr. ground nux vomica and ½ dr. potassium iodide at a dose in feed three times a day. If he shows no improvement in two weeks, gradually increase dosage. You will obtain best results by giving nux vomica, full doses should be given; but as soon as you discover any twitching or jerking of muscles, reduce dose.

Enteritis.—Medical Action of Nux Vomica.—My yearling filly had been on grass for a month when I noticed her sick; she acted droopy, stiff, had fever. Her legs stockered some and she had considerable bowel pain. Our local Vet. treated her Thursday and Friday and she died Saturday noon. What is the nature of nux vomica? If it is given to a horse and don't go through him, isn't it sure to kill him? G. B., Butternut, Mich.—Your filly died the result of enteritis (inflammation of bowels), caused, perhaps, by taking cold. Nux vomica acts as a nerve tonic, stomach tonic, stimulates respiration, secretion, appetite and digestion. It also increases bowel action. It also stimulates and exalts all the functions of the spinal cord, but does not affect the brain directly. Toxic doses cause trembling and twitching of the voluntary and involuntary muscles. Very large doses may paralyze the cord as from a blow, and almost cause instant death. The symptoms and mode of death somewhat resemble those of lockjaw, but are, of course, more suddenly developed, more intermittent and more rapidly fatal. I do not believe that your colt suffered from drug poisoning.

Indigestion.—Cow freshened May 15; in good health, but only gives about a quart of milk. Ceased lactation only about three weeks; udder flabby, eats well, and seems all right. W. T. K., Farmington, Mich.—Give her enough epsom salts or fresh grass to open her bowels, and hand rub udder twice a day, is about all that can be done to increase her milk yield. A change of food is always advisable in these kind of cases.

Wounded Leg—Stocking.—Valuable six months old heifer calf got front leg badly cut six weeks ago; wound healed fairly good, leg remains thickened three times its natural size and the other leg is some swollen. P. P. A., Wayne county.—Give your calf 60 grs. powdered nitrate of potash and 10 grs. potassium iodide at a dose three times a day and apply equal parts extract of witch hazel and water to swollen legs twice a day.

Partial Loss of Power.—I have a sow that seemed to lose use of hind quarters ten days after she farrowed, but has a fairly good appetite. E. G. H., Maybee, Mich.—Feed her no corn, but some oats and oil meal; also give her 2 ozs. of castor oil and 2 ozs. of olive oil daily until she purges fairly free. Also apply one part turpentine, one part aqua ammonia and two parts olive oil to back once a day.

Rheumatism.—One week ago my six weeks old pig lost the use of his legs and is unable to get up. He seems to suffer considerable pain. Have been feeding white middlings, boiled potatoes and turnip (Continued on page 651).



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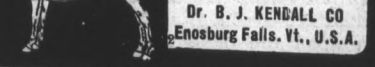
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DETROIT, JUNE 7, 1913.

CURRENT COMMENT.

On another page of this issue appears an article by that able agricultural writer, W. Milton Kelly, in which it is reported that certain co-operative ventures in western New York have come to grief because of inefficient, or fraudulent, management. The reading of this article together with the recent failure of a co-operative grain elevator at Shepherd, Michigan, brings to the attention of students of marketing problems certain matters that cannot be too strongly impressed upon, nor too widely published among, those who undertake a part in co-operative institutions. And first it should be stated that a broader insight into affairs is required on the part of the individuals who become members of a co-operative enterprise than where business is done after the usual method. In calling upon several members of a certain co-operative concern the author was astonished at the misunderstanding by the parties regarding the organization and conduct of the business. There were scarcely any two who had the same idea of matters pertaining to the institution. Each one, of course, was confident that a better price was being paid for his products through the co-operative concern but aside from this he could give no definite information. It seemed a revelation to many when it was pointed out that the manager might use the monies provided by the stockholders to pay a higher price for products than his sales of those products would warrant, and that ultimately such an appropriation of funds would lead to the failure of the concern, but that for the moment it would popularize the manager with the members. An instance will illustrate: A member of a certain co-operative elevator who had a good standing with the manager, sold beans that could not be disposed of elsewhere at a price that returned to that member enough to cover all he had invested in the concern. The manager could not dispose of these beans at a price that would cover their cost and the difference was, of course, paid out of the funds provided by the stockholders, i. e., the stockholders unconsciously contributed this difference to this particular member that the concern might handle his poor beans. Under such patronage the institution failed. Had the elevator been a private concern the loss would have fallen upon the owner; but here it helped to destroy an institution that was designed to improve the marketing conditions of the community. In other words, if a man is a member of a co-operative institution he must see to it that he deals honestly with that institution, for in every instance where he fails to do this he weakens the foundation upon which it is built.

The illustration above given suggests

a second matter that ought to concern every person identified with these concerns, namely, the choice of a manager not only with business ability along the line undertaken by the organization, but also with moral qualities that will put his transactions above question. It is absolutely necessary to have loyal members when working together in business interests, and no one thing will contribute more to this end than having the business transactions conducted by a man of the highest integrity.

These two thoughts lead to a third—one that was not forgotten by the framers of the federal constitution a century and a quarter ago—which is, that the different elements should have a check upon the whole business of the organization, the same as each of the different departments has a check upon the other departments in our federal government. To this end we believe that co-operative organizations will not be generally successful until arrangements are made that will provide for regular auditing of the books and business of the concern by a public accountant who will render, not only to the manager and directors, but also to the stockholders, a statement of the condition of the affairs at the end of, say each quarter, and be ready to make special reports on any matters pertaining to the business conducted. A conscientious manager would welcome such an arrangement in that it would keep him in the proper light before the members, while the workings of an unscrupulous one would be detected before he had done a large amount of damage. It would also go far toward holding those who have undertaken the venture to remain loyal during times of stress. In all, the members would be informed, the manager would be protected and everyone would be educated along lines of business—an item that should not be overlooked when listing the benefits of a co-operative institution to a farming community.

These are a few matters that are suggested by the failures of the concerns referred to above. We believe they are vital to co-operative organizations and if they are carefully heeded fewer institutions of this nature will fail.

A report from New York is to the effect that the State Highway Commissioner has decided not to continue the expensive building of permanent roads until a way has been found to build roads that will stand up in service.

It has been found that crushed stone or macadam roads built in that state deteriorate rapidly under modern conditions and it has been established that after a contemplated expenditure of one hundred million dollars in permanent roads it will be necessary for the state to expend twenty millions a year for maintenance. This report states that the highway commissioner will appoint an advisory board of engineers who will investigate the problem of adopting a durable type of road before any further extensive program of road construction is adopted.

This result is quite in line with Michigan's experience in localities where there is a heavy automobile traffic upon the highways. Special examples could be cited in many sections of the state to prove this contention.

For instance—two miles of macadam road built on the Grand River turnpike just outside of Detroit about four or five years ago has been several times resurfaced at large expense and is not now in good condition. The macadam road built between Lansing and East Lansing has never been in a satisfactory condition since it was completed, and the one attempt made to repair it was a failure. Late last summer a section of macadam road was built in Oakland county on the Saginaw turnpike and as a precaution against its deterioration the surface was cemented with a coal tar or asphalt preparation. With but one winter's wear the surface of this road is full of holes and is consequently scarcely better than the neglected gravel road which it replaced.

In some sections of the state, notably in the northern counties and upper peninsula, macadam roads have given good service, but in all localities where automobile traffic has formed a considerable percentage of their use they have not given adequate returns for the money invested in useful service. This is another illustration of our frequently repeated statement that in all sections of the state where gravel can be secured at any reasonable cost it is the best material for building permanent roads, since the first cost is much cheaper and with a mini-

mum of cost for maintenance these roads may be kept in good condition at all times. It is a mistake, however, to build roads of any character and neglect their later care.

There has been much discussion regarding the credit problem during the last two years which, as readers of the Michigan Farmer know, has resulted in the sending of an official American commission to Europe to study the co-operative credit plans which are in operation in European countries. This commission is now in Europe making a thorough study of the proposition, preparatory to making a complete report to Congress and furnishing such information as may be needed for the establishment of a permanent working organization to promote the rural credit propaganda in this country.

This preliminary work could probably be done at no more fortunate time than at the present. It appears that pending tariff legislation or possible industrial causes which are not apparent to the casual observer have had the effect of restricting the loans of banks to a considerable extent. We are informed through reliable sources that in some of the very best agricultural counties of central Michigan farmers are unable to get any but short time accommodations at the local banks and are making loans from private capitalists at what seems to be an exorbitant rate of interest under present conditions.

In these counties farmers are now making mortgage loans and paying a minimum of seven per cent interest, while two years ago it was difficult for the same capitalists who have furnished the money to make loans in the same territory at five per cent. One man who recently made a large loan of more than \$10,000 at seven per cent stated that if he had the money to place at the present time he could easily get eight per cent and he believed a bonus could be secured which would make the loan net close to ten per cent.

It is not apparent, as above stated, to the casual observer why there should be any such advance in interest rates as a result of any present economic conditions. Farm products are cheaper than for some years, consequently less money is required to move the crops on that account; also the bulk of last year's production is now marketed and there would seem to be no present commercial activity which would make large demands upon the surplus capital of the country, consequently we have no choice to interpret the present scarcity of money and prevailing tendency to advance interest rates in any other way than as a result of caution on the part of financiers against a possible financial stringency resulting from pending tariff legislation.

This is another argument for the adoption of some adequate credit system in this country which will make it possible for farmers needing additional operating capital to make loans upon the best of all securities at a reasonable rate of interest.

It is also an argument for financial legislation which will make the surplus resources of the country more liquid and more readily diverted to the sections of the country where they are needed. Such a system, could it be devised, would largely obviate the hoarding of money by banks and would generally tend to increase the public confidence in the stability of the country's business.

Several inquiries have been received from subscribers for information with regard to the vote.

The vote cast for and against local option in the 12 counties in which this proposition was submitted at the spring election. As a means of giving them official information upon this subject we have secured from the secretary of state the following tabulated report of the returns from the county clerks in the several counties which gives the total vote for and against this proposition in all of the 12 counties in which it was submitted, with the single exception of Calhoun, in which county returns are now in the courts as a result of litigation:

County.	For.	Against.
Calhoun (litigation)		
Clinton, dry	2848	2462
Emmet, wet	1728	1978
Genesee, dry	6339	6271
Huron, wet	2760	3575
Ionia, dry	4142	3663
Iosco, wet	726	967
Jackson, wet	5792	6821
Lenawee, dry	5978	5197
Montcalm, dry	3339	3195
Sanilac, dry	3869	3208
Tuscola, wet	3406	3631

HAPPENINGS OF THE WEEK.

National.

Thomas W. Palmer, ex-United States senator for Michigan, president of the Chicago world's fair, ex-minister to Spain, donor of Palmer Park to Detroit, and one of Detroit's best known citizens, died at his residence near Palmer Park last Sunday morning, in his eighty-fourth year. The well-known philanthropist and able statesman's last illness dates from two years ago when his automobile was wrecked by an electric car and he was thrown to the street, sustaining severe bruises and being badly cut, from which time he has been slowly failing. His life was closely linked with that of Detroit, which grew from a mere village of 2,222 residents to a large city estimated at 525,000, during his lifetime.

The Michigan State Firemen's Association is in session at Cheboygan this week. The annual reunion of the survivors of the Fourth Michigan cavalry will convene in Lansing the seventh of this month.

Citizens of the village of Leonard are fighting in the courts to keep the officials from granting a license for a saloon recently favored by the council. A temporary injunction has been issued and the effort is now to make it permanent.

A summer college for naval recruits has been opened at Newport, L. I., for the purpose of giving cadets instruction along different lines of naval engineering.

A committee of the United States Senate is now taking testimony looking toward the establishment of the fact of the existence of an organized body working in the Senate for the purpose of modifying the present tariff bill.

The society of automobile engineers, with delegates from many countries, is in session in Detroit this week. These engineers declare that the automobile and auto truck business is now just in its infancy.

Senator Ransdell, of Louisiana, made a plea for keeping a tariff on sugar in the Senate Monday, in which he declared that to remove the tariff entirely would violate the pledge of the Baltimore convention and would destroy legitimate industry by playing into the hands of the so-called "sugar trust." Senator Ransdell is a democrat.

The trial of George A. Newett at Marquette, charged with slander by Colonel Theodore Roosevelt, was suddenly terminated last Saturday when Newton testified that they could find, after a thorough investigation, no person who would go on the stand and testify that they had ever seen the Colonel drink to excess. The court allowed the plaintiff nominal damages.

Two workingmen were drowned at Battle Creek, Sunday evening, when they attempted to change seats in a rowboat in which they were riding.

A total of 42 amendments to the federal constitution has been asked for by different senators and representatives during the present session.

Two men were killed and two severely injured when an interurban car struck the automobile in which the men were riding, at a crossing south of Lansing last week. The men were enroute from Bay City to Milwaukee.

W. W. Ramsey, who has been connected with the J. I. Case T. M. Company, of Racine, Wis., since 1893, was recently made general sales manager of that concern to succeed C. F. Farney, who becomes assistant treasurer.

That information may be had to direct the Senate committee in the drafting of a monetary bill to place before the national Legislature, a list of 32 questions has been sent to bankers and economists in all parts of the country for answers.

The treasury department reports that there is a daily increase in the export of manufactured products from this country as compared with the corresponding months of 1912. For the first ten months of the fiscal year ending with June of 1913, the total increase amounts to about \$500,000 a day, or \$154,000,000 for the full period. The greatest increase is in finished products.

Representatives of 55 railroads which includes 85 per cent of the railroad trackage of the country, were in conference with the interstate commerce commission last week, going over matters pertaining to the making of a physical valuation of all the roads of the country.

The United States Senate has authorized a committee to investigate the alleged charges that the companies furnishing armor plate for the United States battleships have combined, and also to report on the feasibility of the government establishing a plant for the manufacture of armor plate.

Foreign.

The chamber of deputies of Uruguay has enacted a law providing for an eight-hour day for workingmen.

General Hsu, commander of an important detachment during the recent revolution in China, was killed by a bomb sent him through the mails May 25. General Hsu was a close friend of President Yuan Shi Kai.

Forty tribesmen were recently hanged at Serra Leone on the west coast of Africa after being convicted of the practice of cannibalism. The men were members of a secret society that has been giving the government much trouble.

Nicaragua is working hard to effect arrangements with the United States for the construction of a second canal between the Atlantic and Pacific oceans. In the opinion of Dr. Castriello, Nicaraguan minister to this country, who has devoted much of his political activity in the interest of the project, a canal across Nicaragua will become a commercial necessity for the country, in that it will reduce the shipping distance between the Atlantic and Pacific ports of the United States by 2,000 miles, as compared with the Panama route.

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

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

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

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

The Present-Day Sailor of the Lakes.

By H. M. SULLIVAN.

COLUMNS have been written in our daily papers and articles have followed articles in our magazines about the deplorable condition of our merchant marine. Writers have grown pessimistic, and orators have waxed eloquent, over the supposed fact that there are not enough capable seamen to man the boats of the American navy in time of war.

This state of affairs may be true of American shipping on salt water, but if the panic-stricken writers and orators will turn their eyes toward the great lakes and notice the boats, and the sailors that man them, they will be compelled to modify their opinions.

On these lakes ply hundreds of steamers that rival in size, speed and luxury the steamers that ply the ocean. They are manned by men the equal, if not the superior, in intelligence and ambition of their salt water brethren. The wages and conditions of labor are such that a fine class of intelligent and ambitious young men are attracted to the life, led on by the assurance of speedy promotion to the deserving. There is little room for the loafer and "bum." Here, on some of the largest boats, are captains who but a few short years ago were deckhands, while coal-passers, by their own exertions, become chief engineers in a comparatively short period of time. The position of captain or engineer is no sinecure, for harbor pilots are unknown and the way some of these skippers handle a six-hundred-footer in a narrow channel is little short of marvelous.

The quick dispatch in loading and unloading leaves but little time in port, and so the engineer must be wide awake indeed to get the necessary repairs finished so as not to delay the boat, as that means a loss of money to the owners. When one sees a steamer arrive in port with ten thousand tons of iron ore in her hold, and, within four or five hours, leave entirely unloaded, one can understand that the engine-room is no play-house or lounging room. During the time in port all necessary supplies, including food, fuel, oil, paint and numerous other articles, must be put aboard and stowed away in their respective places.

Although the work is hard and the life oftentimes arduous, owing to the living conditions, the ever-changing scenes and the hope of advancement, it attracts a great many bright young men. By no means are all of these from the ports on the lakes, but a large percentage of the

best sailors in both departments, the navigating and the engineering, are boys who were born and raised on the farm, some probably never seeing a large body of water until they took their first trip. Probably a majority expect to go back to stay some day, and many a captain sails through the night dreaming of the day to come when he can settle down with his family, and pictures in his mind's

the steward the heads of their respective departments and responsible for the efficiency of the men and machinery under their control.

When one starts the sailor life he must start at the very bottom. Pull or friendship will not supply the knowledge that he must gather for himself. If he desires to work up to captain, he applies to the second mate for a position, or, in

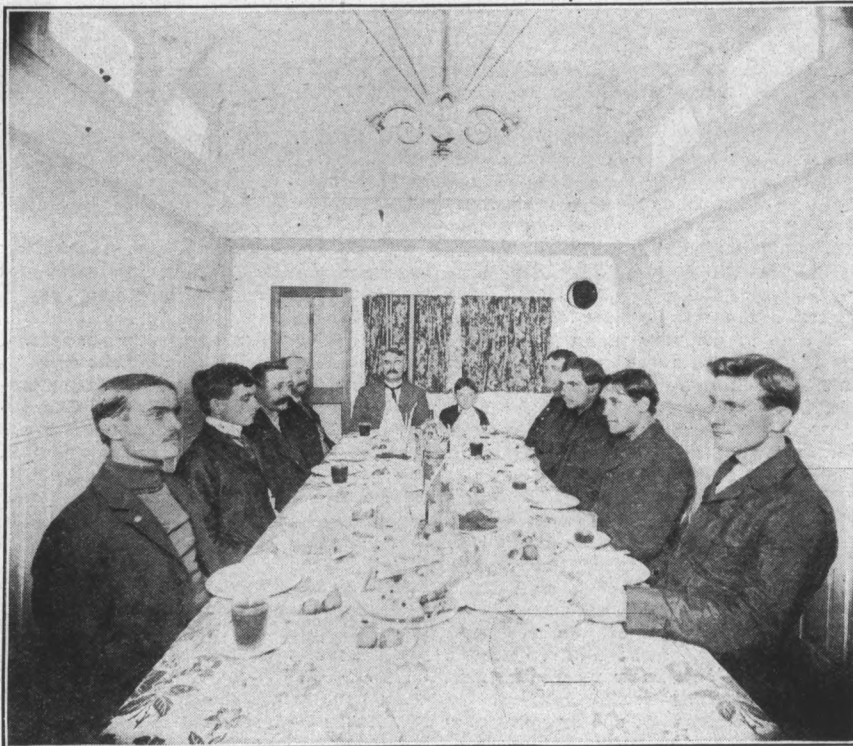
are regulated solely by the necessary work to be done, but usually he gets about twelve hours a day to himself. By and by a vacancy occurs and, if he has made good, he is promoted to watchman or lookout. At this job he has charge of the scrubbing gang during the day and is forward as lookout when on night duty. His hours are six hours on and six hours off, there being two watchmen on each boat. While at this position a chance is given him to learn to steer, and oftentimes, if capable, he may relieve the wheelsman for a short time.

Some day a vacancy occurs in the next step up and he is again promoted, this time to wheelsman. He stands six-hour watches and steers the boat while running. While in port he does splicing or some of the finer work in painting, and is allowed to work over the side on staging. He is now rated an able seaman and is as high as he can get without a government license.

If he is industrious and ambitious during the period of apprenticeship, as it were, he will procure books and through other aids in the study of navigation prepare himself for a better position. When satisfied that he can pass the examination he presents himself before the government inspectors to take it. If he is duly qualified and passes, his coveted license is granted him and he is permitted to accept a berth as second mate. In this position he stands a watch of six hours on and six hours off during the time the vessel is running, and is stationed at the stern and assists in steering the boat on reaching port.

After one year in this position he is qualified to take the examination for a first-class pilot's license which, when passed, permits him to have charge of a watch and to be second in command. After more experience at this he steps to that long-looked-for and coveted place on the bridge—a captaincy. Here he is supreme while the vessel is running. Although the responsibility is great and the work, especially in rough weather, is wearisome and nerve-wracking, his former experience should enable him to acquit himself acceptably and to win the approbation of employers. Should he show special executive ability he may finally be promoted to the position of shore captain where he oversees all the boats of the fleet.

So much for the forward end, but if the young man is mechanically bent he will prefer the engine-room as the scene

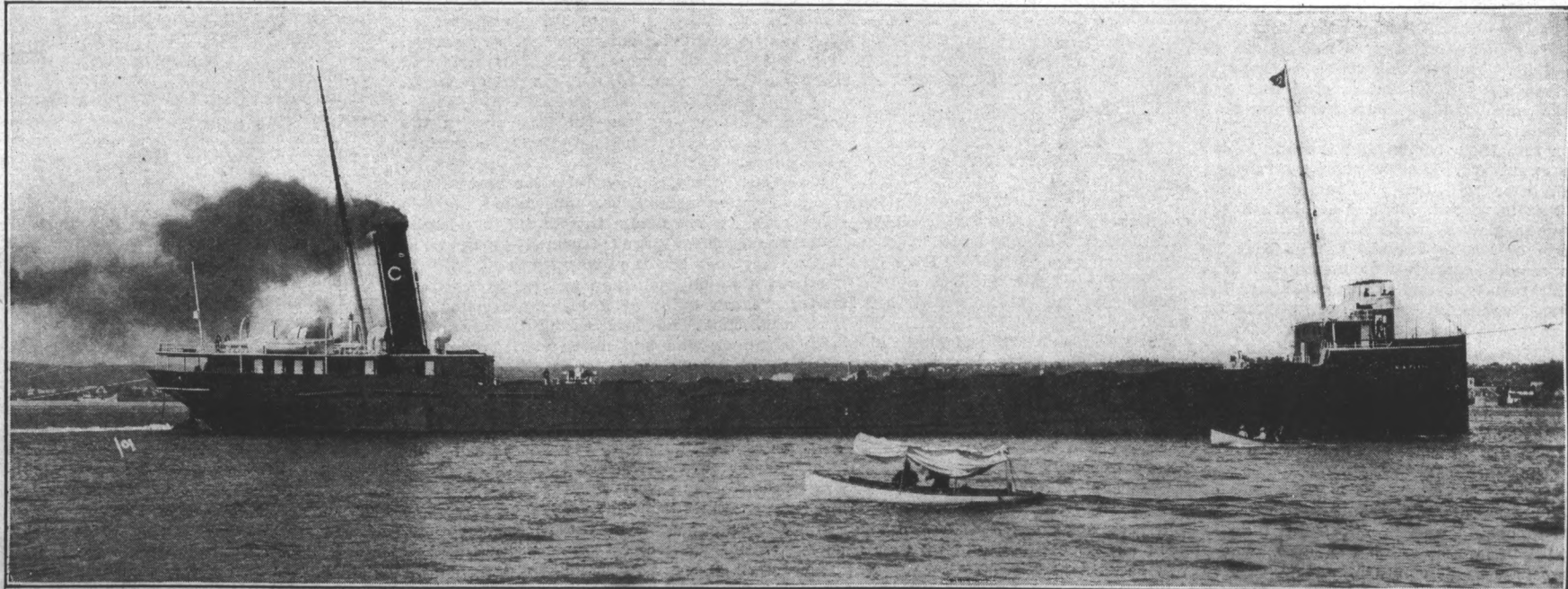


Officers' Dining Room on a Modern Freight Boat.

eye the peace and tranquility so different from his present mode of living. Some of them own farms and spend their short winters ashore there.

There are three separate and distinct departments on the freighters: The navigating, called by sailors the "forward end;" the engineering department, known as the "after end," and the commissary or cook's department. As the captain, besides being responsible for the navigation of the boat, is supreme at the forward end, so are the chief engineer and

the vernacular, a "sight" as deck-hand. If his appearance is satisfactory he is shipped, after signing articles. Here he is known by various titles, such as decker, deckeree or, to quote the articles, "ordinary seaman." He puts in an apprenticeship the length of which is governed by his ability to learn and the space of time before a vacancy occurs. He handles lines, passes coal, scrubs, paints, and if the mate is inclined to be overly industrious he scrubs that paint off and paints it over again. His hours



One of the Modern Steel Freighters which Furnish Employment and a Comfortable Home for Many Ambitious Sailor Lads During Navigation on the Lakes.

of his labor and the post of chief engineer as the goal to be sought. Here he starts as coal-passer. After he has learned to spread and pull a fire, and how to keep up steam, he applies for a position as fireman and, if a vacancy occurs, he gets the job. Here the hours are varied. On some boats they are three hours on and six hours off; on others, six off and six on. The work likewise varies. Some boats steam hard and the work is so laborious that every man can not stand it; others have automatic stokers and the work is much easier. After experience in this capacity, the time of which varies according to his ability or the vacancy occurring, he is transferred to the engine-room as oiler. Here is more responsibility, but the work is easier, although to a novice the whirling rods and revolving shafts make it seem impossible to oil certain bearings. After he gets his hand in, however, he goes about the huge engine, oiling here and feeling a bearing there, as if it was the easiest thing to do. The oiler must watch all parts of the machinery and see that everything is running right. After three years as oiler or fireman he is permitted to take the examination for assistant engineer and, if he has studied well, a license is granted him for some of the smaller boats. After one year more this can be enlarged and after another year a chief's license can be taken out. The examinations are very difficult and almost require a technical education, but when he attains to the height of his ambition early hardships are forgotten.

While the young man is thus striving to reach his goal, he is as well, if not better, paid than if he worked ashore. He draws from \$37.50 per month as deck hand, up to \$200 as captain or chief engineer. This is exclusive of his board, and the conditions of his living equal those of a good boarding house. The menu, rivaling that of a good hotel, often causes surprise to the uninitiated because of its variety and quality. The author has known men to quit a boat because the size of the oranges they had for breakfast did not meet their approval. There are two dining-rooms aboard each boat, one for the deck hands and firemen and the other for the rest of the crew, but the bill of fare is substantially the same. A room containing running water is allotted to each two men, and the beds are kept furnished with clean linen, so one can readily understand why such a life attracts the intelligent and the ambitious. Only the industrious could stay, as there is no room for the lazy or indolent. If the reader could take a trip up the lakes on a freighter he might better understand this. Let us take a specimen trip, a sample of those taken by hundreds of sailors every year.

The boat loads hard or soft coal at some port on Lake Erie. After the loading, which takes perhaps six or eight hours if the coal comes fast enough for the automatic loader which takes a car of coal high up into the air, turns the car upside down and pours its contents into the hold of the boat, the hatch covers are put on and battened down. On some of the newer boats this is done by steam, but on all the older ones this means work for the deck hands. Soon the clanging of a gong is heard down in the engine-room and is immediately answered by one on the pilot house, showing that the engineer has heard the signal. The lines are quickly cast off the deck and the big steamer slowly leaves. As soon as the harbor is cleared the speed is increased and the steamer heads in her course up the lake. During this time the hose is taken out, the pumps started and the decks washed down that everything may be clean and neat. The sailors off watch turn into their berths and the trip is on. The next day Detroit river is reached and, after a couple of hours' steaming, Detroit is passed. Here the sailor's heart is made glad by news from home in the shape of letters brought to the boat by the marine carrier, who comes out in a small row-boat and, after getting a line aboard, sends letters and newspapers up in a bucket to the waiting crew. On up the river, up Lake Huron for about 24 hours into the St. Mary's river to the "Soo." Here are located the locks and all hands are called to handle lines going through, as care must be used that no accidents happen. Through the Soo up into Whitefish Bay, then out into the great Lake Superior, the largest body of fresh water in the world. Land is quickly left behind and is not sighted again until half way across the lake, where Keweenaw Point comes into view, only to quickly vanish astern. Then Duluth is sighted and soon the vessel makes her

way through the ship canal, into the harbor and up to the docks.

Here, as soon as the boat is tied up, the hatches are taken off and immense clam-shell buckets are lowered into the hold, only to quickly reappear filled with coal. Here a day or two is required to unload; the boat is then taken over to the ore docks, where long spouts leading from huge pockets full of ore are lowered and the ore pours swiftly into the hold. To load 10,000 tons requires upwards of two hours; then the steamer heads for Lake Erie again. But, coming down, all is not as quiet as it was going up. A breeze has sprung up and grows into a gale, while Lake Superior rises in its majesty as if it would overwhelm the ship that dares ride on its bosom. On board the boat all are busy. Movable articles are fastened, and everything is made snug and tight. Engineer and oiler, in the engine-room, redouble their watchfulness that nothing may go wrong and imperil the safety of the boat and the precious souls it carries. For

hours and days the battle goes on. The captain stays on the bridge, directing the course, to assure himself that all will be well. All things must end, and so, if all goes well, Whitefish Point is sighted and the steamer rounds into shelter, to the relief of the crew, and the old lake has been cheated again.

Through the locks again, and down over the same course, the boat reaches its destination, where the crew is paid off for the trip. Owing to the dispatch in loading and unloading, the sailors do not get much chance to spend their wages unless they quit the ship. Dealers in all kinds of clothing, tobacco and other articles come aboard and readily dispose of their stock.

So the sailor goes on through the eight months of navigation, each trip resembling the other, yet each holding some new experience, until the frost king takes hold and the ice blocks rivers and harbors. Then the sailor goes home to his family to remain, impatiently, until the opening of navigation in the spring.

If Favorably Impressed.

By HOWARD DWIGHT SMILEY.

Mr. Eaton, city editor of the Gazette, slammed up the telephone receiver and called loudly for his assistant.

"We've got a cracking good story tonight, Charlie," he began when the other arrived at his desk. "I've just had a long distance call from our circulation manager, Hasenack, who is over at Bronson, and he tells me that he has just found out that there is a young financier coming here tomorrow to invest one million dollars in our town if he is favorably impressed."

"Phew!" whistled Charlie. "That sounds like the real thing, doesn't it? Did Jimmy give any details?"

"There's the trouble. He didn't seem to be able to get very many particulars. Says that circumstances are such that it won't do to interview the man just yet, but that he knows he will start for here tomorrow and he will endeavor to get acquainted with him in the meantime, and 'phone me if anything new turns up."

"Didn't he even get the man's name?" "Yes, it is E. P. Ellis. That is the name signed to a written statement which the man made to the effect that he intended investing the million, and which Jimmy now has in his possession."

"It'll make a peach of a story," said Ogle thoughtfully, "but we haven't much to work on. Don't know where the man is from or anything else."

"Well, we can pad it out by going over the best prospects for new business ventures in the city."

"That's right! We'd better call up Dave Lewis; he'll know better than anyone else where the good investments are," suggested Charlie.

Mr. David D. Lewis was president of the Business Men's Association of Comstock, and a man who took a lively interest in everything that tended toward the welfare of the city. The editor, acting on Ogle's suggestion, lost no time in getting him on the 'phone.

"I'll be down to your office in fifteen minutes," came Mr. Lewis' voice through the receiver as soon as he had been apprised of the situation.

He was there in ten. It was evident that he had retired for the night when the call came, for he arrived at the office minus collar and tie, with unlaced shoes and disheveled hair.

"What's all this you're telling me?" he cried as he hurried up to the city editor's desk. "Where is this man and when is he coming?"

Mr. Eaton went over the situation again as thoroughly as he could with the details at hand, and ventured a guess that the investor would arrive in the city next day on the noon train, and would, in all probability, be accompanied by Hasenack.

"Are you going to print this story tonight?" inquired Mr. Lewis.

"Sure we are! It'll make a peach of a scoop!" cried Eaton enthusiastically.

"But why don't you wait till they get here, so you will know something definite?" expostulated Mr. Lewis.

"We can't," answered Eaton. "The paper goes to press at three in the morning and they don't get here before tomorrow noon at the earliest, and by that time it will be cold news."

"But can't you see that you are liable to make a bull of the whole thing? If

the investor arrives in town and finds that his coming has been anticipated and heralded all over the state he'll be mighty likely to get sore right on the start and quit us cold. Million-dollar investors don't come trotting around our burg every fifteen minutes, and we can't afford to lose any."

"Well, there's something in that," admitted Eaton dubiously. "Of course, we don't want to do anything that would be detrimental to the city, but I certainly hate to lose that story."

"You don't necessarily have to lose it," answered Lewis. "We're the only ones in town that know he's coming and I won't tell."

"The Telegraph's an evening paper and they'll beat us to it," pointed out Ogle.

"Which is the more important to Comstock—that we get a million-dollar investment or the Gazette gets a story?" inquired the exasperated Mr. Lewis. "I'll endeavor to keep this away from the Telegraph people, but whether I do or not, you've got to lay low and help us land that capitalist."

II.

Mr. Lewis, Eaton, Charlie Ogle, together with several members of the Business Men's Association, were at the depot next day when the noon train pulled in.

An hour before the arrival of the train Mr. Eaton had received a telegram from Hasenack, wired from White Pigeon, a town about half way between Bronson and Comstock, where it was necessary for the passengers to change cars, in which he had briefly stated that he had made the acquaintance of the gentleman, whom he was now convinced was traveling incognito, as he had given him the name of Dan Warner.

The reception committee saw the pair drop off the smoking car platform and make their way through the crowd toward the exit. Mr. Eaton was the first to approach them, and he greeted Hasenack with an effusion that was obviously simulated.

"Mr. Eaton permit me to introduce you to Mr. Warner," said Hasenack as soon as he had returned the editor's greetings.

Mr. Eaton simulated great surprise and embarrassment. He started violently as he faced the young financier and apologized profusely for ignoring him in the first place, much to the other's amazement.

Mr. Lewis, followed by the rest of the reception committee, approached the trio and were quickly introduced by Hasenack. Mr. Warner seemed to be quite overcome by the warmth and delight with which each man greeted him.

"I am quite at a loss to account for this most unusual cordiality toward a stranger who has never visited your city before, gentlemen," he said.

"We aim to treat every stranger that tarries within our gates in precisely this manner," Mr. Lewis assured him. "Besides that, you were escorted here by one of our most rising and energetic young men."

Mr. Hasenack gave the garrulous one a warning poke in the back, while Mr. Warner turned a wondering look on Lewis.

"My acquaintance with your Mr. Hasenack came about through my asking him

THE NEW EDUCATION.

BY CHAS. H. SPURWAY.

They say the cost of living
Is going awful high,
Because there's less production,
Of things we need to buy.
They say we'll soon have famine,
And something must be done,
To regulate conditions,
Or there will be some fun.
But there's no cause for trouble,
There's no need for much alarm,
Just educate the farmer,
And he'll educate the farm.

Some try to teach the farmer
A way to raise more grain,
By telling of the plant food,
And how to save the rain.
They confidently tell him
Exactly how 'tis done,
And then expect the battle
To be entirely won.
Why don't they grasp conditions;
Why can't they see the charm
Of educating farmers and
Let them educate the farm?

Some try to fill the farmer
With many "don'ts" and "nots,"
And try to educate him
By hypodermic shots.
They can not see that training
Comes slowly and with toil,
But fire away, both night and day,
About fertilizing soil.
The farm is less than farmer,
And we can do no harm
If we educate the farmer
And let him educate the farm.

The time is here for action,
The opportunity is ripe
For us to do a lot of good
By putting up a fight
For good schools for the farmer,
Free from political mandates,
For agricultural education,
The kind that educates.
So let us band together
And dispel all the alarm,
Let us educate the farmer,
And he'll educate the farm.

for a match to light my cigarette. One would naturally think by all this cordiality that my coming had been anticipated and that a welcoming committee had been appointed to greet me."

Henry Lucas, the "Fruit Belt Drummer," as he was familiarly known to his friends, somehow felt that they were overdoing this welcoming stunt and stepped into the breach in an endeavor to get matters on a more natural footing.

"Not by any means, sir," he assured Mr. Warner. "We did not anticipate your coming, but, to tell the truth, Mr. Warner, your name is not altogether unfamiliar to us. I, for one, recognized it instantly when we were introduced. I have heard of you frequently and have read your name in the papers. Believe me, we are more than delighted to welcome so distinguished a guest to our city."

The young man appeared to be pleasantly surprised by this news. He bowed modestly as he replied: "Gentlemen, it is indeed a pleasure to learn that my fame has preceded me. I was not aware that I had become so well known to the American public."

"Men of your genius can hardly hope to hide their light under a bushel," beamed Henry Lucas, feeling that he had made a happy stroke. "Now, Mr. Warner, if you will kindly step into Mr. Lewis' car we will escort you to the hotel. Of course it is understood that you are to be the guest of the city during your sojourn here."

Mr. Warner looked absolutely bewildered as he replied: "I am sure I cannot see why you should entertain me. I never met any of you gentlemen before and—" he paused as if struck by a sudden thought—"why, come to think of it, you are treating me exactly as you would a millionaire who had come here to invest his money," he added with a twinkle in his eye.

"If such a man should come we would certainly endeavor to favorably impress him with the possibilities of our city," Mr. Lewis assured him.

Mr. Warner seemed about to make further protest, then suddenly changed his mind and said with a quiet smile: "I will accept your hospitality, gentlemen, and I thank you very much. I am now ready to accompany you to the hotel."

III.

As soon as Mr. Warner had been escorted to his rooms in the Burdick House, in charge of a bellboy, who had been instructed to see that his every want was looked after, the reception committee retired in a body to a corner of the Burdick cafe to get more thoroughly organized, as it were.

"Now let's have your story, Hasenack," said Mr. Lewis, when they were seated. "Well, you see, I was stalled in Bronson over night and was sitting alone in

(Continued on page 644).

The Present Barefoot Boy.

By ALICE MAY DOUGLASS.

The Whittier birthplace without a barefoot boy is not to be thought of, and a barefoot boy it has at the present time—not a Whittier lad, however, but a representative of the Ela family, three generations of which, many years ago, intermarried with the Whittier family.

The little fellow who, during the present time, is filling the honors of this office is Clayton Monroe Ela, whose grandfather and grandmother Ela have been put in charge of the farm by the Whittier Home Association, which has the place in trust. After Mrs. Ela has shown the many visitors the interesting rooms and relics of the old farmhouse, Master Clayton often shows them the outside attractions—the brook, for example, where

no, I'd rather have them than anyone else. They understand the poems better than any other class and recognize what they see the more. When the ninth grade is studying 'Snow Bound' they come here. I try to have everything for the children as it was in the poet's boyhood. I put nuts on the hearth and I build the fire as it was built then:

"The oaken log, green, huge and thick,
And on its top the stout back stick;
And knotty firestock laid apart,
And filled between with curious art
The ragged brush; then, hovering near,
We watched the first red blaze appear,
Heard the spark crackle, caught the gleam

On whitewashed wall and sagging beam
Until the old, rude-furnished room
Burst, flowerlike into rosy bloom,



The Present Barefoot Boy. (Photo Copyrighted by W. L. Bickum).

the genuine barefoot boy waded, and Job's Hill, to which the poet thus alludes: "With the red lip redder still
Kissed by strawberries on the hill."

It was upon a rainy afternoon that I made Clayton's acquaintance and in the Ela kitchen of the Whittier birthplace—the little room which serves as both kitchen and dining-room for the present occupants of the historic building—that which was the woodshed of the original home. The genuine kitchen presents its original appearance and is set apart for the sole benefit of sight-seers, who pay a dime as their admission fee into the house.

"What does Clayton find to do?" I queried, and his grandma answered: "He plants, he rides the horse to cultivate, he feeds the chickens and brings in the wood in the wheelbarrow and piles it up as the Whittier boys used to, as it says in Snow Bound:

"We piled, with care, our nightly stack
Of wood against the chimney back."

"Tell her what you do," said the sweet-mannered grandmother, whose presence so well fills the home of the poet's gentle mother. "Tell her that you have ten bantams and three kitties."

"And I will give you a kitten to take home," offered the lad.

"I am afraid I couldn't take one," I answered, "for we have guinea pigs and the cat might catch these."

"And he goes on the trolleys to Haverhill to the Burnham school," continued Mrs. Ela, "and where is your knife?" Then she explained: "One of the visitors gave Clayton a quarter and he went to town with grandpa's team to spend it for something which he could keep. There were many beautiful things in the store, but he chose a jackknife with a chain that it might not be lost." This he showed me with no little pride.

"What do the visitors have to say to you?" I asked.

"Lots of them say to me, 'Are you going to write poems?' and I say, 'I am going to be an artist.' Then they give their addresses to grandma and tell her to send them one of my pictures as soon as I begin to make them."

"When parties come here evenings I have the house lighted with candles," explained Mrs. Ela, "and Clayton goes down the road to meet them with one of those old-fashioned lanterns."

"Yes, I have seen one," I said.

"Formerly no parties came evenings, for they thought it would be too much trouble for me to keep the house open for them, but I told them to come just the same, and now they will hold exercises in the kitchen—read Whittier's poems and so on."

"Some ask me if I do not dread to have the children come and I tell them

While radiant with a mimic flame
Outside the sparkling drift became,
And through the bare-boughed lilac tree
Our own warm heart seemed blazing free."

And this reminds me that there is more to see in the Snow Bound kitchen than in any other kitchen in the country. Here are the chairs, tables and dishes used by the Whittier family, the warming pan, the footstool and other articles of old-time use and, most interesting of all, the desk upon which the young poet wrote his first poems. While I was examining them, Mr. Ela came into the room, bringing a little shoe someone had recently given him. It had been worn by Whittier when he was a very young lad and it had been remarkably well preserved. Its parts were put together by means of little round pegs.

Clayton was making whistles from branches of willow, which had grown

than to outlive the days of his childhood—moreover, ought there not always to be a barefoot boy upon the Whittier birthplace?

As I bade farewell to my young friend, I could but think how well pleased the gentle poet would be if he knew that his place upon the old farm was being so admirably filled.

The Elas were the first settlers of Haverhill and many years ago, as 'already stated, the Ela and Whittier families intermarried for three generations. Clayton's father is very proud to think that he has three little boys to keep up the Ela name, as well as a dear little girl.

A DISCOVERY.

BY JULIA RAMSEY DAVIS.

Little Ralph was spending the summer with his grandparents on the farm. He was from the city, and there were so many new sights, and sounds, that he was kept busy asking questions, and his grandparents, and Uncle John, were kept busy answering them.

The sitting hens fascinated him a good deal. He would peep at them every day, and ask his grandmother if it was almost time for them to come off with little chickens.

"Aren't they funny, grandmother?" he said the first time he saw them, all cuddled up on the nests. "They look like big balls of feathers with heads pushed down in the middle."

But his special pet was a young turkey gobbler that delighted in strutting around the barnyard. His grandmother said one day: "Ralph, that is the turkey I am going to have for our Thanksgiving dinner. Mamma, papa, and you will be with us that day."

One evening Ralph discovered this turkey roosting, balanced on the high ridgepole of the wood-house.

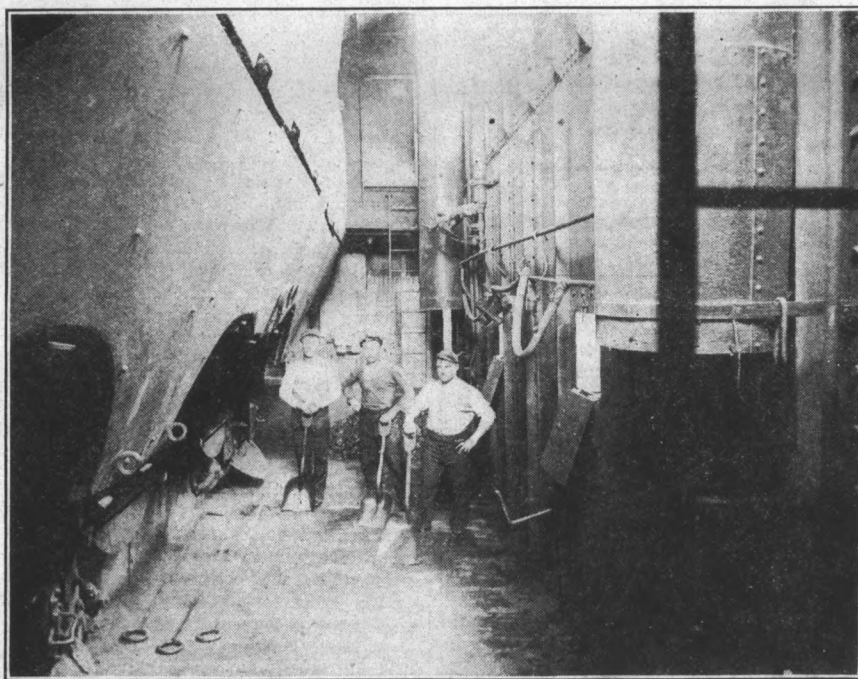
"Oh, Uncle John!" he cried, "do come and make our Thanksgiving turkey come down. I know he can't hold on all night, and when he gets to sleep he will let go and fall off."

"Why, Ralph," said Uncle John, "he doesn't have to hold on. When he sits down, his claws shut up by themselves, and he couldn't fall off if he wanted to until he stands up. Come and peep at the chickens on their roosting poles, and you will understand better how it is."

Ralph went with Uncle John to the henhouse, and saw the long rows of cuddled-up chickens, with their feet curled tightly around the roosting poles.

"That is a mighty funny way to sleep," said Ralph, "I'd think they would get tired, and let go."

"But they can't let go," explained Uncle John again. "Tomorrow I want you to notice a chicken or turkey when he walks and lifts his foot high. His claws will close together the same way they do when he sits on the roost. Didn't



With the Firemen in the Engine-Room of a Lake Freighter.

upon the place, and he made two for me to take home to my little nephews, who, by the way, having never before seen such rural trinkets, were more pleased with them, than with the "Teddy Bears" I brought back from the same trip, and the six-year-old gravely asked if Clayton would always remain a barefoot boy. He knew that the first barefoot boy had grown into a man and a poet, but supposed that the present one knew better

you ever notice your mother's canary on its perch?"

"Yes," said Ralph, "but I didn't worry about him, for I knew he wouldn't get hurt if he did fall from a low perch like he sits on."

"My!" exclaimed Ralph, after again looking at the chickens, "if I could hold on like a chicken, I would climb a tree, walk away out on a limb, and roost there myself, these warm nights."

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Our wisest public men.

And yet, we greatly grieve to say,
She has not learned to cook,
Nor keep the house a single day;
And if Mamma should go away,
How bad the place would look.

A FUN CLUB FOR COUNTRY GIRLS.

BY HILDA RICHMOND.

It is a Reading Circle that aims simply to amuse the members. There is not enough pure fun in the lives of country girls at best, and whoever attempts to foist history and essays and tragedies upon the girls who meet once every month or two weeks kills off the club in the very beginning. Be sure you stick to the reading that contains pure fun, and avoid as you would the plague all trash and cheap story books. As examples of wholesome funny stories, take the "Story of a Bad Boy," by Aldrich, or "Mrs. Wiggs of the Cabbage Patch," or "Miss Minerva and William Green Hill," by Frances Boyd Calhoun. By taking turns any of these books may be read in two afternoons, and will furnish amusement for young and old. They are wholesome, laughable stories, and dozens of others equally as good might be mentioned. While all the girls are busy with needlework or crocheting one reads aloud, but the work will be often laid down because laughing will interfere with it. Many of the poems by Carleton and Riley will set a group of girls laughing and talking, and give them pleasant thoughts for weeks to come. There is no limit to the range of books that give the best kind of amusement. One group of girls laughed and laughed over Wanner's "My Summer in a Garden," and they also enjoyed "The Reflections of a Married Man," by Robert Grant, though it is popularly supposed that young girls could get nothing out of either volume. The truth of the matter is that they are written so charmingly

that no one, old or young, can resist the humor of them.

"The Hoosier Schoolmaster," is a safe book to begin on, since few people can be found who do not laugh over Bud and Miranda. "The Hoosier School Boy," by the same author, is entertaining but not so funny. "Rebecca" was read in one little Circle; anyone who has laughed over this beautiful story will understand why the girls called it "delicious." It was the first book read by the five neighbor girls together, and it seemed to open a new door in their lives, allowing them to look out upon a vista of enjoyment hitherto closed to them. The girl who skims over a book a week can never understand the joy of slow reading with a group of friends, while apples and popcorn and nuts make the rounds and a little work is accomplished with needles.

Often short stories gleaned from various sources are full of honest fun, and they should not be passed by. Many of them will stand reading and re-reading. In my youthful days "Harper's Young People" filled our lives with joy and fun, and many of the stories I laughed and cried over in those days are as fresh in my mind as though I had read them yesterday. Then in turning them over in matured mind, I can see that each one had an uplifting tendency, whether funny or serious, and I am glad that they are still fresh and capable of bringing the smiles through all these busy years.

You need have no dues, no constitution, no officers—nothing but a desire to read stories and books that are pure and wholesome, and that will bring the hearty joy of girlhood. You will find your outlook broadened, your lives made sweeter and the world a more cheerful place to live by resolutely sticking to your one purpose to have good times together reading sweet humor. And more than all you will find out how much good a smile does in the world. There is much danger that young girls will giggle too much, but none whatever that their smiles and low, rippling laughter will annoy anyone. Make your Reading Circle a place where fun reigns supreme, and always be sure it is the right kind of fun.

IF FAVORABLY IMPRESSED.

(Continued from page 642).

the writing room of the Hotel Farr making out my report when this young fellow came in and sat down at the same desk.

"I paid no attention to him until he asked me to shove along a pad of telegram blanks that lay at my elbow. I did this and he immediately picked up a pen and wrote on one of the blanks, which he tore from the pad and folded, smiling as he did so.

"There was something about him that attracted me and I watched him out of the tail of my eye. After a moment's thought he laid down the first blank and wrote again on another, which he folded and placed in his pocket. Shortly afterwards he got up and left the room.

"A little later I happened to want some paper to do some figuring on and looked about the desk. The only writing material there was the telegram pad and as I reached for this I noticed the folded blank that Mr. Warner, or Ellis, whichever he is, had evidently forgotten when he left the room. Having a natural newspaper instinct and curiosity I opened the blank and read the contents. Here it is."

Jimmy Hasenack took his pocketbook from his coat and extracted a slip of paper which he handed to Mr. Lewis, who immediately opened it and read aloud to the others:

I am coming to Comstock to invest one million dollars if favorably impressed.

E. P. Ellis.

"Is this all the evidence you have?" he inquired.

"It's all I could get," answered Hasenack. "Seems to me it is enough, however, when we consider that he practically admitted his reason for being here, at the station."

"Humph," grunted Mr. Lewis. "This telegram doesn't prove much of anything. It is neither dated nor addressed, and, besides, how do we know that he means our town?"

"There is but one Comstock," answered Jimmy, "and, besides, didn't he come directly here next day?"

"How did you find out he was coming here?" asked Mr. Eaton.

"Heard him asking the hotel clerk about the trains the night before; also I had this telegram."

"Well, there must be something in it," decided Mr. Lewis. "It doesn't seem reasonable that any man should be writing

such telegrams as this if he didn't have something definite in mind."

"At any rate," put in Henry Lucas, "we can't very well back up now, nor can we come right out and ask Mr. Warner to explain things. We're up against a funny proposition and all we can do is to sit tight and await developments. It is very possible that he will come out into the open of his own accord in a day or two, and in the meantime we'll have to continue the entertaining stunt as we've started out to do."

IV.

For the next few days Dan Warner apparently had the time of his life. He was wined and dined nightly, made the guest of honor at theater parties and balls, invited into the most exclusive circles and made much of generally, all of which he entered into with spirit and interest, notwithstanding that he seemed to be of an exceedingly retiring and modest nature.

And yet, in spite of the fact that he received almost constant attention from the members of the B. M. A., both individually and collectively, and that he was given daily drives about the city with two or more members, who took great pains to point out to him, in an offhand manner, of course, the most desirable building sites for factories and other plants, and while he seemed to take a lively though silent interest in all new schemes discussed by members of the association, he did not at any time come forward to offer any suggestions or intimations as to his own ideas and intentions.

This condition of affairs continued for one week and then one morning Mr. Warner informed his friends that on the morrow he would conclude his visit and return to his home in New York City. While he expressed great appreciation of the treatment tendered him by the members of the B. M. A., and others, not one word did he utter about investing one million dollars or any part of that amount.

When Mr. Eaton received this news he rushed immediately to Mr. Lewis' place of business and held a frantic interview with that gentleman.

"We've got to do something!" he cried. "Here we've practically turned this city upside down in our efforts to convince this capitalist that Comstock is the real goods and we haven't been able to get a yip out of him! What do you suppose is

the matter with the man? I can't see how he can help being favorably impressed after the way we've treated him!"

"It seems as though he ought to be," answered Mr. Lewis. "We've been forced to remain silent on the subject of his million for fear that he might take offense if he knew we had been next to his game all along. It looks now as if we would have to take the bull by the horns and go after him bare handed."

"How are you going to do it?"

"Well, we'll have to give him a farewell dinner tonight and make him show his cards. We'll get the boys together this morning and fix things up so as to be ready for him. One thing is certain, Mr. Warner isn't going to leave this burg without giving us some notion of what his intentions are, if I can help it."

The farewell banquet was a grand success—that is, so far as the dinner was concerned. Every member of the B. M. A. and the Gazette editorial staff were present, and each did his utmost to make the occasion one that would long be remembered by the guest of honor.

Mr. Warner appeared to be in unusually good spirits and entered into the occasion with a vim that was exceedingly gratifying to the others; they felt that if he continued in such good humor they would have little difficulty in carrying out the plan that had been concocted among them that day.

After the banquet table had been cleared and cigars lighted the real business of the evening began. Mr. Lucas, the "Fruit Belt Drummer," who had been selected, because of his versatility, to open the game, left the room for a moment and returned with a suitcase from which he took several large blue prints and a number of typewritten specifications, laid them out on the table before the guest and proceeded to set forth, in his most elaborate style, the great possibilities and profits of erecting a new paper mill on the south bank of Portage creek, an investment that would necessitate an outlay of not less than \$200,000.

He was followed by Mr. Lewis, who had in mind a project for a new cement plant in the vicinity of Lake View, which, he believed, should be enormously profitable to the investor. This cement plant could be put in operation, he believed, for not over \$150,000.

One by one the different members of the B. M. A. arose and laid before Mr. Warner schemes to invest his million—in fact, it would have taken ten millions to cover the projects they set forth that night. They were giving him plenty of latitude.

And through it all the million-dollar possibility listened and watched with rapt attention and examined with interest all the plans that were submitted for his inspection. Not once, however, did he open his mouth in either comment or suggestion.

"And now, Mr. Warner," began Mr. Lewis, when the last plan and specification had been gone over, "we would like to have you tell us what you think about all this."

"I think that you have some exceptional opportunities for the investor," answered Mr. Warner.

"But what we would like to know, Mr. Warner, is, are you favorably impressed?"

"Impressed with what?" asked the young man.

"With our city and the opportunities for investment that it offers."

"Gentlemen, I can't understand why you are talking this way to me," Mr. Warner expostulated. "As I have said before, you are treating me exactly as if I were a millionaire."

"Well, to get right down to brass tacks, we know you are a millionaire and that you came here to invest a million if favorably impressed," put in Henry Lucas suddenly.

"Who, me?" gasped Mr. Warner in undisguised amazement.

"Yes, we've known all along what your intentions were and, as we've been doing our best to impress you favorably, we feel that we're entitled to your views before you leave town."

"Where on earth did you get the notion that I am a millionaire?" asked the very much bewildered young man.

"We don't like to confess that one of our number pried into your private affairs," answered Mr. Lucas, "but such is the case. Jimmy, will you please produce that telegram?"

Hasenack passed the paper to Mr. Warner, who read it with a puzzled expression.

"This is my handwriting all right, and pertains to a subject that I have had in

mind for some time. How did you come into possession of this paper, Mr. Hasenack?"

"You wrote that in the writing room of the Hotel Farr, at Bronson, and left it on the desk," answered Jimmy. "I discovered it after you left and took the liberty to read it, and later apprise my friends here of your intentions."

A sudden light of understanding burst upon Mr. Warner and he rose to his feet chuckling.

"Gentlemen," he announced, "this is one of the most remarkable coincidences I have ever encountered. I want to assure you right on the start that this deception was entirely unpremeditated on my part—I hardly know how to explain—but, gentlemen, I am not a millionaire, nor even the thousandth part of a millionaire."

"What was your idea of writing that telegram then?" demanded the indignant Mr. Lewis.

"Please allow me to explain," pleaded Mr. Warner. "You see, gentlemen, I am a journalist; a magazine short story writer. I have been knocking around this section in search of local color and fresh plots, and it was while sitting in the hotel that night that an idea for a story popped into my head—the idea of a man who came to a town like Comstock to invest a million dollars if favorably impressed."

"I immediately looked about for something to jot the idea down on and as the telegram pad was the only stationery on the desk I requested Mr. Hasenack to pass it along to me."

"As he did so it struck me that it would be a good idea to have my millionaire send a telegram to the town announcing his intention, and I immediately wrote out this telegram, which I signed 'E. P. Ellis,' that being the first name that popped into my head. This I tore from the pad and laid to one side while I jotted down the rest of the plot on another blank. It is evident now that when I placed this last blank in my pocket I overlooked the one with the telegram written thereon, leaving it on the desk, where Mr. Hasenack found it, immediately jumped at the wrong conclusion and started this rumpus."

"The one thing about my plot that puzzled me more than anything else was just how would a man be treated who came to a town to invest a million dollars. I had never been a millionaire and was entirely ignorant of the sensation."

"However, you have cleared that part up for me in a most satisfactory manner. I did not have the slightest suspicion of why you were treating me like a king and, under ordinary circumstances, I would not have accepted your hospitality so readily, but I was dumfounded at the way things were working out and determined to keep still and see it through and find out if possible what it was all about."

"I have much to thank you for, my friends, for I can now write my story much more accurately than if I had had to rely wholly on my imagination."

Ten minutes later the members of the B. M. A. and the editorial staff of the Gazette were filing sadly out of the banquet room. Not one had a word to say except Mr. Lewis, who turned to the writer just before they parted for the last time.

"When you get that story published I wish you would send me a copy of the magazine. I want to put it in a gold frame and hang it on my office wall with this legend: 'There's a sucker born every minute and it doesn't take a grafter to land 'em, either.'"

SMILE PROVOKERS.

Mr. Spriggs (gently)—"My dear, a Boston man was shot at by a burglar, and his life was saved by a button which the bullet struck."

Mrs. Spriggs—"Well, what of it?"

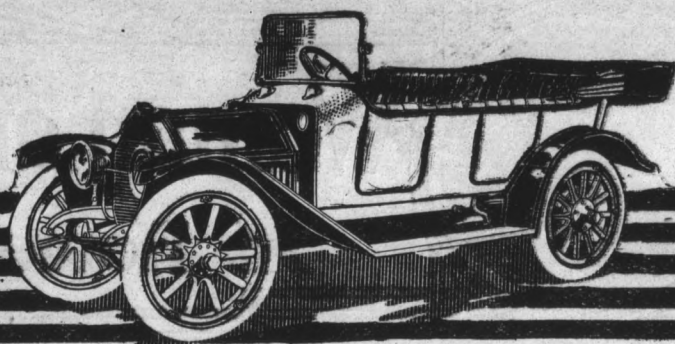
Mr. Spriggs—"Nothing, only the button must have been on."

"How many of these sheep got out of here?" asked the angry farmer.

"I don't know," replied the new hired man, rubbing his eyes. "After I had watched five or six of 'em jump over the fence, I seemed to lose the count, for that always puts me to sleep."

"Is your Mississippi River very much larger than our Thames?" asked an English lady of a western visitor.

"Larger?" answered the westerner; "why, Ma'am, there ain't enough water in the whole of the Thames to make a gargle for the mouth of the Mississippi."



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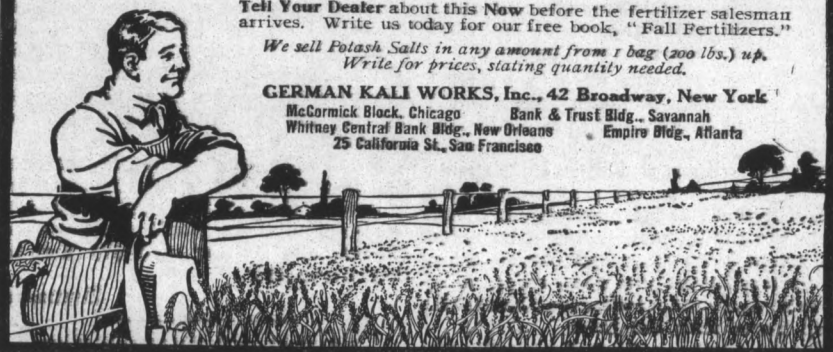
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Woman and Her Needs

At Home and Elsewhere



Co-Operation When it is Most Needed.

CO-OPERATION is a great word now-a-days. Big business likes to use it in place of that other and more sinister word, monopoly. Financiers insist that they are not striving for absolute control of their own line of goods; they simply co-operate because co-operation works out for the best interests of all parties concerned, and is the best thing for the dear public.

Farmers are urged to form co-operative selling associations to secure better prices, and buyers in the city are urged to form co-operative buying leagues for the same purpose. Churches co-operate to an extent not dreamed of 20 years ago; charitable organizations co-operate, laborers co-operate under the name of labor unions and housewives have begun to co-operate in their housewives' league.

Everyone co-operates but the family. Here, where it is needed most, co-operation is the unknown quantity and mother or the maid-of-all-work struggles with a burden which might be simplified by a little simple co-operation.

In the majority of homes in America there is but one pair of hands to do all the work. The husband must hurry off to his work in field or shop, the children are off to school or to play, according to age, and mother is left alone to bring order out of the chaos in which the majority of homes are plunged in the early morning hours. As I write these words, at 9:00 a. m., thousands of women are wearily trudging about setting the house to rights, putting away a book or a paper here, bending there to pick up a garment or a pair of shoes which have been left just where the owner took them off. Or she is, perchance, clearing away the breakfast table and wondering what to prepare for the noonday luncheon.

Suppose co-operation were to be tried in the household. Mother's labors would be almost cut in half. If each adult were to put away his paper or his book when he finished with it and each child should put away his own toys, it would take each individual about one minute. With six in the family mother would be saved five minutes by that one simple trick, and no one knows how many steps, while the individuals who waited on themselves would never miss the time.

Suppose at the end of the meal each one arose, stacked his own dishes and carried them to the kitchen. The work would be play to the family, but it would save mother five journeys back and forth from kitchen to dining-room. The oldest child might be delegated to carry all food to the cellar for one week, the next to bring everything up for the meal. If it was distinctly understood that this was to be the child's work there would be no friction and the mother immensely relieved.

Each person could pick up his own bedroom, if mother insisted. It takes only two seconds longer to hang up a nightgown in a closet than it does to step out of it and leave it on the floor, or at best pick it up and throw it on the bed. And the clothes for the day's wear might be put in place as easily as they are now thrown about if the family decided to co-operate. And how much better for five persons to bend once, than for one person to bend over five times in five minutes taking care of someone else's belongings. How much saner for five persons to lose two minutes each a day, waiting on themselves, than for one person to lose ten waiting on others.

Co-operation is not tried in the majority of households because the mother does not insist upon it. "It is too much bother to teach children," they say. "I would rather do it myself than have them around in the way." Many women will not let anyone else clear away the table because no one can do it to suit them. There is a certain sacred way of picking up the silver, a certain spot in which the plates must set in the kitchen and an-

other for the cups and saucers which no one knows but the housekeeper. And if, by any chance, a dish should get out of its accustomed place the housekeeper wouldn't get over it for a week. It always seems queer to me that so many women can't see how silly it is to prefer precision to a rested back.

Isn't it better to have Johnny carry out the dishes and pile them all in a heap, helter-skelter, and think he is helping mother, than to do everything yourself and let him grow up with the idea that he has no part in the work of the household. Besides, you might sit out by the table in a nice, comfortable rocker and tell him just what to do a few times, until he had learned the beauty of neatness.

We have a rule in our household that the boy who hasn't time to hang up his clothes before he goes out to play, must come in and take care of them and then sit for 20 minutes. It doesn't take a very bright child to see that it is better to take three minutes in the beginning than to lose 23 minutes later. The rule hasn't always been enforced. It grew out of hearing a friend tell how her 30-year-old brother litters the house and leaves everything for the sisters to pick up.

"Wherever he eats an apple he leaves the core, on the table or a chair, if there is one, on the floor if there is no better place. We pick up banana skins from one end of the house to the other. Matches and cigar ashes go onto the floor whenever he happens to want to smoke, he would never bother to look for a tray," says this sister. "He isn't intentionally mean and untidy. He was the baby and mother and the whole family waited on him hand and foot. You would think that now he might see how selfish his carelessness is, but he doesn't. And so some woman must keep on picking up after him to the end of the chapter."

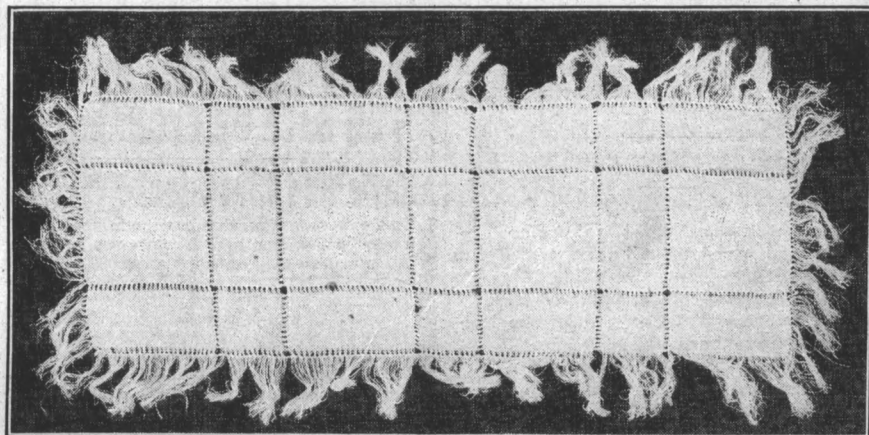
It was after hearing this that co-operation began to be the rule in our family. If it were the rule in every household the tired-out mothers would find a chance for rest and reading each day that now they never get.

DEBORAH.

DAINTY PIN CUSHION TOP.

BY MAE Y. MAHAFFY.

A MAJORITY of needleworkers are familiar with shadow work, but combining it with ordinary hemstitching is out of the ordinary, and, as in the case of the pincushion shown re-



sults very satisfactorily. The cover measures 11x4 inches, with an additional inch allowed all around the fringe. A row of hemstitching is placed around the cover, so that the threads may be drawn up to this point for the fringe, thus giving the essential finish.

One inch in from the fringe at either side, other rows of hemstitching are placed lengthwise of the cover. Through the center, and midway toward either end two rows of hemstitching, an inch apart,

cross these long ones, dividing the cover into squares and oblongs. In the six small squares thus formed double crosses are worked in outline stitch, while in the four larger squares eight petalled daisy-like figures are wrought in the shadow stitch, with small solidly embroidered disks in the centers. The shadow work is made by herringboneing lengthwise of each petal on the wrong side, the stitches taken through to the right side being kept on the stamped outline. If one prefers an underlay of linen may be applied in lieu of this shadow work, the edges being buttonholed or overcast.

Made of sheer materials this cover is charming over a colored background, such as yellow, blue or pink, there being just enough open work to bring out the design effectively.

BEAUTY AND UTILITY.

BY CHARLOTTE BIRD.

Across our big back yard an automobile drive is being built to the stable. Now in itself an automobile driveway is not a thing of beauty and spiritual uplift. But I mean to see whether it cannot be so treated that it will not look ugly and sordid.

This back yard last year was plowed and roughly cultivated as a big general garden. But now with this driveway cutting it in two and making the rather difficult plowing still more difficult, it seems likely enough to lie fallow and run to a rank growth of weeds. But that is where I come in. In this back yard I intend to see that something else than weeds has a chance to grow.

In the planting of this back yard I expect to make this driveway the starting point. As soon as it is finished, with stakes and strings I shall fence off a wide strip on each side to warn trespassers that something has been planted there. Then, close up to the driveway on each side I shall sow a row of carrots. The carrot leaf is graceful and it grows in such a way as to make it an ideal border plant. And why should not a border plant have some practical utility as well as its beauty? Parsley is another lovely border plant which serves this double purpose.

About 18 inches outside the carrot rows I shall plant on each side a single row of corn and nasturtiums, about three grains of corn and two of nasturtiums to a hill. The corn must remain in single rows, otherwise the shade of two or more rows would hinder the thriving of the nasturtiums. They tell us that nasturtiums will grow and produce an abundance of beautiful flowers in the poorest soil, which, by the way, is not true. A

Now these crops will enable me to satisfy my love of beauty and in the proper season will replenish the menu of my dinner table. The carrots will look pretty out of doors, they will supply me with an abundance of material for garnishing the dishes on the table and they will enrich the soup or furnish a vegetable dish.

The foliage of a growing stalk of corn is very handsome; our familiarity with it alone hinders us from always recognizing the fact. And when blooming nasturtiums are running all over it, it is indeed a charming sight. And the brilliant flowers in no way injure the quality of the roasting ears which will grow just the same. But ground enough must be allowed for them to grow to perfection. Then the nasturtium also has its practical uses. The leaves make very good fillings for sandwiches. The seeds make a delicious flavoring for cucumber pickles. And they are used also in some soups by the epicures who cannot get the more acceptable capers.

The rest of the garden will be planted in the regular way with the usual things. But the treatment of the prominent driveway will give the whole distinction.

SOME PORTIERES THAT MAY BE MADE AT HOME.

BY IRMA B. MATTHEWS.

Everyone who comes from the east to California seems to admire the portieres that are made from the buds of the eucalyptus tree and the live oak acorns. The former could not be obtained in the east so there is no use in describing them but it is of the latter that I wish to speak. Of course, you have no live oak acorns in the east either, but there are other kinds and there is no reason why they would not make as attractive portieres as the others.

Gather the acorns when they fall and boil them well. The boiling is to kill the insects that may be inside the acorn and spoil the finished work if this is not done.

To string the acorns I use a good-sized darning needle and a stout carpet thread. You will also want some colored beads, these are sold here by the pound and cost from 75 cents to \$1.00 a pound.

Now you are ready for work. String an acorn then a bead and an acorn until you have four acorns on the string, then string three beads between the fourth and fifth acorn. Twelve acorns makes a good length for the grill and the three beads should be after every fourth acorn, excepting at the end of the string. Cut the thread, leaving enough to tie well, and begin at the top again. String two acorns then the three beads, then two more and pass thread through the center bead of the first three beads on the first row, then two more acorns and three beads and two more and thread through middle bead again. Do this until you reach the bottom where the threads should be tied together and left to tie the long strings to. At the top the two threads are tied to a curtain ring to slip over the pole.

The next row string two acorns and catch into middle bead, then two with three beads between and two more and catch into middle bead, and so on to the end. Continue this until you have from 24 to 28 rings on according to the size of the doorway where you wish to hang them. You will find the top part to be composed of squares, two acorns each way.

Then strings may be strung, an acorn and a bead alternating, and tied on. These may be simply graduated, or may be, as many are, five strings on a side the same length, then five quite a bit shorter with just short string of two or three acorns each in the center.

Any color bead may be used but those that I have seen that were the most beautiful, were made with amber beads, the long cut variety for all excepting the center bead that the string goes through in the squares, and this was a round one. Of course, any color or combina-

tion of colors that anyone fancies is all right.

These are certainly well worth the time and trouble for they are very pretty and sell in the curio stores here for from \$25 to \$35 a set.

THE KITCHEN SPATULA.

BY CHARLOTTE BIRD.

In later times one article of kitchen work has been developed which, at least under its present name, was unknown to our mothers, and that is the kitchen spatula. Yet, in the finely tempered, old-fashioned steel table knife an excellent substitute was known. But silver-plated table cutlery having come in, the steel cutlery went its way. After all the old knives were worn out, their substitute as a working utensil was bound to come into use. This the teachers of domestic science have hailed and introduced to the rest of the world under the name of a spatula.

The spatula is a thin, rather broad, very flexible steel blade like that of a knife, but without any cutting edge. It has had various sorts of handles, but one with an open handle every speck of whose surface can be reached with soap and water, will prove the more sanitary. This kind of handle will also permit of the spatula's being hung on a nail with the cooking spoons.

The spatula is used to scrape out the last mite of dough from the bread pan or the batter from the cake bowl, that it may be saved with the other good material. For cooking vessels it performs the same useful service. It is used also to scrape the sugar, butter, or egg from a cup after the respective measurements have been made for a cake. For several purposes this last is desirable. First, it saves valuable food material which, in the course of time would amount to a great deal. Then it saves the proper proportions of the cake ingredients which has an appreciable effect on the outcome of the cake; last, it keeps the dish water clean, which is indispensable to clean, shiny dishes. In another way the spatula saves the dish water, because it is the finest thing in the world with which to scrape the table plates after a meal. It searches out every corner of a plate or pan.

The spatula contributes in other ways to sanitary cooking: one can use it most acceptably in mixing pie crust or biscuit dough. With it one chops the shortening through the salted flour, which should have also a little baking powder mixed in, until the materials are well blended. Then very cold water is poured in gradually and with the spatula brought into contact with all the flour mixture. However careful one may be to wash the hands thoroughly beforehand, this method is certainly cleaner than to mix the shortening and flour directly with the hands.

An ingenious housekeeper will very likely develop other uses for the spatula. But even with the uses above, the kitchen spatula has an important place in every well-ordered, up-to-date kitchen. And its present reasonable price brings it within the reach of all.

THE DAIRY LUNCH.

BY BESSIE L. PUTNAM.

The dairy lunch has come to be a regular feature in the best city restaurants, and is growing in favor every season. The country girl who lives on a public road frequented by automobiles may gain a generous patronage from residents of near-by towns who prefer this form of refreshment to the conventional picnic lunch, besides making glad the long distance tourists who come her way.

A neat blackboard will serve as bulletin board, if the publicity of the local paper is not desired. Small tables under a great tree or on the shaded porch will be preferred to regular dining-room service, and a bouquet of wild flowers as a centerpiece should not be omitted. Bread and butter sandwiches, sweet milk, buttermilk, and berries served with cream will always be relished if daintily served. With telephone connection, cake and ice cream may be added to the menu by special arrangement.

Remember that certainty as to the high quality of your products should be your greatest asset. "Bad luck" with a single baking of bread may mean bad luck to your business for the rest of the season. "The same yesterday, today, and forever," is the motto which gets and holds patronage. As your reputation becomes established, parties will make it a point of happening along at lunch time; and even though some of them may not come

twice in a season, their assurance of good values will induce their friends to hunt you out.

HOME QUERIES.

Household Editor:—Please publish in the Michigan Farmer, the following question, with the answer, and oblige: What is a good way to can asparagus?—J. H.

Pack fruit jars as full as possible with tender young asparagus broken in inch pieces. Fill to overflowing with cold water, put on the rubbers and lay the tops on the jar. Then set in your wash boiler on a bed of hay or straw and pour cold water into the boiler until it comes half way up around the cans. Cover the boiler closely and boil steadily for one and a half hours. Then see that each jar is filled to overflowing, using one jar to fill the rest; tighten the covers as much as possible and set to cool where no draft will strike the cans. When cold, tighten the tops again and keep in a cool dark place.

Mrs. D. L. McM.—We can not give the names of manufacturers in this column. If you will send a self-addressed and stamped envelope, repeating your query, we will endeavor to give you the desired information.

Household Editor:—How do you preserve pineapple?—X. Y. Z.

Cut the pineapple in slices, remove the covering and the cores and arrange in layers in a preserving kettle, using pound for pound of sugar. Of course, sprinkle each layer of fruit thickly with sugar. Let stand over night and in the morning simmer gently until the fruit is tender. Arrange the fruit carefully in the hot, sterilized jars, boil the syrup five minutes longer, fill the jars to overflowing and seal.

Household Editor:—Can you use cocoa in place of chocolate in frosting?—M. M. Yes, but the frosting will not be quite so rich. Use a quarter cup of cocoa instead of two squares of chocolate.

LETTER BOX.

This One Believes in In-born Sin.

Household Editor:—In the Michigan Farmer of March 22 a mother asks the question, "Do you think a child is ever downright ugly and cross without some reason? I mean, is it just its nature to be cross?" In your reply you say: "I do not think a perfectly well, normal child is cross," etc., and give a lot of remedies to try, which I suppose are all tried before this time, with no success.

Now, I say some children are naturally born mean, and mean to the extreme. And it is just as natural for them to be mean as it is for them to breathe or eat. The best way I know to improve the natural disposition of such a child is to teach it in infancy that it is a subject and not a tyrant.

In order to do this and always to keep control of the child, it is necessary to apply mild, but rigid rules and never fail to enforce them. Never tell a child to do or not do anything and not require prompt obedience, with once telling.

Of course, we have to endure the meanness of the young infant until it is old enough to know who is "boss," and it will learn that at a very young age. Then it is time to apply the "positive."

If a child persists in crying spells, without cause, as many of them do, it may be turned face downward across the attendant's lap and held there quietly until the crying stops. Then immediately let it up. When the next "spell" comes on repeat the operation and it will not take long until the remedy will be instantaneous. In each case tell the offender to stop crying, and in a short time the words will be sufficient without the "turn down."

As children become older they may be taught obedience by always requiring obedience on all occasions. When it becomes necessary to apply a punishment to compel obedience it can often be done by letting the child wait at meal time till the rest of the family have dined. Or some other equally harmless punishment may be applied. In case a child has been allowed to go a long time ungoverned it may be necessary in some cases to apply a painful punishment that it would not risk having repeated. Much more could be written on this subject, but this is sufficient for the present.—S. K. M.

In Answer to Maria B. Topping. What in the world do you take us farmers' wives for? You talk to us as if we were the scurf of the earth. "Comb our hair and wash our faces," as if the farmer's wife was the only one on earth that ever washed her face or ever needed it. I will wager Miss, or Mrs., Topping,

whichever you are, that you never lived on a farm or know anything about farm work. I have been a farmer's wife for 20 years and as far as combing my hair and washing my face is concerned, it gets it 365 days in the year and in the morning, too.

As for better looking farmers' wives, I think, as a rule, when they get their togs on they can come up to the town people any day, if not to the city ones, who depend on nothing but their day's wages and spend every cent they make as they go.

I don't know what you mean by trimmer ones, but I suppose you mean the little ones. Now there is where I say the farmer makes his mistake. I have watched the process for 20 years and I notice that the farmers with this kind of wife either move to town in a few years or have to hire half of their work done out of the house. Now when you compare farmers' wives with blooded stock or thoroughbred chickens, I say why doesn't a farmer choose a farm wife the way he chooses his farm horses? Get one suitable for the work? What would you think of a man if he hitched his little light driving team to the plow and expected them to be put through thick and thin?

You say we farmers' wives "grub." Now I have always lived on a farm and have lived in three different states and have lived among all kinds of farmers, but I fail to find any who seemed to think farm life was "grub," or very few who would change the farm life for city or town. Don't talk "grub" to the farmer's wife of today. She is far above such talk and it is the city sister who has to squeeze and pinch the pennies, not the farmer's wife.—E. M.

FASHIONS BY MAY MANTON.

Our large Fashion Book—containing 92 pages illustrating over 700 of the season's latest styles, and devoting several pages to embroidery designs, will be sent to any address on receipt of 10 cents.



No. 7679—Semi-Princesse dress for misses and small women, 16 and 18 years of age. With three-piece skirt with or without circular flounce, with long or three-quarter sleeves, with or without chemisette.

No. 7765—Tucked kimono, 34 to 42 bust, with or without collar and belt in empire effect, with long, three-quarter or short sleeves, in round or in walking length.

No. 7691—Blouse with Robespierre collar, 34 to 42 bust. With shaped or straight front edge, with long or three-quarter sleeves, with or without chemisette.

No. 7477—Four-piece envelope skirt, 22 to 30 waist. With or without plaited portions, with high or natural waist line.

No. 7400—Boy's suit, 2 to 6 years; 657 embroidery design.

No. 7560—Boy's French suit; 6 to 10 years. With or without sailor collar, with sleeves tucked or joined to bands.

The above patterns will be mailed to any address by the Fashion Department of the Michigan Farmer on receipt of 10 cents for each.

"A Manual of Practical Farming," by John McLennon, Ph. M., Superintendent of Farms at the New York State School of Agriculture, Alfred, N. Y., is a 300-page book covering the entire range of farming, including fertilizer, crop rotations, crops, live stock and stock farming, so arranged and indexed as to be a ready reference book upon a wide range of agricultural topics. Published by the Macmillan Company, New York, price, 50c net.



Mrs. Dairyfarm—"I declare, I never saw anything like the easy way I can wash all these greasy milk pans. I used to have to scald and scrub them. But Fels-Naptha Soap just makes the dirt disappear and it's no work at all!"

Anty Drudge—"I told you so! And no carrying heavy pails of hot water either! I guess you're glad you took my advice."

With cool spring water, Fels-Naptha Soap, and no tire-some scrubbing, milk pans will shine like new.

Fels-Naptha Soap is just as good for all housework. The weekly wash will be on the line in half the time it used to take, and you won't be all tired out with hard rubbing up and down on a washboard. The clothes don't have to be boiled, either, because Fels-Naptha Soap works best in cool or lukewarm water.

Just follow the directions on the Red and Green Wrapper.

Fels & Co., Philadelphia.



DAISY FLY KILLER



placed anywhere, attracts and kills all flies. Neat, clean, ornamental, convenient, cheap. Lasts all season. Made of metal, can't spoil or tip over; will not soil or injure anything. Guaranteed effective. Sold by Dealers or sent prepaid for \$1.

HAROLD SOMERS, 190 DeKalb Ave., Brooklyn, N. Y.

A Letter to Wm. Lambert,

Custom Woolen Mills, Reed City, Mich., will bring samples and list of charges for having your wool made into the famous blankets and other wools for which the mills have a national reputation.

Farm Commerce.

Marketing Problems in Western N. Y.

Note.—We believe a farm journal does its readers and the public the greatest good when it brings uncolored facts and theories the result of broad observation and carefully studied experience, to them, and that is the very aim sought by the publishers of the Michigan Farmer. Even though it may not be the most popular thing to do for the moment we are confident that such a course will win out in the long run. We asked Mr. Kelly to make a study of the New York storage situation and report his conclusions to us. This he did in the following article. The report is not written because of its literary merit but to bring a note of warning to those who would enter blindly into comprehensive schemes of marketing, and in this connection Mr. Kelly's letter of transmittal will be of such interest to our readers that we are compelled to publish it in connection with his report. —Eds.

Mr. Kelly's Letter.

My Dear Mr. Wermuth:

When I started out to look up the material you asked me for I thought that I could find just what you wanted, but unfortunately the two places I had in mind are in financial troubles just now and there is nothing very pleasing to say, however, I have written up what you will find a fair statement of the situation. It is rather disappointing to find things in such a condition, so soon after the representative of the Country Gentleman had pictured them so flatteringly. There are several storage houses that are owned by farmers, but they are not in any sense co-operative plants, simply stock companies and store fruit for anyone at the same price, which varies from 35 to 40 cents per barrel for apples and other produce proportionately. In fact, most of the growers seem to think there is ample storage facilities and that the charges are moderate.

I am sorry not to have been able to find just what you want, but know that you will appreciate this more than any overdrawn statements about imaginary plants. I am beginning to believe that some of the farm papers prefer fiction to truth, for I have visited several farms and associations and found that they had been greatly exaggerated by writers who evidently knew little about the things they were sent to investigate or wanted to make good with a rush and please their firms. If I am correctly informed, Maine is one of the few places where fruit is stored and handled co-operatively. Trusting that this may prove of interest to you, I am,

Very truly yours,
W. MILTON KELLY.

It seems unfortunate that at a time when the air is filled with talk of co-operation we should have our enthusiasm chilled by reports of dishonesty and double-dealing on the part of managers of these co-operative undertakings, but in view of recent experiences in this section of the country, a little discussion of this phase of the problem may prove of interest to many farmers who are contemplating co-operative movements.

At the request of the editors of the Michigan Farmer the writer spent some time studying the workings of these organizations in western New York. One of these co-operative buying and selling exchanges has received a great deal of editorial attention from the agricultural press, together with flattering accounts written by correspondents who have visited the manager and written up attractive articles to encourage the game of co-operation among farmers and fruit growers. Some of these articles have made highly interesting reading matter and have undoubtedly encouraged many farmers to get together and organize similar exchanges. However, this exchange seems to be another example of the too common failure of the co-operative industry. It furnishes a good example of the necessity of great care in the selection of competent and honest managers for such undertakings.

Beware of Tying up to Outside Interests.

In the first place, farmers should go slow about taking up with movements initiated by outside schemers who have an axe to grind. The very fact that such papers as the Michigan Farmer are seeking to encourage co-operation among farmers is sure to cause outside interests to insinuate themselves into movements initiated by farmers themselves for their mutual benefit. In every case where some slick organizer starts out to organize a co-operative scheme among the farmers of some particular locality we can make up our minds that he has some interest in the business that is opposed to the welfare of the members of the organization. Such men have qualities that fit them for leadership, but as soon

as they find their way into the management of farmers' organizations they lead the movement to ruin. These facts demand farmers' attention, because at this particular time many crooks are finding it unusually easy to ply their trade among those who are on the eve of adopting extensive systems of farm co-operative organizations. We must learn to recognize these schemers when they appear, and to make examples of them when they are discovered. We should welcome honest effort on the part of farmers whose end is not to gain control and lure the members from their purpose or cheat them of the possible benefits now within their reach through properly managed co-operative organizations.

Examples of Inefficiency.

To show how this exchange of which I write worked, I am going to show an account sales rendered to a Monroe county grower of choice Elberta peaches. This grower shipped 1,420 baskets of No. 1 Elberta peaches and received \$276.19 net. At the time these peaches were shipped, dealers were paying 35 to 40 cents per basket at the car door. Another item, given more in detail, is as follows:

148 crates apples sold at \$1	\$148.00
Charges at New York.....	\$37.14
Packing charges at 20c.....	29.60
Cartons and crates at 30c.....	44.40
Three per cent loading.....	3.33
Five per cent commission.....	5.54

\$120.01

Net proceeds \$27.99

The crates mentioned above contained two bushels each packed in cartons. The 296 bushels of apples in this shipment had been sorted out of 160 barrels as delivered by the grower. The selected fruit, therefore, brought the grower less than ten cents per bushel. These are facts, not colored to make interesting reading matter to influence our readers to plunge blindly into co-operative schemes before giving the matter careful study and attention.

Cold Storages at Shipping Points.

At various shipping stations throughout the western New York fruit belt large cold storage plants afford ample facilities for handling the fruit crops. These plants are owned largely by individuals and stock companies, a large part of the stock being in the hands of growers and farmers. A careful canvass of the territory showed that there are no really co-operative cold storage plants, the consensus of opinion held by prominent fruit growers and truck farmers is that the present facilities are adequate, and that the reasonable charges of the owners are as cheap as could be provided by co-operative organizations. (These plants would be willing to furnish ample storage room to co-operative organizations at as reasonable charges as they could build and maintain their own plants). A few of the larger growers have combined and erected fruit storage houses for sorting, packing and grading their own fruit and truck crops, but such storage houses without artificial refrigeration have not proved as satisfactory as is the case in Maine and Vermont where the climate is not so changeable.

At Lockport, N. Y., the writer interviewed Mr. C. W. Hoag, who has a large storage plant and several fruit farms. Mr. Hoag said: "I am a believer in co-operation and better methods of picking, packing and marketing our produce, but under the present economic conditions this question can not be worked out successfully by large co-operative organizations. Why, this year we could not get sufficient help to gather our big crops of fruit, to say nothing of picking, packing and grading it as it should be to command fancy prices. Some of those fellows who are suggesting ways for us to secure better prices for our fruit do not realize the tremendous amount of fruit we are growing. We have several small fruit stations that load as many cars of fruit as some of the western states we hear so much about through the magazines and farm papers. I know it seems queer to some of you gentlemen who live outside of the fruit belt to hear our side of the case, but it is a fact that 25 per cent of our peach and apple crops were left on the ground the past season. We just couldn't get the help at any price.

Again, so many of the large orchards are worked by hired help and tenants that it is practically impossible to start any successful movement toward better systems of picking, grading and marketing the crops; the main object of every grower being to sell his fruit on the trees in the fall, so that the problem of marketing, insofar as the grower himself is concerned, is one of getting the most money out of the buyers and shifting the responsibility of picking, grading and marketing upon his shoulders. I have patrons who put their fruit in my storage plant in the fall and have my men do the grading and packing during the winter. Of course, this means a big loss and expense and they pay quite a sum for storing apples that are unfit for market; however, they prefer to hire my men rather than bother with the work themselves. Now, Mr. Kelly, you have asked my views of the situation as regards packing and marketing the apple crop in this locality. In the first place, the generality of agricultural correspondents and editors seem to harbor a belief that New York and Michigan apple growers and shippers are not as good business men as those of Oregon and Washington. Now, in my business I am associated with several gentlemen who have large interests in Oregon and Washington orchards, and also in this state and in Michigan. These men know the game from A. to Z; they are not advising New York and Michigan fruit growers to practice the methods in vogue in Oregon and Washington. In the first place the older and larger trees in the orchards of New York and Michigan prohibit the thinning of the fruit, and also prevent it coloring as deep as is the case in the younger orchards of Oregon and Washington. Then we have right at our very doors an immense trade that demands cheaper apples for cooking and canning purposes, and if we sort out every really choice apple it reduces the value of the barrel so much that the balance must be sold at a great sacrifice. Of late years the box as a package for apples has come into prominence, and one hears of very high prices being obtained for apples so marketed. It is only natural, then, that many growers have looked with favor upon it and have adopted it without knowing of its disadvantages as well as its advantages. The average orchard owner is constantly perplexed by this problem of which is the better package to use, and, therefore, before giving my opinion of this subject of marketing apples it will be well to explain my views of the matter from various commercial and economic standpoints.

Boxes vs. Barrels for Packing.

"For many growers it would be a sheer waste of money to use the box package, and for others to pack their choice, highly colored fruit from their young trees in barrels would be to neglect the golden opportunities presented by the use of the box. In general, the main distinctions between the box and barrel are that the barrel is the cheaper package and is meant for apples that go to the general trade, while the box costs more and is the package for the fancy trade. The use of the box for inferior and unattractively colored apples is not economical, just the same as the use of the barrel for the finest quality of dessert fruit. In brief, there is no best package. Circumstances and conditions must necessarily govern the selection of the package.

"I have had a great many years' experience handling New York apples, besides I now have more than 15,000 boxes of Washington apples in my storehouse. I have tried packing in boxes, but it takes so much value off from my barrel stock that I find it unprofitable. Some of our orchardists who have young trees and practice intelligent methods of cultivation and spraying are growing and packing just as attractive fruit as the western growers and find no difficulty in securing as good prices, but this is an individual problem and any man who will take the pains to put up his fruit in fine condition need not seek a co-operative organization to find good customers for all he can produce and market. What we need is some fixed standard of packing and grading that will keep the rotten, cull stuff off from the market. So long as growers can not see that their best interests lie in the endeavor to produce a better grade of fruit no co-operative organization on earth can help them out of their present troubles."

Transportation will Limit Western Fruit Growing.

At the hotel at Rochester, N. Y., the writer interviewed a traveling freight agent of a large western system. This

agent gave out a very interesting interview before he knew that the writer was drawing him out for publication. He said: "The development of the fruit growing industry in Oregon and Washington was sure to depend largely upon the ability of the railroads to cope with the situation, and that it was his judgment that within the next few years the roads would not be able to supply cars and equipment to move one-half of the fruit produced in that part of the country at the proper season. The railroads simply cannot afford to go to the necessary expense for new equipment to move the fruit crops from that section at the proper season and have the equipment stand idle during the balance of the year. This may not sound reasonable to many people who are unacquainted with the transportation facilities of that country, but it is, nevertheless, a factor that we shall be compelled to reckon with within the next five or ten years. This additional business coming at a time of the year when other business is taxing our equipment is sure to result disastrously to the fruit growing interests of that section. You can easily imagine what the result will be when some of those gigantic enterprises come into production within the next few years. I have had an opportunity to study these transportation facilities in the northwest country and look upon this problem as one of the greatest agricultural and transportation problems of the day. I know of several eastern capitalists who have become shaky and are cutting up their large orchards into smaller farms and selling out. This is not because they lack confidence in the fruit growing industry in the northwest, but because they realize the great break that is sure to come as soon as the railroads are unable to cope with the situation."

New York. W. MILTON KELLY.

THE 1913 APPLE CROP.

There seems to be the very best of reasons for the careful handling of the apple trees that the remaining fruit be properly developed into a salable product. The fact that a big crop was grown a year ago augurs for a smaller crop this season—the buds not having a good chance to grow in many apple sections because of the strain of the heavy crop on the vitality of the trees. This, from the reports coming in, appears to be the situation in the northwestern states where there is early evidence of a short crop—many sections believing that it will be less than 50 per cent of last season's yield. In the central and eastern states the early varieties were damaged by frost over a large area and in some sections the cold nights did damage to the later kinds. In other places, there is complaint that the trees are wanting moisture, a condition that will handicap the growing of a big crop. Then some help should come to the trade from the cutting short of the early shipments of small fruits from the south and the shortage of citrus fruits from Florida and California where untimely frosts reduced the quantity of salable goods. In all, conditions would lead one to believe that apples ought to be a good price this fall and that those who have any chance for fruit should do what they can to make the apples good.

COMMISSION ADVISES PUBLIC MARKET FOR MT. CLEMENS.

The commission selected by the council of Mt. Clemens to investigate the proposition of establishing a city market where farmers can come and offer their produce for sale direct to the consumers, reports as follows:

Would the public buy goods any cheaper on a market?

We could not answer this question in all cases. It must be understood that conditions, scarcity, time of year, supply and demand, all these things must affect prices to the consumer, but we think the chances are in favor of cheaper prices. Besides the opportunity of buying your provisions from a large number of farmers, you would have a large selection to pick from. Competition among the farmers would be strong, and naturally fair prices would prevail.

We have interviewed a great many farmers on the question of a market place in this city, and they all say about the same thing. "Give us a place in your city, a market place, where we are welcome, where we can show and offer for sale the stuff we grow. At present we are obliged to stand on the street where but few people see us, or we must ped-

ble our stuff from house to house. Farmers must have a market for the sale of their products and they will naturally go to the place that offers them the best inducements. We believe a well maintained market place in this city would in time get all the farmers in this vicinity to come to our city to sell their products, and in return they would buy from our merchants the goods they need.

We have spent considerable time getting the opinions of the different merchants in regard to a market place, and we believe 80 per cent are in favor of establishing a market place. Some of the grocery keepers are opposed, saying it would injure their business. We think possibly this may be true, but on the other hand, we think in the long run, they would benefit with the rest of the city.

In the city of Chatham, we interviewed all classes of business men, bankers, butchers, druggists, clothiers, shoe stores, hardware, and grocery keepers, and they were almost unanimous in saying the city of Chatham could not, and would not, do without its public market.

We think a public market is the one thing needed to get the farmers in the habit of coming to our city to do their trading.

EXTENSIVE FRUIT GROWING.

A. A. Lasch, of Nebraska, aspires to be the greatest fruit grower in Leelanau county, Mich. He has just completed the setting of 7,000 fruit trees, and now has a total of 35,000 trees in his three orchards. He proposes to continue making settings until he has a total of 50,000 trees, with an orchard area of about 1,000 acres. One of his orchards is at Lee's Point, and covers a quarter section. A second orchard is in the neighborhood of Northport and covers 200 acres of land. His third orchard covers 80 acres.

Mr. Lasch is planning upon putting up a warehouse and storage building at the switch that he may ship his fruit in car load lots as the market warrants. Last year he sold at five different points and was successful in getting good prices. He is working up his own selling organization so that he will be independent of the usual commission men and large buyers. His specialties are apples, cherries, and peaches. He favors the Duchess and Montmorency cherries, and the Elberta peach. This spring he set 600 Hyslop crab apple trees with the expectation that they will bring him a bigger return per acre than any of his other fruits.

CROP AND MARKET NOTES.

Delta Co., May 25.—It has been very cold and wet here this spring. Seeding not all done yet and lots of fields so wet the teams can not get on them for a week. Fruit trees not yet in blossom. Potatoes selling for 30¢@40¢; eggs, 18¢@20¢; butter, 30¢; hay, \$15 a ton.

Sanilac Co., May 29.—Rather dry weather for growing, especially oats and barley on very high land. They are badly in need of rain. Pasture is fair, but hay is very short for this time of the year. A large acreage of beans will be planted this year and cool dry weather gives people a good chance to get a good seed bed ready. Corn all planted; in some fields is peeping through. The last heavy frost was the night of May 25, ice formed to quite an extent. Those who claim to know say that all small fruit is practically ruined but apples have not suffered badly. The 1912 bean crop has been a disappointment so far to those who still have them, as the price is not very large and considerable waste, some altogether spoiled from moisture.

Pennsylvania.

Erie Co., June 2.—Weather has been very cool, with some heavy frosts. Nights very cold, with some rain. Recent frosts have done considerable damage to fruit. Corn nearly all planted; oats looking good; wheat looks fine. Old and new meadows are very good. Season about two weeks earlier than in 1912. About all of the early potatoes planted; potatoes selling at 35¢@40¢. Spring pigs from \$6@8 per pair. Butter, 32¢; eggs, 18¢; veal calves, 8¢, alive. Horses and cows sell at sight. Good prospects for farmers in general.

Ohio.

Wayne Co., May 25.—The weather has been cool and wet with a frost and freeze on the 11th, freezing nearly all the fruit in this section of the county. Wheat is looking fair. Oats growing fine. Grass meadows making a fair growth. Corn planting pretty well done. Some coming up and some to plant yet. Butter, 28¢; eggs, 17¢.

Hardin Co., May 22.—Corn planting is well under way through our section of the county, but there is some ground to plow yet. It has been very dry and some have given up for want of rain; can not fit the ground after it is plowed. The oats do not cover the ground yet and nearly the first of June. Some wheat and rye looking fair, but is rather thin on the ground. We had a hard freeze about two weeks ago, which froze lots of fruit, but I think there is plenty left. Berries now in bloom and look fine.

ROSS SILO FILLERS



Backed up by
63 years of experience

The Ross is the only machine of this type that is equipped with steel cutting apparatus, steel blower disc, and steel truck. Other machines of this type are furnished with cast iron cutting apparatus, cast iron blower disc. The steel equipment makes the Ross indestructible, and the most reliable and durable silo filling machine on the market. Strong claims made for strength, capacity, durability and ease in feeding. Ask for large catalog The E. W. Ross Co., Box 114 Springfield, Ohio

PERCHERONS

Bred for utility as well as show quality. Stable includes several international winners. Young stock for sale. Come, or write B. F. ANDERSON, R. No. 1, Adrain, Michigan.

FOR SALE one five-year-old Belgian Stallion

Sound and right in every way. Also a 3-year-old JACK. Or will trade for other live stock and real estate. Address W. G. Himmelfright, Frankfort, Ind.

WANT TO BUY Registered Holstein heifer calves of good breeding. W. H. H. WERTZ, Wooster, Ohio.

BREEDERS' DIRECTORY.

CATTLE.

Aberdeen-Angus.

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

GUERNSEY BULL CALVES, YORKSHIRE PIGS. Good Stock.

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

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

GUERNSEYS—Bull calves, reg., tuberculin tested. Splendid breeding. Moderate price. Windermere Farm, Water-vliet, Mich. J. K. Blatchford, Auditorium Tower, Chicago, Ill.

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

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

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

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

"Top-Notch" Holsteins.

Choice bull calves from 2 to 8 mo. old, of fashionable breeding and from dams with official milk and butter records for sale at reasonable prices. McPHERSON FARMS CO., Howell, Michigan.

FOR SALE—HOLSTEIN BULL CALF

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

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

Complete Dispersion Sale of Holsteins

COMPLETE DISPERSION SALE OF HOLSTEINS

On Thursday, June 19, I will offer at Public Sale my Entire Herd of 53 purebred Holstein-Friesian Cattle.

This herd consists of 27 choice females of milking age; 13 heifers and 13 heifer calves. Four of the 2-year-old heifers are from dams with A. R. O. records up to 24,346 lbs. The cows are large animals in good condition and of desirable type and breeding. All are heavy producers although only a few have been officially tested. They are capable of making good records if given the opportunity.

Catalog ready about June 5. All animals over six months will be tuberculin tested if desired. Sale begins at 10 a. m. Write for catalog. F. W. SAVAGE, Belleville, Michigan.

I'll Feed Your Stock 60 Days Before You Pay.

I'll Stop Your Worm Losses—I'll Save Your Sheep and Hogs—Make You Money

S. R. Feil, Pres.

Arthur Holloway, Monument, N. Mex. writes—“Was losing 3 to 5 sheep a day when the ‘Sal-Vet’ arrived. Within 30 days all losses stopped.” Geo. Howe, Gambier, Ohio, writes—“Was losing lambs right along until I fed ‘Sal-Vet’. Since then I have lost only one.” W. J. Neff, Milboro, Va. writes—“‘Sal-Vet’ saved me 10 times what I paid for it.” H. S. Glover, Woodstock, Minn. writes—“Before using ‘Sal-Vet’ I lost quite a number of lambs from worms. This year I have lost none.” J. A. Biedert, Findlay, Ill., writes—“My lambs were dying at the rate of one or two every day. After I began feeding ‘Sal-Vet’ I lost but one and that was nearly dead when the remedy arrived.” Sal-Vet will do equally as well for you.

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Just fill out the coupon—tell me how many head of stock you have and I'll ship you enough ‘Sal-Vet’ to last all your stock 60 days. You simply pay the freight charge when it arrives and at the end of 60 days report results. If it doesn't do what I claim I'll cancel the charge—you won't owe me a penny. Address S. R. Feil, Pres., The S. R. Feil Co., Dept. MF, Cleveland, Ohio (120)

Sal-Vet costs only 1-12 of a cent a day for hog or sheep and a trifle more for larger animals. I make no charge if it fails to do just what I claim.

The Great Live Stock Conditioner

Name _____ P. O. _____ Shipping Sta. _____ State _____ No. of Sheep _____ Hogs _____ Cattle _____ Horses _____

Prices: 40 lbs., \$2.25; 100 lbs., \$5.50; 200 lbs., \$10.00; 300 lbs., \$13.50; 400 lbs., \$17.00; 500 lbs., \$20.50; 600 lbs., \$24.00; 700 lbs., \$27.50; 800 lbs., \$31.00; 900 lbs., \$34.50; 1000 lbs., \$38.00. No orders filled for less than 40 lbs. on this 60 day trial offer. Never sold in bulk, only in Trade-Marked Sal-Vet packages. Shipment for 60 days trial are based on 1 lb. of Sal-Vet for each sheep or hog, and 4 lbs. for each horse or head of cattle, as near as we can come without breaking regular size packages.

SIDNEY R. FEIL, Pres.

THE S. R. FEIL CO. Dept. MF 6-7-13 Cleveland, O.

Ship me enough Sal-Vet to last my stock 60 days. I will pay the freight charge when it arrives, report results within 60 days and will then pay for it if it does what you claim. If it does not, you are to cancel the charge.

Holstein Heifer 7 mos. old. Mostly white. Sire has 10 daughters 4 above 30 lbs. Dam, an A. R. O. cow with 5 A. R. O. sisters. \$125. HOBART W. FAY, Mason, Mich.

Service Bulls and Bull Calves

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

L. E. CONNELL, Fayette, Ohio.

Bigelow's Holstein Farms

Breedsville, Mich.

Have for sale several fine young bulls out of cows with high official butter and milk records.

Send for circular.

THIS HOLSTEIN BULL

was sired by best son of PONTIAC BUTTERBOY. Dam has official record of 24 lbs. as 4-yr.-old, 90 lbs. milk a day. Price \$100. C. D. WOODBURY, Lansing, Mich.

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

HOLSTEIN BULLS.

3 to 8 months old, \$75 to \$300. Don't buy until you get our pedigrees and prices. LONG BEACH FARMS, Augusta, Kalamazoo Co., Mich.

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

Lillie Farmstead Jerseys

(Tuberculin tested. Guaranteed free from Tuberculosis.) Several good bulls and bull calves out of good dairy cows for sale. No females for sale at present. Satisfaction guaranteed. COLON C. LILLIE, Coopersville, Mich.

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

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

Jersey Cows and Heifers

To reduce the herd we will sell 25 head of females at attractive prices. Black Meadow Farm, Royal Oak, Mich.

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

DAIRY BRED SHORTHORNS—Bates bred bull 7 mo. old for sale. Price \$100. J. B. HUMMEL, Mason, Michigan.

Dairy Shortorns—Large Cattle—Heavy Milkers. Dairy Shortorns—Milk Records of all cows kept. No stock for sale at present. W. W. KNAPP, R. No. 4, Watervliet, Mich.

SHEEP.

Leicesters—Yearling and ram lambs from Champion flock of Thumb of Mich. Also select Berk shire swine. Elmhurst Stock Farm, Almont, Mich.

IT PAYS TO BUY thoroughbred sheep of PARSONS, “The Sheep Man of the East,” R. 1, Grand Ledge, Mich. (Write for descriptive price list.) I pay express charges. Oxford, Shropshires, Rambouillet, Polled Delaine.

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

SHROPSHIRE & DUROCS KOPE-KON FARM, Kinderhook, Michigan.

HOGS.

Durocs & Victorias—A Desirable Bunch of Sows of Either Breed due April and May. M. T. Story, R. R. 48 Lowell, Mich. City Phone 55.

BERKSHIRES—Male and female from one to 24 mos. Registered or eligible, served and ready for service. Some fine well bred young boars ready for service. F. D. & H. F. HOVEY, Imlay City, Michigan.

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

A Yearling Sow—bred for July farrowing, also a choice lot of Spring Pigs for sale. Either sex. A. A. PATTULLO, R. No. 1 Deckerville, Mich.

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

O. I. C's—A FEW BRED SOWS FOR SEPTEMBER FARROW. GEO. P. ANDREWS, Danville, Ingham Co., Mich.

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

O.I.C.

SOW WEIGHED 932 LBS. AT 23 MONTHS OLD

IONIA GIRL

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

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

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

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

O. I. C.—March pigs ready to ship, the long growthy kind with plenty of bone, at farmers prices. A. NEWMAN, R. 1, Marlette, Mich.

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

DUROC JERSEYS—Fall gilts bred or open. Spring pigs. F. J. DRODT, R. No. 1, Monroe, Michigan.

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

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

DUROC JERSEY SPRING PIGS of either sex for sale. Pairs not akin, also 2 Reg. Percheron mares, 2 years old, both grays. M. A. BRAY, Okemos, Mich.

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

Butler's Big Bone Poland Chinas

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

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

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

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

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

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

Lillie Farmstead YORKSHIRES

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

Markets.

GRAINS AND SEEDS.

June 4, 1913.

Wheat.—During the closing days of May the wheat market showed unsteadiness and while prices worked to a lower level the uncertainty which attended the dealing was such as to make sudden changes in either direction to be expected. Both sides of the trade claimed benefits from the weather. Actual drought conditions in the southwest was the main factor for the advance on Saturday while the decline Monday and Tuesday resulted from a fall of moisture in some of the sections suffering from lack of rain. In western Kansas it is reported that there will not be a third of a crop. There are reports of damage by the Hessian fly and chinch bugs although it is believed that the injury has not reached the extent it did in former years. The spring wheat region is counted upon for a bumper crop which makes it necessary for dealers to reckon with all the mishaps that may occur during the development of the crop. Abroad conditions are about steady, except that heavy cargoes are afloat to supply foreign demand and this had a depressing effect upon Liverpool Tuesday; however, the fact that exports were double the primary receipts in this country should augur as a bullish condition. One year ago the local price for No. 2 red wheat was \$1.15½ per bu. Quotations for the past week are:

	No. 2	No. 1	Red.	White.	July.	Sept.
Thursday	1.09½	1.08½	92½	92½		
Friday						
Saturday	1.10½	1.09½	93½	93½		
Monday	1.08½	1.07½	92½	92½		
Tuesday	1.07½	1.06½	92½	92½		
Wednesday	1.06½	1.05½	91½	91½		

Chicago, (June 3).—No. 2 red wheat, \$1.04; July, 91½c; Sept., 90½c; Dec., 92½c per bu.

New York, (June 3).—July, 99½c; Sept., 97½c per bu.

Corn.—After a continuous advance running over the past few weeks this market has experienced a reaction corresponding with the change in wheat values and now rules on a slightly lower basis than prevailed a week ago. In the corn belt there have been liberal offerings of corn by farmers now that they have their spring work well up to date. On Tuesday of this week the tone was easy, buying being moderate at Detroit, but in Chicago an increase in the demand from shippers and manufacturing industries on that day gave the trade a firmer footing. One year ago the price on the Detroit market was 77c per bu. for No. 3 corn. Quotations were for the past week are:

	No. 3	No. 3
	Corn.	Yellow.
Thursday	59½	61½
Friday		
Saturday	59½	61½
Monday	59	61
Tuesday	58½	60½
Wednesday	57	61

Chicago, (June 3).—No. 2, 58½@59c; No. 3, 58@59c; July, 58½c; Sept., 59½c; Dec., 57½c.

Oats.—There is a reflection of the downward change of the other two major cereals in the market for oats and the ruling prices on Tuesday were a cent less than those of the previous week. It is predicted that the demand from rural points will grow as the season advances, since farmers seem to have sold shorter than they should and are now making inquiry for supplies to run them through till the new crop is ready. One year ago the price for standard oats on this market was 57c per bu. Quotations for the past week are:

	Standard.	No. 3
		White.
Thursday	42½	41½
Friday		
Saturday	42½	41½
Monday	42½	41½
Tuesday	42	41
Wednesday	42	41

Chicago, (June 3).—No. 3 oats, 39c; standard, 40½@41½c; July, 39½c; Sept., 38½c; Dec., 39½c.

Beans.—As was stated in this department last week the local market is doing nothing in the bean deal and the nominal quotations published by the board are the same as a week ago, or \$2.05 per bu. for prompt and June shipment and \$2.10 for August.

Chicago, (June 3).—The advance in bean prices a week ago has not been sustained except for the kidney varieties. Any improvement in prices seems to call out heavier offerings which react upon quotations. Pea beans, hand-picked, are quoted at \$2.35; choice, \$2.30; prime, \$2.20; red kidneys, \$2, and white kidneys \$2.50 per bu.

Clover Seed.—The Detroit market is doing nothing. At Toledo cash seed is lower while future offerings rule higher. They are quoted at \$12.05; October and December, \$9.20.

Timothy Seed.—At Toledo this product is quoted at \$2 for prime cash and \$2.10 for September. The cash price is an advance while September is lower.

Rye.—This trade is quiet with local quotations a fraction higher than a week ago, cash No. 2 being quoted at 64c per bu. At Chicago the same grade is quoted below last week's figures, or at 62½@63c per bu.

Barley.—This grain is substantially the same as last week. At Chicago the range is from 50@67c per bu., while at Milwaukee it is from 58@68c per bu.

FLOUR AND FEEDS.

Flour.—Jobbing lots in ½ paper sacks are selling on the Detroit market per 196 lbs. as follows: Best patent, \$5.70; second, \$5.20; straight, \$5; spring patent, \$5.10; rye flour, \$4.60 per bbl.

Feed.—Detroit jobbing prices in 100-lb. sacks are as follows: Bran, \$21; coarse middlings, \$21; fine middlings, \$27; cracked corn, \$25; coarse corn meal, \$22.50; corn and oat chop, \$21 per ton.

Hay.—There is no change in values on the local market. Michigan's old meadows appear to be coming on very poorly and many have been plowed up. New seeding looks promising. Carlots on track at Detroit are: No. 1 timothy, \$14.50@15; No. 2, \$12@13; light mixed, \$13.50@14; No. 1 mixed, \$12@13 per ton.

Chicago.—No change is noted. Choice timothy, \$18@18.50 per ton; No. 1, \$15.50@16.50; No. 2, \$13@14.

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

Chicago.—Steady. Rye straw, \$9@10; oat, \$7@7.50; wheat, \$6.50@7 per ton.

DAIRY AND POULTRY PRODUCTS.

Butter.—Improvement in quality of receipts is regarded as responsible for the better condition of the market at all points. An advance of a full cent at Elgin has been followed by similar gains in some of the big markets. Local prices have not changed but a stronger feeling prevails than in some weeks. Detroit jobbing prices rule as follows: Fancy creamery, 27c; firsts, 25½c; dairy, 22c; packing stock, 20c per lb.

Elgin.—Market steady at 28c.

Chicago.—The advance here has been slight but has embraced all kinds and grades, and the market seems in a strong healthy state. Quotations are: Extra creamery, 27½c; extra firsts, 26½c; firsts, 25½c; seconds, 24½c; dairy extras, 26½c; firsts, 25c; seconds, 24c; packing stock, 12@22c as to quality.

New York.—This market is reported quiet under an advance of nearly a full cent over the quotations of a week ago. Quotations: Creamery extras, 28½@28¾c; firsts, 27½@28c; seconds, 26@27c; state dairy, finest, 27½c; good to prime, 26@27c; common to fair, 24@25½c; packing, 20@21½c as to quality.

Eggs.—Eggs that have the quality are still commanding good prices in all markets, but the gradual falling off in quality which always occurs as the weather grows warmer is affecting quotations at some points. In the local market a decline of 1c is noted, current offerings, candled, being quoted at 19c per dozen.

Chicago.—Strictly fresh stock suitable for storage commands an advance over last week's figures. All other grades are quoted lower. Miscellaneous receipts cases included, are quoted at 16@17c; do. cases returned, 15½@16c; ordinary firsts, 17½c; firsts, 18½c; storage packed, firsts, 22c per dozen.

New York.—Steady and practically unchanged. Fresh gathered extras, 22@23c; fresh gathered storage packed, firsts 20½@22c; western gathered, whites, 20@23c per dozen.

Poultry.—Markets generally are quiet. Local conditions have seen little change in the past week. Quotations are: Live—Broilers, 30@32c; hens, 16½@17c; No. 2 hens, 12@13c; old roosters, 11@12c; turkeys, 17@18c; geese, 12@13c; ducks, 17@18c per lb.

Chicago.—Chickens and ducks fractionally higher. Market rather quiet. Quotations on live are: Turkeys, good weight, 15c; others, 10c; fowls, good, 15½@16c; spring chickens, 28@32c; ducks 14@14½c; geese, full feathered, 9½c; do. plucked, 7@8c per lb; guinea hens, \$4 per dozen.

Cheese.—Steady. Wholesale lots. Michigan flats, new, 13½@14c; old, 16½@17c; New York flats, new, 14½@15c; old, 17@17½c; brick cream, 14@14½c; limburger, 18@19c.

Veal.—Firm; choice stock higher. Fancy 13@13½c; common, 10@11c.

Chicago.—Firm and 1c higher under light offerings. Fair to choice, 30@110-lbs., 13½@14½c; extra fancy stock, 15c; fair to good chunky, 13@13½c.

FRUITS AND VEGETABLES.

Apples.—The demand for apples exceeds the supply and sellers are getting their own prices. Detroit quotations are: Fancy, \$4@5; ordinary, \$3@4 per bbl.

Chicago.—The best grades of apples are firm at last week's advanced values. Standard winter varieties, \$3.50@6 per bbl.

Potatoes.—There was a reaction in the potato deal this past week resulting from the influx of offerings following recent upturn in values. Receipts at most important centers were of larger volume, but the belief is entertained by dealers that these heavy offerings means the end of farmers' holdings and that values will again advance to new high figures for the season. Local prices are down 5c. Michigan stock now selling at 60@65c per bu. in car lots.

Chicago.—Market easier under heavy receipts and values are lower. Quotations range from 50@55c per bu.

WOOL.

A slight increase in the activity of buyers throughout the wool producing sections of the country is about the only new information that this trade has to offer. While buying is by no means as liberal as it usually is at this season, it does show some improvement and the farmers appear to be more reconciled to the prevailing values so that contracts are easier to make, although it must be stated that the prices at which the dealers are getting the wool are a shade higher than these men claimed they could

give a fortnight ago. In Michigan representatives of the manufacturers are paying farmers from 18@20c per lb. for medium grade, with about the same range obtaining in Ohio and Wisconsin. At Chicago the market is dull and unwashed mediums from bright sections are quoted at 18@20c; half-blood, 16@18c; common, 16@17c.

GRAND RAPIDS.

About 175 loads of fruit and farm produce were offered on the city market on Tuesday morning. Home-grown strawberries made their first appearance this season, W. H. Cheyne, of Georgetown, bringing in a few crates which sold for \$2.75 per 16 quarts. A number of loads of old potatoes were in sight and sold readily at 55@65c. Pieplant brought 40c; asparagus 60@65c; spinach 50c. Hay continues at \$11@13. Eggs a trifle higher than last week, bringing 18½c. Pea beans are up 10c, being now quoted at \$1.60 to farmers. Wheat is worth \$1.03; corn, 62c; oats, 42c.

THE LIVE STOCK MARKETS.

Buffalo.

June 2, 1913.

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

Receipts of stock here today as follows: Cattle, 150 cars; hogs, 110 double decks; sheep and lambs, 53 double decks; calves, 2000 head.

With about 150 cars of cattle on our market here today, and with 23,000 reported in Chicago, and the market there quoted full 10c per cwt. lower, all cattle on this market weighing 1200 and above sold from 10@20c per cwt. lower than last week, in fact, more of them 20c per cwt. lower than 10c per cwt. lower. At the close of the market, however, about everything was sold and the market closed steady at the decline.

We quote: Best 1350 to 1500-lb. steers, \$8.15@8.40; best 1200 to 1300-lb. do., \$7.85@8.20; good to prime 1150 to 1200-lb. do., \$7.75@8.10; coarse and plain weighty do., \$7.50@7.75; good to choice handy steers, \$7.80@8; medium butcher steers, \$7.85@8; light common butcher steers and heifers, \$7.25@7.50; best fat cows, \$6.75@7; good butcher cows, \$6@6.50; light do., \$5.50@6; trimmers, \$4@4.25; best fat heifers, \$7.50@8; medium butcher heifers, \$7.60@7.85; light and common do., \$6.75@7; stock heifers, \$6@6.50; best feeding steers dehorned, \$7.50@7.75; light and common stockers, \$5.50@6; prime heavy bulls, \$7.50@7.60; best butcher bulls, \$7.25@7.50; bologna bulls, \$6.75@7; stock bulls \$5.50@6; best milkers and springers, \$7.50@100; common kind do., \$4@5.50.

Our market was liberally supplied with hogs today, about 110 double decks. Good receipts at all western markets did not have much effect on prices today, and the general market was full steady with Saturday's best time, and trading active. All good grades selling at 9c; roughs, \$7.50@8; stags, \$6@7. Market closed full steady, and the outlook for the near future appears fairly good.

The sheep and lamb market was slow today, with prices about 15c lower than the close of last week; most of the choice handy lambs selling from \$7.15@7.25. Lambs weighing 85@90 lbs. very slow, \$6.75@7. Best wethers selling mostly at \$6; ewes, \$5@5.35, owing to weight and quality. Look for about steady prices the balance of the week.

We quote: Choice lambs, \$7.15@7.25; cull to fair do., \$4@7; yearlings, \$6@6.50; bucks, \$3@4.50; wethers, \$5.75@6; handy ewes, \$5@5.35; heavy ewes, \$5@5.15; cull sheep, \$3@4. Veals, choice to extra, \$10.25@10.50; fair to good, \$8@10; heavy calves, \$4.50@6. Advise caution in buying calves weighing over 174 lbs; buyers discriminating against that kind.

Chicago.

June 2, 1913.

Received today 22,000 43,000 24,000
Same day last year. 15,096 31,110 18,437
Received last week. 47,566 121,731 86,554
Same week last year. 42,048 145,697 63,442

This week opens with a better demand for cattle than usual, and desirable offerings are ruling firmer, with some sales that look a little higher, but heavy beefs are slow. Hogs start off barely a nickel lower in spite of the liberal supply, with one car load of prime medium weights taken at \$8.82½, and \$8.80 the virtual top. Hogs received last week averaged 242 lbs., compared with 232 lbs. one year ago and 243 lbs. two years ago. The really fat lots of live muttons are going at steady prices, but the receipts run much too largely to grassy flocks that are selling slowly at declining prices.

Cattle weakened in values last week because of more liberal offerings at a time when trade requirements did not warrant such an increase, and the bulk of the beef steers crossed the scales at a range of \$7.50@8.45, with the better class of corn-fed steers bringing \$8.35@8.90 and the commoner lots of light steers fetching \$7@7.75. The receipts were distributed very unevenly, with over 23,000 head arriving on Monday, causing a general break of 10@15c, fat handy weight steers and fat cows and heifers excepted. A similar decline took place on Wednesday on another too generous run. Medium to good short-fed steers sold at \$7.80@8, and fair to good lots of cattle brought \$8.05@8.30, with a very good call for desirable little yearlings at \$8.25@8.90 and not enough offered to go around. The proportion of heavy long-fed cattle has been growing less for some weeks, and the time has arrived when these are in poor demand, the inquiry centering in a good class of light and medium weight cattle. Butcher stock has sold almost invariably well, with a good demand for cows and heifers at \$5.15@8.75, these cattle having failed in recent weeks to share in the break in steers of a correspond-

ing class. Cutters went at \$4.60@5.10, canners at \$3.35@4.55 and bulls at \$5.40@7.65. As compared with a year ago, all kinds of cattle are much higher, the choicer class excepted. The stocker and feeder trade was as large as could be expected with the limited offerings and comparatively high prices asked for desirable lots, stockers being quoted at \$6@7.85 and feeders at \$7@8. The calf market was extremely sensational, the greatly insufficient offerings resulting in another boom in prices that carried veal calves up to \$9.75@11 per 100 lbs., with sales all the way down to \$5.50@8 for the heavier lots. Milk and springers had a much better demand at \$50@100 per head, springers selling especially freely. A rally in cattle prices on Thursday left the best yearlings as high as ever at \$8.90, but the best heavy sold at \$8.65.

Hogs have been marketed more freely for a week past, but the demand was correspondingly good, and fair advances in prices took place on several days, the offerings being needed for the large fresh meat trade and for manufacturing lard and cured meats, stocks of which in western warehouses are unusually low. The market of late has shown a much firmer undertone than was shown several weeks ago, and the prevailing belief is that hogs of good quality are going to sell satisfactorily through the summer months, although after the marketing of heavy sows gets fairly started these will doubtless sell at the customary large discount. The present percentage of good light hogs is comparatively small, and these sell readily at a good premium over the numerous heavier hogs. Eastern shippers continue to compete for the better class of light and butcher weights. Provisions have had large advances in prices in recent weeks, and packers are cutting up hogs at good profits, although they cost much more than in former years, 1910 excepted. The close of the week saw hogs sell at \$8.40@8.85, the top being 22c higher than a week earlier. Pigs brought \$6@8.65 and stags \$8.85@9.15. Throwout packing sows brought \$7.70@8.25.

Sheep and lambs were marketed freely most of last week, fed lambs comprising the great bulk of the offerings, with gradually increasing receipts of spring lambs. Most of the springs were shipped from the south, the big packers getting most of them from their buyers stationed in Louisville, the great mart for Kentucky and Tennessee lambs. Fat fed lambs had to be only medium in weight to sell to advantage, as buyers discriminated severely against heavy lambs, no matter how good and fat. Nearly everything came to market clipped, the season for woolled stock being over. The general market was extremely weak, buyers insisting upon concessions, and sales were made all around at materially reduced prices. The southern crop of spring lambs is a good one. Fewer ewes were bred than a year earlier, but more lambs were saved owing to a more favorable season. Sheep and lambs have been selling much lower than a year ago. At the close of last week most lambs, yearlings and wethers were 25c lower than a week earlier, some showing more of a decline, while ewes and bucks were off 50@75c. Spring lambs sold at \$6@9, and shorn flocks sold as follows: Lambs, \$5@7.60; yearlings, \$5.35@6.25; wethers, \$4.25@5.75; ewes, \$3@5.25; bucks, \$3.50@4.50.

Horses are no longer as active as several weeks ago, but on some days there is a very good demand for good business horses at well maintained prices. However, the demand is so uncertain that frequent bad breaks take place in prices, especially for the common and medium grades. Recent sales were on the basis of \$85@125 per head for the less attractive animals, with prime extra heavy drafters scarce and salable at \$300@350, while farm horses were neglected at \$125@225. Farm mares of good to prime quality were quoted at \$230@285. Chunks that weighed from 1,250 to 1,450 lbs. were worth \$185@275, with better and heavier horses selling at \$280 and over.

LIVE STOCK NEWS.

The states comprising the great corn belt have been marketing lots of fat cattle, their average grading being as fine as was ever seen, not excepting even the years long ago when it was quite common for the farmers of Nebraska and Kansas to use their corn for fuel and when corn brought only five cents per bushel in the western parts of Iowa. All last winter corn worth around 40 cents per bushel was fed freely to steers, and it has been the common remark that poor grades of beef are as scarce these times as it was plentiful a year earlier. Large numbers of fat beefs have been reaching the Chicago stock yards of late that were fed on corn from eight to nine months and dressed around 60 per cent. Not only was the last crop of corn abundant and good in quality, but the last winter season was mild and helped to make cattle fat on less corn than usual. By the end of June these cattle will have been marketed, and thereafter grass cattle will comprise a large share of the marketings at various points.

Late advices from Argentina say that live stock growers are materially increasing the production of prime cattle and breeding is becoming more extensive than ever before, encouragement being furnished by the strong demand for meats from European importers.

Samuel Allerton, the veteran packer and all-around farmer and stockman, urges the necessity for a large increase in the production of beef cattle throughout the United States. He says Illinois, Indiana, Ohio, Wisconsin and Iowa can double their production of cattle and at the same time increase their grain crops, providing they practice modern approved methods of farming and stock raising.

THIS IS THE FIRST EDITION.

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

DETROIT LIVE STOCK MARKETS.

Thursday's Market.

May 29, 1913.

Cattle.

Receipts, 754. Market strong at last week's and Wednesday's prices.

We quote: Best steers, \$8.25; steers and heifers, 1000 to 1200, \$7.75@8; do. 800 to 1000, \$7@7.50; do. that are fat, 500 to 700, \$5.50@6; choice fat cows, \$6.25@7; good do., \$5.75@6; common do., \$5@5.50; canners, \$3.75@4.25; choice heavy bulls, \$6.50@7; fair to good bolognas, bulls, \$6@6.25; stock bulls, \$5.25@6; choice feeding steers, 800 to 1000, \$6.75@7.25; fair do., 800 to 1000, \$6@6.50; choice stockers, 500 to 700, \$6.75@7; fair do., 500 to 700, \$5.75@6.25; stock heifers, \$5@6; milkers, large, young, medium age, \$6@7; common milkers, \$3@5.50.

Bishop, B. & H. sold Kamman B. Co. 20 steers av 1045 at \$7.75; to Sullivan P. Co., 16 do av 1047 at \$8.10, 1 bull weighing 1150 at \$6.50; to Rattkowsky 1 cow weighing 830 at \$6.25; to Sullivan P. Co. 6 do av 1086 at \$6.25, 1 do weighing 800 at \$5; to Newton B. Co. 1 bull weighing 1550 at \$6.50, 6 butchers av 733 at \$7.15; to Mich. B. Co. 3 cows av 1050 at \$6, 6 butchers av 730 at \$7.15, 1 cow weighing 890 at \$5, 1 bull weighing 1280 at \$7; to Sullivan P. Co. 2 cows av 825 at \$5.50; to Newton B. Co. 23 steers av 1158 at \$8; to Hammond, S. & Co. 3 do av 1213 at \$8, 2 heifers av 780 at \$7.25, 1 cow weighing 1100 at \$6.50, 1 bull weighing 1120 at \$6.50, 28 butchers av 933 at \$7.60; to Rattkowsky 9 cows av 911 at \$6, 2 do av 660 at \$4.50, 4 do av 992 at \$6.50, 1 do weighing 910 at \$5, 2 do av 980 at \$5.50; to Mich. B. Co. 1 cow weighing 930 at \$5.60, 2 do av 950 at \$5.60; to LaBoe 3 steers av 715 at \$7.25, 1 do weighing 770 at \$6.25; to Strong 4 stockers av 525 at \$6.25, 1 do weighing 550 at \$6.60; to Bresnahan 2 steers av 1245 at \$7.50, 1 bull weighing 1370 at \$6.50.

Spicer & R. sold Bresnahan 2 heifers av 660 at \$6.75, 1 bull weighing 570 at \$6, 3 heifers av 777 at \$7; to Mason B. Co. 20 steers av 973 at \$7.55, 2 steer and bull av 900 at \$7, 5 steers av 1092 at \$8; to Sullivan P. Co. 3 cows av 950 at \$5.25, 3 do av 1060 at \$6.25, 1 do weighing 960 at \$5, 5 cows and bulls av 1056 at \$6.15; to Hammond S. & Co. 1 canner weighing 780 at \$4.25; to Newton B. Co. 11 butchers av 872 at \$7.40, 1 cow weighing 1120 at \$5; to Heinrich 19 steers av 1046 at \$7.65; to Mich. B. Co. 1 cow weighing 1000 at \$6, 1 steer weighing 1420 at \$8.50, 7 do av 996 at \$7.65.

Bennett & S. sold Newton B. Co. 8 butchers av 813 at \$6.90.

Same sold Bresnahan 3 canners av 750 at \$4.25, 2 heifers av 640 at \$7.

Haley & M. sold Newton B. Co. 6 cows and bulls av 960 at \$6, 2 cows av 995 at \$5.50, 1 do weighing 860 at \$5.50, 1 do weighing 1200 at \$6, 1 bull weighing 1330 at \$6.75, 5 steers av 826 at \$7.55, 3 do av 843 at \$7.50, 3 butchers av 920 at \$6.75; to Breitenbeck 2 cows av 780 at \$5.50, 1 do weighing 1010 at \$5.75, 1 do weighing 870 at \$4.75, 1 bull weighing 1050 at \$6.75.

Roe Com. Co. sold Sullivan P. Co. 1 bull weighing 1270 at \$7, 2 do av 1180 at \$6.75; to Newton B. Co. 2 cows av 1370 at \$6.50, 1 do weighing 1100 at \$6, 18 steers av 951 at \$7.75, 2 do av 925 at \$7.50; to Kamman B. Co. 6 butchers av 931 at \$7.25, 5 cows av 954 at \$5.75; to Newton B. Co. 27 butchers av 702 at \$6.85.

Veal Calves.

Receipts, 932. Market active 25@50c higher. Best, \$10@10.50; others, \$5@9; milch cows and springers steady.

Haley & M. sold Hammond, S. & Co. 7 av 160 at \$10, 2 av 130 at \$8.50, 9 av 155 at \$10; to Newton B. Co. 6 av 190 at \$7, 24 av 150 at \$10, 3 av 100 at \$7, 9 av 140 at \$9.50; to Parker, W. & Co. 11 av 125 at \$10, 11 av 150 at \$10, 9 av 150 at \$10; to Mich. B. Co. 45 av 140 at \$10; to Barlage 2 av 155 at \$8, 5 av 130 at \$10.

Roe Com. Co. sold Mich. B. Co. 12 av 150 at \$9.25; to Nagle P. Co. 14 av 150 at \$10; to Sullivan P. Co. 2 av 130 at \$10, 1 weighing 110 at \$8, 9 av 150 at \$10.75; to Kamman B. Co. 6 butchers av 931 at \$7.25, 5 cows av 954 at \$5.75; to Newton B. Co. 27 butchers av 702 at \$6.85.

Eppler & W. sold same 3 av 150 at \$10. Long sold same 3 av 130 at \$10.

Spicer & R. sold Mich. B. Co. 4 av 135 at \$9.50, 6 av 125 at \$9.50, 11 av 150 at \$9; to Applebaum 7 av 140 at \$10.25, 3 av 140 at \$8.75; to Newton B. Co. 15 av 150 at \$9.50, 2 av 90 at \$7; to Goose 10 av 145 at \$10, 1 weighing 140 at \$10; to Applebaum 9 av 150 at \$10; to Goose 4 av 140 at \$10; to Costello 8 av 130 at \$9.30, 4 av 135 at \$9.30.

Bishop, B. & H. sold Hammond, S. & Co. 22 av 140 at \$9.50, 3 av 125 at \$9, 5 av 160 at \$10; to Mich. B. Co. 5 av 108 at \$7.50; to Parker, W. & Co. 34 av 140 at \$9.50, 20 av 145 at \$9; to Mich. B. Co. 4 av 125 at \$9.50; to Applebaum 2 av 95 at \$9; to Newton B. Co. 14 av 145 at \$10, 1 weighing 130 at \$9.50; to Thompson Bros. 3 av 150 at \$7, 11 av 130 at \$9.50; to Sullivan P. Co. 5 av 140 at \$9.25, 7 av 150 at \$7.75, 2 av 200 at \$10.50, 1 weighing 100 at \$8, 7 av 145 at \$10, 12 av 130 at \$9.50, 1 weighing 280 at \$6, 20 av 140 at \$9.75; to McGuire 9 av 150 at \$10, 12 av 145 at \$10, 15 av 140 at \$10, 5 av 160 at \$10.25; to Nagle P. Co. 9 av 150 at \$10; to Rattkowsky 14 av 145 at \$10, 1

weighing av 270 at \$7.50; to Mich. B. Co. 2 av 105 at \$8.50, 11 av 160 at \$10.25.

Sheep and Lambs.

Receipts, 1311. Market steady; grass grades dull; go slow on them. Best dried lambs, \$7.50@7.75; fair lambs, \$6@7; common lambs, \$4@5; spring lambs, \$9@10; fair to good sheep, \$5@5.50; culls and common, \$2.50@3.50.

Bishop, B. & H. sold Mich. B. Co. 51 lambs av 105 at \$5.35, 10 do av 72 at \$3.50, 16 do av 106 at \$5.25, 6 do av 113 at \$5, 14 spring lambs av 55 at \$9.50, 14 sheep av 110 at \$4.75; to Parker, W. & Co. 66 lambs av 65 at \$7; to Nagle P. Co. 262 lambs av 80 at \$7.40; to Newton B. Co. 50 do av 70 at \$7.25; to Sullivan P. Co. 14 do av 55 at \$5, 15 sheep av 90 at \$5.50; to Mich. B. Co. 25 do av 105 at \$5, 5 do av 100 at \$4.50, 8 do av 90 at \$6, 11 lambs av 65 at \$5, 5 sheep av 90 at \$5, 7 do av 125 at \$5, 8 lambs av 75 at \$6.75; to Sullivan P. Co. 11 spring lambs av 60 at \$9; to Fitzpatrick Bros. 81 sheep av 95 at \$5.50, 16 lambs av 80 at \$7, 6 sheep av 125 at \$5.25, 25 lambs av 75 at \$7.75, 21 sheep av 100 at \$3, 8 spring lambs av 50 at \$10; to Sullivan P. Co. 29 sheep av 90 at \$5.50.

Haley & M. sold Hammond, S. & Co. 8 sheep av 107 at \$4.50, 11 do av 115 at \$5.25; to Newton B. Co. 19 do av 105 at \$5.50; to Barlage 26 do av 90 at \$5.25, 6 spring lambs av 55 at \$9.

Spicer & R. sold Newton B. Co. 19 sheep av 90 at \$5, 11 spring lambs av 54 at \$9, 23 lambs av 70 at \$7.25, 9 sheep av 90 at \$5.50; to Hayes 42 lambs av 50 at \$5.50; to Mich. B. Co. 7 sheep av 85 at \$4.50.

Hogs.

Receipts, 5996. Market 10c lower than last Thursday; steady with Wednesday. Range of prices: Light to good butchers, \$8.60@8.65; pigs, \$8.65; light yorkers, \$8.60@8.65; stags one-third off.

Bishop, B. & H. sold Parker, W. & Co. 4100 av 190 at \$8.60.

Same sold Newton B. Co. 510 av 170 at \$8.65.

Haley & M. sold Hammond, S. & Co. 460 av 170 at \$8.60.

Spicer & R. sold same 600 av 180 at \$8.60.

Roe Com. Co. sold Sullivan P. Co. 425 av 180 at \$8.65, 180 av 200 at \$8.60.

Friday's Market.

May 30, 1913.

Cattle.

Receipts this week, 934; last week, 986. Market strong at Thursday's prices. Best steers, \$8@8.25; steers and heifers, 1000 to 1200, \$7.75@8; do. 800 to 1000, \$7@7.50; do. that are fat, 500 to 700, \$5.50@6; choice fat cows, \$6.25@7; good do., \$5.75@6; common do., \$5@5.50; canners, \$3.75@4.25; choice heavy bulls, \$6.50@7; fair to good bolognas, bulls, \$6@6.25; stock bulls, \$5.25@6; choice feeding steers, 800 to 1000, \$6.75@7.25; fair do., 800 to 1000, \$6@6.50; choice stockers, 500 to 700, \$6.25@6.50; fair stockers, 500 to 700, \$5.75@6.25; stock heifers, \$5@6; milkers, large, young, medium age, \$6@7; common do., \$3@5.50.

Receipts this week, 1309; last week, 1196; market steady at Thursday's close. Best, \$9.50@10; others, \$5@8.50; milch cows and springers steady.

Sheep and Lambs.

Receipts this week, 1689; last week, 2063. Market steady at Thursday's prices; go slow on light grass spring lambs and common grass sheep and lambs. Best lambs, \$7.50; fair lambs, \$6.50@7; common lambs, \$5@6; fair to good sheep, \$5@5.50; culls and common, \$3@4; spring lambs, \$8@10.

Hogs.

Receipts this week, 8668; last week, 6723. Market 5@10c higher than on Thursday. Light to good butchers, \$8.70; pigs, \$8.70; mixed, \$8.65@8.70; stags one-third off.

Forty head of Hereford bulls and cows, carefully selected for American requirements, were shipped a short time ago to an Illinois purchaser, it being the first importation from England to the United States in 12 years.

VETERINARY.

(Continued from page 639).

nips. None of my other pigs seem to be affected. J. C. H., Hampden, Mich.—Pigs that lose the use of their body are usually fed too much corn and not enough oats, oil meal, grass and roots. Change his feed and give him 20 grs. sodium salicylate at a dose three times a day. His bowels should be kept active.

Barrenness.—I have a young sow that has never shown any symptoms of being in heat but she is in perfect health; I thought perhaps I might not have noticed her when in season. Is there any drug that I can give her that will make it more easy to detect? B. J. M., Battle Creek, Mich.—Let your sow associate with boar and give her ten grains powdered nux vomica and 20 grains capsicum at a dose in feed three times a day.

Heart Disease—Fowl Cholera.—I have recently been losing a great many fat hens with a disease I am not familiar with. Symptoms seem much like cholera only that the fowls' head remain red and when the chicken is exerted, they frequently drop dead. My fowls are very fat, have reduced their diet to barley and wheat and oat screenings. R. B. R., Wayne county, Mich.—It is possible that your fowls die of fowl cholera, if so they must have taken it from food they have ate or you may have bought a bird that had it. Fowl cholera is a contagious disease and it is not unusual for it to go through the entire flock in a week or 10 days and most birds die after a few days' sickness. The crop is usually distended with food and appears paralyzed; great thirst, great weakness and abundant discharge of excrement and the body temperature is usually 109 or 110 degrees F.

The comb usually loses its bright hue and becomes pale and bloodless. I am somewhat inclined to believe that your chickens die of heart disease and not of cholera. Vaccination cannot be recommended as a preventative. Give your chickens equal parts ground cinchona, ground gentian and ground ginger. A teaspoonful is dose enough for eight or ten of your fowls. It is possible that you would sustain less loss if your entire flock was sold for food purposes.

Foot Soreness.—I have a mare that is stiff and sore in both fore quarters. She is inclined to change from one foot to the other and points some; her shoulders are also a little flat. After she is driven a few miles her soreness seems to partially leave her. J. M. W., Evart, Mich.—Give her a teaspoonful of powdered nitrate of potash and 50 grs. of sodium salicylate at a dose in feed two or three times a day. Apply one part turpentine, one part aqua ammonia and four parts raw linseed oil to coronet in front and atrophied shoulders every day or two.

Looseness of Bowels.—We have a mare that is inclined to have too much bowel action when driven on road. I had her teeth dressed, also given her medicine prescribed by our local Vet. W. C. M., Breckenridge, Mich.—Give her a teaspoonful of powdered sulphate iron, a dessertspoonful of powdered catechu and two tablespoonfuls of ground ginger at a dose in feed three times a day. Remember, feeding and watering and driving slow has a whole lot to do in correcting this ailment.

Worms.—I have a horse that is troubled with worms 2½ inches long by about 1-16 of an inch in diameter, and I also notice some small worms clinging to rectum. L. L., Byron Center, Mich.—Give your horse one pint of raw linseed oil and a tablespoonful of turpentine—one dose only; also give a teaspoonful of powdered sulphate of iron and 1 oz. ground gentian at a dose in feed twice a day. Drop ¼ lb. of quassia chips in a gallon of rain water, boil until it reaches to a half gallon; strain and inject some of this tea into rectum every two or three days. The bowels should first be washed out with soap suds.

Spinal Paralysis.—Last February my mare went wrong and appears to have partially lost control of her hind parts. She reels and sways, but does not appear to be the least bit sick. Our local Vet seems puzzled with this case. R. T., Leslie, Mich.—Give her 1 dr. ground nux vomica and 2 drs. potassium iodide at a dose in feed two or three times a day. She should be turned out where the hot sun will shine on her back.

Hip injury.—My 11-year-old 1,400-lb. mare was hurt when foaling some four weeks ago; since then her left hip has gradually reduced in size. C. M. H., Remus, Mich.—Apply equal parts turpentine, aqua ammonia and olive oil to hip every day or two. If she is lame she should not be worked.

Blood Poison.—I have a mare that has been troubled with abscesses on left hind leg and she also appears to have loin and kidney trouble. When down she has trouble to get up. She took sick two weeks ago, before that time she was in fairly good condition. A. J. C., Chatham, Mich.—Give your mare ¼ oz. fluid extract buchu, a teaspoonful acetate of potash and 1 dr. ground nux vomica at a dose in feed two or three times a day. Apply spirits of camphor to her loin twice a day and apply iodoform to sore on leg once or twice a day.

Collar Galls.—My eight-year-old mare has sores on neck and I have been unable to heal them. I have been applying peroxide of hydrogen and zinc ointment. This mare is also troubled with worms. W. B., Pierson, Mich.—A hard sitfast situated on the shoulder or on top of neck should always be cut off. A raw open sore heals best when antiseptics and astringent remedies are applied. Dissolve ¼ lb. acetate of lead, 3 ozs. sulphate of zinc, 3 ozs. of carbolic acid in a gallon of water and apply to sores three times daily. Give your wormy horse 1 dr. of santaline at a dose three times a week for two weeks.

Chronic Looseness of Bowels.—About four months ago I bought an eight-year-old horse that is troubled with what appears to be a chronic looseness (not purging) of the bowels. I do not know how long he was so before I got him. W. C., Chelsea, Mich.—Change his feed and have his grinder teeth floated; drive him slow. Give him 1 oz. ground ginger, 2 drs. powdered catechu and 1 dr. powdered sulphate iron at a dose in feed two or three times a day.

Nail Puncture.—I have a cow that stepped on a rusty nail early in February. The sore only heals up on outside, then breaks open again. Have been using carbolic acid to cleanse it out and then injected iodine. P. M., Akron, Mich.—Apply one part bichloride mercury and 250 parts water to wound twice a day and apply iodoform daily. Are you sure the foot is free from foreign bodies; a portion of nail or snag may be in foot.

Congestion of Lungs.—My hogs commenced to sicken some five weeks ago and since then several of them cough, breathe fast, and I opened one that died; found lungs congested. Have been giving all of my hogs cholera medicine lately; since then none have died, but some of them begin to act dull. W. T. H., Ionia, Mich.—Your hogs may suffer from swine plague; however, if they did you would be likely to find inflamed patches in kidneys and bowels, as well as lungs. Perhaps you had better continue giving the cholera remedy if you believe it is helping them. I suggest that you change their feed, prevent them wallowing in cold dirty water. Give each of them 4 grs. of quinine at a dose three times a day.

Partial Loss of Power.—I have a sow that seems to have partially lost control of hind quarters; when down is unable

to get up without assistance. W. D., Waltz, Mich.—She should be fed no corn, but feed her oats, oil meal, tankage and grass. Also give her 10 drops of fluid extract nux vomica and 15 grs. potassium iodide at a dose in feed three times a day. Also apply one part turpentine, one part aqua ammonia and four parts olive oil to back once a day.

A VALUABLE REFERENCE.

In connection with the veterinary advice given in the Michigan Farmer, every reader can use to excellent advantage one of the Michigan Farmer Anatomical Charts. This chart illustrates the horse, cow, sheep, hog and fowl, the perfect animal, the bones, the muscles, the blood system and the internal organs, also giving the name and location of each bone, muscle, vein and organ. Dr. Fair, our veterinarian, recommends the use of this chart and believes it will help you greatly to make your questions better understood and also enable you to better understand the answers.

This chart is only one of the features of our six-page collection of charts which also contain maps of Michigan, the United States and the world, and many other valuable features. The entire collection will be sent postpaid, for only 30c. The Michigan Farmer, Detroit, Mich.—Adv.

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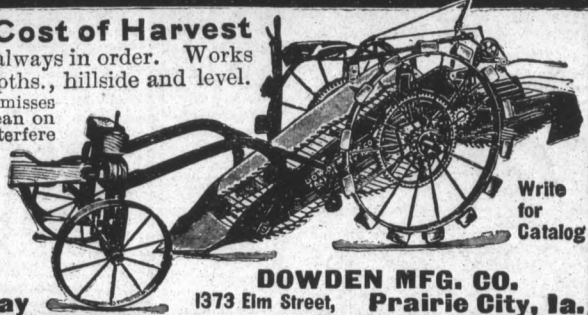
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Practical Science.

THE MAINTENANCE OF FERTILITY AND THE WASTE OF FARM MANURES.

BY FLOYD W. ROBISON.

Some Possible Objections to Barnyard Manure.

The first step to be taken in the maintenance of farm fertility and in the retention of a good productive capacity in the soil is the use of and the prevention of the waste of the natural farm manures. There are, we will admit, certain disadvantages in the employment of farm manures on the farm. There is likewise a limit to the amount of farm manures which may be employed in the production of a maximum crop of grain producing plants. There is, however, excepting on exceedingly rare occasions, no danger of the American farmer reaching a point in the employment of farm manures where much attention must be given to the caution just mentioned.

We have known a number of instances in which farmyard manures were employed locally in excessive quantities. So marked was this that a maximum crop of grain could not be produced because of the rank growth of stalk and leaf and on certain soils because the crop grew to such proportions that the root was not strong enough to hold it upright.

In certain soils which have a loose muck-like texture there is need at times of a caution regarding the excessive employment of ordinary barnyard manures. We are conscious, likewise, that the repeated use of barnyard manures without being supplemented with other fertilizers does tend to promote a "phosphorus hunger" in the soil. But the difficulty of most farmers does not lie in these directions. In most cases there is not nearly a sufficient amount of barnyard manure to properly nourish the soil on that farm and to retain the immediate productive capacity to its maximum. Curiously enough, it is on such farms, as a rule, that we find the greatest waste of farm manures.

The Role of the Absorbent in Preventing Waste.

The prevention of the waste of farm manures necessitates a study of the characteristics of farm manures and the prevention of the waste must begin in the stable where the manure is produced. Naturally, therefore, the kind of absorbent to use should be given very careful consideration by the farmer. We think there is no better product than ordinary straw liberally used. A liberal use of straw as an absorbent means, as well, comfort for the stock in the barn. We are not in sympathy with a movement which compels cattle and horses to lie on a hard cement floor without any bedding whatsoever, and we are not at all certain that such a requirement is necessitated in any way by sanitary conditions. A sufficient amount of clean straw to give comfort to the stock will be ample to act in the capacity of an absorbent. We think by using straw several things are accomplished at the same time. We think, first, we will place comfort of the animal; second, cleanliness; third, the absorption of the liquid manures, and fourth, the utilization in a very desirable way of the straw from the crop, thus conserving its nutrients in a very effective manner.

Liquid Manure is of Greatest Value.

We have already shown that the liquid portion of the manure contains the greatest quantity of fertilizing constituents because it represents that portion of the food which has been digested and on most foods the digested portion represents the major portion of the food. Likewise this liquid excrement represents that portion of the food which is most immediately available. The nitrogen content is in soluble form and unless trapped will escape in a large degree as ammonia gas into the air. This will not occur if a liberal quantity of straw is used in the stable. The phosphorus, likewise, in the liquid manure is in a highly soluble form and if conserved will be placed in the soil in a condition very favorable for plant growth. In the absence of a liberal allowance of straw there are various other absorbents which may be used to advantage in preventing the waste of the liquid manures. In some dairy stables the use of a deep gutter facilitates the retention of the fertilizing

ingredients, and where straw is not abundant, or sufficiently abundant to act entirely as an absorbent, dry earth may be used in the gutter to advantage. In some stables fine sawdust is likewise valuable particularly if the manures are to be used upon very heavy soils which will be improved by any material of this nature which assists in opening up the soil and encouraging aeration.

Gypsum as an Absorbent.

We have not believed in the employment of gypsum as an absorbent in the stable. It has been advocated and used to a considerable extent but to us it has not seemed to have the trapping powers, that are needed in the stable to prevent the escape of ammonia, that other absorbents possess.

A Good Place for Acid Phosphate.

In connection with the use of barnyard manures in the soil it seems very desirable to use other fertilizers and particularly phosphatic fertilizers. If a reasonable amount of phosphate fertilizer is used with barnyard manures there need be felt no apprehension whatsoever as to the creation of a phosphorus hunger in the soil. There has been some prejudice, as we have explained from time to time, against the use of acid phosphate in the soil and there is some ground for this prejudice, but at the present time there seems to be no alternative as acid phosphate is almost the only phosphate which is commercially available. If acid phosphate is used as an absorbent in the stable it will perform this office to a much better advantage than will any other absorbent that we know of with the possible exception of straw. The acid feature of the acid phosphate seems to act quite satisfactorily as a trap preventing the escape of the ammonia and in turn the alkaline, or ammonioid nature of the liquid excrement seems to overcome to a very marked degree the objection to the use of acid phosphate when employed alone. At the present time, because of the intrinsic phosphate value of this absorbent it actually builds up in a very valuable way the barnyard manure. The use of acid phosphate, therefore, as an absorbent in the stable accomplishes three very desirable ends:

First, prevents the waste of ammonia in the manure.

Second, removes the objections to the acid feature of acid phosphate.

Third, conveys direct benefit because of the phosphoric acid which acid phosphate contains.

LABORATORY REPORT.

Testing Soil.

Will you tell me how I may test my soil to see if it has lime in it, or what kind of acid to use to see if we have marl in our lakes or soil?

St. Joseph Co. J. C. K.

The best way to test a soil to see if it has abundant lime is to start a small portion to clover or alfalfa. If a good stand is secured there will usually be found to be plenty of lime. This test is about the best that can be applied for clover and alfalfa are the best indicators of lime in a soil, of which we know. If you suspect marl, get a little muriatic acid at the pharmacist's and pour on a little of the marl, when a very vigorous effervescence or foaming and bubbling will occur if there is any appreciable quantity of marl.

BOOK REVIEWS.

"Milk and its Products," by Professor Henry H. Wing, of Cornell University. This is a new edition of Prof. Wing's popular volume under the same name and brings the matter treated in the various chapters up-to-date and includes additional chapters on dairy cattle, the production of milk, certified milk, and ice cream manufacture. No dairyman's library should be counted complete without this authoritative book. Bound in cloth, illustrated, and contains over 400 pages. Price, \$1.50 net. Published by MacMillan Company, and for sale through the Michigan Farmer offices.

"Co-operation in Agriculture," by G. Howard Powell. In this volume the author, who has had wide experience with co-operative movements, discusses the principles that underlie the organization and management of such institutions under American conditions. He also illustrates these principles by showing how they are applied to the handling of certain agricultural crops. Illustrated, bound in cloth and contains over 300 pages. Price, \$1.50 net. Published by the MacMillan Company. For sale through the Michigan Farmer offices.

Poultry.

KEEP THE YOUNGSTERS GROWING.

It matters very little whether chicks are hatched early or late, unless they are wanted for winter layers. If one is properly equipped for the business, there is as much profit in late chicks, nowadays, as there is in early ones. And, no matter when or how they are hatched, the most important part of the business is to keep them growing. A chick that is stunted is of very little value.

Sometimes it is not easy to determine just why the chicks refuse to grow. There are various reasons for slow growth, such as gapes, indigestion, mites, lice, etc., to say nothing of the small chicks that are trampled by the larger ones and crowded out at feeding time. Overcrowding and poor ventilation are very common causes of loss in incubator chicks. Overfeeding is bad, but underfeeding is worse. A great many people who consider themselves good hands with poultry overlook the small details, with the result that their poultry is less profitable than it might be.

There are very few who pay any attention whatever to the grit supply, and yet it is of as much importance to chicks as to other poultry. One reason why so many chicks die of bowel trouble is that they cannot find enough sharp grit to grind their food. Gravel such as that which is so plentiful along creek banks is no good at all. Sharp coarse sand and the commercial chick grit will give good results. If chicks cannot be induced to eat enough grit, which is sometimes the case, it is advisable to feed either corn grains or ground grains. As a rule, I feed small grains mixed with cracked corn in a dry state, but have had very good success with boiled feed. I have even cooked commercial chick-feed. Several years ago I lost some valuable chicks by feeding too much dry feed (overfeeding has always been my failing) and, although the feed contained plenty of grit, they refused to eat enough of the latter. Then I tried boiling the feed and that was the end of the trouble. Not another chick died.

There is no better feed for growing chicks than cracked corn and whole wheat, boiled together. These grains give good results when fed dry, also, but there is more danger of overfeeding. A chick can eat all the cooked grain its crop will hold with no danger of indigestion, while if the same quantity of dry grain is consumed regularly, with an insufficient quantity of sharp grit, the chances are that indigestion will follow.

Chicks of different sizes should never be fed or housed together. The smaller ones are always the "under dogs" at feeding time, and they are apt to be otherwise abused.

It is a good plan to have all coops and houses enclosed with poultry netting. Then each separate bunch of chicks can be fed unmolested. Of course, they should not be kept yarded except when absolutely necessary. If large grassy yards are provided it is best to keep the chicks yarded until they are old enough to have become accustomed to their roosting quarters. Or, when the weather is cool, it is sometimes advisable to keep chicks yarded, especially in the morning when the dew is heavy. Wandering around in the cold dew-covered grass will kill little chicks about as fast as anything I know of with the exception of lice and gapes. However, these usually go together. If a chick is lousy it is more liable to take gapes, because either lice or mites will soon weaken a chick to such an extent that if it is not killed by them, it is an easy prey to gapes or some other disorder. Therefore, be careful to guard against vermin.

Sometimes chicks will become lousy in spite of all efforts to prevent it if there are lice on the premises. This is especially true of hen-hatched chicks. If the hens are lousy, or if the chicks are kept in a house which has been recently occupied by other fowls they should be closely watched. It is never advisable to use an old henhouse for chicks unless it is kept clean and known to be free of lice. Not even then, if still occupied by other fowls. A mistake that is too frequently made by beginners is that of allowing hens to set and hatch chicks in the henhouse or wherever the rest of the flock stays. If there are any lice or mites in the house, the sitters soon be-

come regular louse traps. If these hens can endure the torture until the chicks hatch (which is sometimes impossible) the lice will then desert them for "pastures new." A very few of the large lice will kill a little chick or turkey in short order, that is, if they begin operations while the fowls are very young. When the wing feathers of young turkeys either hang down or become ruffled and uneven, it is an indication that they have lice. There are other symptoms, such as dizziness and a pale withered look about the head and feet. A little olive oil, or castor oil, will kill lice and not injure the chick if carefully applied. Never use kerosene or lard, and be sure to keep chicks in a shady yard after applying the oil. They cannot endure strong sunshine. Remember, also, that in summer all of the poultry needs shade.

Ohio. ANNA W. GALLIGHER.

KEEPING A GOOD-SIZED FLOCK.

A southern Michigan subscriber has recently sent to the writer the following questions: Can I keep 500 hens on six acres of land? Can I feed and house them so as to make the flock average 250 eggs per day the year round? How large a house will I require?

He can easily keep this number on six acres and have enough ground to raise part of the grain for them. If it is good corn land, he should be able to raise 150 or 200 bushels of corn, or 60 or 70 bushels of wheat. Three acres will give the hens a good range, and not crowd them. Not that much would be needed to give them good pasturage. Many a chicken fancier will raise 500 chickens on an acre of ground, and do it well, too.

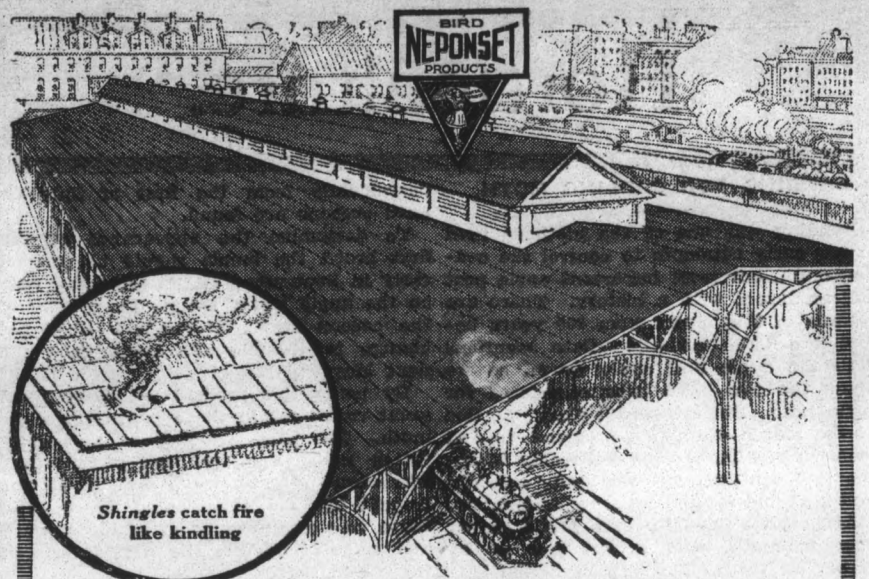
We hear considerable about the 200-egg hen, and some chicken enthusiasts assure us that they have whole flocks that will average 250 eggs to each hen, for the year. I am so skeptical about the accuracy of all such claims that I shall have to be shown. I have hens that will lay that many eggs, but only a few. In fact, my opinion is that that prolific kind is pretty scarce. Doubtless there are a few in every first-class laying strain of hens. But as to a whole flock—that is a vastly different thing. A flock that averages 150 eggs to every hen is a good one, better indeed than most farm flocks. This party wants 250 eggs from 500 hens, or 182½ from every hen for the year. Well, if he can get that average from 500 hens he will be doing well.

He will have to have a first-class laying breed, and he will have to attend pretty closely to his knitting in the feed and care business. I do not say he can not get it. I think it is possible, with excellent skill in breeding and handling the flock. If he makes the trial, I hope he will let us know how well he has succeeded. Or if any of our readers have done experimenting along this line, we shall be glad to have them tell us, through this department, what they have learned.

Now as to the house for the 500 hens. If I were going to keep 500 hens on six acres, I should have three or four houses for them, and have them scattered about over the land. This method would insure better sanitary conditions. That number of hens is too many for one building. If this party is going into the poultry business that extensively, he will need to equip his plant with good buildings, if he is to get the best results from his efforts. Just any kind of shacks will not answer the purpose; and crowding the hens into an insufficient space will work disaster. On stormy days in winter the hens should be kept indoors, and that means that they will need scratching space. Every henhouse should have two-thirds more space for a scratching room than is required for a roosting place. One hundred hens in one building is enough, and it should have at least 300 square feet of floor space. That means a building something like 30 feet long and 10 feet wide. It need not be an expensive structure, but it should be well made and comfortable for the fowls.

If the hens are to have fenced-in runs the houses could be made in one continuous building, with alternating roosting and scratching pens, and thus the hens be kept in separate flocks. I am speaking here of houses arranged to secure health and egg production from the flock. If the hens are to run out in all kinds of weather and the houses to be used merely for roosting places, as is the case on many farms, much less floor space will be required. I have given three square feet of floor space per fowl, but many poultrymen want four square feet, and even more.

Ohio. GEO. D. BLACK.



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COLON C. LILLIE, Coopersville, Mich.

SILVER LACED, golden and white Wyandottes. Eggs for hatching at reasonable prices; send for circular. **Browning's Wyandotte Farm, R. 30, Portland, Mich.**

WHITE ROCK, S. C. WHITE LEGHORN, BLACK Spanish and Indian Runner duck eggs, 15, \$1.25; 30, \$2; 50, \$3; 100, \$5. **G. N. BURT, Oakwood, Ohio.**

WHITE LEGHORNS—"Wyckoff Strain" Hens, Cocks & 1913 Cockerels. **Maple City Poultry Plant, Box C, Charlotte, Mich.**

White Wyandottes Snow White Eggs—15 \$1.50, 50 \$3, 100 \$5. **David Ray 202 Forest Ave., Ypsilanti, Mich.**

R. C. R. I. RED EGGS, \$1.50 PER 15, POSTPAID. **BUELL BROS., Ann Arbor, Michigan.**

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Horticulture.

BANDING FOR CODLING MOTH.

Banding was one of the methods used in our early attempts to control the codling moth, our most important apple pest and an insect with a history. There are records of this insect from 200 years before the Christian era. Cato mentions both the apple and apple worm, so we know the two have been associated for some time. Since then, all along the line of the march of human progress we find mention of him. It has been only within the last century that we really got him classified and started warfare against him.

At first we tried to scare him away by hanging moth balls in the tree or by smudging the orchards with ill smelling compounds. We tried lanterns set in pans of oil as traps and using molasses and vinegar as a bait. We also plugged the trees with substances which were supposed to be detrimental to the moth. This method of the times of witchcraft is still used by certain money ambitious individuals who make a small (?) charge for their scientific (?) work. The worst part of it is, they still find plenty of suckers.

As we were coming out of the dark ages of codling moth control we came to the use of banding as a method of warfare. It was an efficient method in its time. A fairly large per cent of worms were caught by this method. But shortly after Dr. Riley found that paris green was good to give to potato bugs he found that it was equally good to give to apple worms, and since then, banding has been relegated to the background except for scientific purposes.

There are three important things necessary for good results in spraying; time, thoroughness, and materials used. Thoroughness is a personal matter. It is a thing which is hard to impart to others, or vice versa. Formulas of materials to use can be had from any sources but the most reliable and up-to-date formulas can be had from the experiment station. The proper time to spray causes the most trouble.

Time for Spraying Varies with Season.

The spraying calendars of the experiment stations give as nearly as possible as printed directions can, the proper time but there are changes in the conditions of the seasons which make variations in the time of spraying which printed directions can not allow for.

The various results we get in controlling the codling moth by spraying at the same time each year regardless of the differences of the season show us the importance of spraying at the proper time and the need of a method of determining that time. For this purpose the old-fashioned banding becomes popular again and becomes a valuable adjunct to spraying.

How to Determine the Time to Spray.

The method consists of putting a band of burlap around the trunk of the tree. An old burlap sack folded about three thicknesses is the best. It should be fastened to the tree by one headless nail about the middle of where the two ends lap. By so fastening the band can be taken off for examination and replaced without drawing the nail.

This band serves as a hiding place for the moth when it spins its cocoon. These cocoons are gathered by cutting off the piece of burlap or bark to which they are attached and then placed in a cage made of a dish with a little earth in it, over which is set a lantern globe whose top is closed by a piece of mosquito netting.

The cage should be placed where the temperature is the same as outdoors and care should be taken to place it where the sun will not unduly affect its temperature.

The time for spraying is determined by the emergence of the moth from the cocoon. Ten to 14 days after is the proper time, the shorter time being used for the second brood and the longer for the spring brood. About two days after she appears the moth lays her eggs. These hatch into worms which enter the apple in about eight or 10 days. The time for spraying should be taken from the appearance of the first moth, not the later ones.

To get the time of the second or August brood the bands should be put on early in June. They should be examined

occasionally from the first of July on until cocoons are found.

To determine the appearance of the first brood the bands should be put on early in September of the preceding year as the apple worm spends the winter in the cocoon stage, although it does not change to the chrysalis stage until the next May.

By using this method we have found great variations in the appearances of the moth. The past two seasons well illustrates this. For 1911 the proper time was about July 25, while for 1912 it was August 15, for the second brood, and there was a difference of about a week and a half between the first broods of those two seasons.

We also find that there is considerable difference between a place on the lake (Michigan) shore and one inland, a place 15 miles inland being a week earlier.

It is not necessary for everyone to carry out this method. One man in a vicinity is all that is necessary. He can, by putting notices in the local paper, give others the advantage of his work. It is, however, advantageous for each one to do the work himself because it will give him an excellent opportunity to learn more about the codling moth. It is a good thing to know something of our enemies.

Van Buren Co. FRANK A. WILKEN.

SUMMER PRUNING.

Will you give in the Michigan Farmer the effect of pruning apple trees after they are in full leaf. I moved on a farm where the trees have been neglected and did not get a chance to prune all of them before the buds started. One of my neighbors said he always pruned his trees in June and they did not bleed. I never heard of pruning trees at that time so I am writing for your advice.

Delta Co.

I. C.

There is a belief among some of our leading fruit growers that better results would follow if a much larger proportion of the pruning of fruit trees was done in June. Summer pruning has a different effect upon trees than pruning during the period of rest. When the trees are dormant the cutting away of branches tends to increase the amount of woody growth, while if done in June this growth is checked. Because of the generally accepted statement that the production of wood and the production of fruit are opposed to each other, the conclusion from the above is that pruning in the active period of the year, i. e., June, induces larger fruit production; and this conclusion appears to be tolerably well supported by practice. The summer pruning of trees from five to ten years old is frequently practiced to stimulate early bearing and where old trees are sparing in production the same method is sometimes followed.

In the case of the inquirer the policy, we believe, should be dictated largely by the condition of the trees. If they are vigorous and have made good growth then there would be little or no danger result from pruning now, and the probabilities are that a larger yield of fruit would accrue. On the other hand, if the trees lack vigor, show little life and are making only a nominal growth it would be unwise to do anything that would restrict further development and, therefore, the pruning under such circumstances, ought to be delayed until the trees are dormant.

YOU HAVE THE OPPORTUNITY

of getting one of the beautiful six-page Michigan Farmer Wall Charts for only 30c, postpaid, if you send your order at once.

It is the finest collection of charts ever put together. Contains a map of Michigan, showing congressional districts, counties, railways, etc., the latest 1910 census of all Michigan towns, 25 colored plates, showing the anatomy of the horse, cow, sheep, hog and fowls, and giving the name and location of each organ, muscle and bone. A treatise on each animal by the best authorities, treatment of common diseases of farm animals, map of the world, showing steamship lines, map of the United States, flags of all nations, rulers of the world, Panama canal, all our presidents, and several other features too numerous to mention.

These charts have been sold mostly for \$1.00 or \$1.50. They will decorate and instruct in any home or office. We offer them at this price to quickly get rid of them and after our present stock is exhausted no more can be had. Remember the price is only 30c, while they last. Send your order to the Michigan Farmer, Detroit, Mich.—Ad.

Free Alfalfa Seed For Summer Sowing

Your farm is worth twice as much if it will grow Alfalfa successfully. Our Free Seed Offer is made for a short time, good only until August 1, 1913, to enable you to sow a test patch of Alfalfa on your farm this summer. Sow it according to our directions and learn how to make this Wonderful Crop succeed on your land.

Just mail the coupon and we will promptly mail the sample of seed, enough to sow a square rod, together with our latest and best booklet: "Dickinson's Alfalfa Facts." This booklet gives full information on planting, harvesting, and feeding Alfalfa. It is worth big money to you, but **it is free for the asking.**

Send for the free seed and booklet right away, before the planting season has passed by.



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Succeed Coupon Today

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Please send me a test lot of "Pine Tree" Alfalfa Seed and your booklet, as per your free offer. I agree to plant the seed this year according to your instructions.

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No one will ever use a liquid sprayer who has once used the

CHAMPION INSECTICIDE DUSTER

The Champion works faster—dusts two rows at once—as fast as a man walks. Weighs only six pounds. Simple to operate, any farm hand, even a boy can use it. It gives better results, at less expense—in time and material used—than any other machine. No water to carry. Least danger because the poison is kept at a safe distance. Price \$8.00. If your local dealer can't supply you, we will ship direct on receipt of price. Guaranteed satisfactory.

On large acreage, use the Beetle Duster. Dusts four rows as fast as a horse walks.

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Will pay for itself first season. Best Orchard Ladder made and only one that will stand secure on side hill or uneven ground. Easy to set, light and strong. Automatic lock, improved hinge and bracket. 6-8-10 and 12 foot heights. Sold on five days free trial. Ask your dealer to show it to you, or write for our Ladder Folder.

R. S. NODDINS, Dept. 2, Orleans, Mich.

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Go to three of your neighbors who are not subscribers to The Michigan Farmer, or whose time has run out, tell them that you will have sent to them the Michigan Farmer (the best farm paper in America), every week for a year (52 copies) for only 50 cents. Collect 50 cents from the three of them and send us the \$1.50 you collect, together with the three names and addresses, and the watch will be sent to you at once, post paid.

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Grange.

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

THE JUNE PROGRAMS.

State Lecturer's Suggestions for First Meeting.

Song.
Roll-call responded to by each giving experience with a pleasant piece of work.
Recitation, "When June gets here."
How to make some piece of home or school apparatus for play.
Do sugar beets increase soil fertility?
Song.
The most attractive part: 1. Of my township. 2. Of my county. 3. Of my state.
Pantomime or dialogue.

BIRDS I SAW ONE DAY.

(Paper presented at meetings of Leonidas Grange and St. Joseph County Pomona by Helen Lucile Taylor, and published by request).

The subject of my paper was to have been, "Birds I have seen in the spring," but if I kept to that subject I would have to come to many Grange meetings to read it. So I have taken the liberty of changing it to "Birds I saw one day in the spring," and think you will find them many.

To begin, my husband was to blame for my playing truant that day—running away from my household duties. "Look," he cried at the breakfast table, "at that bird in the garden! Did you ever see one so blue?"

"Oh, an Indigo Bunting! Right in the garden!" I exclaimed; "I must go and see it."

I hurried out and followed that vivid bit of blue through meadow and field, it ever flitting just ahead of me, until at last it soared away in the distance. Then I turned to retrace my steps, but the glorious morning was all about me—the rosy east, the fragrant air, the joyous out-of-doors, and, above all, the bird music.

"The robin and the bluebird, piping loud, Filled all the blossoming orchard with their glee."

The sparrows chirped as if they still were proud
Their name in holy writ should mentioned be.

The hungry crows, assembled in a crowd,
Clamored their piteous cries incessantly,
Know who it was that said

"Give unto us this day our daily bread."
I could not resist this "call of the wild." "Just through the orchard," I thought, and with a guilty feeling of work left undone I started for the open-air concert holding forth there.

The orchard oriole was the first that met my eye. He is sure to be found here, for he makes his home in the orchard. He is not so conspicuous as his cousin the Baltimore oriole. His coat of chestnut and black is easily overlooked among the green leaves but his voice is richer in tone and finish, as though he had taken of a greater master. He lives chiefly on insects and saves us many a juicy apple.

A cheerful repetition of song called me to another part of the orchard where I knew I would find the red-eyed vireo flitting from branch to branch searching for worms and singing continuously, but I must look long and searchingly for him, he is so small and his coloring is so in harmony with the foliage. But finally I find him, a little olive green bird, very inquisitive, peering beneath each leaf to see what is there.

But now rich bird music calls me at the foot of the lane—sad music that speaks of beautiful stories of long ago, rich music, like grand opera, melodious, spiritual. I hurried to see the

"Bluebird atilt upon top-most spray,
Flooding with melody the neighborhood."
I never can quite define the bluebird's song, so sweet, so sad.

Here I hear the plaintive cry of the meadow lark. "Won't you be my sweetheart?" I heard a small boy interpret it, and isn't it a pleading, plaintive cry? I wandered up to see this meadow lark but it impolitely turned its back to me. They will ever do that, seeming to know that their yellow breast, with the black crescent encircling it, is a conspicuous mark.

Now a happy, jolly, rollicking song makes me conscious that Bob o' link has taken possession of the wheat field—Bob o' link, the happiest of birds. At the head of the lane the clarion call of the flicker sounded. I'll admit now that all thought of home and neglected duties was gone and I was lost in the joy of follow-

ing these birds. The flicker is a bird of many names, high-hole and yellow-hammer being the most common. He busily hunts for ants on the ground, then flies up with a swish, the yellow under his wing making him easy to identify.

Now I hear the brown thrasher's beautiful carol at the edge of the woods and I enter them to get a view of him. The brown thrasher seems associated with my childhood, for 'twas then I found his nest in brush piles and fence corners and learned to know him. His song is the most beautiful of songs, and his bearing the most distinguished. He appeals to our higher emotions.

I hear a new song and know it to be that of the Kentucky cardinal. I count it a red-letter day indeed when I see the cardinal. It is a bird of the south and only an occasional species comes north. The cardinal is the only wholly red bird we have in North America. It is a beautiful bird and a pleasing songster.

From the cardinal to the red-headed wood-pecker is a far cry, yet the red-head is an interesting bird to watch. Look at this one now excavating a nest from that hollow tree. What a carpenter he is, and how hard he works! But his mate must help; she must do her share. He works until, with a series of drum-beats he calls her, while he flies away to rest; it's turn and turn about until the nest is completed. The wood-pecker has no musical voice.

And thus I wander on, feasting my eyes and ears upon these birds until, growing weary, I sit down upon a knoll to rest. Immediately I experience the greatest joy of all the day as a dainty little bird alights upon a bush before me—a veritable fairy bird. I recognize it as the Myrtle warbler, and in its coat of yellow and black, brown and white, it presented such a bit of exquisite loveliness that my soul stirred with delight at the sight of it, and I exclaimed, "Now, Lord, let Thy servant depart in peace."

As I wandered homeward my mind was all engrossed with these "ballad singers and troubadours," and I wondered why we farmers, whom they work so hard to help, are so indifferent to them. Why must they have so many enemies—the man with a gun, out to kill something; the small boy with the slingshot; the house cat; we could help prevent this destruction if we would.

"Do you ne'er think what wondrous beings these."

Do you ne'er think who made them or who taught
The dialect they speak,
Where music alone is the interpretation
Of thought

Whose household words are songs in many keys
Sweeter than instrument of man e'er wrought
Whose homes in the tree-tops even
Are half-way houses on the road to heaven."

Let us encourage the birds. Let us strive to gain knowledge of them, their ways and habits. Let us put up nest boxes for them and, above all, learn to appreciate the great benefit they are ever conferring on mankind.

In Honor of Veterans.—Bellevue Grange, of Eaton county, made a Memorial Day observance of the first meeting held in the hall which it has recently leased. Four of its members were Civil war veterans and these were given seats of honor in front of a flag-draped window. One of the veterans made the principal talk of the afternoon—an intensely interesting sketch of the war from the firing on Fort Sumpter to the surrender of Lee. He also expressed great satisfaction at the evidence of the obliteration of sectional feeling which has been seen recently in the provision made by the government for entertaining, at the field of Gettysburg this summer, not only Union but Confederate veterans. Several patriotic songs were sung by the Grange choir and there were clever recitations and readings, while Master S. W. Burleigh and Willard Follett united in giving a memorial address on the history of the local Grange and the members who have carried forward its work, mentioning especially those who have passed away. Mrs. Charles Lynd was elected secretary of the Grange to succeed Mrs. James E. Ward, who as Miss Ethel Reed, served the Grange several terms, but whose recent marriage changes her home to Eaton Rapids.

COMING EVENTS.

Pomona Meetings.

Jackson Co., with Henrietta Grange, Friday, June 6.
Branch and St. Joseph Co.'s (joint meeting) at Bronson Grange hall, Saturday, June 7. State Master Ketcham and C. H. Bramble, speakers.
Washtenaw Co., with Manchester Woodman, state speaker.
Grange, Tuesday, June 10. Hon. Jason Ingham Co., with Locke Grange, Wednesday, June 11.
Wayne Co., with West Road and Willow Granges, in Willow Grange hall, Friday, June 13.

Farmers' Clubs

OFFICERS OF THE STATE ASSOCIATION OF FARMERS' CLUBS.

President—Jas. N. McBride, Burton.
Vice-President—C. B. Scully, Almont.
Secretary-Treasurer—Mrs. C. P. Johnson, Metamora.

Directors—C. P. Johnson, Metamora; H. W. Chamberlain, White Lake; Wm. T. Hill, Carson City; Jerry Spaulding, Belding; R. J. Robb, Mason; J. F. Re-main, Flint.

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

Associational Motto:

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

Associational Sentiment:

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

THE SUMMER PICNIC.

It is not too early to begin plans for the summer picnic. Already some of the local Clubs are making plans for the August picnic. This may well be made the occasion for stimulating interest in the Club. Very many Clubs make this the occasion of a union meeting, two or more Clubs uniting in a social day upon this occasion, often with sports of some character and sometimes with a program including a speaker of note who is secured for the occasion. It is probable, however, that so far as stimulating interest in the Club is concerned, particularly among the young people whom it is especially desirable to attract to the organization, that reasonable sports are superior to any other feature which might be added to the program. Everywhere the national game of baseball finds its patrons among the young people of the country and there is no better drawing card for an occasion of this kind than a well matched game of baseball by the young people of the different Farmers' Clubs. In many sections other sports are also placed on the picnic program. It matters little, however, what the plan followed so long as the desired results of interesting the young people are attained.

Unless the young people are in some way interested in the work of the Farmers' Clubs it is with difficulty that the organization can be maintained upon a sound basis for more than a single generation, as many of the older Clubs in the state have learned. While planning for the summer picnic it will be just as easy to add some feature which will be of particular interest to the young people and this phase of the work should not be neglected in any organization. As soon as the plans for the summer picnic are made, corresponding secretaries are requested to notify the Michigan Farmer in order that a notice of the date and place of the meeting, together with an indication of the character of the program may be published in this department.

CLUB DISCUSSIONS.

Do Not Favor Soil Expert.—The monthly meeting of the Assyria Farmers' Club convened at the very pleasant farm home of Mr. and Mrs. Roy Moore, Saturday, May 24. On account of the lateness of the hour no forenoon session was held. After the most excellent dinner, of which about 80 partook, the Club was called to order and sang, "Our Flag." Several recitations and musical numbers were given, one being a male quartette, "The Bulldog on the Bank," being given by four young men. "Does Barry County need a soil expert?" was the topic for the afternoon, led by Louis Norton. The idea of a soil expert is fathered and financed by the consumer, with the one main object of increasing soil production to such an extent that the cost of living might be lowered. The time is rapidly approaching when the voice of the Farmers' Club and the Grange will not represent the country communities. City people, or the consumers, are being permitted to join these organizations and even form them of themselves, which means in time they will have the controlling voice. Everyone must study his or her own farm and by so doing he will meet with better results than could be brought by a college educated stranger. This topic was thoroughly discussed by several members and visitors of the Club. The next meeting will convene with Mr. and Mrs. Harry Mayo, Saturday, June 28.—Ruth E. Cargo, Reporter.

Hold Union Picnic July 4.—Peach Grove Farmers' Club, of Kent county, met at the home of Mr. and Mrs. John Jelly, Saturday, May 24, with 50 present. The Club decided to hold a picnic, with the North Grand Rapids Experiment and Improvement Association, in Richardson's Grove, on the banks of Grand River, on July 4. After the business meeting a

literary program of songs, recitations and readings was given. The question of marketing fruit was discussed. The leading thought brought out seemed to be that of selling through the medium of an association, having all the fruit uniformly sorted and packed. Some thought that would do for the large grower but they did not think it would help the small grower, only as it would give him more chance on the local market. Some speakers thought it would be a success with apples and like fruits but not with peaches. The idea seems to be growing among farmers that the way to market is by organizing and selling direct to the consumer instead of to the middleman. In the literary part of the meeting we try to get the young people to do as much as possible.—M. G. Finch, Cor. Sec.

In Humorous Vein.—The County Line Farmer's Club was very pleasantly entertained in May by Mr. and Mrs. Martin Cole. The question for debate was, Resolved, That a good natured slovenly woman is preferable to live with than a neat scold. Mr. Tribe and Mr. Clark were the leaders, Mr. Tribe having the affirmative, did himself proud. Mr. Clark being absent none of the other men cared to defend the neat scold. The question box brought out several interesting topics. The question was quite thoroughly discussed.

Milk Inspection.—The Salem Farmers' Club held its April meeting at the Town Hall. The feature of the day was an address by Inspector Krehl, of Detroit, on the subject of "Pure Milk." He gave the dairy farmer much valuable instruction as to how to obtain this necessity of life; told them of the best equipment, so far as sanitary barns were concerned. Said, also, the best equipment may be spoiled by poor methods. Cleanliness and care must accompany all the methods of obtaining and caring for the milk; equipment was 40 points of success—but methods were 60 points. Said the reason so much care must be taken with the milk supply, especially in the cities, was because it is the food of infants. Instructions are also sent to the houses in the city to instruct mothers how to care for the milk after it reaches them. He also said that whereas the former death rate among infants had been one-third of all the mortality, it was now reduced to only one-sixth. This was an important and helpful meeting.

Agricultural Topics.—The May meeting of the Club was held at the pleasant and commodious home of Mr. and Mrs. Walter Bourns. This being the first meeting held with Mr. and Mrs. Bourns, an effort was made to make it a successful one, and a very pleasant company gathered to enjoy the social hour and the best of dinners, after which an interesting program was given. Robert Ross gave a chapter from his own experience on "Homesteading in Florida." This was much enjoyed. A select reading on "The Best Things," was given by Mrs. Anna Thompson. The subject of how to get a good catch of clover was discussed freely. Herbert Smith thinks there is no way like the old way of sowing in the spring with oats and using some commercial fertilizer. The subject was discussed, "Will it pay us to have a man come from M. A. C. to test the soil in our fields?" Closed with music. The June meeting will be held with Mr. and Mrs. Sylvester Atchinson.—H. C. T., Reporter.

Musical and Literary Program.—Cresco Farmers' Club was right royally entertained May 28 by Mr. and Mrs. Julius Crosby and their daughter, Hazel, at their beautiful home, the dinner being served on their spacious lawn under the fine old trees. Following invocation by the Rev. Phelps, of Battle Creek, 100 members and guests partook of the bountiful repast. The program for the afternoon was opened by the Club singing "America," and prayer by Rev. George Born, of Battle Creek. A penny collection was taken, which supplies funds for floral gifts to our sick members. Then bugle calls by Mr. Arms, interpreted by Hazel Crosby, written by Mrs. Baldwin for the D. A. R., were fine. The company were well entertained by music, both vocal and instrumental, and several good literary selections. There was no question discussed, but a short address by Rev. Phelps about missionary work, and a few remarks from Rev. George Born, who gave us "If," by Rudyard Kipling, finished our program. Club then adjourned to meet June 25, in Marshall, with Mr. and Mrs. Joseph Cunningham.—Mrs. R. M. King, Cor. Sec.

CATALOG NOTICES.

The "Beetle" Potato Duster, a horse machine for applying dry Paris green and dry Bordeaux mixture to potatoes, and Leggett's "Champion" Insecticide Duster, a hand machine for farm, vineyard, garden or field use, are described in literature sent upon request by Leggett & Bro., 301 Pearl St., New York.

The Imperishable Silo, manufactured from vitrified hollow clay blocks, is fully illustrated and described in a 50-page booklet sent upon request by the National Fireproofing Co., of Pittsburgh, Pa. In it are shown all the details in the construction of this silo which is so well described by its name. In addition it shows a large number of silos in many states and has many articles on the profitable use of silage in feeding operations. Write for a copy of this booklet, mentioning the Michigan Farmer.

"Farm Weeds and Farm Sanitation," is the title of a pamphlet published by the American Steel & Wire Co., 72 West Adams street, Chicago, Ill. This book is a treatise on the use of sulphate of iron in farm sanitation, which includes the eradication of weeds by spraying with this chemical, the prevention of hog losses through warding off diseases by its use and the lessening of the fly nuisance by proper sanitation.

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