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The Possibilities of Horse Breeding for the Farmer.

THERE is no line of farm production which affords greater possibilities for profit on the investment required than horse breeding. Yet this is a too generally neglected department of production on Michigan farms, and particularly on the smaller farms of the state. Every farmer must of necessity keep horses to do his work. This supply of horses must be replenished from time to time, and when one has to buy he generally finds the desirable kind of horses to be more scarce and higher in price than he realized. But this is a condition which does not seriously trouble the man who has some good young horses growing up to take a place in the farm teams, and which is a source of satisfaction, rather than regret, to the man who has a few good colts to sell from year to year. Thus the breeding of good horses may be made the source of an added profit, as well as a saving on the majority of farms.

The breeding of horses is a department of live stock production which should be particularly attractive to the small farmer, for the reason that one does not have to specialize in the business to make it a success and a source of maximum profit. If a man goes into the dairy business he must make that a specialty to have it profitable. He must keep enough cows to enable him to handle the product cheaply and to advantage. He must have special equipment and a dependable supply of labor, and the conduct of his entire farm campaign must be subordinated to this one department of production to a marked degree. The same is true with almost every line of production which may be followed, but horse breeding is a notable exception to this very general rule. It requires only a small initial investment, practically no extra equipment and, as the young horses come to a workable age, will aid, rather than hinder, in carrying out the regular farm work. For these reasons more Michigan farmers should become interested in the possibilities of horse breeding as a profitable side line of production.

But because horse breeding does not need to be made a specialty in point of extent or relative importance in farm production, it does not follow that it should not be made the subject of special study and careful planning by every farmer who engages in it. In fact, the decadence of the horse breeding industry is due to the lack of forethought on the part of those who have engaged in the industry in a haphazard way, more than to any other one cause. It was formerly the general practice, and still is to far too great an extent, to breed old, unsound and broken down mares to the stallion whose service could be most conveniently and cheaply secured, with little thought of the quality of the colts which would be secured. The result of this kind of horse breeding is generally both unsatisfactory and unprofitable and certainly offers no attractive possibilities to any farmer. But, fortunately for the future of the industry and those engaged in it, this method of breeding is yearly becoming less common, due perhaps largely to

the fact that the scrub stallions have been very generally replaced by draft sires of far better quality and, a factor of still greater importance, of greater prepotency in the production of desirable foals through the influence of generations of better breeding. This tendency toward the use of better sires will be further emphasized through the influence of an efficient stallion law, such as we now have in Michigan. This law provides the means by which every horse breeder may know the breeding of the sire which he

This point being settled, the choice of breeds may properly be left to the preference of the breeder, although as a general proposition it would be better to choose the breed of which there is the greatest number of stallions in the community or within easy reach, since this will afford a greater possibility of discrimination in the selection of a sire. This decision should, however, depend somewhat upon the breeding and character of the available brood mare or mares, and also upon how extensively it is plan-

production, hence the desirability of taking every possible precaution to produce only good ones. The individuality of the brood mare and the care and feed given her and her colts are the first essential factors in the production of good horses. The mare should be sound, and with some pretensions to quality and breeding. As to the latter, she should at least be a grade of the same breed as the pure-bred stallion with which she is mated. She should have a tractable disposition, with sufficient mettle to insure good staying quality, and withal a strong constitution which will insure endurance. Last, but not least, she should have sufficient size so as to not handicap her offspring in their ability to make weights suitable to the purposes for which their breed is fitted, with good feed and care from birth to maturity. Given these qualities, if the mare is a good feeder and is given a proper chance she will be likely to provide an abundance of nourishment for her colt, which is an absolute essential in a good brood mare. If more than one mare which will answer to this description is available, and if more than one can be given a proper chance to do her best in the production of good colts, well and good. In that event it will prove profitable to go into the business on a more extensive scale than otherwise. But if no mare which will fill these requirements is at hand, it will be more profitable to secure one before going into the horse breeding business than to start in with a handicap in the form of an inferior mare. And if only one such is available it will be more profitable to go into the business on a small scale and give this one mare a chance to do her best than to breed unsuitable mares and give the good one a poorer chance. One good brood mare that will produce a colt each year will soon fill the yard with horses, and if she is a good producer will make her owner more profit than two or three poor ones.

In the selection of a sire as great care should be exercised. He should be right, both as to breeding and individuality and, preferably, he should be a tried sire whose prepotency has been demonstrated in the breed type and quality of the colts which he has sired. The difference in the service fee between the best available and the mediocre sire should not be considered, so long as it is at all within reason, but evidence as to which is the best should always be sought and carefully considered.

Having made a judicious selection of the brood mare and the sire, the novice in horse breeding is far too apt to think that he has already insured success in his undertaking. This, however, may be a fatal error. Good "horse sense" is needed all the time until the colt has reached maturity. The mare should be intelligently fed and worked during the period of gestation, with due regard to her need of nourishment and exercise. Moderately hard work will do her no harm; in fact, it will be beneficial rather than otherwise, so long as good judgment is used in working and feeding. (Continued on page 471).



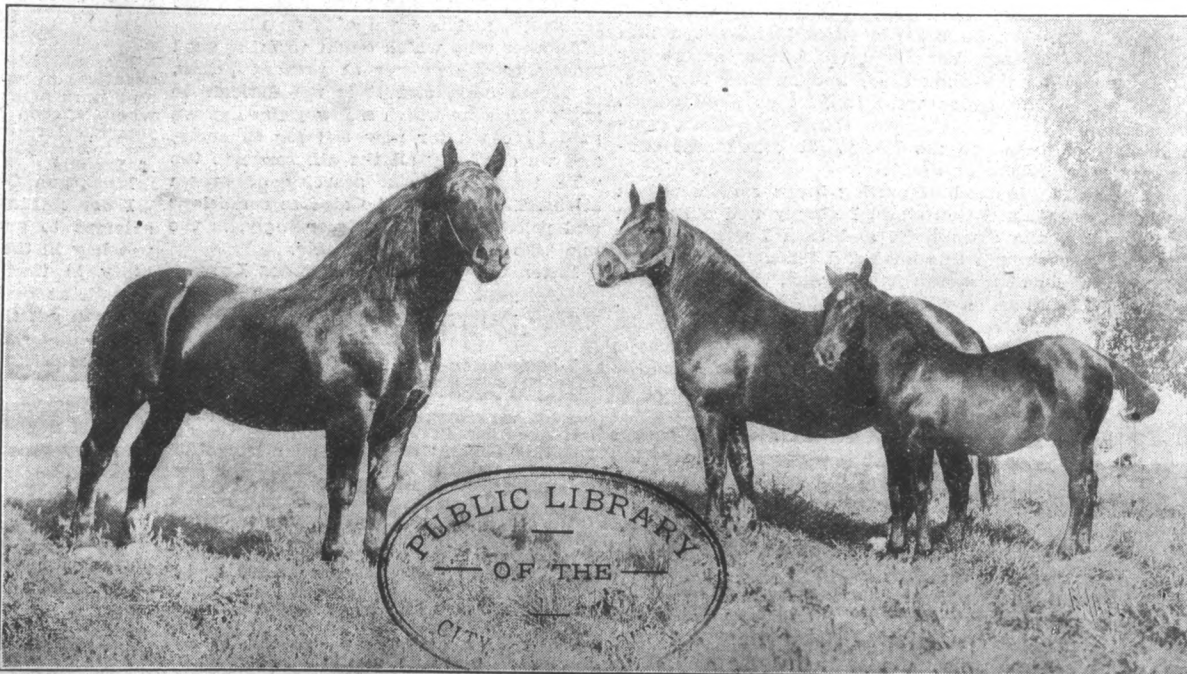
Draft Mares with Colts at Side. Bred by Plank & Newsome, Charlevoix County.

uses, which is an important factor in the success of his undertaking.

But the first consideration for every farmer who would engage in horse breeding is the type of horses which he will produce. As a general proposition, however, this should not be a difficult problem to decide. There is no question that the draft type is the most useful on the farm, or that, reared under farm conditions and training, good individuals of this type will find a surer market at more remunerative prices than any other when they have been well grown to maturity.

ned to engage in the breeding of horses.

And right at this stage in our consideration of the subject we should, perhaps, definitely decide this last mentioned point. In horse breeding, as in every other line of production in which he may become interested, the average farmer is apt to give more attention to the consideration of quantity than of quality. This is generally a mistake in any line of production, but it is a fatal mistake in horse breeding. One good colt may easily be worth as much as two poor ones, and there is certain to be twice as much profit in his



A "Royal" Family, Next to the Human Race the Most Beautiful, Noble and Useful of Created Beings.

OBSERVATIONS ON MICHIGAN METHODS OF FARMING.

One of the places in Michigan where live stock raising predominates is in the section around Saline, in Washtenaw county. In many places some cash crop predominates, such as beans, beets, potatoes, hay or fruit, and the interesting question arises as to the comparative conditions resultant from these different methods of farming. Some light is thrown on the situation when it is noted that it is now the third generation of men from the original settlers, who are the active farmers. Washtenaw county is second in the United States in fine wool production, with one county only, this being in Ohio, that surpasses it. There is a pastoral tranquility in connection with the fine wool type of sheep that carries one back to the days before commercial mutton raising shortened the allotted span of the ovine's life. Men seem to get acquainted with their flocks' individualities and their progeny, and point with pride to a line of breeding. Commercial sheep growing and feeding, like the wages of sin, is death for the sheep, and sentiment on the part of the feeder.

The great procession of stock racks in Saline loaded with sheep, lambs and hogs seen in the streets, together with bank deposits of over \$600,000 in a strictly farming community, leads to confirmation of the statement that Saline is the greatest stock shipping center in Michigan. It is rarely that one finds a community so devoted to live stock and the comparative absence of out shipments of staples like hay, grain, etc., is noticeable on the one hand, and the farm yards stocked with cattle, sheep and hogs on the other. It is in these yards that are found the sources of the wealth mentioned in bank deposits.

The Saline creamery, now approaching completion, bears the same marks of strength and perpetuity that has its foundation in stock feeding for that line of production. Few, if any, dairy structures in the state equal this building of steel and cement with tile roofing, as does this new structure. The interior is being finished in white enamel and the machinery is operated by independent motors. Ice cream and butter will be made. Both whole milk and cream are received and at the flush of the season the daily output of butter approximates 3,000 lbs. Much of the butter is sold in pound prints and demands above market prices in select trade. The construction of a \$15,000 creamery is unusual as well as remarkable, to find in a community so devoted to general live stock interests. But the interdependence of young stock and pigs upon the by-products of butter and ice cream production is marked, as compared to a milk shipping district. The immediate return for shipped milk may be greater, but it is doubtful in the long run.

Where protein food is used as a carrier of butter-fat and then utilized as a flesh builder for swine and calves in the form of skim-milk it is given a secondary value rarely, if ever, found in any other process of manufacturing. There is an old saying, "one cannot eat his cake and keep it," but in the case of cottonseed cake fed to the dairy cow the protein of the cottonseed re-appears in the casein of the milk for calves and pigs, which, if not a contradiction, is a modification of the oft repeated statement.

I have often wondered why the American sheep breeders have not taken a leaf from the book of the dairymen in opposing counterfeit competition. The dairymen have had to oppose the packing industry in their fight against oleomargarine. The sheepmen should wage a war against unfair competition or shoddy. The sentiment against adulterated foods, now so strongly felt, might easily be extended to include pure woolen clothing. The grades of shoddy suits sold in many cheap stores are really worn by those who can least afford to wear them, because the life of the garment is short. And again, then there is something repulsive in shoddy, to almost everyone, it being a near neighbor to second-hand goods. My own opinion is that "shoddy" competition to wool is quite as great as foreign wools. It ought not to be difficult to compel all woolens, subject to interstate sale, to bear a tag on the garment or fabric stating the real percentage of new woolen fibre. The sentiment for the "square deal" is now more general than when previous attempts failed. There is no question but such legislation would do much to remove the present pessimism in wool circles and could be urged on the principles of fundamental

justice. While there might be a statement that Schedule K was indefensible the same attitude could not be consistently maintained against pure clothing, free from shoddy. Here is an opportunity for a display of one measure of adequate fairness to Michigan farmers.

Another feature of this section of Washtenaw county is the assurance of little or no depletion of soil fertility in these many years of stock growing. Very little commercial fertilizer is used and no serious demand exists although some admit that it might be used to advantage. All in all, this section of Washtenaw county is a wonderful tribute to the maintenance of soil fertility by means of continuous stock growing.

Shiawassee Co. JAS. N. McBRIDE.

HAY CAPS.

I would like information regarding hay caps from one who has used them. How large should they be; how should they be made and of what material? Also, how heavy should the weights be made and how attached to the caps? Are they of sufficient practical value to pay for the expense of making and trouble of using?

SUBSCRIBER.

I have had experience now for three or four years with hay caps and I believe in them, and I think it will pay any man who wants to make a choice article of hay for his own use, to provide himself with hay caps.

The first hay caps that I purchased I procured quite firm heavy ducking, had brass eyelet holes put in each corner, and them hemmed all the way around, and they cost me something like 24 cents each. These caps were 40 inches square. They are hardly large enough and yet they do pretty well. Now, for weights to tie on each corner to hold them on, at first I got blank iron bolt burrs, bought at the hardware store at so much a pound. The first I got were not heavy enough so I had to put on two. Then I got them for inch bolts and they did very well. I put them on the first place with binder twine. The grasshoppers would eat off the twine. The twine would rot where it came in contact with the iron. Then I got common annealed stove pipe wire to put them on. This is better, but this rusts in a season or two so that you lose many of the weights, and I have now come to the conclusion that it would pay one to buy fine copper wire. Then you would have something that would last.

The next lot of hay caps that I got I went to the dry goods store and bought cotton cloth by the bolt. It was 40 inches wide and I cut the cloth 45 inches long, making a cap 40x45 inches. This is common unbleached cotton cloth. You would not think that this would shed water, but it does. I can't explain it, only I know that your hay cocks and shocks of wheat seem to be just as dry under these caps as they are under the duck caps. A neighbor of mine raises a few beans each year and for the last few falls he has come and borrowed some of my hay caps to put over his beans after he harvested them. He put them up in small tall piles and then put the hay caps over them. Now, this was a thorough trial this year for hay caps because they were left on this fall through an awful amount of rain. It rained nearly every day, as you all know. When he came after the hay caps this year I took particular pains to give him about a half dozen of these hay caps made out of common cotton cloth. I told him I wanted him to try them and when he brought them home asked him if those caps kept the beans just as dry as the duck caps, and he said they did. The beans were in just as good shape. And yet, this was thin cotton cloth, compared to the heavy. It didn't cost one-fourth as much.

Instead of getting brass eyelets put in this cotton cloth, I simply tied a knot in the cloth itself and then I put the wire around this knot and through the weight, and it works just as well. It doesn't look quite so well. The caps are not hemmed. We could have hemmed them well enough on a sewing machine but I thought maybe the raw edge would last just as long as the cloth did itself, and I have made up my mind that I never will pay 25 cents for any more duck to make hay caps with. I will just get the common cotton cloth.

Now, with regard to weights. After experimenting with these blank burrs and finding them rather expensive I read in the Michigan Farmer that you could make nice weights for hay caps by taking the common filler to an egg crate and filling it full of cement and sticking common fence staples in before the cement set. Well, I tried this but it is an awful

bother to fill these egg fillers. So I devised another scheme and that was to spread the cement out at about the right thickness, or the same as it would be with the egg filler, and leave it until it commenced to set and then take a case knife and a straight edge and cut through both ways, leaving squares of just about the right size and then, when it has set these will readily come apart and you can make more of them in one hour than you can with egg crate fillers in a day. Simply stick in your staples before the cement sets and you have as good a hay cap weight as you need. These weights ought to weigh one-quarter of a pound at least, to hold the caps down in a severe wind. Now, as I said before, if you will get some fine copper wire to fasten these cement weights to the cover of the cap you will have something that will last. The wire ought to be at least eight inches long, for the weights have more effect than when tied on close to the corner of the cap.

COLON C. LILLIE.

SPECIAL CROPS FOR SPECIAL OCCASIONS.

When the price of a staple article climbs up year after year, it would seem to be the part of wisdom for the farmer to attempt to supply the demand and reap the profits which the abnormal price gives. Some, no doubt, dislike to break up their usual rotation, hence they neglect the opportunity which the situation offers for good profits. At the present time there appears to be a chance for farmers who have suitable land, to make good profits. For several years the price of clover seed has been abnormally high, and the end seems not to be reached yet, as the price now is higher than ever before. The farmer must have clover to keep up soil fertility, no matter what the price is. Clover seed is clover seed, and commands the price, be it June clover or mammoth, both sell at the same figure in the market, and the buyer cannot tell if he is getting June or mammoth.

Why should not more farmers make a specialty of growing clover seed, study out the best ways, with or without nurse crops, seeded alone or with other grasses. I know there has been a lot of difficulty of late in getting a good catch of clover, but where there is a will there can be found a way, and the reward will be good profits for those who succeed. Then there is timothy seed. For years we paid \$1.50 and \$1.75 per bushel for that, but now we have to pay three or four times as much. Why should not more of our farmers raise timothy seed? Many of them have timothy meadows which they cut for hay, but at present prices of seed it would bring more than the hay, and still leave one the straw for feeding.

As I write, there lies before me a clipping from the local paper of last week, which shows what may be done. I give the item in full: "Joseph Hisler has shipped the 160 bushels of timothy seed that he took from 15 acres of his Brookfield farm last year. The seed brought him an even \$1,000, and the straw from which the seed was threshed, added \$425 more to the credit of the 15 acres, making a total of \$1425 received from the product of that little patch of ground in a single season. Mr. Hisler also took 100 bushels of clover seed off his farm last year, for which he received \$1,200." The acreage of clover was not given, and no credit for the chaff, which has some feeding value for sheep, and is a valuable fertilizer.

Another crop which ought to bring good money to the grower at present prices, is broom corn, and it is not difficult to grow. Brooms which a few years ago we paid 25 cents for now sell for 60 cents, and we can't lay all the difference to the wire trust, or to a scarcity of broom sticks. The farmer who studies conditions and prices, and plants accordingly, is the one who will reap the profits.

Eaton Co.

APOLLOS LONG.

FERTILIZER FOR OATS.

I have a ten-acre field that was planted to corn last season, on which I did not get very good stand of corn. We did not expect very large yield of corn per acre, but our idea in planting to corn, was to get this field in rotation and all together into one field, it having been cut up into a number of small fields. About three acres was sod turned under last spring, the remainder had been cropped about three years by renter. Our plan is to sow this field to oats and seed to clover with the oats, also sow about 200 or 300 lbs. of fertilizer per acre on portion of field where no sod was turned under last spring. We sowed rye in the corn about Sept. 1, as a cover crop and also to add humus. The soil being clay loam, it seems to bake and get very hard. What per

cent nitrogen, phosphoric acid and potash would be advisable? Also, would you advise use of a cutaway or disk harrow on this field, or plow it?

Oceana Co.

E. S. P.

An ordinary fertilizer for oats on good land in a fair state of fertility would run something like one to two per cent of ammonia, eight to nine per cent phosphoric acid, and two to three per cent of potash. Eight hundred pounds of such a fertilizer per acre ought to give good results on the oat crop and would certainly help the seeding of clover, but since this land is not in very good condition, as indicated by the growth of corn last year, it probably would be better to use a heavier application of this fertilizer or else use a higher grade fertilizer. I would recommend one containing two to three per cent of ammonia, eight to 10 per cent of phosphoric acid and four to five per cent of potash and use 300 to 350 pounds per acre.

I think this field can be fitted with a disk or cutaway harrow and form as good a seed bed as you could by plowing, and possibly better. Of course, something will depend upon the season, but if it should be a dry spring, and this heavy soil which gets hard is plowed up without a sufficient amount of rain, it would be almost impossible to get it in condition for a good seed bed. However, by working it with a disk harrow, going over it a sufficient number of times to pulverize it thoroughly, all lumps will be avoided and I think the seed bed will be better. Undoubtedly E. S. P. is correct when he says that this soil needs humus because if it was well filled with vegetable matter it would not get so hard when it gets dry, and undoubtedly to get it into clover as soon as possible will be the best treatment that can be given to it.

COLON C. LILLIE.

EMINENCES OF A POTATO GROWER.

Your able article on The Potato Crop is worthy of more extensive discussion. In this locality, (Grand Traverse), potatoes are the leading crop. Now, as a farmer of 81 years, allow me to give a truthful account of its development here. Some fifty years ago we could not sell this crop at all, except once in about three years, at 25 cents a bushel. Gradually it worked to beyond that price to ship, yet to tell the truth it has always been a common saying, "Of all the gambling crops known potatoes take the lead." During the 50 years past I have never known the price go up to a dollar a bushel and stay at that price but a short time, except this year. Germany's short crop was the cause. It has always been a standing joke if you don't accept a dollar a bushel at once you will be glad to get 30 cents a bushel. This winter it is marvelous the amount of money farmers are getting; 90 cents a bushel, and now I have been offered over a dollar for russets.

Now, about the Maine state crop and its wonderful yield. The real truth is that in their location they have a market beyond what is known back from the coast, Boston, New York, etc. It would have been a bankrupt case for farmers to buy fertilizers here except this year. Now, remember, the real truth is, if they glut the market this year, down goes the price to nothing. Millions of bushels have been thrown to the water for ballast.

Gd. Traverse Co. HENRY VOORHEIS.

TWO CROPS OF OATS AND PEAS IN ONE SEASON.

I would like to know if it would be practical to sow oats and peas or barley and peas after the first of July, on land where a crop of oats and peas had been just cut for the first crop? Would like to get two crops of hay off the same ground if I could.

Muskegon Co.

A. W.

I don't think it would be practical to attempt to grow two crops of oats and pea hay in the same season. The probability is that there won't be moisture enough at that time of the year so that you can get them to germinate at all and they will be an utter failure. If you did have moisture at the proper time the weather is too hot at that time of the year for either oats or peas to do well. I would not expect them to make a satisfactory growth at all. It might be possible after you take your oats and peas off, if moisture conditions are right, if you would disk the soil up at once, to sow Hungarian grass and get a fair crop. I have sown Hungarian grass as a catch crop in July and got a fairly good crop of hay. It will be much safer to try to get a crop of Hungarian grass than it would another crop of oats and peas.

COLON C. LILLIE.

TESTING SEED CORN.

One of the most neglected tasks on the farm today is the testing of seed corn, yet the task is very simple, easy to perform and is most profitable, and once a farmer tests his corn properly he makes it a permanent practice. Neglect in proper testing has caused many a thin stand of corn and consequently greatly reduced yields.

Early spring, before spring farm work begins, is a good time to test or the testing may be done evenings and may be made a source of enjoyment. I use a box 15x15 inches square and four inches deep. This box will hold six kernels from each of 100 ears of corn, or a good bushel. I first put about two inches of sand or fresh sawdust into the box and firm well, using a square block of wood or brick. Then I take a piece of unbleached cotton or muslin just the size of the box and mark off 1½-in. squares. This gives me 10 squares on a side, or 100 squares in the box. Next I number these squares from one to 100, using a crayon pencil and marking the number in each square. The marked cloth is then put into the box on the sand, smoothing same out nicely so there will be no danger of getting the kernels of corn mixed. I now bring in my corn, which I have on a drying rack, this rack is made by nailing 2x4's together for sides and top and

here to the top cloth get them into their proper squares immediately, so as to be absolutely certain of the test when finished. In reading the test each square of kernels is examined in regular order and all ears showing a weak, spindling growth or less than five strong sprouts out of the six, are discarded. Dead corn makes better feed than seed.

The accompanying cut shows my rack and testing box with ears of corn in place on rack and kernels nicely sprouted. The test shows a very strong germinating seed, as every kernel but three has a sprout. These three—one form each of squares 56, 66, 75 are dead. Also the squares 41, 58, 60 showed a little weaker growth. All other squares showed an equally strong sprout.

Now, if conditions for 1912 should be normal I see no reason to hinder my stand of corn being extra good. I know the seed is right and will look for a good crop.

St. Clair Co.

G. A. BALDEN.

SUGAR BEETS ON MUCK LAND.

I have a piece of marsh land recently drained by large dredge ditch. There is 100 acres or more that will be available for crops as soon as it can be cleared and broken. It is now covered with marsh grass and brush. The muck ranges in depth from two feet to six feet or more. There is a good fall and by til-

drain the land. It will certainly be valuable land and is well worth the tiling. Possibly if you put it into corn you will find it necessary to use potash and phosphoric acid. Muck is apt to be deficient in the mineral elements. I am informed by the growers themselves in some sections in northern Indiana on muck land that they cannot grow a profitable crop of corn without the use of potash. That element seems to be almost entirely lacking in that soil but just as soon as they apply potash they can raise luxuriant crops of corn. You want plenty of phosphoric acid with the potash because the phosphoric acid develops the ear.

Sugar beets add nothing to the soil. They are not soil builders. Sugar beets, nor any other crop, can take nitrogen from the atmosphere. The plant gets all its nitrogen, combined with other substances, dissolved in the soil moisture up through its rootlets. Some plants, however, like clover and other legumes have the power of taking nitrogen from the atmosphere through the bacteria which grow in nodules on their roots and after it is used by these microscopic plants then it is in a condition to be used by the growing plant. However, many people claim that land produces more after we commence to grow sugar beets in the rotation. They do not claim that the sugar beets add any plant food to the soil but they figure it out from the fact that we give more thorough tillage when we raise sugar beets, and the thorough tillage improves the soil. Then, too, in growing sugar beets one fertilizes the land well and the residue fertilizer which is not used by the beet plants is used by the other crops, so that there is a gradual improvement for all the crops in the rotation when one grows sugar beets. Sugar beets, like all other crops, take nitrogen, phosphoric acid and potash, the three essential elements, from the soil. A crop rotation is just as necessary on muck land as it is on any land if you want to keep up the productive power. It is rich at first and you can grow a single crop for several years on the land but eventually the time comes when you must resort not only to crop rotation but also to added plant food. If I owned this land I would experiment a little in a safe way with different kinds of commercial fertilizers and also with lime. In this way you can find out just what the soil lacks and it might be that you will make hundreds and hundreds of dollars. Nobody can tell you just what to do, only in a general way. You have got to work out your own salvation. Now go at it right. Try some potash on a little strip. Try phosphoric acid on another strip. Try phosphoric acid and potash combined on another strip. Try a complete fertilizer on another strip, and then on another strip try lime, and you can find out readily what the soil needs. When you find this out you will know more than anyone can tell you.

COLON C. LILLIE.

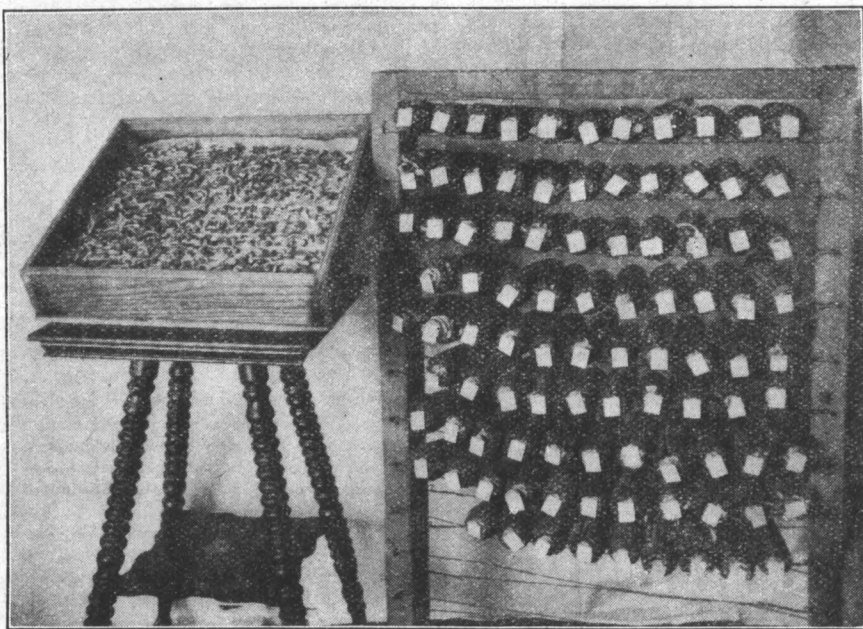
CUCUMBER CULTURE.

I noticed the inquiry of J. G. in the Michigan Farmer of March 9, in regard to growing cucumbers. I am somewhat interested in that subject as I have grown them commercially for several years. My experience does not quite agree, in all respects, with the advice given. I find that six feet apart is plenty close enough on the kind of soil he describes. If it were very rich in humus eight feet would be better. I find planting the first week in June preferable to a later date. I always aim to have them in before the 12th. This makes the season short enough as we are apt to have frost sufficient to kill vines early in September.

The plan of putting the fertilizer directly into the hill is, I think, the best one and there is nothing better, so far as my experience goes, than the droppings from the henhouse. There is a tradition that this keeps away the striped beetles. I can't say if there is foundation in fact, for this belief, but have never been much troubled with the bugs. An application of one part each of lime and wood ashes to two parts soot, with two tablespoonfuls of Paris green to about 10 quarts of the mixture, sprinkled on lightly, has always been sufficient to discourage their operations.

If a clover sod is not available a crop of rye sown in the fall and plowed under before planting is a pretty good substitute.

I cannot say what the normal profits from this crop ought to be, as it has happened each year I would raise them, that it was unusually dry. But even under the unfavorable conditions of last year they gave better returns than any



A Convenient Form of Testing Box and Seed Corn Rack.

nailing these to a wider board for the bottom. By making the base about 10 inches wide the rack will stand up nicely of its own accord. I drive nails on each edge of the 2x4's on each side of the rack and opposite to each other, just far enough apart to take in an ear of corn. I then stretch common hay wire from nail to nail on both sides of the rack. This makes the two wires four inches apart and forms a nice airy shelf to support the ears, allowing free circulation of air at all times. The rack may be built any size wanted. Now I have on hand some pin tickets about one inch square, such as are used in pricing goods at the stores, (pasteboards cut into squares with a tack to drive into the butt of the ear would answer the same purpose). I begin by marking one on a ticket and sticking same into the butt of the first ear on the rack. I then take my knife and take out six kernels of corn from different parts of the ear and put these kernels onto the square in the box marked 1. I then take ear No. 2 and do likewise, putting kernels from ear No. 2 onto square 2 in the box and so on until all squares are filled, being careful to get the kernels taken from the ears into the corresponding number in the box.

After the squares are filled with corn take a cloth a little larger than the size of the box and of a close woven nature and place same over the corn, taking care not to disturb the kernels. When this cloth is in place take another cloth, still larger, and lay on the box and fill in more sand, enough to fill the box, folding the edges of the cloth up over the filled box to give a neat appearance, thus completing the job. Water well and keep in a room where the temperature is somewhere near 70 degrees. Do not let box dry out, always keeping sand moist.

In six days the test will be ready to read. Begin by rolling the top layer of sand up as you would a mat, and remove it from the box. Then very carefully remove the cloth which covers the kernels of corn. Go slow and if any kernels ad-

Of course, the first thing to do is to put in the tile drains and thoroughly

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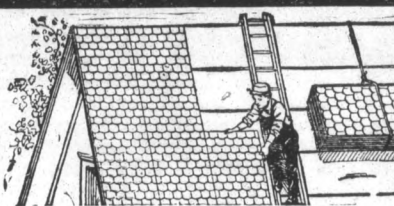
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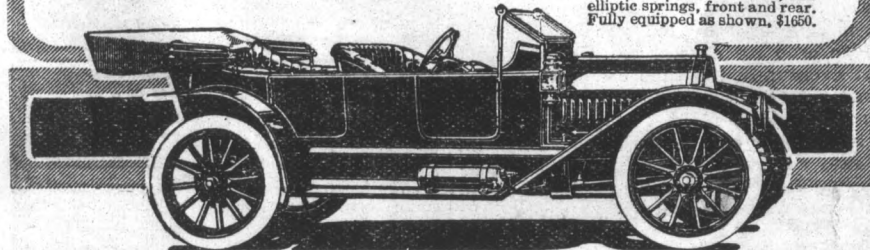
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other farm crop I raised. To give the exact figures, one and one-half acres brought me, after deducting seed and crates, \$91.37. No account, of course, was made of the amount used in the family.

One man can harvest an acre by picking alternate days and marketing in the morning, or by picking half the patch one day and half the following, and marketing in the afternoon or evening. Most salting stations are open in the evening. Experience in raising cucumbers as well as any other crop counts, of course, and I advise no one to give it up at first trial.

Gratiot Co.

O. L. M.

ADVOCATES KING DRAG FOR ROADS.

There is quite a bit of space given over to the road problem and I would be glad to make a suggestion. The people of counties who have no state reward roads must get tired of paying taxes to build up roads for counties which have bonded. No county will have good roads until the people who live alongside of them and use them know how to build them and demand them. It has been demonstrated that a King split-log or plank drag will do more to make and keep a road in good condition than any utensil of equal cost and expense of operation. If townships were to adopt a course of paying some farmer on each mile of road in the township three to five dollars per annum to go over the road with a King drag after every rain of two hours or longer duration it would round the road up, fill the wheel tracks, do away with the ruts and afford drainage. Many of the country roads dish in towards the center, acting as a trough to catch and carry water, and at each side of the road conditions favor filling the road, thus making it into a mud hole or ditch. There are many low spots close to hills where a little filling would not only make solid a mud hole but also cut down a hill at the same time. Often a few moments' work with a shovel or hoe would save a washout or cut up road, and the highway commissioner or pathmaster, if there is one, can not be on hand everywhere, even if they had a disposition to do so. The thought, "let the other fellow do it," is not making roads. The steepest, poorest hill determines the load the farmer can haul to his market and the number of trips he can make in a given time, saying nothing about the wear and tear on teams, wagons and drivers.

I notice, too, that the men who have to do with the enforcement of the weed cutting laws are pretty lax, letting many noxious weeds go to seed to be blown onto farms, thereby increasing the labor of the man who is trying to keep such things off his place. It would seem that there ought to be a way to prop some of the weak kneed officials up to a point where they would do their duty and make others do the necessary work to keep weeds from going to seed.

Kent Co.

SUBSCRIBER.

BARLEY A PROFITABLE CROP.

About 40 years ago the farmers in this county raised considerable barley on the corn stubble, and although the yield per acre, and price, were satisfactory they gave it up because its sharp, dagger-like beards were so stiff and sharp they made it difficult to handle at harvest. There were no self-binding harvesters at that time and the sheaves had to be bound by hand.

The number of acres of barley raised in Pennsylvania during the last three years, averaged 7,540 per year. The average farm price per bushel, the last three years, 63 cents. The average farm value per acre for last three years, \$14.49. Compared with oats, (the spring crop with which it competes), the barley crop was worth 72 cents per acre more than the oats, and cost no more labor or expense in preparing the ground, and harvesting. The average yield of barley in the United States during the last three years was 22 bushels per acre, the average farm price per bushel was 66 cents, and the value per acre was \$14.52. Minnesota is the banner state for production, her average being 1,475,000 acres and yield per acre 20.6 bushels, California being a close rival.

Soils that will raise good wheat will raise good barley, and there have been years when barley brought more per bushel than wheat, and it is less liable to be damaged by insects, rust, and smut than wheat. Barley has been cultivated from the remotest historical period, and some writers with Pliny, suppose it was the first grain brought from the wild state into cultivation. It is probable it was the

chief bread plant of the ancient Hebrews, as it certainly was of the Greeks and Romans. It was raised in Egypt, and was a food for men and animals, and also used for making beer, from the earliest period of which we have a history. It was cultivated in Europe in the prehistoric times long before any authentic records were preserved, as three kinds are found in the lake dwellings of Switzerland. These three varieties which have been preserved, (like the grain found in the Egyptian tombs), for several thousand years are, according to Prof. Hiller, the common two-rowed and two varieties of the six-rowed.

In Phelps' history of cultivated plants it is stated that barley meal was highly commended by the ancient Greeks, and for a long time continued to be the chief bread plant of the poor, although wheat was considered more palatable, and eaten by the rich. Barley bread was the principal food of the armies in ancient times, and was the common bread of the poor all over Europe. The use of this bread declined rapidly on the introduction and cultivation of potatoes in the sixteenth century. As a result of potato culture, and the improved methods of farming, and the bringing into cultivation of vast areas of new lands in America, together with better and cheaper facilities for transporting for long distances by land and water, wheat has become cheapened to such an extent that barley has lost its importance as a bread plant, and is chiefly used at the present time as a food for animals, and making beer. The first settlers in New England raised barley for bread, as had been their custom, but it was found to be so much inferior to Indian corn for that purpose, its cultivation was abandoned for that purpose, and the present day not much barley is used for human food in this country.

Pennsylvania,

J. W. INGHAM.

ONE OF THE MAIN REASONS FOR CLOVER FAILURE.

One of the chief causes for the numerous failures of the clover crop lies in the fact that most of the seed is sown broadcast and is not well covered. To make sure of a stand of clover the seed must be in the ground instead of merely on the surface.

One of the most certain methods of seeding clover, either on fall sown grain or alone, is to drill it in with a single disk drill with a modern seeding device which conveys the seed down through the grain tubes and into the ground. A disk drill may be used on fall-sown grain without doing the grain crop damage.

A cutaway disk harrow set straight may be used also on fields of fall sown grain to roughen the surface before sowing clover. After this is done the seed may be sown broadcast and left for the rains to cover, or a drag harrow or weed-er may be run over lightly.

In many sections the drag harrow is used on fall sown grains to work the clover seed into the ground. In Ohio, Indiana and Illinois most soils are so heavy and are so compact in the spring season that this implement will not tear up the surface sufficiently. Some implements like the cutaway disk harrow or the disk drill is required.

The time of seeding varies with the method employed. If the clover seed is sown broadcast and nothing done to cover it, the seeding should be done early, of a normal year, during February. If a disk drill or cutaway disk harrow be used in sowing seed or in covering it, the seeding should be postponed until the surface of the soil is dry and a team can travel over the field of fall sown grain without doing it damage.

Seeding clover with oats is an uncertain method. When this is necessary a lighter seeding of oats will assist the clover greatly. The clover seed should be sown when the oats are drilled or just ahead of the drill, or with a seeding device on the drill, the clover seed may be allowed to pass down through the grain tubes and go into the ground with the oats. The oats in breaking through the ground will assist the clover in coming up.

J. A. DRAKE,

U. S. Dept. of Agriculture.

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THOSE ROADS.

As most of the older counties of the state are not yet under the county system for road building and we are under the necessity of traveling the roads we now have or stay at home, a suggestion at this time might be of some pertinence to the situation which confronts most of us, that is, if we wish to get away from the farm at this time of the year.

The roads that have not been well graded and cared for the previous season are a fright this spring. The wet fall we had last year and the consequent loading of the roads with water which froze right into the roads when the winter set in, put them in splendid shape for the most distressing conditions this spring with the advent of warm weather. Practically none of the common roads were cared for at all last fall as they should be and so this condition exists almost universally. Now there is no sense in such a condition as this existing in this state this year. We have had the gospel of the King drag preached to us sufficiently long so that we ought to be able to know what is the best thing for all the roads and when to do it. There is no better time in the world to work the road than when the frost is going out of the ground and there is no better tool in the world to work with at this time than the King drag. Iowa, as a state, has had sense enough to realize this and she has decreed by legislative enactment that the road drag shall be used on all her roads. That is, she has made the King drag a state institution.

In Michigan the general public, and the average highway commissioner especially, thinks the road drag too foolish for any consideration whatever. Now let us see. There is a two-mile stretch of road running by my place that ordinarily would be in horrible shape for traffic at the present time, April 8. As soon as the frost was partly out of the more exposed portions of this two miles, I began dragging the road. There were several places where the snow and ice was two to three feet deep when I began work. These deep places were on the knolls or higher portions of the road, and as they melted the water ran right down the wheel tracks and kept the road filled with water perhaps forty rods from these deep banks. One or two times over with the drag changed all this. The surface of the road was smoothed off and the water, instead of running down the road ran off at the side near where it came from.

It was interesting to notice several stretches of this road so treated. While the lower strata of the road were still thawing out and the soil in that region was wet and very impressionable, the surface had become so dried and hardened that a team and load passing over it would cause it to spring and give like rubber ice under the venturesome skater. While there are still a few places in the road where the ice has not quite all disappeared from the surface and there is consequently considerable frost in these places, yet the main part of the road is quite well settled now and with another dry day and one going over with the drag we will have a road that will be ready for the heaviest kind of traffic and that at the same time will be graded almost too high for traffic. All this with an expenditure of time not to exceed one and three-quarter days. Note that at least part of this road was quite flat and getting in bad shape. This little work has not only dried and made passable the road, but it has also graded it fully enough, so that from now on care will have to be taken to not over-grade the road. Note again, that this was all done when it was impossible to do anything with a team upon the farm, and when the work was the most available and consequently the cheapest. As this is a main traveled road, it will need more attention from now on than the less traveled roads, which might all be as good as this road, if treated in the same way, and very little more work would be needed on them to keep them in first-class navigable condition all the rest of the time.

The township in which I live has ordered its board to secure a sufficient number of King drags and place them in different parts of the town with men who will work them as directed, so that the roads can all be cared for and kept in the best navigable condition possible. This is a step that all townships should take for the cost of these drags is very little, not over five dollars at the limit, and five dollars a mile ought to keep the roads in practically perfect shape for a year, with the exception of a few of the most traveled roads in each township. These

would need a little extra care, because of the extra travel. Figured on this basis see what a foolish bunch we are, as a rule, throughout the state, for we raise and expend on our roads anywhere from two to three times as much as this would call for and then we have no roads when we need them the most.

The patching, time killing work done on most of our roads is the sheerest kind of waste and is positively criminal in the final analysis and ought to be punishable with nothing less than a state's prison sentence. There is probably no greater waste of the people's money, unless it is in the conduct of our rural schools, than is found in the administering of the road funds of the state. Since we are too poverty (?) stricken and bull-headed to do the sensible thing and get up under the county system, let us at least have common sense enough to try to stop some of this foolish waste of road money and begin to agitate and work for a saner and more resultful method of caring for our roads. What we want most of all is a complete system of roads that are practically all the time navigable for all the people with all kinds of traffic, and the way to secure this at once is by the use of a reasonable number of King drags in every township. When we do this we can then begin to build some permanent, state aid roads with the money we thus save and in the end have something to show for the money we have spent.

Oakland Co. E. M. MOORE.

TOP-DRESSING MEADOWS WITH COMMERCIAL FERTILIZER.

We have, to our minds, never seen any article describing the best method of distributing fertilizer upon the meadow. Also, when is the best time to apply it? How about rolling it early in spring? We have 70 acres, most of which has been covered with from three to six loads of manure per acre. How much fertilizer of a 2:8:4 brand should be applied to clover and to timothy? Without anything they would average one and a half tons per acre.

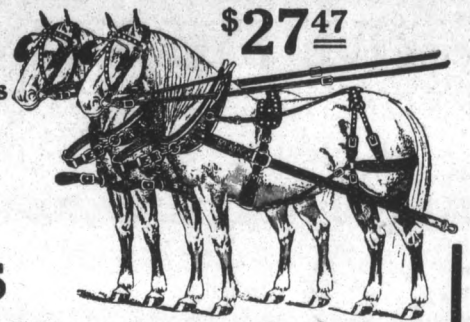
Tuscola Co. S. B.
I do not practice top-dressing meadows with commercial fertilizer simply because we never have anything but clover meadow and only keep that one year. We fertilize the wheat liberally when we seed to wheat and then seed the clover in the spring. We hold the clover one year and then plow it down for corn. Several years ago I did not have this practice thoroughly worked out and used to keep the meadow down sometimes for three years, and I have experimented some in top-dressing these older meadows and also some with permanent pastures. I found that the disk fertilizer drill was about the best implement that I could get to apply the fertilizer with. Let the disks run and in some places they will dig it a little bit but not enough to in any way injure the stand of grass, and even if they do dig it I think it is all the better for the fertilizer will be more effective if anything. Fertilizer can also be applied with a broadcast distributor or lime spreader. One of these tools makes an excellent way of distributing fertilizer on meadows or pastures.

The fertilizer should be applied to the meadow just as early in the spring as you can get onto the meadow without punching it up. In fact, the earlier the better, and then I believe you will get fully as much benefit from the fertilizer which you apply this spring next year as you do this. Much of the nutriment which produces this crop of grass this year is already stored up in the roots and crowns of the grass, and clover, and the fertilizer which you apply must be carried into the soil by the rains and dissolved in the soil moisture before the roots can get it, and I think from 300 to 500 lbs. per acre broadcasted, evenly distributed, will give quite effective results. No one can tell how much it will increase the crop of hay because much depends upon the season, especially the distribution of moisture, and the temperature, especially the early spring temperature. The only way to definitely ascertain the benefit derived from top-dressing is to top-dress say, one-half of the field, and then cut this separately and compare it with the half not fertilized. My experience was that it was a profitable investment. I would expect that an application of fertilizer of 300 to 500 lbs. of fertilizer early this spring would increase the tonnage at least one-half ton per acre, and you would get equal benefit from this fertilizer the next year without an application next spring. A 2:8:4 fertilizer is a good fertilizer, but most people would think that it ought to be a little bit higher in ammonia to be a real good grass fertilizer.

COLON C. LILLIE.

Sears, Roebuck and Co.'s

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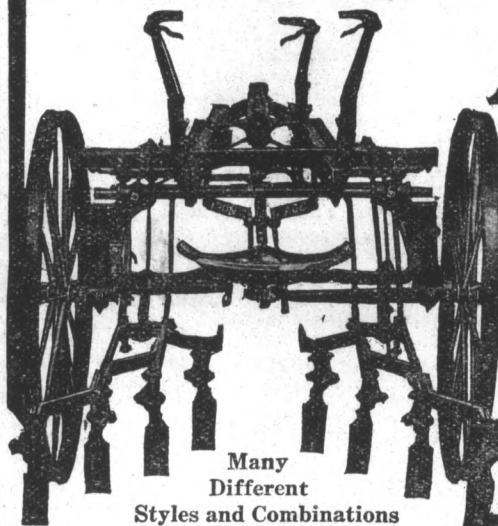
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LIVE STOCK

FADS AND FANCIES IN BREEDING.

In these days when almost every farmer who buys a pure-bred female of any class or breed of live stock is referred to as a breeder we may look for many different, and what may appear queer, ideas as is shown by the stock produced. Some breeders do not put much thought and study into their work and their animals look like it. They sometimes appear as though they had "just grown." The man who keeps the market classes of stock in mind and so mates his animals that the offspring shall be in demand is the breeder who will do the most good for his breed and for those who buy his surplus and follow his lead. He may be considered the most free from fads and fancies.

The breeder with a special fancy which he nurtures and cultivates may sometimes be considered very successful for a time and may reap big pecuniary gains for himself in the meanwhile, or he may not. This depends on the man, whether he has that self-satisfied feeling that makes him think "all his geese are swans," and the more rare, yet occasional quality that enables him to make others believe as he wants them to. Men of this character can follow out almost any fad or fancy and succeed for a time, eventually the truth that "you can fool all the people part of the time and part of the people all the time, but you can't fool all the people all the time," comes to light. In the meantime these men have pocketed the profits and deserted the breeding ranks or adopted some other special fad.

The breeders who follow the same plan of breeding and selling, with minor deviations as conditions change, are the men who help the breed get nearer practical perfection. Unfortunately, few are the breeders of this day who have followed their present line of occupation for the years of their active lives and fewer yet are those who, having grown up in the business, have continued in the plans their fathers outlined many years ago.

Like the politician seeking official preferment, the popular breed of live stock may well offer in supplication, "Lord, deliver us from our foolish friends." The Shorthorn breed of cattle, having been most extensively distributed throughout the world through a long series of years, has met several fads and fancies that would have been fatal had there not been so much intrinsic excellence in the breed, and level heads on the shoulders of many of the breeders. One of the first great herds with which I had any personal observation was becoming decidedly of poorer quality because of insistence on the part of its owner in a certain supposed-to-be-correct line of breeding. A master hand appeared as manager of the herd, a different line of blood was introduced through the sires used, and the herd again became one of the greatest.

The color craze was another costly fad that has not yet entirely run its course in some places, and though we do not eat hair but beef, and no one can tell from the latter whether the former was red, white or a combination of these two natural Shorthorn colors, it is impossible to sell a bull to many farmers that is not a solid dark red. That most of the harsh handlers are red does not appeal to these men.

The Scotch breeding fad, where individuality is not kept in mind, is doing and may do a great injury to the breed. While Scotch sires are deservedly popular, it should be kept in mind that they are so on account of their ability to sire stock of the right sort. When failing to do this, as is sometimes the case, they should be discarded. The family fad in some breeds of cattle is one hard to account for and most difficult to overcome, so soundly has it become established. Individual character of the first six or eight ancestors has more to do with the quality of the animal than the imported cow from which she descended and if these be good the animal should produce good stock.

In the hog line the most active fad of the present day is enormous size. Thousand-pound hogs are advertised. No farmer has a thousand-pound boar. No man who grows pork and sends it to the packers has any hogs of that size, and few indeed of the numbers, even of aged sows and stags, that cross the stockyard scales reach half that weight. That extra quarter ton is a great margin. I believe it remains to be demonstrated that

the get of the half-ton boar will reach a profitable, marketable weight and condition with as little feed and in as few months as will the get of the boar weighing a third less or a little more than that (I mean a 600 to 700-pound boar of quality).

In years gone by the fancy hog, the little fellow of half the size now being considered as popular, was more advertised as the correct type than the big one is today and the strong, medium type won a share of the premiums in the show ring and filled the pens at the stockyards with much regularity. I refer now more especially to the Poland China breed and it was only because many breeders adopted too little fellows that the other breeds have obtained the popularity they have.

Another fad is that the selling price is the value of the animal, and that the get of a boar selling for thousands of dollars will, therefore, be of great usefulness in the herd. Few men are sufficiently known and honored that they will not be accused by very many of the general public of being in a scheme of some sort when a large price is given or received for an animal. I believe there is much less dishonesty in this line than is usually supposed to be the case, yet such talk is general and does harm. If a certain boar is a better sire than any other one of his breed, then there is scarcely a price that may not legitimately be paid for him. But who will decide and convince the generality of breeders that the decision is correct? Too great popularity on the part of a sire often leads to the use as breeders many of his descendants that should go to the stock yards.

Who has fads and fancies that injure the breed and the business of breeding? Verily, almost everybody.

Illinois. W. H. UNDERWOOD.

SPRING CARE OF THE FLOCK.

Spring time is a busy time for the farmer; there is much to be done and it must be done right, for the whole year's work depends much upon being started right in the spring. The spring crops must be sown and planted as soon as the ground permits, and the work must be done well and in season if he is to hope for the largest crops at harvest time. Likewise is it the time when his flocks and herds are increasing, and from that increase he hopes to make his living and his profits for his work. It is important that he save all the little lambs that come, and likewise necessary that he give them every possible chance to grow as fast and as cheaply as he can. Well begun is half done, and it applies with exceptional force to the young lambs during the first month or two of their lives, for if given proper feed and attention at that time they will be started far on their way to maturity and to profit for their keeper.

Lambing, shearing, and getting to grass make a busy time for the Michigan farmer who keeps a flock of sheep; it is the one season of the year when the flock requires attention and proper feed. Lambing is probably well through by this time, but even at that the flock requires close attention until it is well on grass. The ewes require good feed when they are supplying nourishment to their own bodies and growing a lamb, and they want feed that increases the flow of milk. Clover hay is the best roughage, but we hear men say, "What if you have none?" Get the nearest to it that you can, and keep just as far from timothy hay as you can in feeding the ewes with lambs. Feed plenty grain for a little time now; oats and bran and some corn. In this year of shortage of good hay it is especially necessary to feed bran. Dried beet pulp is also good, if you can get it. But do not be afraid of feeding the ewes a good feed of grain; they will furnish you the best market you can get for it.

Some succulent feed is necessary; and if you have none this spring you should begin right now to calculate on raising some for another year. Silage is very good, but should not be fed in too large amounts. We have found beets a very cheap and desirable feed of this character, for they take the place of much grain as well as roughage, and they produce milk, which is what you want at this time.

The lambs should have a creep fixed for them. This is a small pen built within or adjacent to the main pen, into which the lambs can get and the ewes cannot. Here should be a trough with grain in it all the time, a rack with some clover hay, just a little at a time, and a pail of fresh water. The grain should be wheat bran, with a little oats, and perhaps some

dried beet pulp mixed with it. Just fix the pen, put the feed in, and let the lambs go to it; they will find it easily enough, and if you never tried it before you will be surprised to see how much feed they eat.

Before turning to grass there is much work to be done with the sheep and lambs. The latter should be docked and castrated when they are ten days to three weeks old. For this purpose we use a good sharp knife, thoroughly disinfected with carbolic acid or coal-tar dip; and this latter is important, for we have lost good lambs before now just from neglect to disinfect the knife. A good time to do this is in the forenoon. Catch the lambs and put in a small pen by themselves just before feeding time, at night, feed the ewes and let back in the shed, then catch the lambs, operate on them, and let run with the ewes. In this way there is no unnecessary running of the ewes or the lambs after docking and castrating, they can lie down and be quiet, and there is little danger of bleeding. With castration it is best to put on some disinfectant, such as coal-tar dip properly diluted in warm water. In case of excessive bleeding, cob-webs will generally stop it; if not, sear with a hot iron.

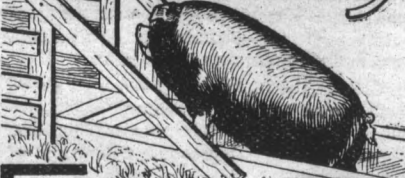
Before going to grass the ewes should be shorn, marked, and their feet cut. The time of shearing depends upon the particular conditions of the individual flock owner and cannot be set definitely, further than that it should be before they go to grass, for sheep in full fleece do not thrive as well after it comes weather warm enough to grow grass, and it is more work to care for them. After shearing is a good time to mark the flock; in fact, it should be done as soon as the shearing is finished. The best way is to put a small metallic label in the ear, bearing your name or initials on one side and a number on the other. To mark with paint as many do, put a letter or character on the back or rump of the sheep, making it no larger than is absolutely necessary. This can be done with a marker of wood or of wire wrapped with wool or twine, formed into the character with which you wish to mark. The marking liquid should be made of linseed oil and lampblack, or venetian red if the latter color is desired, with a little flour to thicken and make a body to the liquid. This should be mixed thin so that it will run freely on the marker. Never use white lead nor tar; these damage the fleece, as they do not scour out of it.

Sheep kept in the barn or yards all winter on warm, soft manure all the time make a large growth of hoof which has no chance to wear off. This should be cut before going to pasture in the spring, so that it will not break too short nor grow ill-shapen and cripple the sheep. This cutting should be done with a common hoof—or sometimes called a pruning—shear, which you can buy at any good hardware store. In cutting, care should be taken not to cut the hoof short enough to hit the toe vein and make it bleed; the hoof should also be cut on a slant corresponding to the shape of the foot, so that when the sheep steps the foot will rest naturally. We have seen many cut the toe squarely which throws the foot out of shape. This trimming can be done before or after shearing, as is convenient; but all of these jobs should be done before going to grass, because if let go until the sheep are on pasture too many times they are not done at all.

Grass is what the ewes and lambs like and what every farmer is anxiously awaiting this spring; and as soon as the first spear sticks its head through the ground all will be after it. But too many will want the sheep to get along with the grass and no other feed; here is the big mistake. The first grass is soft and flashy, with little of the substance which it acquires with two or three weeks' time, and this early grass should be treated as a relish and be accompanied with the regular feed for at least a week or more. We have seen too many farmers turn their stock, cattle as well as sheep, out on pasture in the spring, and expect them to get their entire living from that the first day they turned them out.

This is not reasonable, and the result is that the stock loses as much the first week it goes out as it gains in the next month of good feed. How much better to make the change from dry feed to grass gradually. Turn out an hour or two the first day, give the regular feed of hay and grain, a little longer the next day, a little less hay, in a few days the grass takes the place of the hay, then the grain ration can be reduced, and in two or three weeks the change can be

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made, and the stock will keep in good condition and grow, instead of having a setback. It takes a little work and feed, to be sure, but most things do cost that are worth while.

Another thing from which the sheep farmer should protect his flock is the cold rains which we often have in the spring. A warm shower does not hurt the sheep, but we have seen farmers who would leave a flock of short sheep and little lambs out in one of those one or two days' rains that we get here at this season of the year, generally because they would be too indifferent or thoughtless to take care of their sheep, and then they wonder why their neighbors' lambs grow faster than theirs. Every farmer has a barn where he can put his sheep if necessary, out of the storm and wind, and when one of these long, cold rains begin it is time to get the flock into that barn. It will save as much flesh as two weeks' good feed can put on them.

Sheep require the least attention of any class of live stock, but spring is the one time when they do need some care. It is these attentions which aid their growth and increase the farmer's profits.

Washtenaw Co. Roscoe Wood.

POSSIBILITIES OF HORSE BREEDING FOR THE FARMER.

(Continued from first page).

her. But with the approach of the foaling time the critical period of the venture is reached. At this time the mare should be placed in a roomy box stall and developments should be carefully watched. The stall should be thoroughly disinfected

again put into the harness within two or three weeks after foaling, and if properly fed and intelligently handled excellent results will be secured. In this event the colt should not be allowed to follow her about, but should be confined in a box stall or small paddock containing a suitable shelter while the mare is in the harness. Care should be taken not to overheat the mare, and especially not to permit the colt to nurse after she has been heated without first milking her out. While the colt is young the mare should be brought to the barn to permit the colt to feed in the middle of the forenoon and afternoon, as its stomach is of small capacity and it is natural for it to eat little and often. If denied the privilege digestive disorders are likely to result and handicap its growth. Not a little in the thrift and welfare of the colt will depend upon the feeding of a suitable grain ration to the mare, both before and after the colt learns to eat grain with her. A liberal portion of bran should be used with oats as the base in the ration, and if there is no pasture some roots to add succulency to the ration will be most beneficial. Corn is not a suitable food for the brood mare unless well balanced with protein feeds and with plenty of succulent feeds in the ration, and even then the other grains mentioned are far more satisfactory.

The weaning time should not be a critical period in the colt's life if proper methods of feeding are pursued. The aim should be to keep the colt growing thriftily and constantly from birth to maturity. Too much fattening feed is not desirable, but if properly balanced a liberal

out on a small scale and you will be convinced that horse breeding holds attractive possibilities for you.

OATS FOR CATTLE FOOD.

Please tell me if oats make good cattle feed, and if so how to feed them. Also, is emmer or speltz good for cattle? What kind of ground and what crop is sheep manure best for?

Missaukee Co.

L. H. L.

While oats are considered to be pre-eminently a horse food, yet they are a splendid food for all stock. For dairy cows especially it will pay to grind them and make them into ground oats or oat meal simply because you will get better digestion and assimilation.

Emmer, and also speltz, is a food that is not so very thoroughly understood in this country as yet. Men who ought to know claim that emmer is better adapted for a stock food than speltz, and that it is a more valuable plant. In fact, some people claim that the improved emmer will prove to be an exceedingly valuable stock food. It has been so strongly recommended that I am trying out on Lillie Farmstead an acre of winter emmer this year, and I will be able to tell more about it. It is recommended for cows, and also for hogs. If it proves to be a good hog food it will come at the time of the year when the farmer is usually short of feed for his growing hogs.

Sheep Manure.

Sheep manure is good for all kinds of crops. Use it wherever you would use any kind of stable manure. There is some difference of opinion just where it is most profitable to use stable manure. One has to figure this out for himself, taking into consideration his own conditions. So far as I am concerned personally, under my conditions I would think the best place to put the manure is on a clover sod and plow it down, to be followed with corn. This furnishes abundant food for the growing corn plant and with as little labor and as little loss as the manure can be handled.

COLON C. LILLIE.

THE SUMMER'S SUPPLY OF WATER.

The cattle usually have sufficient water for their purposes in the spring, but during dry times of summer, as it is inconvenient to leave the many duties that a farmer is then called upon to do, the herd is apt to suffer on long hot days for want of water merely because proper arrangements were not made when there was time to look after such work. If a well, or tank, is needed put down the well or construct the latter while the ground is getting ready for the plow. With provision made the cows are quite sure to be attended to, which will result in better returns from them.

THE STABLE MEDICINE CHEST.

Owing to the lateness of spring, the average farmer will feel obliged to work his teams harder from the start than in an ordinary year when they can be seasoned to the work gradually. This means more than the usual amount of trouble with ills incident to overworking after a long period of rest for the farm horses, and consequently inducing troubles which may result in unsoundness if not given immediate attention. For this reason it is more than ordinarily important that a stable medicine chest be provided in order that remedies for these ills may be at hand for frequent use. A goodly number of standard remedies will be found advertised in these columns and these, together with the simple remedies with which all are familiar, should be constantly at hand in order that possible loss of time and perhaps serious damage to the farm horses may be obviated.

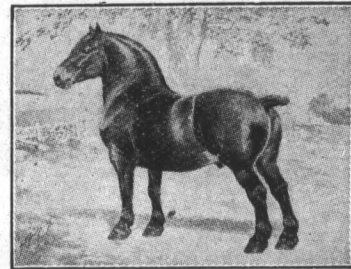
The best feeder cattle have been selling at Chicago at figures close to 60 cents per 100 lbs. higher than a year ago, few having been sold at that time above \$5.85, but the light and medium grades of feeders have been selling no more than 25 cents higher than last year, with part of the sales not any higher. Not long ago there was a sale of 26 head of prime Angus feeders at \$6.70 per 100 lbs., but this was an exceptional transaction, the cattle being just adapted for a quick feed and worth the price for immediate slaughtering. Even prime stockers weighing around 700 to 750 lbs. are selling considerably above \$6, some sales having been made recently at \$6.15@6.25.

The Iowa Beef Producers' Association has started a campaign for greater home production of cattle. The plan is to encourage Iowa farmers to raise more steer calves and depend less upon the ranges of the west for feeding cattle.

The sale is reported at Amarillo, Texas, of an exceptionally good bunch of steer yearlings at \$31.50 per head.

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

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

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English Southdown Wethers.—First and Breed Cup Best Shortwool and Champion Pen at the Smithfield, England, Show.

to minimize the danger of navel infection and its consequent ills which are the bane of many a colt's young life. As soon after foaled as possible the colt's navel cord should be tied about an inch from the body with a strong silk or linen cord, which has been previously dipped in a disinfectant, the navel cord cut below the structure and a disinfectant applied to prevent germs from entering the body through this avenue. This may seem a needless precaution, but it is one which will save the life of many a valuable foal. Quiet, with moderate feeding of a cooling ration, with protection from inclement weather or hot sun will be best for both mare and foal for ten days or two weeks, when the latter will be propitiously started on the road to horsheship.

The subsequent handling of the mare and colt, however, is a matter of vital importance in the making of a profitable brood mare of the former and a valuable horse of the latter. If the mare can be laid off during the period of suckling the colt, the results will be better than if she is worked. This fact is an argument for the raising of fall colts where this can be done in case but one brood mare is kept, or of some fall colts in case several are bred. In the case of the fall colt the mare can be better spared from the farm work and will feed her colt well during the winter if fed liberally without shrinking materially in flesh or becoming depleted in vitality. Then, with proper supplementary feeding after weaning, with diluted skim-milk, if available, as well as with a proper grain ration, the colt will go onto grass in the spring without any check in growth. But it is not always possible to regulate the foaling season as one might wish, and this is not an essential point in any event, so long as good judgment is used in feeding both mare and colt.

If needed for work the mare may be

grain ration will induce growth rather than fat. The result of proper feeding during the entire period of growth will be a symmetrical development coupled with early maturity which will add not a little to the value of the horse, either for use upon the farm or for market purposes, and a colt so reared will be a source of constant satisfaction as well as of ultimate profit.

Just a word as to the profit in this kind of horse breeding for the average Michigan farmer. It will cost no more to bring a colt of this kind to maturity than it will to produce a fat steer, aside from a slightly larger original investment. But the colt will bring nearly, if not quite, twice as much as the steer when finished and will be the source of more than twice as much satisfaction and pride. In addition he may be the means of keeping the boy on the farm, for there is no one thing more attractive to the farm boy than good horses. Some readers will say that raising horses does not pay, or that everybody is going at it and that when they get them grown there would be no market for them. But there will always be a market for the kind of horses which may be produced on the farm if the plan above outlined is followed out, and at prices which will insure a good profit above the cost of production. We venture without fear of successful contradiction, that the majority of those who will advance this argument are farmers who have been satisfied with breeding or owning mediocre horseflesh. But if they will develop the liberality and good business judgment to either buy or raise the good kind they will quickly disabuse their minds of this idea. It is for the consideration and benefit of this class, as well as for the class of Michigan farmers who have never fully considered the possibilities of horse breeding for the small farmer, that this article is written. Try it

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VETERINARY

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

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

Indigestion—Milk Shrinkage—Navel Infection.—I have a five-year-old mare whose milk flow dried three weeks before she foaled; colt lived only two days. Did her milk shrinkage cause death of colt? The mare is due to foal June 1, but is already making bag. Is there any risk of losing next colt? A. B., Sherwood, Mich.

—Feed and work or exercise your mare daily, when she foals tie navel of colt with a silk or linen or catgut string, one inch from body, but be sure string has been soaked in one part carbolic acid and 10 parts glycerine or sweet oil, then apply one part bichloride mercury and 500 parts water to navel twice a day until it heals.

Sore Neck.—For the past three years my horse has been troubled with sore on top of neck caused from collar. A. S., Dorr, Mich.—Clip hair of short, use zinc or deer skin pad and apply the following lotion three or four times a day: Dissolve ¼ lb. acetate of lead, 3 ozs. sulphate of zinc and 2 ozs. of tannic acid in a gallon of water.

Hide-bound.—Have a ten-year-old brood mare that is hide-bound, legs stock and she is losing flesh. T. G., Owosso, Mich.

—Groom her well twice a day, increase her grain ration and give her ½ oz. ground gentian, ½ oz. powdered cinchona and a dessertspoonful of salt at a dose in feed three times a day. She should be fed some roots.

Sprained Fetlock—Knuckling.—Have a horse that is lame in hind fetlock and also knuckles on same joint. E. S., Mt. Pleasant, Mich.—Apply cerate of cantharides or you can safely use any of the blisters that are regularly advertised in this paper. If heavy pulling or fast driving or overwork has produced this trouble, then give him rest until a recovery takes place.

Out of condition.—Every week I read with interest Michigan Farmer and am especially interested in the Vet. column, but fail to find prescription for parallel case to mine. Horse 16 years old fed fully as well as my other horses, but remains very thin and I would like to know what to do. V. V., Bridgeport, Mich.

—Increase his grain supply and give a teaspoonful of powdered copperas, 1 dr. of ground wormseed and 1 oz. ground gentian at a dose in feed night and morning. Also salt him well and feed some roots.

Kicking Horse.—I would like to know if there is any opiate or quieting medicine that could be given to a kicking horse to prevent this vice. He is a nervous brute and a very bad kicker. M. C., Kinsley, Mich.—No permanent satisfactory results can be obtained by using anodines, such as opium or preparations made from opium, or chloral hydrate, etc. A good teamster and plenty of hard work, working the horse single with kicking strap, is perhaps the best way to manage a kicker. Remember, if the head is checked up high this will have a tendency to keep his hind end down.

Sprained Tendon.—My horse sprained his tendon six weeks ago, since then he has been quite lame and I have applied liniment three times a day without doing him much good. This horse is not much lame while walking, but trots quite lame. G. L., Holland, Mich.—You may be making the leg sore by applying too much liniment. Apply the following liniment three times a day: Equal parts tincture aconite, fluid extract belladonna, alcohol and soap liniment.

Knee-sprung.—I have a four-year-old mare that seems to be getting a little knee-sprung. What can I do for it? P. H., Norvell, Mich.—Clip hair off back tendons and apply cerate of cantharides or any one of the blisters that are regularly advertised in this paper.

Chronic Cough—Incipient Heaves.—I have a valuable horse seven years old that has had a cough for sometime and occasionally he breathes as if he had heaves. J. W. L., Morley, Mich.—Feed no clover or musty, dusty badly cured fodder of any kind and give 1 dr. powdered lobelia, 2 drs. muriate ammonia and a dessertspoonful of Fowler's solution in feed three times a day.

Stifle Lameness.—I have a two-year-old mare that frequently shows lameness in stifle. Is there any help for this filly? R. C. D., Alto, Mich.—Apply one part red iodide of mercury and ten parts cerate of cantharides to stifle three times a day.

Crib Biting.—Have a mare 12 years old that has been a crib biter all her life and I would like to know if she can be cured. I. M. N., Greenville, Mich.—She is incurable, but she should be kept in a stall without manger or edges of boards for her to crib on and she should be fed out of manger on floor.

Chronic Sore Shoulders.—I purchased a mare sometime ago that had sore shoulders and I fall to heal it. Have used different collars without result. G. A., Au Gres, Mich.—A bunch or some loose hide should perhaps be cut out, then apply equal parts powdered alum, oxide of zinc and boric acid to shoulder sore three times a day.

Bone Spavin.—I have a mare five years old that has a spavin on each hind leg and I would like to know how to cure them. G. W. R., LaSalle, Mich.—I would

advise you to use any one of the guaranteed bone spavin remedies that are advertised regularly in this paper. Kindly understand some cases of bone spavin, where the hinge part of joint is involved, cannot be cured.

Cow Fails to Come in Heat.—I have five cows that came fresh in December and January and none of them have come in heat yet, but are nearly all milking well. V. E. F., Hartford, Mich.—Increase their grain supply and when warm weather sets in they will come in heat. By giving them each 15 grs. powdered cantharides and a dessertspoonful capsicum at a dose in feed once or twice a day it will have a tendency to bring them in heat.

Impaction.—Some 25 of my 40 lambs have died and about the only symptoms they show is drowsiness, lifting one hind leg up after the other, then the head finally draws back and 24 or 48 hours later they die. I have been feeding the sheep on hay, oats, cornstalks, beans and bean pods. Lately I have been feeding some beans and bean pods and this has been the principal part of their ration. W. R., Romeo, Mich.—Your lambs may die as the result of congestion of spine, but I am somewhat inclined to think that death may be result of impaction, resulting from feeding too many beans and bean pods. Give them enough castor oil and olive oil to open their bowels, or give epsom salts. I also suggest that you change their feed. You should have told me how old your lambs were. Furthermore, you should have examined their insides after death.

Nodular Disease.—I am anxious to know what is the matter with my sheep and if there is any help for them. They seem to lose appetite, dump around two or three days, then lay down and seldom get up before death. I opened all of the dead ones, found their bowels covered with small warts, and on opening these bunches found a greenish substance in them. These bunches vary in size from a kernel of wheat to the size of a hickory nut and their bowels seemed to be decayed on one side. B. B., Lawton, Mich.—Your sheep are dying of nodular disease, a parasitic bowel ailment, when in the advanced stages is incurable. Give each sheep 3 ozs. of a one per cent solution of coal tar creosote and water, one part to 99 parts water; one dose of this once a week. Also salt your sheep well and feed them plenty of grain. The fat ones had perhaps better be marketed for mutton.

Dead Lambs.—I have a flock of grade Shropshire ewes that have been fed clover hay, cornstalks, also bean pods for fodder. These ewes have had plenty of housing room, allowed to run out daytime. Some of these ewes had dead lambs and some of the lambs die within 24 or 36 hours after birth. G. R. T., Assyria, Mich.—They may have dead lambs at birth, the result of injury, or the lambs may smother at lambing time. You can do no better than give your lambs good care, but keep them from chilling. I have thought that lambs should be dried by artificial heat during the cold winter months and in fact I had heated quarters for my lambing ewes when engaged in farming and sheep raising. This has been a cold winter and raw, damp spring weather. There is great difference between the temperature of ewe and our winter weather; therefore, it is good judgment to keep the lambs warm until they are a few days old.

Unthrifty Hogs.—I have four hogs that do not take on flesh; have been feeding them corn twice a day and cooked beans once daily. These hogs are kept in a warm basement, barn, are now seven months old and will weigh about 100 lbs. each. J. H. G., Sunfield, Mich.—Give each hog a teaspoonful of ground gentian, the same quantity of ginger and 20 grs. of powdered sulphate iron at a dose in feed twice a day.

Roarer.—My five-year-old horse has been short winded for the past two years, but I am certain that he hasn't heaves. M. G., Coopersville, Mich.—A surgical operation on throat performed by a competent surgeon might affect a cure, but drugs will have little or no effect.

Warbles.—Some of my cattle have bunches about the size of a walnut, but the cattle appear to be well. What treatment do you advise. W. O. D., Cedar, Mich.—Cut through hide with a clean sharp penknife, squeeze out grub, kill him and apply one part carbolic acid and 30 parts water once a day, or dust in boric acid into pockets once a day until the skin heals.

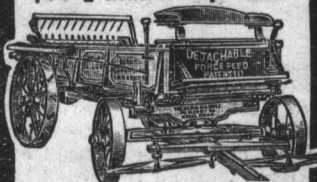
Cow Sucks Other Cows.—I have a cow that sucks other cows, have made her wear halter with nails in nose piece, but it is a failure. J. A. B., Linden, Mich.—Make her wear a wire muzzle when she is not eating is about the only way to keep her from sucking cows if she is with them.

Cold Abscess.—We are readers of the Michigan Farmer and derive great benefit from it. Have a cow with large bunch on brisket that is gradually growing, and what we have done fails to help her. This bunch is size of a two-quart pitcher. E. O. C., Fenton, Mich.—Open into center of bunch and you will find some pus, this pocket will have a tough, hard wall which must either be cut or sloughed out by using either powdered sulphate of copper or corrosive sublimate. If you find no hard center wash out pocket with any one of the coal-tar preparations that are regularly advertised in this paper, twice daily.

Chronic Garget.—My cow had garget last summer; treatment seemed to make her better and I was under the impression that she was cured, but now both fore-quarters of bag are diseased. She came fresh Feb. 4, and I find hard lumps in udder. J. F. H., Bellaire, Mich.—It would be no mistake to test her for tuberculosis. Give her 2 drs. iodide potassium at a dose two or three times a day and apply iodine ointment to bunches once a day.

SAVE MONEY

I Will Save You \$25 to \$50 on Manure Spreader



There isn't the equal anywhere of Galloway's Manure Spreader with Mandi's new gear. Quality highest, price lowest, results biggest, security greatest. Simple—a boy can run it; efficient—it will operate perfectly, on any ground in any weather; durable—it lasts a lifetime. Get the book.

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There was a time when a farmer who wanted quality goods for his farm or home, had to pay the dealer any price the dealer wanted to charge—and you know they know how to charge, too! It was either high prices for what you wanted, or poor, shoddy stuff if you tried to buy at a low price. But that's all over.

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I will sell you the high quality goods you used to pay the dealer highest prices for, and I'll sell them at the low prices the thrown together truck of the ordinary mail order house is sold at. How's that for a rare combination? Is it any wonder the dealers are whimpering? Is it any wonder they are calling Galloway names? Is it any wonder they are talking "hard times"? The times are hard for them, and the manufacturers they represent—they simply can't compete with Galloway. But it's their own fault; they have been over-charging you—now they are up against it. Just look at what I can save you on manure spreaders, gas engines, cream separators, or anything else you want. Write me today—use the coupon, marking what you want. I'll figure out a saving that will surprise you. And remember, Galloway manufactures only highest quality goods. Wm. Galloway, President

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WILL HOLD THEIR

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OF REGISTERED

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We are offering 71 head of high class cattle, backed by a long line of A. R. O. stock cows of great size, with records from 18 to 22 lbs., some in the semi-official list, daughters and g.-daughters of Sadievale Concordias Paul De Kol 3d, (dam 30.05, g.-dam 30.64), some bred to him. Stock from or bred to such sires as Canary Mercedes Royal Climax, King Pieterie Hartog, Sir Pontiac Mechthilde, Sir Fayne Johanna Albino. Catalogues April 25. Cattle tuberculosis tested. R. E. HAEGER, Auctioneer, MARK B. CURDY, Secy. R. No. 6, Howell, Mich.

125 Holstein-Friesians At Auction

Attend the

Ohio Breeders Company's

Second Semi-annual Sale at Wellington, Ohio, April 23, at 10 a. m., sharp.

125 good individuals of the best blood of the breed, herd-headers, cows, heifers and heifer calves. See page 10 of April 13th issue of Michigan Farmer for full particulars.

FOR SALE

One registered Percheron stallion, three years old, a good one. IWM GRAHAM, R. No. 42, Ada, Mich.

BREEDERS' DIRECTORY.

CATTLE.

ABERDEEN-ANGUS.

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

WOODCOTE STOCK FARM, Ionia, Mich.

DAIRY BRED SHORTHORN cows and heifers, bulls and spring calves. Also Big type Poland China pigs. ROBERT NEVE, Pierson, Mich.

No-Rim-Cut Tires—10% Oversize

Our Profit 8½ Per Cent

The Truth About Cost of Tires

Tires can be made to fit any price which users want to pay. The only just comparison is the cost per mile.

Cheap tires may cost far more per mile than tires at twice the price.

Tires may also be too costly—too fine in composition to endure.

The object of the expert is the lowest cost per mile. That has been our object for some 13 years.

How We Know

We make our comparisons on a tire testing machine, where four tires at a time are worn out under all sorts of road conditions. Meters record the mileage.

There we have compared some 200 fabrics, and some forty formulas for treads.

There we have tested every method and process. There we have compared rival tires with our own.

Thus we have proved that Up-River Para—the costliest rubber—is cheapest on the mileage basis.

Thus we have proved that long-fibre Sea Island cotton—the costliest

material—is cheapest in the end for fabrics.

We have proved that wrapped tread tires—the costliest construction—are cheaper than moulded tires—for the user.

So we employ these things. And we use everything else which these years of test have proved most economical—in the cost per mile.

Saving 23 Per Cent

Then came the question of rim-cut tires. We examined thousands of ruined tires, of every make. And we found that 23 per cent of the clincher type were rim-cut.

So we brought out a patent new-type tire—a hookless tire—which makes rim-cutting impossible.

At first this type was expensive. It added one-fifth to our price. But our multiplied output quickly reduced it, un-

til it now costs users no more than standard old-type tires.

This tire—called No-Rim-Cut—has ended rim-cutting forever.

Saving 25 Per Cent

Next came the question of blow-outs—caused by adding extras to the car—by overloading tires.

To avoid this we made No-Rim-

Cut tires 10 per cent over the rated size. That means 10 per cent more air—10 per cent added carrying capacity. And that, with the average car, adds 25 per cent to the tire mileage.

With these oversize tires, of the costliest construction—these tires that can't rim-cut—we met the price of standard old-type tires.

The result is this:

Last Year's Profit 8.57 Per Cent

Our profit last year on No-Rim-Cut tires was 8.57 per cent.

With the largest output—with the most modern equipment—our selling price has averaged about 8½ per cent over cost.

That in a risky business, with fluctuating materials, on a tire that's guaranteed.

The point is this:

Tires can't be made more economically than in this mammoth, modern plant.

Men can't stay in this business, with the risks it involves, on a smaller margin of profit.

In No-Rim-Cut tires you get as much for your money as any maker ever can give. And you know what you get.

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Guernsey Bull Calves sired by half-brother of Rose of Langwiler, m. 12,965.5 lbs., b. f. 669.59 lbs., 2 yrs., 17 mo. Allan Kelsey, Lakeview, Mich.

FOR SALE CHEAP—Account sale of farm, choice registered Holstein sires ready for service. HATCH HERD, Ypsilanti, Michigan.

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Just one more Grand son of
KING SEGIS PONTIAC
Ready for service.

Write for what you want in Holsteins.
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Holsteins of Quality—Yearling Bull and Bull Calf from A. R. O. dams and sires, whose dams have records of 27.38 lbs. (at 3 years) and 30 lbs. Best of breeding. Write for pedigree and prices. W. B. READER, Howell, Mich.

"Top-Notch" Holsteins.
Choice bull calves from 3 to 6 mos. old, of fashionable breeding and from dams with A. R. O. records, at reasonable prices. Also one 2-year-old bull, fit to head a good herd.
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Have Bull Calves out of—
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By a 24-lb. Bull.
My herd averages 19 lbs.
If you want this kind write

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Bulls ready for service, also bull calves and heifer calves. Cows all in yearly test. Satisfaction guaranteed. COLON C. LILLIE, Coopersville, Mich.

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Bargain Prices on 3 Jersey Bulls and a few heifer calves. F. W. NOTTEN, Grass Lake, Michigan.

JERSEY CATTLE and Duroc Swine. Stock for sale. State what is wanted when you write. C. A. TAGGETT, R. No. 1, Caro, Mich.

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Will Sacrifice My Young Herd Bull, 20 mo. old son of one of King Segis great daughters for \$200. F. S. KENFIELD, Augusta, Michigan.

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CRYSTAL SPRING STOCK FARM,
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JERSEY BULLS, Out of Register of Merit cows, for sale. Also a few cows and heifers. S. B. EASON, STURGIS, MICHIGAN

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Dairy Bred Shorthorns—Only one bull left 9 mos. old. Price \$75 cash or good note. J. B. HUMMEL, Mason, Mich.

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15 registered HAMPSHIRE DOWN yearling ewes and one ram. A bargain for cash or approved note. C. D. WOODBURY, Lansing, Michigan.

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

O. I. C. swine and Buff Rock cockerels of right type, best of breeding, price way down for quick sale. G. D. SCOTT, Quimby, Mich.

O. I. C's—I have some very fine and growthy last fall pigs, either sex, males ready for service now, pairs not akin. OTTO B. SCHULZE, Nashville, Mich., half mile west of depot.

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

O. I. C.—Orders Booked For Spring Pigs. C. J. THOMPSON, Rockford, Michigan.

O. I. C's of March and April farrow shipped on approval or c.o.d. OTIS GREENMAN, R. 4, Bellevue, Eaton Co., Mich.

O. I. C's of Superior Quality—Nine high-class fall pigs, bred for spring pigs. Fred Nickel, R. 1, Monroe, Mich.

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

SERVICE BOARS Duroc Jerseys for sale and fall pigs, (either sex) sired by W's Choice Rule No. 30795. Prices reasonable. Write R. G. VIVIAN, R. 4, Monroe, Mich.

DUROC JERSEYS—Both sexes, all ages. Satisfaction guaranteed. Express prepaid. Herd established 1888. J. H. Banghart, Lansing, Mich.

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

CLOSING OUT SALE
Butler's Big Type Poland Chinas. Everything goes. Herd Boars, Brood Sows, fall boars and gilts, Jersey bulls. Write for what you want, we will quote you a very low price. J. C. BUTLER, Portland, Michigan.

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

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Big Type P. C. Sows bred to Big A. A. WOOD & SONS, Saline, Michigan.

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POULTRY AND BEES

HATCHING AND REARING DUCK-LINGS.

Ducklings are comparatively easy to raise, once one learns some of the more important points essential to success. It is generally conceded by all who have raised them that they are less trouble than either chickens or turkeys. They grow faster, are not bothered by lice and, when properly cared for, are free from diseases.

One of the secrets of success with ducks is to start with pure-bred stock, for blood will tell in ducks as in other poultry. It is a mistake to think that an egg laid by any kind of a duck will do for starting a flock. Start with good foundation stock, either eggs or birds. Procure these from a reliable breeder, remembering that good strong fertile eggs come only from fowls that have been fed and cared for right and that have come from healthy stock themselves. With a good foundation, however small, to start with, something worth while can be accomplished in a few years.

Duck eggs for incubation must be fresh. Any over ten days old should not be used. Duck eggs will not bear much rough handling. For this reason it is best to procure eggs as near home as possible, particularly during the warm weather.

Hens are really best for incubating the eggs, but this way is too slow if any considerable number is to be reared. The eggs can be hatched very well in incubators after one has gained a little experience. A machine that provides plenty of fresh air and moisture is best for hatching duck eggs. The period of incubation is about four weeks; it will sometimes vary a little either way. Test the eggs for infertile ones the same as hen eggs. The eggs are thin shelled and therefore are easily tested, although it is a little difficult sometimes for an amateur to tell whether an egg is good or bad, owing to the fact that at a certain stage during incubation the shell of a perfectly good duck egg will appear to be almost half empty when held before a strong light.

Although it is sometimes said that a duckling "once hatched is half raised," the truth is that considerable attention must be given for a time. The first ten days is the most critical period. With plenty of fresh water and feed they will grow rapidly, and if they can be kept from becoming chilled during the first ten days the losses will be very few afterwards.

When incubators are used for hatching, brooders are necessary, of course. The ducklings should be confined to the brooders, however, only at night and at intervals during the day while they are small. Early in the season the brooders should be placed under cover. The young birds will soon outgrow a brooder and they should then be given a comfortable coop or house. A separate house for each thirty ducklings is best, as they thrive better when kept in small flocks. The smaller ducklings cannot have a fair chance at feeding time when compelled to run with the larger ones.

Ducklings should not be fed until they are at least 24 hours old. Then they may be given some bread soaked in milk, and water to drink. Give the water in such a way that they cannot get wet, for if they become drabbed, even in hot weather, they will often die. After two days feed a damp mash consisting of bran, corn meal and beef scraps, five times each day; after two weeks, four times each day; after three months, twice each day. Growing ducks require a great deal of food, but at first they must be given limited quantities at frequent intervals. When five weeks old there is little danger of overtaxing their digestions, providing they have plenty of grit and green stuff.

Remember to provide green stuff of some kind in each feed, after they are ten days old. This not only cheapens the ration but insures good health. Ducks cannot live upon grass alone for any length of time, as can geese, but must have a certain amount of green stuff in order to do their best. When it can be had, green cut clover is excellent. Dandelion, onion tops or chopped cabbage are other good green feeds.

Grit is very essential. They should have plenty of coarse sand right from the start, and coarser grit as they grow older. They cannot thrive without it. If it is withheld for a time they will get very

weak, refuse to eat and finally die. But don't try to force them to eat more grit than they want or require, by mixing it with their feed. Keep a supply near the feed troughs, however, for ducklings often stop eating to pick up a few pieces of grit.

Indiana.

W. F. PURDUE.

IN ANSWER TO INQUIRIES.

The Muscovy Duck.

A Sanilac county subscriber asks for information concerning the Muscovy duck. This breed is native to South America, being found wild in the warmer parts of that continent. Following domestication it became very popular in Brazil and is now grown rather extensively in this country and in Europe. Duck raisers of this country recognize two varieties of this breed—the colored and the white. In the colored variety the head and neck plumage is glossy black broken with white, the bill being dark horn color. The body is generally a lustrous blue black although the back may be broken with white. The wing coverts are black with lustrous greenish tinge while the thighs and tail may be either black or white. The shanks, toes and webs vary from yellow to dark lead or black. In the white variety the plumage is white throughout with shanks and feet of pale orange or yellow.

A distinctive feature of this duck is its large red face. The cheeks are bare, and there is a scarlet fleshy space about each eye, the skin being roughly carunculated here and also about the base of the bill, above which is a protuberance corresponding to the comb in chickens. The head is long and in the male the top is covered with long crest-like feathers which rise and fall when the fowl becomes excited. The neck is of medium length, the back broad and flat, the breast full, the body long and broad and carried horizontally as distinguished from the more perpendicular carriage seen in the Indian Runner and the Pekin.

In size the Muscovy ranks with the common large breeds, the standard weight for the breed being 10 pounds, which is a pound above that of any other breed. The difference in weight between the male and female of this breed is greater than in other breeds, the standard for the duck being 8 pounds, thus putting the females on a par with those of the other large breeds.

It is claimed by some authorities that this breed is quarrelsome and inclined to interfere with other poultry. In the wild state they are said to be great fighters. Its flesh compares favorably with that of any other breed and its size gives it standing as a profitable meat producer. As an egg producer, however, it is classed among the poorest of the numerous breeds of the duck family.

R. I. Reds—Standard of Perfection. An Illinois reader wishes the standard weights and color of R. I. Reds; also desires a copy of the Standard of Perfection. The weights are: Cock, 8½ lbs.; cockerel, 7½ lbs.; hen, 6½ lbs.; pullet, 5 lbs. The color of plumage is a rich brilliant red with a little black in tail and wings and a little black ticking in the hackle of the female. The Standard of Perfection may be ordered through the Michigan Farmer. The price of the book is \$1.50.

CLEANING OUT THE HIVES IN SPRING.

Something that is very often neglected is the removal of dead bees from the hives when they are set out in the spring. I don't believe that bees enjoy living in a stench any more than we do, and what is more I do not believe they will do well under such conditions. Then, too, that mass of rotting bees in the bottom of the hive will have a tendency to make the combs moldy. Last, but not least, who wants honey made by bees that have to crawl through a mass of corruption to store it.

The quicker it is done the better, so let's make it our first job. All we need is a smoker, a hive tool and a square flat piece of tin three or four inches square to throw out the bees with. Open up the hive and take out half of the frames; clean out that side of the hive, then push the remaining frames over to that side and clean out the other side. Replace frames and the job is complete.

If the hives are the single-walled kind an easy way to get out dead bees is to simply set the first hive on a clean bottom; then clean that bottom for the next hive, and so on. What few dead bees remain hanging to the combs will usually be carried by the workers of the colony of their own accord. L. C. WHEELER.

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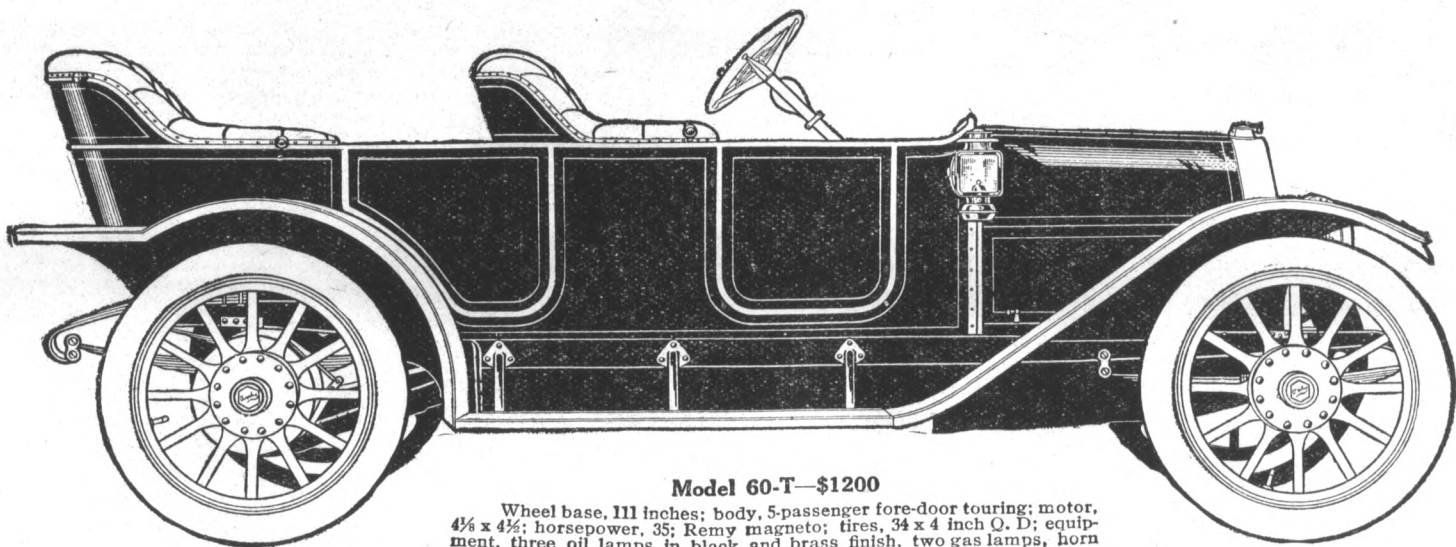
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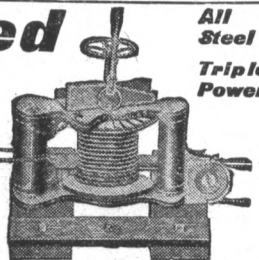
Wheel base, 111 inches; body, 5-passenger fore-door touring; motor, 4½ x 4½; horsepower, 35; Remy magneto; tires, 34 x 4 inch Q. D.; equipment, three oil lamps in black and brass finish, two gas lamps, horn and generator. Self-Starter, \$20 extra. Top and glass front, \$55.

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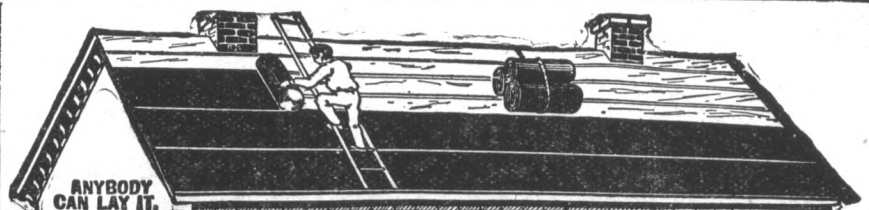
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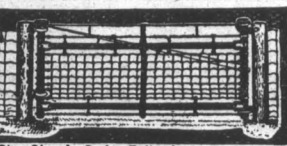
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The Lawrence Publishing Co.,
Detroit, Mich.

DETROIT, APRIL 20, 1912.

CURRENT COMMENT.

Advertising and the Farmer. Every farmer is interested in advertising. When he has a surplus of anything to sell he lets the people know about it that are likely to want to buy that commodity, but he is more fortunately situated than the average business man in that there are likely to be people located in his own community who will want to buy his product. If, however, as may be the case, he engages in the breeding of pure-bred live stock or the production of some commodity for which there is no ready market in the neighborhood, then he must take means to advise people in other communities of the fact that he has such commodities to sell, which he proceeds to do through the most direct available avenue. If he has pure-bred stock to sell he generally advertises in his state agricultural paper, and whatever commodity he may desire to sell he undertakes to reach prospective customers in the most direct manner possible.

So does the manufacturer. But the manufacturer is less fortunately situated than the farmer in that he is obliged to seek distant purchasers for most of his products, which he proceeds to do through the most direct available avenue. Thus, by supplying this direct avenue of communication between manufacturers and farmer user of manufactures, agricultural papers have built up an advertising business which at once enables them to furnish high-class reading matter to their patrons at a very low cost, and at the same time give them a directory of reliable manufacturers of and dealers in a variety of goods which they are likely to need, and will need if they are to keep pace with the progress in their business.

Thus, in more ways than one are the advertising columns of a reputable farm journal of benefit to its readers, particularly in a publication which, like the Michigan Farmer, discriminates so carefully in the acceptance of advertisements to be certain that they are from responsible and reliable concerns. Every reader of this paper has a direct interest in advertising. It is an aid to business success which he cannot afford to neglect, and it is quite essential to his highest business success that he give careful attention to the advertisements which are addressed to him, as well as to those which

he may address to his prospective customers.

Having once become interested in the advertising columns, the reader will find that he can gain a great deal of useful information by writing for the literature which the advertisers will send free of charge. And in writing advertisers for literature, the reader should mention the fact that he saw the advertisement in the Michigan Farmer, which will insure him prompt and courteous attention.

As the present session of congress progresses, prospects for the passage of a

Parcels Post Legislation.

law providing for a satisfactory parcels post do not become more flattering. As before mentioned in these columns, the general post office bill, now under consideration, provides for a limited parcels post on rural routes at an exorbitant rate which would serve no general purpose except as occasional emergency might arise when its cost would not be considered. With the national election impending, and with the majority in the house and senate of different political affiliations, the trouble is that the question appears to be viewed by both factions from a political standpoint, and with the object in view of satisfying the farmers who are demanding an adequate parcels post without offending the country merchants and other interests opposed to it.

So far, no satisfactory plan seems to have been advanced to this end and little progress is being made, notwithstanding the fact that several bills have been introduced and that representatives of the farmers' interests, including the legislative committee of the National Grange, are urging that the post office bill be amended in such a way as to give the country people something tangible in the way of an adequate parcels post service. But the interests opposing the bill are also represented at Washington and are opposing even the limited parcels post plan provided for in the general post office bill, with the argument that if it is passed it will simply serve as an entering wedge which will ultimately give a general parcels post.

It is, however, to be hoped that the question will come before congress at the present session in such form as to compel both congressmen and senators to take a definite stand on the proposition so that those who are favoring parcels post legislation will know who are their friends and who are not. It is, of course, possible that some agreement will be reached by which a measure of parcels post legislation will be enacted by congress at the present session, which would be a far more desirable result than to have the session pass without any definite action. There is nothing that the friends of this proposition can do which will better serve their purpose than to keep in communication with their representatives and senators, urging them to use their influence towards the early passage of a general parcels post measure. This legislation is sure to come ultimately, but it can be hastened to an extent at least by the continued exhibition of a general interest in it by the large element of farmers who favor it.

Early in April the House passed the Underwood bill providing for the revision of Schedule K. This is the same bill passed at the special session of congress last summer and vetoed by President Taft on the ground that no revision of the wool tariff should be made until the report of the tariff board was received. In this report, which was made during December of last year, the tariff board declared in favor of a specific duty on wool levied on a scoured basis, supplementing their report with figures showing the difference between the cost of production at home and abroad as ascertained through the inquiry of the board.

Congressman Underwood, the author of this bill and the democratic leader in congress, asserted that there was nothing contained in this report which showed that the schedule provided in the bill as passed at the special session was wrong and reiterated his belief in the doctrine that the only good purpose of a tariff was as a means of producing revenue. Only two democratic members of the House voted against it while 20 progressive republicans voted for it.

It is probable that the passage of the Underwood bill at this time was effected more as a slap at the tariff board than with a view to its final enactment into law, since the democratic leaders in the House are not in sympathy with the tariff board idea. The ultimate fate of the bill in the Senate is a matter of doubt,

but in view of President Taft's action in vetoing the former bill and the subsequent report of the tariff board with the recommendation with which the bill does not conform, it is very probable that even in the improbable event of its passage the bill will be vetoed.

That the contention of the tariff board regarding the character of the duty which should be levied on wool is in accordance with the views of the wool growers of the country appears from the resolutions passed by the last National Wool Growers' convention which were as follows:

Resolved, That in line with the economic thought which guided Washington, Hamilton, and Jefferson in the propagation of this government we favor a proper protection at home and abroad;

Resolved, That we indorse the tariff commission idea as the proper medium through which the difference in cost of production of wool at home and abroad can be ascertained and commend President Taft for his stand in vetoing the wool tariff bill before such information was obtained;

Resolved, Inasmuch as the wool trade of the world is satisfactorily conducted in valuing wool upon the scoured basis we believe it affords the most equitable and satisfactory plan of levying duties. If it is possible to buy and sell wool in this way, we can see no reason why the government cannot levy and collect its import duties upon the same basis;

Resolved, That we are unalterably opposed to the levying of a duty based on the grease basis, under present conditions, as applied in the Payne law, and we are arrayed equally against any collection of duties on the ad valorem system.

The bill passed by the House provides for an ad valorem rather than a specific duty upon wool which would lessen the degree of protection materially, inasmuch as the rate is not only much lower, but it would afford the least protection when prices are lowest and protection is most needed.

It is a matter for sincere regret that Congress does not rise to a more statesmanlike consideration of this proposition. The sheep and wool industry of the United States is a valuable industry and worthy of being fostered by the government for the benefit of the whole people. There is not an over supply of wool above present requirements produced in the world. If this were the case there would be better reason for the contention that a necessity should be cheapened to the whole people by a removal or reduction of the tariff, but wool can be produced much more cheaply in some of the large producing countries such as Australia, South Africa and South America than in the United States. It was stated by Mr. Brown, of Minnesota, a member of the executive committee of the National Wool Growers' Association, in an address before the Tri-State Wool Growers' Association at Wheeling, West Virginia, last February, that a pound of scoured wool cost to produce in Ohio and adjoining states, 58 cents; in the western states, 46 cents; in South America, 15 cents; in Australia, eight cents; in South Africa, five cents. It is manifest that our wool industry cannot be maintained even at its present status with free competition with wool growers from these sections and that it must suffer on a tariff for revenue basis in competition with them. This means an advance in the price of wool from these sections as our own supply decreases, and thus a limitation of any possible benefit to the consumer, even with a reduction of tariff on manufactured woolsens.

Manifestly, this is a case in which the principle of protection should be coupled with that of revenue production in the arrangement of the tariff schedule in order to conserve the greatest good of the greatest number of people. The tariff on both the raw material and the finished goods should be fixed with a view to covering the difference between the cost of production here and abroad. If the tariff board report does not show conclusively that difference, then it should be supplemented with further information of the same character, and a bill formulated which will meet the needs of the wool growers and consumers alike.

The postponement of the final settlement of this proposition for political or other reasons is to be condemned, for the reason that such protection as present schedules afford wool producers is practically inoperative, with tariff legislation impending throughout the marketing season. While consumers gain nothing, producers of raw material lose much from a continuation of this state of affairs. As before noted, any equitable adjustment of this situation would be welcomed by the wool growers of the country. With such a settlement they could adjust themselves and their business to conditions which would be likely to have a degree of permanency, while now they are compelled to play a waiting game

which is as unsatisfactory as it is unprofitable.

An article appearing in this issue contains a valuable suggestion to the wool growers of Michigan and the country in that the present is a propitious time to urge the enactment of a law which shall compel the marking of goods containing shoddy, so-called, showing the percentage of this material which they contain. This is in line with the modern tendency to control unfair competition in business and the marketing of products under misleading names.

Our present pure food law is an example of what may be done by proper legislation along this line. Down in the state of Missouri, through the efforts of reputable manufacturers of shoes, they have a similar law providing for the branding of all shoes in which substitutes for leather are used in any part of their manufacture in such a manner as will enable the purchaser to know just what he is getting.

There is every reason why the consumer as well as the producer of raw material should be protected against the purchase of woolen goods, so-called, which contain a considerable percentage of shoddy, which is a substitute for new wool fiber which the purchaser believes he is buying and has a right to expect he is getting when he purchases goods under an "all-wool" guarantee. Organizations of wool growers should take definite action toward influencing such legislation at the earliest possible date. Pure goods is in accordance with the tendencies of the times, and there can be no legitimate argument made against a propaganda of this kind.

HAPPENINGS OF THE WEEK.

National.

The failure to obey orders caused a head on collision on the Detroit, Jackson & Chicago railroad, seven miles west of Ann Arbor. Two persons were killed and a score injured.

Nineteen passengers were injured, many of them seriously, on the Rock Island railroad, eleven miles north of Pueblo, Colorado.

Miss Clara Barton, founder of the American Red Cross Society, and probably the most widely known American woman of her time, died at her home in Glen Echo, Md., on the morning of April 12. She was ninety years old. Funeral services were held Monday in Glen Echo, with Mrs. John A. Logan as one of the speakers.

A bill has been introduced into congress providing for the construction by the government of a thousand mile railroad in Alaska. The purpose of the road is to overcome some of the obstructions to the development of that country and also to furnish an avenue for securing coal for the navy.

By a majority vote of more than 23,000 out of 25,000 votes cast, the locomotive engineers on 50 different railroads east of Chicago and north of the Norfolk & Western railroad authorized the officials to call a strike should further negotiations with the railroad companies for increased pay fail.

Major-General Frederick D. Grant, U. S. A., who died in New York last Monday, will be buried in the Memorial Cemetery at West Point. He was a son of General Grant, of Civil war fame, and has been prominent in military affairs for many years.

It appears that the representatives of the miners and mine operators are anxious to settle their differences without bringing the questions before the anthracite strike commission. A session was held Saturday and another Monday for this purpose, and it is thought that some definite arrangement will be agreed upon.

The crest of the flood in the Mississippi Valley moved southward into the New Orleans district and on Sunday at that city the water registered 19.7 feet, which is less than a foot from the high-water mark. Engineers believe the levees at that point to be sufficiently strong to withstand the increased pressure caused by the excess of water, but below the city the danger is more acute. However, should the embankments break the damage will only be local in nature. Tallulah, La., a small place north of Vicksburg, is under water with the exception of a few business houses.

At the annual meeting of the Illinois Bar Association, representatives from 40 states will meet in Chicago to discuss the judicial recall and reform in court procedure.

The primaries of Illinois last week were favorable to the candidacy of Col. Roosevelt for president on the republican ticket and for Champ Clark on the democratic ticket. In Pennsylvania on Saturday the result showed Col. Roosevelt again in favor on the republican ticket and Woodrow Wilson the choice of the democrats. New York state will send an unopposed delegation to the national republican convention.

Two persons were killed and a score injured by the collapsing of a floor in a church at Harrington Park, N. J., last Sunday.

An explosion in the Illinois Steel Company's plant at South Chicago caused \$100,000 damage. No fatalities are reported.

The Supreme Court of the United States refused a rehearing on the recent patent (Continued on page 485).

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

MICHIGAN FARMER
AND *LIVE STOCK* JOURNAL
PUBLISHED WEEKLY. 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 PRESERVATION OF TREES.

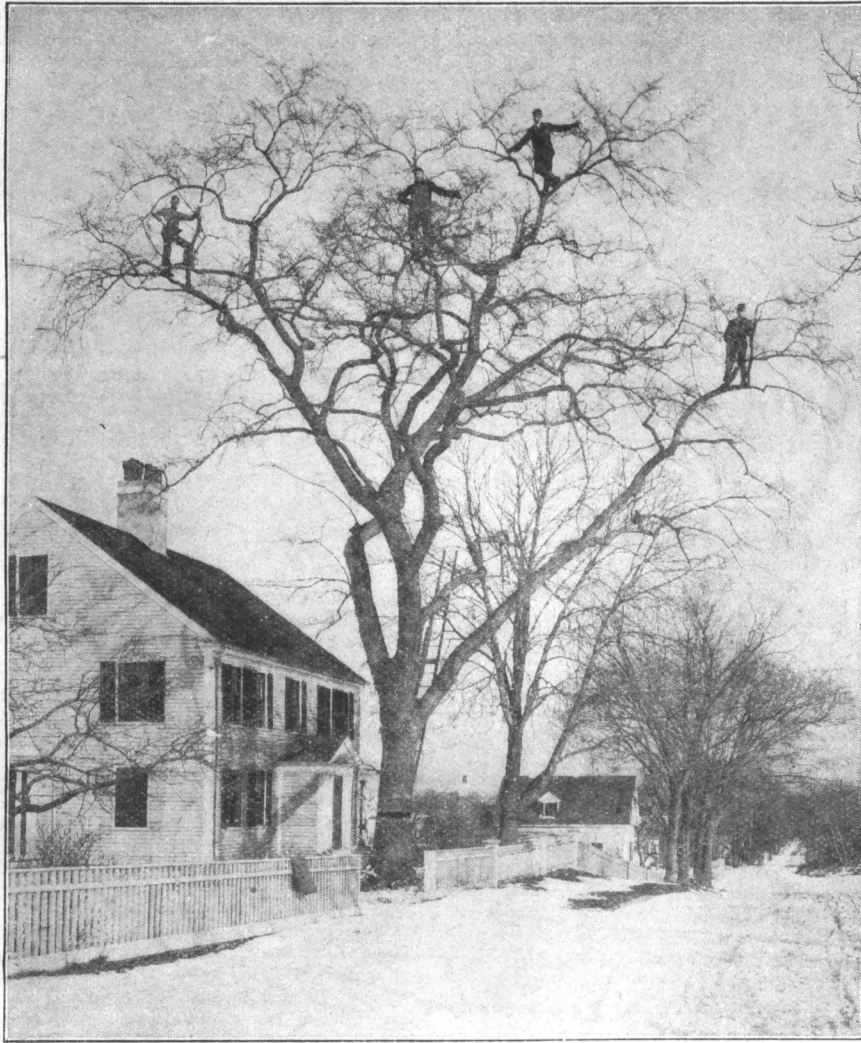
By E. I. FARRINGTON.

THERE is a great work to be done in the preservation, as well as the planting, of street and roadside trees in small towns and rural communities. Indeed, it rests largely with public-spirited individuals to save for many American communities one of their most delightful characteristics—streets over-arched with splendid elms and maples—for the ravages of disease and insect pests, combined with the ruthless operations of the tree butcher, are doing much to destroy the trees. The loss of some of the finest elms in the college yard at Harvard has startled many people of New England into a realization of this fact.

Organizations of progressive men and women have been instrumental in securing proper attention for street trees already standing in a number of towns, as well as the intelligent supervision of new tree planting. Most people know very little about trees. Those who do, come to love them, for in many ways they seem almost human. Too often, however, they are not really appreciated until it is found that they are doomed to early destruction.

The owners of large estates have come to understand the priceless value of mature trees, though, and are spending fortunes, in some cases, to save those which adorn their grounds and driveways. As a result of this increased interest in tree preservation, a new profession, commonly known as tree surgery, has come into being. The tree surgeon who is capable must have had a thorough training, and individuals or associations which undertake the preservation of damaged trees must be careful to select a tree doctor who really understands his business, for there are many charlatans in the field.

Tree surgery—perhaps it may more properly be termed tree dentistry—of the most interesting sort is that which has to do with the filling of cavities caused by the breaking of a limb or the splitting of a trunk. Sometimes these cavities are of enormous size, perhaps large enough to shelter several people standing upright. The tree surgeon has a full kit of tools



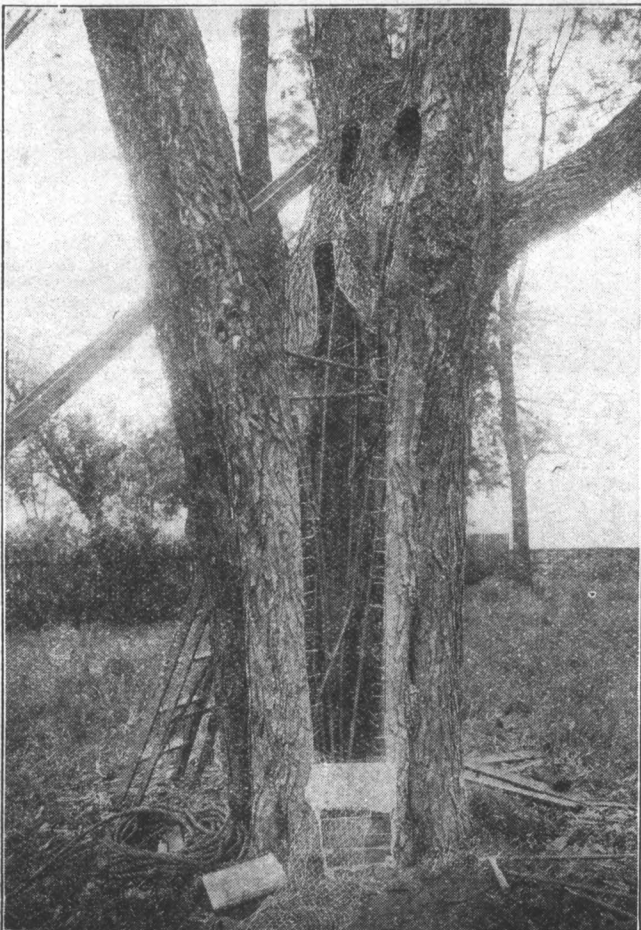
Removing Nests of the Brown Tail Moth from a Gigantic Shade Tree.

tion of trees by linemen, and the cutting off of the tops by men who claim to be tree trimmers but who may better be called tree butchers. Many of these butchers advise pollarding the street trees, which simply means cutting off the entire top, and all too frequently householders allow this to be done, in a mistaken belief that it will improve the appearance of a tree. This is all wrong. Fruit trees may need pruning, but ornamental trees look best when allowed to grow as nature meant them to. Let those who disapprove of docking horses' tails and cutting dogs' ears, enter the crusade against the unwarranted mutilation of shade trees.

Generally street trees need protection from horses, which like to gnaw them. It is possible to secure attractive tree guards at small cost, and their use should be advocated. There are many kinds, as those who start to investigate this matter will soon find. Also, there is considerable literature about them for, in Europe, and in some enterprising American suburban towns, much attention has been paid to the matter of shade tree protectors, which are both ornamental and effective, as well as inexpensive.

Not infrequently trees are strangled to death by means of wires or hoops bound tightly about them. The wires may be supports for poles or other trees, and the iron hoops may be used to keep a tree from splitting down the trunk. It is only ignorance which permits the use of either. If a tree shows signs of splitting it should be braced by means of rods or chains bolted into opposite limbs. Hoops often are seen on trees, but they ought to be removed and the new plan adopted.

In the New England states, enormous damage has been done by the Gypsy and Brown Tail moths, which defoliate a tree in a short time. When there are no trees to feed upon they turn their attention to shrubs and garden crops. The menace of these pests is extending to other states, and their coming should be watched for closely. In localities where they are not known, little attention is paid to them

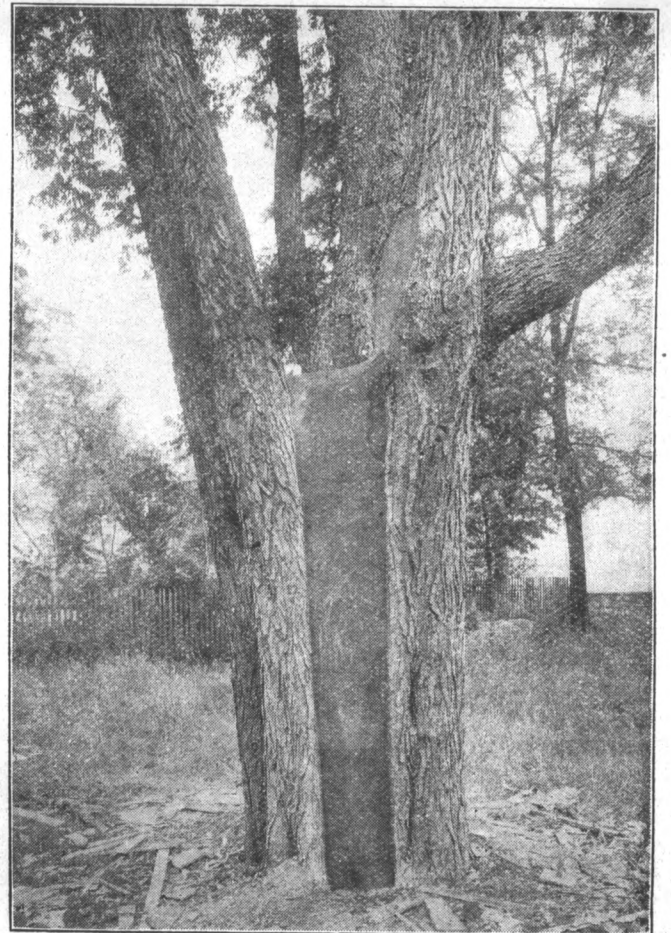


A Large Cavity Prepared for Filling.

and goes to work in a way that reminds one of a dentist. First, he carefully cuts away all the decayed wood, often leaving hardly more than a shell. Then he applies an antiseptic fluid to prevent further decay, and may even use fire to burn off diseased portions of wood which may have escaped the knife.

After this preliminary work has been completed the cavity is filled, just as a dentist fills a tooth, only stone, bricks and cement are substituted for gold, silver and porcelain. The hole in the tree is completely filled with this material, sometimes to the extent of a ton or more, and then the opening is smoothly covered with cement. Occasionally the interior of the tree is driven full of nails in order to make the cement adhere more securely. The practice is not always the same, but the operator is always careful to see that the cement surface does not extend beyond the bark, for if the latter is given a chance it will often gradually work its way over the cement, perhaps so far as to almost hide the evidences of the tree surgeon's skill. The expense of this kind of work depends upon the extent of the cavity and its location. Sometimes several hundred dollars may be spent on a single tree, if it is in very bad shape, and owners of large estates have expended thousands of dollars in order to have large tracts of standing timber put in proper shape.

Many trees die simply because of ignorance and neglect. An organization interested in the preservation of street trees can do effective work by pointing out some of the things which result in the loss of handsome specimens. One of the most common evils is the mutila-



When the Filling has been Completed.

until they have become very numerous. It is well for those interested in improvement work to read up on these exceedingly dangerous pests. The elm-leaf beetle and the leopard moth are widely-spread and are doing very great damage. Indeed, the very existence of all the elm trees in some sections is threatened. These pests should also be watched for.

Organizations can do a great deal of good by issuing little leaflets on the planting and care of shade trees, or, better yet, by co-operating with the local paper in publishing a weekly article on this subject of preserving trees. In this way, a very desirable unity of action is secured, and the interest of the general public is aroused. After all, improvement work of every kind is largely a matter of education.

The general public needs guidance in the choice of street, roadside and lawn trees. Permanent beauty is often sacrificed to quick effects, especially by real estate promoters. In a number of first-class suburban communities there are shade-tree commissions which have general over-sight in all such matters, and which will not allow the planting of objectionable trees.

Probably the Norway maple and the white elm are the most satisfactory street or roadside trees, all things considered. The former, in particular, is a good tree to plant, because it seldom is attacked by insects, while it is beautiful in shape and leaf. The linden, too, is an excellent shade tree, and its blossoms are a delight, both to man and to the honey-bee. It drops its leaves rather early, but that is

not a serious objection. The catalpa is a fine shade tree, especially along country roads, one of its advantages being that it grows with wonderful rapidity. Its leaves are exceptionally broad, and the tree produces beautiful flowers in great profusion. The Kentucky coffee tree and the native persimmon are also excellent shade trees.

The Carolina poplar is the bane of true tree lovers, and yet it is widely planted in places where there is no shade-tree commission to forbid. It grows very rapidly, to be sure, but it is exceedingly dirty, its leaves begin to fall early, and its roots break up sidewalks, ruin lawns and even penetrate sewer pipes and cellars. Steps taken to prevent its planting must be conceded to be efforts expended in a good cause.

It is well to interest the young people in trees, and a society just organized in a Boston suburb is worthy of imitation. This society is composed of young ladies, who take the names of trees and leaves. The president is known as Betty Beach, the secretary as Polly Pine, and the treasurer as Bunny Balsam. The badge of the society is the maple leaf, each letter of which has a meaning—M standing for modesty, P for purity, L for love, etc. The meetings are held under the trees, and each member bears the name of a tree at these meetings. To be strong in character, restful in manner, firm in principle, well-rooted in the right, to be useful as well as ornamental, to bend before the storm but not to break, are the lessons of the tree—so the members of this society say.

A DAUGHTER OF THE GULF—BY JANE WINSTON.

THE Sheridan Dramatic Company's band swung into the closing number of their advertising concert. The rickety platform creaked beneath them; above, the genial Texas sun rode in a tranquil sky. Whitewave had turned out in force for the occasion; vehicles and men on horseback filled the space about the band-stand; the sidewalk beyond was black with listeners. At the closing chord there were a few cheers and much hand clapping. Then the people reluctantly began to disperse. As the little knot of spectators at the foot of the band-stand widened, a young man swung himself lightly up into the midst of the musicians.

"Say, that was great," he cried; "the Whitewave band could not beat that." His face seemed made for smiles, and his eyes had the fresh sparkle of sun and sky. To the musicians, he was a personification of the ignorant American public. A few sour looks were exchanged among them, and no one replied. Then Curtis came to the rescue.

"Thank you," he ventured. "You must have a fine band here."

"Pretty good," the stranger assented, artlessly; "I do the cornet act."

The little group descended and began the long tramp back to the railway car, nearly a quarter of a mile distant. Curtis and the Whitewave man fell behind, conversing with interest. Scraps of the latter's conversation came to the ears of the others.

"I had rather be on the stage," he declared with enthusiasm, "than—than anywhere. I sure do like the stage."

Nods and winks were exchanged among the listeners. They could trust Curtis to draw out this verdant young villager, and, later on, to repeat his blunders for their benefit.

"I sure do like the stage," mocked the drummer, half an hour afterwards. "What is his name, Curtis?"

Curtis looked up quickly. He was a short, nervous little man, who owed his fine chest to his instrument. Hair and skin seemed equally red, but his big, eternally amused blue eyes and bitter mouth did not seem to belong to the same person.

"His name," he replied, slowly, "is Charlie Masters. He has offered me the position of director of the Whitewave band."

A short laugh went round the group. In the silence that followed Curtis added soberly: "I have told him that I will accept it."

No one believed this statement, but the comments upon it were many.

"I'd like to see you. If there ever was a son of the road, it's you, Dee Curtis. I'll give you just three weeks to hit the first freight for the nearest show."

Said another: "I tried that once. They were going to give me a hundred dollars a month. The first month they paid me twenty, the next the band went to pieces.

And I had left a sixty-dollar-a-month engagement."

The fun for the next fifteen minutes was at Curtis's expense. He let them laugh their fill and, when they pressed him to know if he indeed intended to do as he said, he made them laugh the more by insisting that he really did. But the actors were starting to the opera house for a rehearsal, and the musicians picked up their instruments and followed. Inside that moth-eaten building the trombone laid down his instrument case and turned to Curtis. "We have fifteen minutes yet. Let's beat it." At the door they paused, irresolute.

"Which way?" asked Curtis. "I think I saw a shell shop back there."

They hastened toward it. It was a lazy, hazy afternoon. Warm wafts of air were all about and, far in front of them, the shining Gulf purred on the glistening sand. The trombone drew a long breath. "Do you think of staying here?" he asked, abruptly.

"I have until tonight to decide," was the reply. "But I have to do something. If I stay on the road three months longer you will have to dig my grave by the side of it. Man, look at me. I can't sleep, I can't eat; I have lost three pounds in the last week. I am done for, for a while at least."

The trombone was not listening to this tale of woe. "Look there," he commanded, pointing at some articles displayed for sale in a shop window. Curtis's glance went past the window, went inside, to where two men stood talking, one of them facing the street. He was tall and well made, with a blank face and peculiar amber-colored eyes that seemed not to match either his fair skin or his dark curly hair. It was a face that, once burned into the memory, could never be forgotten, and, though it had been years since Curtis had seen it, he knew it instantly.

Before Curtis could recover from his astonishment they were entering the shell shop. A girl came to wait on them and Curtis stood and drummed on the counter while his comrade bought souvenirs. By this time Curtis had persuaded himself that he had been deceived by a chance resemblance and was eager to go back and look again. He could not help noticing how exquisitely neat the little shop was. Yet it was no more so than the girl, though she was not good looking, he decided. On the contrary, she was quite plain, and her figure was rather matronly for a young woman.

It seemed an age to Curtis before they were out of the shell shop. He buzzed away down the street like an excited hornet, and dived into the store where he had seen the two men, with the trombone pulling at his elbow and insisting that they had no more time to lose. But, though he went through the building from

one end to the other, the man with the amber eyes had disappeared as completely as if he had never existed.

So vivid were the memories awakened by the strange face, however, that, all that afternoon, Curtis expected every instant to see it again. When the crowd began to file into the opera house that evening he scanned each face with interest. Charlie Masters was an early arrival. Two young ladies were with him. One was the girl of the shell shop, the other a slim little blonde, all flutter and vivacity. All too soon Curtis had to turn his back to the audience, and without seeing the face which haunted him. The melodrama dragged wearily along. With nerves strung to concert pitch, and conscious that many eyes in the audience were upon him, Curtis played between the acts as never before, drawing heavily upon his already overtaxed strength, but feeling no fatigue, only a curious lightness and exhilaration. When it was over, and he arose to go, he fell back into his chair in a state of collapse. With the help of the trombone, he dragged himself outside and sat down upon a box, where, an hour later, Charlie Masters found him.

"Why, what is the matter?" he inquired, with swift sympathy.

Curtis's mouth gave Charlie its little bitter smile.

"I am just enjoying the night," he replied. "Fine, isn't it?"

"Swell. But you are looking bad. Let me do something." Curtis arose with the restlessness of nervous breakdown.

"I am all right now. I think I will go."

They walked slowly down the deserted street. The moon was shining behind great white clouds, and the breeze seemed suddenly chill.

"Have you decided to stay with us?" asked Charlie.

Curtis did not reply. A man carrying a lantern had stepped out of a building in front of them. He placed the lantern upon the sidewalk, and, taking a bunch of keys from his pocket, was carefully locking the door behind him. The light struck full upon his tall, well knit figure. Curtis felt himself thrilling all over.

"Hello, Garlington," called Charlie. "Why didn't you go to the show?" The man slowly turned his head and Curtis saw his familiar blank face and strange eyes.

"I was sorry to have to miss it," he replied. His voice was finely toned and strangely resonant.

"Garlington," repeated Curtis, when they were past. "I never heard that name before."

"He has got a nose like a gar," returned Charlie acridly. "He keeps books for Roscoe Brothers."

"You are well acquainted with him?"

"No, and I don't want to be. You have not answered my question yet. Are you going to stay with us, or go on?"

"I am going on, tonight. I may come back, though, in a few days, or a week."

But, as he thought of the man with the amber eyes, he told himself that he would not.

Chapter II.

Curtis, however, returned to Whitewave. It was almost a case of necessity. Charlie Masters received him with open arms.

"I sure am glad to see you," he laughed. "Our band is about to go to pieces. I was just desperate, the day I first tackled you. It was up to me to do something, and I thought I would try a bold move."

For a week Curtis was the sensation of Whitewave. "People want to know all about you," Charlie told him. "They can't tell whether you are a well preserved oldish man or a pretty well hacked young one." The musician laughed with his boy's eyes, but did not settle this great question. He enjoyed the interest everyone seemed to take in him, had found a pleasant place to board, and his pupils were congenial. But, for all that, Whitewave was unsatisfying, because he lacked occupation. Excepting three hours of band practice two nights a week, his time was all his own.

At last, in desperation, he sought out Charlie Masters. "See here," he declared, "if I stay here, you must find me something to do. I have killed time all over the United States, but the days here are longer than any place I ever struck, and this is winter time. I walk my legs off every day, practice till my ears ring, and meet every train. After that, I have about six hours of absolute idleness left until time to go to bed with the chickens. You fellows have treated me so well that I do not like to complain, but, unless I have some sort of a change, I will have to bid you a fond adieu. Can't you get me a

job? I will wash dishes, clean yards or anything."

"All taken," laughed Charlie. "Unless somebody dies, which may all the fates forbid, there may not be a vacant position in Whitewave for a year. When a young fellow grows up here, he either has to leave or sit around and wait for somebody else to. There are just enough folks here to make a living, and no room left. But you shan't leave. We'll lock you up in jail first, and make you teach us through the key-hole. I will find something, though, never fear." He paused, wrinkling his brow soberly. "Now if you had a little money," he continued, thoughtfully, "you could buy any business in town, dirt cheap."

"Pick out the cheapest one, then," retorted Curtis, recklessly, "and I will have a look at it."

Charlie stared. "Would you really?" he exclaimed. "How would a stock of jewelry suit you?"

"Down to the ground," was the reply. "Did you know that is my trade?" For there is nothing like a move, if you move at all, thought Curtis to himself. He had a bit of rather undeveloped mechanical skill, could attend to his own watch when it needed anything, and sometimes mended odd bits of jewelry for the company.

"I might know of something of that sort," asserted Charlie, airily, and he soon let Curtis see that he wished to act as go-between, if there was any chance of such a trade. Curtis was nothing loath, and they parted.

The next day, however, Charlie, full of wordy enthusiasm, sought out Curtis. The stock belonged to a Miss Gray, who kept a shell shop. It had been the property of her father, who had died nearly a year before. To the business details of the trade the musician paid little attention, but the fact that it demanded fifty dollars down stood out like a circus ad. on an unpainted barn. How much of this would go into Charlie's pocket Curtis had no means of ascertaining, so he went to look at the stock.

The shell shop proved to be the one which Curtis had visited on the day of his arrival in Whitewave. Now as then, he was struck with the exquisite neatness of the place. Cheerful plants bloomed in the windows, and, at the back of the room stood an old-fashioned square piano, with yellow keys and dull woodwork. "There is an instrument with a history," asserted Charlie, as Curtis glanced towards it. "Tell it to him, Linden."

A faint touch of color stole into Miss Gray's olive cheek. "I believe it belonged to a ship that was wrecked here over twenty years ago," she replied. Curtis examined it with interest. "Play something, Linden," urged Charlie. "Play one of those things you made up about the sea." Curtis added his voice to that of Masters, and the girl seated herself at the instrument. Its tone was just what Curtis expected, and her skill was not great, but, in spite of these drawbacks, he was charmed with the effect she produced. It was a plaintive bit of minor melody, and the accompaniment blended almost exactly with the sound of the sea outside. Her soft, almost regretful touch was well suited to the piano and its history.

"I cannot understand how you people feel toward the sea," remarked Curtis, presently. "Over yonder stands Galveston, behind a seawall that cost three fortunes, and scattered up and down this coast are dozens of small towns, like this, for instance, in just as much danger as Galveston was, and no protection whatever. Are you not afraid of the sea?"

A momentary sparkle, like sunlight on a dark wave, lit Miss Gray's somber eyes. "Afraid of the sea?" she laughed. "Not I."

"Familiarity with danger," explained Charlie. "When you traveled with that dramatic company, did you ever think of wrecks?"

"Only when I was in them," admitted Curtis.

Linden struck a languid note or two, her dark head drooping. "We all have to go sometime," she mused, "and they do say it is an easy death."

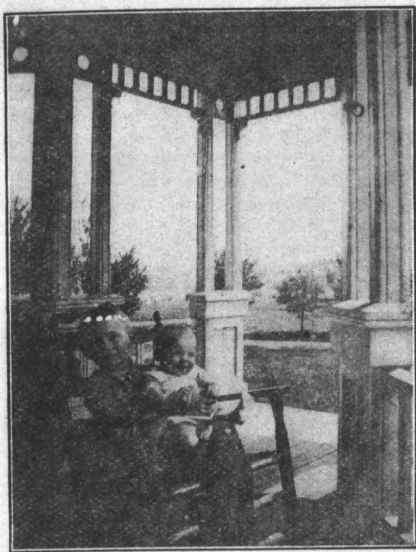
"The water was twelve feet deep right here," declared Charlie, hastily, "the time Galveston went. I was sick, that night, as it happened, and a great deal too bad off to care anything about it. My bed was right by the window, and I remember seeing the water lapping against the pane."

To their surprise, Linden was laughing again. "I had a great time that night," she declared. "The water came into the lower story of our house and we went up into the attic. There had been no rain

(Continued on page 481).

COOKIES FOR ME.

BY FLOY SCHOONMAKER ARMSTRONG.
I'm feeling contented this morning,
I'm happy as happy can be;
I'm tending the baby for mother,
And she's making cookies for me.



I sit on the porch in the sunshine
And rock little sister, Marie;
She seems to be glad when I tend her
And mother makes cookies for me.

LITTLE FARM FABLES.

BY AUNT QUILLIA.

Tad's Mistake.

Tad, as he was familiarly called, was a favorite in Frogmore. Frogmore was a small settlement on the borders of Bog-rush Bay. Here his family had resided for generations and, being an old and influential one, Tad had inherited the prestige that such connections give. Being an all-around good fellow himself he was also much liked on his own account.

Two things, however, marred his comradeship. These were an intrusive family pride and an immense estimate of himself. But these faults were looked upon as more amusing than otherwise and so, season after season, his companions listened to tiresome and never-ending tales of the prowess of one, Colonel Ketchum, a remote ancestor who once commanded the Lightning Lancers, and who, according to Tad, never failed of impaling upon his unerring spear any rambling fly who ventured too near its deadly point.

Quite as fond, also, was he of dwelling upon the social triumphs of certain old grand dames and aunts who embellished the drawing rooms of Frogmore in an early day.

Still his most prominent weakness was his tendency to keep himself in the limelight, and so one morning after Mother Nature had cut off the little pointed tail of his juvenile jacket he was seen strolling pompously up and down the pavilions of the broad mandrake leaves with more complacency than usual, if that were possible.

"Tad," he was saying to himself, "this new coat with its square, substantial skirts adds fresh distinction to your imposing figure. Your musical talent is unquestioned. Your social gifts are the envy of your friends. Frogmore is too small a place for you. With all your advantages your position would at once be assured in any community that you might select. Try Arrow-head harbor across the swamp."

Much elated with his plans, he disclosed them to his boon companions, members of the Amphibian Society, who met that night for practice. Being really fond of Tad, and quite as unsophisticated in the ways of the world as he, with one accord they applauded his plan and by moon-set he was well on his way to his new home.

Once there he lost no time in hunting up the leaders of society. In all candor it must be admitted that his ability in this line was something remarkable. By some means he managed to ingratiate himself into the various clubs, associations and orders to which they belonged, but somehow he missed a certain warmth of greeting to which he had been accustomed at home, and noted, with chagrin, that neither his new suit nor his profound bass elicited any special attention. Most humiliating of all, he found that his allusions to Colonel Ketchum and other distinguished members of his stock made no impression. Indeed, they were received with blankfaced indifference or, at most, with a guttural grunt of amazement. In short, he discovered that he was a mere

cipher in Arrow-head's high circles, tolerated more for good manners' sake than for any interest in his personality.

At last he determined to return to Frogmore. One night as he suddenly appeared among the Amphibians his presence was hailed with unfeigned delight. His former companions pressed quickly about him. Questions as to his life and success abroad were rained upon him until one, with a little more tact than the rest, noting his discomfiture, suggested that it was time to call the meeting to order for, with all of his tendency to boast, Tad had always been undeniably truthful.

The next day an old friend of his grandfather, meeting him in a quiet pool, patted him familiarly on the shoulder, exclaiming, "Brace up, boy. You are now among those who know your real worth. Better stay with us, for, as an old saying of the batrachians has it, 'It is better to be a big toad in a small puddle than a little toad in a big puddle.'"

HOW TO MAKE A BOX KITE.

BY I. G. BAYLEY.

The size of a box kite is, of course, a matter of choice, but the following size and design is given for several reasons. In the first place, it is an exact copy of a kite which has been already made, and voted a big success. It is also about large enough for any ordinary boy to handle, and should a fairly stiff wind be blowing the chances are he will lustily call out for help when hauling it in. And in the next place, it can be taken apart and wrapped in small compass.

Get four sticks, $\frac{3}{8}$ -inch square by 42 inches long. Either white pine or spruce will do. These are for the frame to which the cloth is tacked.

Four more sticks, $\frac{1}{4}$ -inch thick by $\frac{1}{2}$ -inch wide, and long enough to reach across the diagonals of the kite when finished, are notched at both ends to fit

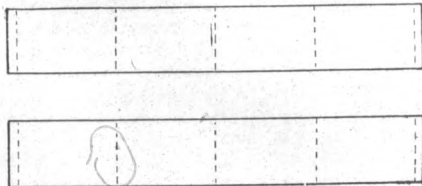


Fig. I.

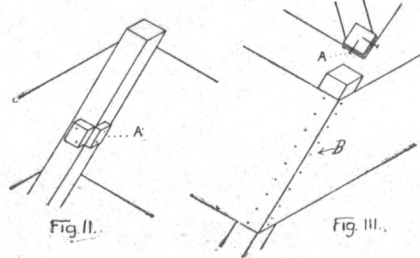
nice the corners of the framework. The object of these diagonals is to tighten up the cloth when the kite is finished.

If the kite is accurately made one foot square, the diagonals will be exactly 1 foot, $4\frac{1}{2}$ inches long, but to make sure they would better be made 1 foot, 5 inches, then notched to suit afterwards. The covering can be made of sateen, glazed lining or nainsook. Each of the two strips of cloth needed should measure, after the

edges have been hemmed all round, 1 foot wide and 4 feet, 1 inch long. The strips are tacked to the four long sticks with very fine wire nails having flat heads, or 1-oz. tacks.

Clear off the kitchen able or a space on the floor, and lay the cloth strips down. At each end of each strip make a crease mark $\frac{3}{8}$ -inch wide, another in the exact middle, and two more half way between, as shown in Fig. 1. These creases can be made by using a damp rag and hot flat iron. You can get your sister to do that part. It should not be omitted or you will get sadly mixed up with sticks and cloth before you get through.

Six and a half inches from each end of the four long sticks are tacked lugs, as shown at A in Fig. II. These are for the diagonals or braces to rest against. They will help you to see at a glance which sides of the stick the cloth is to be tacked



to. These lugs, of course, will all face toward the center of the kite.

Commence by tacking one edge of the cloth to one side of the stick about half an inch from the top. Then place an-

other stick in the next fold or crease, and tack the cloth to it. Likewise with the third stick. The free end of the cloth is now folded over the first stick, hiding the tacks already in, and tacked down to the adjacent face, as shown in Fig. III at A. The tacks are driven in about $1\frac{1}{2}$ inches

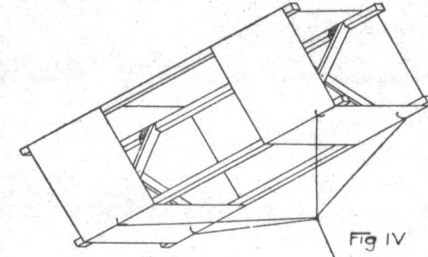


Fig. IV

apart, being "staggered" or alternated with each other as shown in Fig. III at B.

In the same manner the other strip of cloth is secured to the other ends of the framework.

The braces are joined together in the exact center by driving a long fine wire nail or ordinary pin through them, and bending up the end. Only one pin must be used, so that the braces will fold up when the kite is taken apart.

The kite is shown completed in Fig. 4, with the braces in position against the lugs, and the flying string attached. Connect the belly-band just above the braces, and tie it in such a manner that when the kite is held up, as when flying, the flying string will be in correct line. The string an inch from the top. Then place an-

THE BACHELOR UNCLE

BY EVERITT McNEIL.

With a little cry Elsie stooped and caught little Ellen up in her arms, and began kissing her ardently and calling her all manner of names of endearment.

"Oh-h-h-h-h!" and Ellen stared in astonishment from Elsie to me and then from me back to Elsie. "Oh-h-h-h-h!" and her face brightened all over with smiles. "I'm so glad that you and Uncle John have got glad again. Now you'll come and live with him, and help Mary Jane keep house; and you didn't hurt me the least little bit, but you s'prised me awful; and I love you and Uncle John most as much as I do my own papa and mamma. Come and kiss me, Uncle John."

Elsie's face became as red as a fresh rose and she quickly put Ellen down out of her arms, and stood timidly with downcast eyes, the child clinging tightly to her hand.

Ellen's words had set my heart to jumping so excitedly that I could hardly breathe. Could it be that Elsie still loved me? Something in her face, in her down-

cast eyes, in her attitude as she stood there tremblingly by the door, bade me hope, bade me throw aside my determination not to speak to her again of love until she had had time to recover from the terrible shock that the discovery of Harry Rodney's treachery had given her, bade me take her in my arms now and tell the old, old, ever-new story again in her ears. Heaven knows I had waited long enough!—had suffered long enough!—had—

"Uncle John, I think you might come and kiss me now. I—I—"

I caught Ellen up in one arm, and my kisses closed her lips, and my right arm went around Elsie. Then I must have dropped Ellen, for the next thing I knew both my arms were around Elsie, and her arms were around my neck. It was Ellen who first brought us back to earth.

"Uncle John!" and there was a note of shocked surprise in her voice. "Uncle John, is—is the beautiful lady your wife? 'Cause, if she isn't, it is naughty for you to be kissing her so, and I am going to tell mamma."

For answer Elsie caught the dear child in her arms and smothered her with kisses; and I, prouder and happier than any king that ever lived, bent close and whispered in Ellen's ear: "Listen, sweetheart, and uncle will tell you a great secret. No, this beautiful lady is not my wife now, but she will be before the sun sets this very day."

"Oh-h! Oh-h-h-h!" and she pulled herself from Elsie's arms and stared at us out of eyes grown big and round with wonder and delight. "And can I see you marry her, Uncle John?"

"Yes, yes, and—"

"No, no, John! Not so soon, John! Not today," Elsie interrupted me in sweet confusion; and then her face went suddenly white. "Oh, John, John, I am to wed Harry Rodney at ten o'clock today! Oh, what shall I do?" and she caught hold of my arm appealingly.

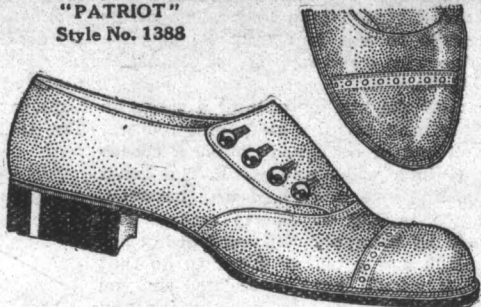
"Elsie," I said, "you got the name of the bridegroom wrong. You should have said, 'I am to wed John Delvin at ten o'clock today.' Now, listen, and I will tell you what we will do. We will go at once to your father and tell him everything, and arrange with him to have the wedding take place at the appointed hour just the same, only with a different bridegroom; and then you will write a note to Harry Rodney, explaining in whatever terms you please why you can never be his wife, and make a bundle of his ring and letters and presents, and I will take it on myself to deliver your note and bundle into Harry Rodney's own hands; and then we will both prepare ourselves for the ceremony at ten o'clock just as if it were you and I who had intended to be married all the time. Believe me, sweetheart, this is the only solution of the whole matter. Everything is prepared



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for the wedding. The bridegroom alone is wanting; and—and, with your permission, Elsie, I will be so bold as to take upon myself—"

"Oh, John, John, think of what people would say!" and it was a very red and yet a very happy face that Elsie lifted to mine.

"And think of what they will say if there is no wedding, Elsie," I responded. "Better give the whole thing a tinge of romance by marrying me on the very hour you were expected to marry Harry Rodney, and have the whole affair settled for once and for all. Our friends will then be too astonished to talk much; and—well, we will be too happy to care anyway. Besides I have waited so long and suffered so much that I feel as if it was my right to claim my reward now—this very day. What do you say, sweetheart?"

"We will let it be as you wish, John," she answered in a tremulous voice, so low that I could hardly catch her words, and hid her blushing face on my shoulder; and I—I was drunk with love and forgot everything, everything and everybody but the dear girl in my arms.

"Uncle John," and Ellen caught hold of me and began pulling. "Uncle John, don't you think you had better go and look out of the window?" and her face showed how badly I had shocked her ideas of the proprieties. "I want to whisper something to—to—"

"Aunt Elsie!" I shouted; and then I caught the two of them up in my arms. In the midst of all this rejoicing and mad love-making I heard the whirr of wheels driven swiftly into the yard, followed by a woman's scream.

When I threw open the door and looked out I was dumfounded to see my sister, Esther, and Fred, her husband, hastily climbing out of a mud-covered carriage. Esther's face was white and tear-stained, her hair hung in wisps about her face, and there was a wild, grief-stricken look in her eyes.

"My babies, take me to my babies!" Esther screamed the moment she caught sight of me, and started on the run for the house. At the door she was met by Mary Jane, who, at the unexpected sight, screamed and threw her arms around Esther's neck.

"Heavens an' airth! Who is dead? What has happened? Tell me quick! Esther; Oh, Esther!" and the dear old lady almost went into hysterics from the fright the sudden and disheveled appearance of Esther had given her.

"My babies! What have you done with my babies? Take me to my babies!" Esther cried frantically, struggling to free herself from Mary Jane's encircling arms.

"John," and Fred gripped my arm, and I saw that his face was white and haggard. "John are—are the kids alive? Tell me the worst at once. I can't bear the suspense."

"Alive!—What kids? Thunderation, Fred, what is the matter with you and Esther?" and I stared at my white-faced brother-in-law as if I fancied he had lost his senses.

"Why, Teddy—Ellen!" he answered blankly. "You telegraphed that they had fallen into the river and for us to come at once. Where are they?"

Great Scott! I had forgotten all about that telegram!

At that moment there was a wild shout, "It's ma and dad!" from Teddy and shrill screams from Esther, and the two children plunged out through the kitchen door and hurled themselves like living catapults straight into the arms of Esther.

Five minutes later a white-faced and very angry sister and a ditto brother-in-law, backed by two grinning children, stood before me.

"John, please explain what this means," and Esther stiffly held out a very much crumpled and tear-stained piece of yellow paper—my unfortunate telegram.

Fred looked at me savagely, but awaited my explanation in dignified silence.

"What—that," I stammered. "Why, that—" Then I had an inspiration. "Why, I answered blandly, "that is the telegram I sent you to tell you that the children had fallen into the river, and asking you to come at once so that you might get here in time to attend my wedding. I am to be married at ten o'clock today, and I am so glad—" but I could say no more.

"Married!" screamed Esther, and her face was a sight good to behold. "Married! Married at ten o'clock today! And I never heard a word of it until this blessed moment! John Delvin I have a notion to pull every hair out of that great head of yours! Married, you dear, dear old boy!" and her arms were around my neck and her kisses were on my cheek.

"Who is she? I am just dying to know. Oh, but you are a sly one, brother mine," and she gave my cheek a mischievous pinch.

"Follow me into the house and I will introduce you to her," I said, smiling and blushing like a bashful schoolboy, as I led the way into the library where Elsie was awaiting my return.

A half hour later Elsie and I drove out of the yard, amidst much happy quizzing and joking and sly commenting, and started for her home. There were many things to be done before ten o'clock and we had to move swiftly.

A short distance from my gate we met Doctor Anderson, who was on his way to visit little Joey.

"I am sorry," Mr. Delvin, to be the bearer of ill news," he replied in answer to my anxious inquiries concerning Belle Murdock. "But Miss Murdock died this morning at four-thirty o'clock. Her end was absolutely painless. She passed away as quietly and as peacefully as a child going to sleep. How is my little patient, her brother, coming on?"

"Too bad, too bad," I replied sadly. "But death is final. Please see that all that is proper is done, Doctor, and send the bill to me. Little Joey was still sleeping soundly when we came away. Doctor, you must do everything you can for Joey. Elsie and I owe him very, very much, and we will care for him now that he has been left homeless. But, excuse us, please. We are in a very great hurry," and I whipped up the horses, leaving the good doctor nodding and smiling wisely to himself.

Chapter XXVIII.—The Way of the Transgressor.

It was nearing seven o'clock when I drove out of Judge Lamont's yard, and turned my horses in the direction of Harry Rodney's stately home. On the seat by my side was the bundle containing Harry Rodney's engagement ring and his letters and presents to Elsie, and in my pocket was the short note of dismissal Elsie had written to him. These I had promised to deliver into Harry Rodney's own hands; and, after I had done this, there was something that I had promised myself to deliver to Harry Rodney on my own account and for his special and particular benefit. For the past two weeks my wrath against Harry Rodney had been accumulating, and this morning, as I listened to Elsie's story of his villainy, it had been suddenly solidified, as it were, into a determination as fixed as life itself to mete out to him with my own hands at the very first opportunity the only punishment that seemed possible under the circumstances; and now, as I drove swiftly along through the clear morning air and thought over all the misery that Elsie and I owed to his making, I grew even more grimly determined than ever to make that punishment effectual and satisfying.

I think that any man with the right sort of manhood in him will agree with me that I was taking the right, the only proper course of action against Harry Rodney, and will ascribe what follows to the promptings of motives far nobler than those of base revenge and personal hatred.

About a half mile from Judge Lamont's house the road passes through a little valley and over a small stream of water, crossed by a wooden bridge. I was nearing this bridge when I saw, coming from the opposite direction and walking swiftly, a tall man whom I at once recognized as Harry Rodney. Doubtless he had started out to make an early call on his fiancée, and to assure himself that everything was in readiness for the wedding. Evidently he had no knowledge of the startling happenings of the night.

The instant my eyes fell on his tall figure all the blood in my body gave a great jump and went surging hotly through my veins, and my muscles tingled as if with millions of little needle-pricks; and then the overmastering determination to do the duty before me thoroughly and completely, as was befitting both a judge and an executioner, overcame every other feeling and left me cool and collected, but with every faculty alert and every muscle tense.

Harry Rodney stopped short suddenly when he first caught sight of me, and I am sure he swore from the angry gesture I saw him make, and then he came on steadily enough, but at a much slower pace. I could fancy his chagrin on finding that I had escaped the thugs he had sent to kidnap me, and I think the sight of me coming from the direction of Elsie Lamont's home must have given him a suspicion that something had gone seriously amiss with his plans.

I reached the bridge perhaps a couple

of rods ahead of Harry Rodney, and at once pulled up my horses, jumped from the carriage, and securely fastened them to the strong wooden railing that protected both sides of the bridge. This done I went back to the carriage, and got the bundle which I had promised to deliver and took the heavy rawhide horsewhip from its socket.

"Good morning, Mr. Delvin," he greeted me, his eyes going quickly from my face to the bundle and whip I carried in my hands. "You appear to be especially anxious to meet me this morning, my wedding morning, Mr. Delvin; but I beg you to make haste and transact whatever business you may have quickly, for I am on my way to see Elsie." He smiled; but I saw his eyes growing steely as he spoke, and his lips tightening beneath the smile, and his great frame straightening; and I knew that he was preparing for the struggle, which my face and actions must have told him was inevitable, yet he could not resist this opportunity to stab me with his taunting words of happy love and marriage, not knowing that they had lost all the keenness of their points.

He had no greetings from me.

"Rodney," I said, and, as I spoke, I drew forth Elsie's note from my pocket. "I have a letter and a parcel to deliver to you from Miss Lamont," and I handed him the note and the bundle.

Never have I seen a man's face go white as suddenly as his did at my words and when he reached forth to take the note and the bundle his hands shook as if he had the ague. He did not speak, I do not think he could have spoken at that moment, but there shot such a look of deadly malignant hatred out of his eyes into mine, that, involuntarily, I took a backward step.

Rodney tore open the envelope and read Elsie's cold words of biting contempt and dismissal. It seemed to take him a minute to comprehend their full meaning; and during that time he stood staring at the paper he held in his trembling hands with eyes in which I could plainly read the travails of his soul. It was a bitter pill for the arrogant pride of the haughty man to swallow—this sudden and contemptuous discarding by the woman he loved, on the very morning they were to have been wed.

"Damn the fickle hussy!" and his fingers tore the note into fragments and threw them angrily from him. The next moment, with a vicious kick, he hurled the bundle, which he had dropped at his feet, far out over the water, into which it fell with a protesting splash, and turned on me with clenched fists.

"I'll kill you for this, John Delvin! I'll kill you!" and he leaped straight at me, with his left hand spread out like the talons of a huge bird of prey ready to clutch my throat, his right hand clenched to strike, and, his eyes flashing as venomously as the eyes of a mad dog. So sudden and unexpected was Rodney's attack that, before I could make any defense, he had caught me by the throat, and his fingers and nails were digging into the skin and the flesh of my neck, and his hot breath was rushing pantingly into my face, and I was staggering backward, overcome by the momentum of his fierce onset. I saw him swing his right hand back to strike a blow, backed by all the force of his furious hate and wrath, straight at my head; but, before the blow fell, my heel stumbled against a projecting rock, and I went down suddenly flat on my back, with Harry Rodney still clutching tightly at my throat.

(To be continued).

A DAUGHTER OF THE GULF.

(Continued from page 478).

in so long that the roof leaked like a sieve, and we sat about under umbrellas and ate sponge cake. We had no idea that anything much was happening."

The proposed trade hung fire for a week, owing to Curtis's lack of money. He had become very much interested in Miss Gray. He longed to become intimately acquainted with her. To him there lingered about her a charm as alluring, as elusive, as that of the sea itself. Though quiet, she was frank and friendly, like all his new friends of the gulf, but behind her speech was a reserve which interested him.

With this incentive to action, therefore, Curtis twisted his ready wits in every direction for a solution of the money problem. The band, though full of promise, had as yet paid him little. There was really no hurry about his business venture. If he waited a month, the opportunity would quite probably still be open, and he might then have the money. But, as usual, he was impatient to pro-

ceed. And, as he thought over the situation, a plan for obtaining the desired end came into his brain. As he evolved it, the boyish twinkle died from his eyes, leaving them cold and hard, and he smiled again his little bitter smile. He could not put the plan out of his head. It fascinated while it repelled him.

That night, undecided whether or not to put it into execution, he strolled down to Roscoe's store. It was the one place of business in Whitewave that he had never entered since the day he searched there for the man with the amber eyes.

The first person he saw there was Sallie Roscoe, the blonde he had first seen entering the opera house with Charlie and Miss Gray. She was standing behind the counter, leaning far forward, her elbows on the counter and her pointed chin in her slim little hands. Her big childish eyes stared straight before her as if fascinated. Before her on a stool sat a man, his back to Curtis. A note or two of his vibrant compelling voice came to the musician's ears before Sallie straightened up and cried: "Why, it is Mr. Curtis. How are you?"

The man on the stool turned slowly and Curtis felt the amber eyes burn upon him. Try as he would, he could not meet them.

"Have you met Mr. Garlington, Mr. Curtis?" queried Sallie.

"Did you say that his name is Curtis?" asked the rich-toned voice, and Curtis felt his cheeks and ears burning as though on fire. All three were silent. So strong was the feeling which this man always gave him that Curtis was incapable of uttering a word. Sallie was the first to break the awkward pause.

"I do not see what is keeping Charlie," she exclaimed; "he said that he would be back in a few minutes." Curtis noticed that she was dressed as if for a party. "I came in here after a ribbon, and he said that he would run over to the band room and get his cornet. Did you meet him, Mr. Curtis?"

"I did not come that way," he replied, with an effort, and again a silence fell. Sallie fidgeted, and tried to talk to Garlington, who replied in monosyllables.

There was a quick step outside, and Masters entered, cornet in hand. At sight of Garlington, Curtis saw his face change and darken.

"Here I am, after so long a time," he cried gaily. "That room was locked, and I had to hunt up Bob and find the key. Are you ready to go, Sallie?"

They hurried away together. Sallie's uncle, who had been seated at a desk farther back in the store, arose, took his hat and passed out. "I will leave you to shut up, Garlington," he called back over his shoulder. Garlington arose, but Curtis detained him with, "Just a moment, please."

Garlington turned with a courteous. "Something I can do for you?"

Curtis summoned all his courage. "You can lend me fifty dollars," he replied.

Garlington stared at him coolly enough for an instant, then answered quietly, "I am not a money lender, Mr. Curtis."

Curtis's breath came thick and fast. His heart was knocking like a drum as he asked abruptly: "Were you ever in Pittsburg?"

To his surprise, Garlington calmly re-seated himself. "Why, certainly, I have been in Pittsburg. I have an uncle there."

"Then you can lend me fifty dollars."

"Pardon me, Mr. Curtis, if I fail to see the connection. You apparently mistake me for another person."

Curtis felt like a villain of melodrama. Forcing himself to meet the other's eyes, he leaned forward and whispered something in his ear. Garlington turned as if on a pivot. There was a check-book on the counter before him, and he slowly drew it towards him. Opening it, he calmly wrote a check for fifty dollars. Tearing out the pink slip, he laid it on the counter before Curtis, with the three remarkable words: "At your peril."

Curtis stared. "I repeat," Garlington went on, "that it is yours to take, if you dare."

Curtis looked into his eyes and saw in their amber depths an ominous red fire. For an instant he hesitated; then, with an effort he pulled himself together and picked up the check.

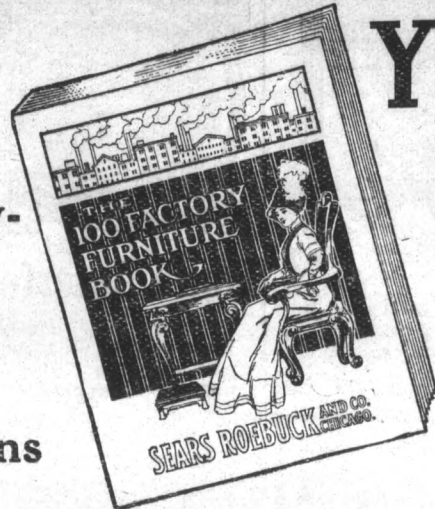
"I am not afraid," he declared; "my past holds no secrets."

Garlington arose wearily. Curtis was already at the door. "I am to know you, then, for the present, as Curtis?" he queried, carelessly.

"My name is Curtis," asserted the musician, with emphasis, as he passed out into the night.

(To be continued).

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Woman and Her Needs

At Home and Elsewhere

Don't Interfere With Your Neighbor's Child.

What can we do with the neighbors, or worse still, the relations, who insist on bringing up our children for us?

I take it for granted that all mothers have troubles along that line, for I do not believe there is a family living that has not some busybody friend, who seems to take delight in combating all the theories of the parents. There is always someone who knows more than the father and the mother how the child should be fed, clothed, disciplined and taught. And the worst thing about it is that they simply can't keep from letting the children know they don't agree with the parents.

Ever have the children at a big family dinner, where everyone knew you would not allow your babies to eat rich puddings, and pastry or drink tea and coffee? Hasn't there always been someone to say:

"Oh, you're too particular. I always ate everything in sight and so do my children and I guess we are as healthy as the next one."

Their muddy, pimply skins tell a different story to you. And you know they are up three nights out of six with the children just because they do eat "everything in sight." But you can't make them believe it is indigestion that ails their little ones, and your own children do not understand. They only know that someone grown up whom they like thinks it is all right to eat mince pie and plum pudding, and they begin to suspect you are cruelly depriving them of something good which they might as well have. Then it takes days, possibly weeks, to overcome this new notion.

But that suggestion isn't half so bad as the act of those other officious people who, behind your back feed your children things they positively know are forbidden. Of course, there aren't many people who go to such lengths, but I have known of two or three instances where neighbors would call children into their homes and feed them things which they knew the mother never allowed the child to eat. When I hear of such instances I always wonder if the woman would hesitate more than a minute over administering poison.

Then there is the idea of fear. While not going to the length of some modern mothers who are themselves in constant "fear" that someone will use the words "fear" or "afraid" before their little ones, I think it is wise not to say or do anything that will inculcate cowardice in the children. I have tried to bring my two boys up not to be afraid of the dark, for instance. They have always slept in a dark room, and think nothing of going out in the yard after lamplight. They never have heard of the "bogey man" or any other hobgoblin who came out of the dark to get unwary kiddies.

Imagine my wrath when they came in at dusk the other night and a neighbor screamed,

"Why, for goodness sake, do you let your children play out after dark? Aren't you afraid the 'bogeyman' will get you, boys?"

"Huh?" said the three-year-old, entirely forgetting that the polite thing was to say, "I beg pardon."

"Where is he? I want to see him," shrieked the five-year-old, running to the door.

"Well, he'll get you some night, and then you won't want to see him," warned my officious guest, fortunately for everybody, taking her departure with the words.

It took a whole half-hour of explaining afterwards to convince the children that Mrs. S. was just "pretending" and that there is no such thing as a "bogeyman." And now everything that particular woman says for weeks will be received by two small boys with suspicion.

It is hard work for all of us to keep still when we see our favorite doctrines on child-training being disregarded. But isn't it well to give the mother the benefit of the doubt? Every mother except the most ignorant and debased, has her child's best interests at heart, and even the ignorant want to do what is best by

him and his mother. Besides, in ordinary cases, your methods may be no better than the other woman's. What is the best thing for your child may be the worst possible thing for hers. Remember, that if she is endowed with ordinary intelligence, she understands her child's temperament far better than you do. Therefore, let her alone, or criticise her when her child is out of hearing.

DEBORAH.

Sheer Effects and Bordered Materials Rule.

This is a season of sheer fabrics and bordered goods. Although late last summer we were told that diaphanous goods, so dear to the heart of woman, were to be taboo this year, and heavy linens and ducks were to reign, the spring of 1912 shows nothing but the thinnest of weaves both in silks and cottons. Marquissettes, voiles, organdies, sheer Swisses, and silks so gauzy as to require an underdress are the ruling passion, though taffetas, pongees and foulards clamor for notice.

And everything, at least almost everything, is bordered. The transparent silks

they are not very expensive, only \$1.50 a yard for yard-wide goods, they will probably enjoy much favor. For, of course, five yards will make a dress after the modern pattern. Indeed, these come only in five-yard patterns, "exclusive weaves," as the shopkeepers say. So if you buy one you have their word for it that no one else will have a gown like yours. There are the chiffon glaze taffetas, or two-tone taffetas; the chameleon taffetas or three-tone silks, and the pussy willow taffetas, so called for their fine, soft texture. These cost more by the yard, coming at \$2.25, but as they are 42 inches wide it will not take so much for a frock. They come in all colors, either for evening or street wear.

Wash crepes are a novelty, and at first sight you wonder why they are among the silks, as they look just like the madras for men's shirts. However, when you notice the price, \$2.00 a yard, and feel of them, you see they are silk. They come in white grounds with a stripe of any color you wish, and are guaranteed to be all fast colors and non-shrinkable.

Foulards are always foulards as to designs, and this season shows the same old polka dots and sprawly figures. Blues are strong favorites and come dotted with white and red, both bordered and plain. The rain spot foulards are \$1.00 and \$1.25 the yard, a yard wide, while the shower proof silks are but 24 inches wide and run from 85 cents to \$1.10.

In the cotton goods display marquissettes are as popular as ever. There is the silk stripe marquissette, whose price I do not remember. This is a fabric with inch-wide stripes of marquissette separated by stripes of silk, or "near-silk." Embroidered marquissettes are dainty, with white groundwork dotted with colored embroidered figures, blue, heliotrope, pink, in fact, any color you will, each figure showing a tiny eyelet. These marquissettes are \$1.29 the yard.

The French voiles are in floral designs, all colors, and sell for 59 cents the yard, while the English voiles, at 25 cents, are shown in stripes, checks and plaids.

Swisses we have always with us, French and Scotch ginghams, flaxons, Indian head, galateas, percales and madras the same. Then there is each year one or two old friends masquerading under new names. But no matter what you buy if it is sheer and bordered, you may be sure you are right up to the minute.

THE WHITE OF AN EGG.

BY E. RUSSELL.

Job says, VI, 6, "Is there any taste in the white of an egg?"

It may be tasteless, but it is useful in a multitude of ways, both in culinary and mechanical arts.

For the invalid, a nourishing drink is made by mixing the beaten white of an egg with lemonade; or, added to grape juice it makes a delicious drink. Mixed with sugar it relieves a cough or hoarseness.

Castor oil beaten up with the white of an egg becomes tasteless and is easily taken.

Burns are alleviated, poisons counteracted, and fishbones dislodged from the throat, by the white of an egg.

As for the mechanical arts and numerous cooking recipes—"that's another story," and a very long one.

Milk which is slightly sour can be used for puddings or pumpkin pies if it is first sweetened with a little soda.—V. H. P.



THE HIRED MAN ON THE FARM.

BY X. Y. Z.

From time to time, articles on this subject appear, but it is a pity that more matter along the line is not found in our farm magazines, in behalf of both employer and employee. I have often wished when such articles did appear, that they could fall under the eye of the hired man. In such case, might it not help him to appreciate the privileges and considerations shown him? I think it would.

It is often difficult to get help on the farm located near a factory. But let the man see a few contrasts through others' eyes and he must admit himself more fortunate than the factory worker who has to pay a good portion of his wages for the necessities and comforts which are the farm man's gratis. Taking the matter of board, the city laborer must frequently put up with stale groceries, poor meat and tough vegetables. Then, room rent, taken one month with another, amounts to no small item. In some of the larger manufacturing towns greedy landlords often rent their rooms, at exorbitant prices, to day workers during the night and these same rooms to night workers during the day. Such conditions are far from sanitary.

Our own employees most invariably have a regular sized, amply supplied bed, each, except during the threshing or when all the other beds are in use. None can justly complain that they do not have plenty of good wholesome food. We have always held that these two comforts are due every hardworking person.

Again, the factory man must pay for the use of a conveyance. The farmer's man who is efficient is often given the use of a conveyance. Many times when the Saturday's work is done, he is carried home to spend Sunday with his family and brought back to work again. It is but just that he should not be made to walk after a hard day's work, if carrying him does not seriously inconvenience the farmer.

The factory man generally argues that after hours he can don good clothes and find amusement. Yes, he can, and frequently more; and here is another way for earnings to go, not to say that his standards of living are often lowered at the same time. As to amusement the more appreciative farm helpers enjoy being taken on hunting and fishing trips, both manly, healthful recreations. Still again, the factory man's laundry bill is another drain. Many of our men have expressed surprise and appreciation at having not only washing done but mending as well.

We try to do our best for each of them; but as each is of an entirely different character, no hard and fast rules as to their treatment in the family circle can be laid down. This much can be said, however. Their place is exactly where their behavior and common sense puts them. The one who does not possess enough gray matter to see that his rapid conversation and bold stare give offense must not complain if treated distantly by the offended ones. And right here I want to say that every farmer ought to have enough dignity to specify, while hiring a man, that the ladies of his household like to be addressed by their last name. If required to do this from the start, the man will not have to be reproved later and is far less likely to misconstrue small courtesies tendered him merely out of self-respect. The gentlemanly helper never goes away and complains that he has been treated coldly. Having not made himself obnoxious, he has no reason to complain. The highest salaried telephone girl in Chicago aptly said, "Don't think that everybody who is kind to you is in love with you."

It is a relief to get a man who likes to read the newspapers and magazines, for in this way his leisure hours are spent pleasantly. We also greatly appreciate the one who shows a liking for frequent baths and other habits of cleanliness.

This is by no means all that may be said on the subject, but is written with the hope that it may suggest ways which make for a pleasanter adjustment between the farmer and his hired help.

HOBBIES.

BY INEZ DE JARNATT COOPER.

Have a hobby, and encourage your husband and children to have one. Maybe your husband has a penchant for making little shelves and things of that nature. In such case do not fuss about the litter.

Your boy may collect stamps and that will not matter particularly but you will deserve the name of heroine when he begins to collect bugs and live things. Let

him have a corner to himself, and enjoy himself undisturbed and uncriticized. His hobby will do him much good, and you also, if you only knew; for the hobby is saving your boy from being tempted by baser matters.

Your girl may be taken up with seemingly useless fancy work. Let her have materials. It is not useless as long as it keeps her contented and happy.

Do not forget that you are to have a hobby. This is especially desirable for on you depends the well being of the home. Never mind what it is, from the collecting of spoons to the making of numerous scrap books. And when you tire of your hobby, drop it. Its work is done. Drop it without regret, but proceed at once to take up another.

COUNTRY GIRLS IN LARGE CITIES.

The United States is not the only country which is having trouble in keeping the boys and girls on the farm. Consul General Dillingham, at Coburg, Germany, has furnished the Department of Commerce and Labor with statistics which give a good idea of how the country girls who go to the city to make a living earn their daily bread. The largest number are employed in factories—150,000 in cotton mills and 52,000 in tobacco factories. A large number of country girls found positions in department stores as saleswomen and received on an average, the

great sum of \$14.28 a month, out of which they paid all of their living expenses.

The most favorable working conditions were obtained by some 210,000 girls engaged as servants in housework. Of these a large number became more independent by taking over small stores, usually groceries or delicatessen shops. There were 167,000 or more women employed in hotels, restaurants, and bars, but only a few of these came direct from the country, having first spent some time in the city. The vista of a pot of gold at the end of the city's rainbow evidently never materializes for those who seek success by giving up the pure life on the farm.

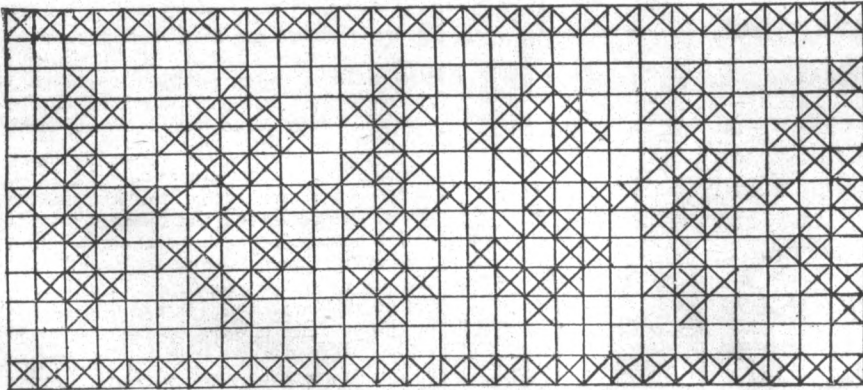
RECIPES.

Spice Cakes.

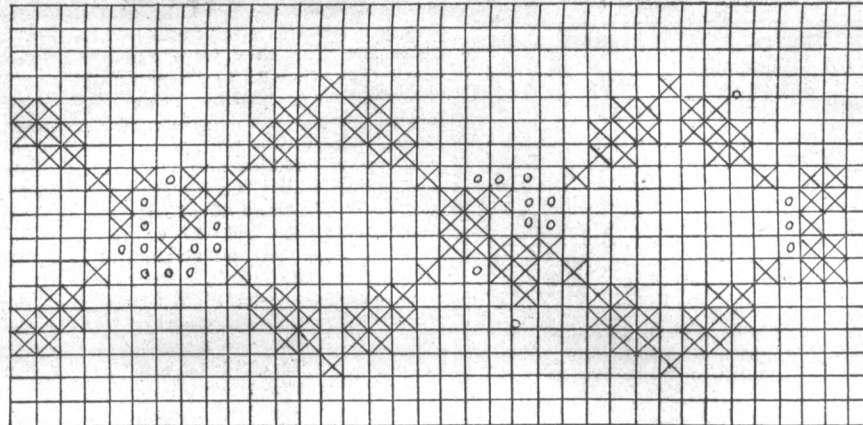
One cup sugar, half cup shortening, one egg or not, one cup buttermilk, one and a half teaspoonfuls soda, one cup raisins, one teaspoonful cinnamon, half teaspoonful ground clover, sprinkle nutmeg. Flour enough to make quite stiff, so will leave form of a teaspoon. Mrs. I. C.

Chocolate Pudding.

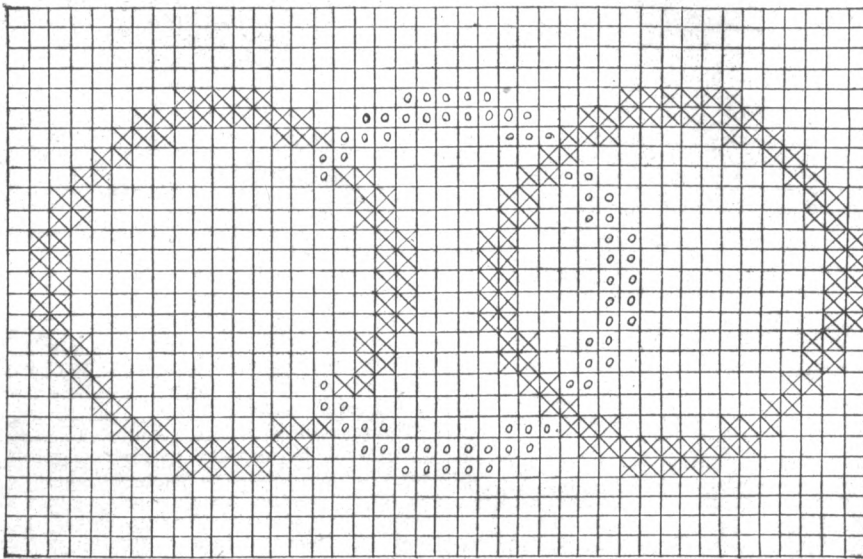
One pint sweet milk in double boiler. When hot add two teaspoonfuls cocoa, or grated chocolate, two tablespoonfuls of sugar, three level tablespoonfuls of corn starch dissolved in a little cold milk. Stir until thick, pour in molds and serve with sugar and cream or whipped cream.—Mrs. I. C. L.



Pattern No. 1.



Pattern No. 2.



Pattern No. 3.

CROSS STITCH PATTERNS.

BY MAE Y. MAHAFFY.

Pattern No. 2 may be given an effect of roses and leaves by using green for the outbranching portions, and two or three shades of rose for the centers, shading them something like illustrated by the crosses and dots.

Number three may be lengthened indefinitely by continuing the interlacing. Four or five of the circles used in rows, each of the same length, form a splendid decoration for a sofa pillow top. By making the upper ring in each row of a light shade of any given color, and gradually darkening the rings toward the lower ones a pleasing effect is obtained.

COFFEE HURTS

One in Three.

It is difficult to make people believe that coffee is a poison to at least one person out of every three, but people are slowly finding it out, although thousands of them suffer terribly before they discover the fact.

A New York hotel man says: "Each time after drinking coffee I became restless, nervous and excited, so that I was unable to sit five minutes in one place, was also inclined to vomit and suffered from loss of sleep, which got worse and worse."

"A lady said that perhaps coffee was the cause of my trouble, and suggested that I try Postum. I laughed at the thought that coffee hurt me, but she insisted so hard that I finally had some Postum made. I have been using it in place of coffee ever since, for I noticed that all my former nervousness and irritation disappeared. I began to sleep perfectly, and the Postum tasted as good or better than the old coffee, so what was the use of sticking to a beverage that was injuring me?"

"One day on an excursion up the country I remarked to a young lady friend on her greatly improved appearance. She explained that some time before she had quit using coffee and taken Postum. She had gained a number of pounds and her former palpitation of the heart, humming in the ears, trembling of the hands and legs and other disagreeable feelings had disappeared. She recommended me to quit coffee and take Postum and was very much surprised to find that I had already made the change."

"She said her brother had also received great benefits from leaving off coffee and taking on Postum." "There's a reason."

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

Canning at Home

STEAM PRESSURE BOILERS for canning fruits and vegetables of all kinds—corn, peas, string beans, pumpkins, tomatoes, fish, pork and beans, etc. Small size fits on cookstove like an ordinary kettle. Factory sizes have fire box, soldering outfit, lifting crane, etc., complete. Canning is as easy as cooking eggs or boiling potatoes. Put up all you need and sell the rest or start a canning business on a small scale.

Thousands of dollars worth of fruit and vegetables are wasted in your neighborhood annually. Turn this loss into a profit for yourself. Our interesting pamphlet "Secrets of the Canning Business" tells the story. It explains canning methods, what to do and how to do it; shows how to increase the revenue from fruit and vegetables and how to make money canning at home. Pamphlet is Free, also our 1912 Catalog. Farmers save \$100 each year in grocery bills. Orchardists and vegetable gardeners make from \$500 to \$1000 yearly, from fruit and vegetables that otherwise would go to waste.

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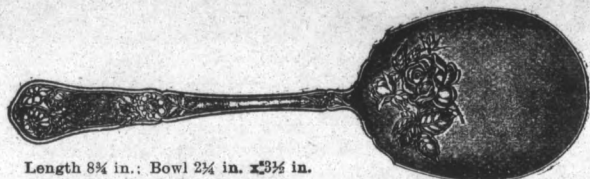
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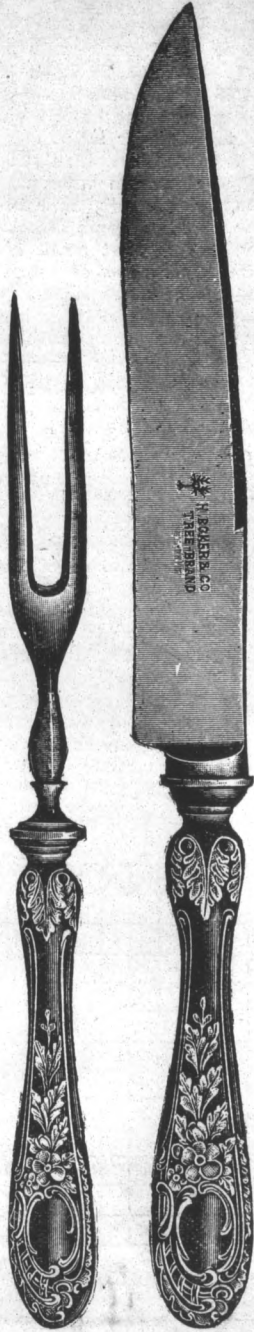
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HUMAN WELFARE QUERIES.

Household Editor:—Can you suggest a way of using up cold fish?—Mrs. M.

Bone the fish and separate it into small shreds. Then melt two tablespoons of butter in a saucepan and stir in two tablespoons of flour. When it is all stirred in and has cooked a minute add a pint of hot milk slowly and stir until thickened. Then add your fish. If you are tired and in a hurry let simmer on the stove until the fish is thoroughly heated and then serve on toast or bread or potatoes, just as you like. If you are not tired and the oven is hot, pour into a baking dish, sprinkle with buttered bread or cracker crumbs and put in the oven for 15 or 20 minutes. If you have any cold rice heat this on the stove with a little milk and cover the fish with it instead of crumbs. This is delicious.

Household Editor:—Can you suggest anything new in the way of refreshments? I have got to entertain my club and would be grateful for a new sandwich.—Oxford.

Have you ever tried lady-finger sandwiches? Split the lady-fingers and spread them with jelly, jam or marmalade, whatever you have handy. Lady-fingers with strawberry jam are considered a great treat.

Household Editor:—In answer to Marita will say that I always paint the outside of my butterbowl. I do not use them for a couple of weeks after painting so that the odor of the paint has time to go away.—Mrs. J.

M. B. E.—I have found the best way to wash elderdown is with a good wool soap and warm water. Wash through two or three sudsy waters until the cap is clean, then rinse all the soap out in water of the same temperature.—Minnie B.

Household Editor:—In answer to J. M. W.'s request for recipe for home-made blood purifier I send the following: One ounce extract of each of the following: Yellowdock, burdock and dandelion, and one gill of gin. Put all into a quart bottle, fill with water. Dose, one tablespoonful three times a day. It use to cost 50 cents. Have not used it in a long time so do not know price now.—J. E. H.

Household Editor:—I would like to suggest to "Young Mother," whose baby is four months old, to add graham gruel to the milk she feeds the baby. I have four children, all fed on milk and graham gruel from the time they were one month old until they were 12 to 15 months old, and were all very healthy babies and children. To make the gruel, take graham flour, about half a pint, wet up good with cold water, add salt to taste, then pour on boiling water, as for starch, and stir until smooth, make about as thick as thin flour gravy, let boil 10 or 15 minutes, remove from fire and strain through fine strainer or thin cloth. In cool weather this will keep from 24 to 36 hours. Add about two tablespoonfuls of this gruel with a little sugar to a nursing bottle full of milk, or if child is constipated add more. The bowels can be regulated by adding more or less, just as the child needs. Please give this a trial.—Mrs. E. M. L.

B. C., Argyle, Mich.—We cannot give names and addresses of business firms in this column. Send a self-addressed and stamped envelope with such queries.

SPRING WASHING AND CLEANING DAYS ARE COMING.

BY MRS. F. NISEWANGER,
Blankets.

It is not very difficult work to wash woolen blankets and have them come out as soft and nice as when new. A little care is needed but, usually, it is almost as easy to be careful as careless if we only just think so. The one thing always to remember is, that after the blankets are made warm and damp they must not be suddenly chilled.

Choose your day first. A dry, hot one is the best, in fact the only satisfactory one, so if you intend to wash your blankets tomorrow and the day proves to be cool or damp, let the washing go till the right day comes along.

First, put plenty of hot water in your machine, (not boiling hot, but hotter than is comfortable for your hands), and into it put only one blanket at a time. When clean, rinse thoroughly in water as warm as that in which it was washed, hang carefully on the line in the sunshine to dry thoroughly and quickly, then fold into sweet, fluffy piles and lay away for winter. A little ammonia tends to prevent shrinking; but the great secret of success is in having all water plenty warm,

and drying the blankets quickly and without cool, damp air.

Be just as careful of the old blankets as of the new. There is a splendid use for them even though thin and quite worn. Put one or two of them in a pretty silkoline or challie cover, tack lightly, and have the softest, warmest, and lightest comfort imaginable.

Rugs.

In spite of brooms, sweepers, and vacuum cleaners, there are some of us all of the time, and most of us some of the time, who feel that the heavy rugs need to be taken out into the fresh air, occasionally, for a little beating. Have ready a frame covered with screening and raised from the ground. Put the rug on this face downward and give it whatever beating it seems to need.

To brighten its colors, go over a rug or carpet with ammonia water, a tablespoonful to an ordinary pail of water.

Curtains.

White lace curtains should be boiled; but ecru curtains must not be. Blueing should be added to the rinse water for the white ones; tea for the ecru.

If the mesh is delicate and you are afraid of tearing the curtains, put them in a rack or pillow case. Be sure all the soap is rinsed out, starch lightly and dry by one of the following methods:

Fasten to a curtain stretcher made or bought for the purpose, pin to the floor with common pins, or, (this is the method I greatly prefer), stretch and pin into shape out on the fresh, sweet grass, with old-fashioned tooth picks. Stick them through the little openings and down into the ground.

SHORT CUTS TO HOUSEKEEPING.

If a frozen egg is dropped into cold water as soon as discovered and allowed to stay till all the frost is drawn out, it will be nearly as good as a fresh egg to use.—D. L. M.

If housewives would notice how much better muslin or linen articles look when laundered, if made up right side out, they would be more particular when sewing. The wrong side may be easily seen, with a little care, by the knots and fuzzy appearance.—E. L. R.

A rubber mat will be found a great comfort by the woman gardener who has rheumatism. Keep the mat with the garden tools and when you get out to dig, weed or transplant, take the mat along and kneel on that instead of the damp ground.—Mrs. J. J. O'C.

MICHIGAN FARMER PATTERNS.

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



No. 5409, Ladies' 24-inch Length Coat. Cut in 6 sizes, 32 to 42 inches, bust measure. Size 36 requires 2 1/2 yards of 44-inch material. Price, 10 cents.

No. 4658, Ladies' Apron.—Three sizes, small, medium and large. For medium size it requires 3 3/4 yards 27 inches wide. Price, 10 cents.

No. 5379, Girls' Dress, Closed at Back. Cut in sizes 6, 8, 10 and 12 years of age. Age 8 requires 2 1/2 yards of 36-inch material, 1/4-yard of 18-inch all-over. Price, 10 cents.

No. 4998, Boys' Russian Suit. Three sizes, 2 to 6 years. For 4 years it requires 3 yards 36 inches wide. Price, 10 cents.

No. 5366, Ladies' Nine-gored Skirt. Cut in 6 sizes, 22 to 32 inches, waist measure. Size 24 measures 3 1/4 yards around bottom and requires 3 3/4 yards, 44 inches wide. Price, 10 cents.

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Wanted—Position at house work in Country by Woman with a child. Write Children's Bureau of Detroit, No. 69 Lafayette Boulevard.

PATENTS that pay \$427,500 made by clients. 2 Books—"What & How to Invent—Proof of Fortunes in Patents" & 112-p. Guide Free! Free report as to patentability. **E. E. VACOMAN, Pat. Atty., 804 F St., Wash. D. C.**

(Continued from page 476).

decision in the mimograph case. The substance of this decision was that in selling a patented machine the patentee may require the purchaser to use only such supplies in the machine as are purchased from the owner of the machine, notwithstanding the supplies are not patentable.

Foreign.

The White Star Line Steamer Titanic, the largest vessel ever built, struck an iceberg off Grand Banks last Sunday night at 10:25 and foundered at 2:20 the following morning, taking down with her, according to reports, 1,334 lives, making the incident the greatest marine disaster in the world's history. Eight hundred and sixty-six persons carried by the boat are known to have been saved. Most of these were women and children who had been placed in the small boats and were picked up by the Steamer Carpathia after the Titanic had gone down. More exact news of the great tragedy will be had when those saved arrive in port.

Hundreds are said to be dying daily in China as the result of the famine in the eastern sections of that country, where 300,000 persons are threatened with starvation unless relief can be provided. The recent rebellion has so absorbed surplus supplies and capital that the new government is unable to cope with the extreme situation.

Proposals of mediation have been made by the powers to Constantinople with a view of bringing to an end the present war between Italy and Turkey over Tripoli.

Forty persons, mostly women, are reported to have been drowned near Amoy, China, by the capsizing of a small steamer.

The Mexican government has been warned by the United States to protect American citizens and property against excess by Mexican people. The warning does not contemplate intervention in Mexican affairs by the United States, but merely brings the attention of that government to the rules of civilized warfare. General Orozco, chief of the rebel army, who permitted the killing of Thomas Fountain, an American, is largely responsible for the issuing of the order.

Five persons of one family are dead on Prince Edward Island, the result of eating decayed herring, which developed ptomaine poisoning.

It is reported that 400 Arabs were killed in an engagement with Italian troops of Tripoli. The Italians are also said to have lost heavily, but the numbers are not reported.

President Yuan Shi Kai, president of the Chinese Republic, has recommended that the chief executive officer of that country be elected for a term of ten years. He gives as a reason for this long term that business conditions will be less disturbed than where elections are held more frequently.

CROP AND MARKET NOTES.

Saginaw Co., April 12.—After serious misgivings as to result of high water this spring, most people are breathing more freely. A repetition of the disastrous flood conditions of 1904 was feared, owing to long continued freezing, heavy snowfall and a winter entirely without a thaw. The Saginaw river and its tributaries had an immense amount of water to carry to the bay. Snow and ice lay deep in the woods and the break-up came late. But with alternate freezing and thawing and very little rainfall, the great mass of water is moving slowly off, with no unforeseen excess of water, and no disastrous conditions. The higher ground is already in many places fit for the plow. Hay and all kinds of feed are high. Horses are scarce and high. Butter is up again but eggs are low. Poultry fetching excellent prices.

CATALOG NOTICES.

Disston Saws and Tools for the Farm, manufactured by Henry Disston & Sons, (Inc.), Keystone Saw, Tools, Steel & File Works, Philadelphia, Pa., are fully illustrated and described in a handsomely printed catalog. In addition to describing the large line of goods manufactured by the Disston Company, this booklet also contains information regarding tool economy, the proper method of fitting saws, etc. The Disston line includes many other tools, aside from saws, and this booklet will be of general interest to Michigan Farmer readers.

"The Evidence" is the title of a publication issued by Roberts, Johnson & Rand Shoe Co., St. Louis, Mo., in which there is a variety of matter pertaining to the shoe trade and kindred subjects, as well as a list of the various styles of Star Brand shoes manufactured by this company. Write for a copy, mentioning the Michigan Farmer.

Kraus Pivot-Axle Sulky Cultivators, manufactured by the Akron Cultivator Co., Akron, Ohio, are fully illustrated and described in a catalog published by this company. This catalog lists over 105 styles of cultivators, allowing the selection of a tool exactly suited and designed for the crop which it is wished to cultivate. This catalog and any special information will be furnished by writing the Akron Cultivator Co., Dept. 61, Akron, Ohio.

J. E. Porter Co., Ottawa, Ill., pioneer manufacturers of hay carriers, send an illustrated catalog descriptive of their complete line of barn equipment. If interested, write them for a copy of the catalog, mentioning Michigan Farmer.

"The Value of Regular Dipping," is the title of a new leaflet published by Wm. Cooper & Nephews, manufacturers of the well known Cooper Dip, which destroys ticks, lice and scab. Every sheep owner should have a copy of this leaflet and can secure same by addressing Wm. Cooper & Nephews, Dept. D, Chicago, Illinois.

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YOU will need no roof paint if you cover your buildings with Amatite.

In fact, you can't use paint on Amatite Roofing if you want to—the mineral surface is too rough. And you won't want to, for painting the Amatite surface is as superfluous as painting a stone wall.

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JAS. G. BAILEY, Delavan, Ill.

PRACTICAL SCIENCE.

PRINCIPLES OF ANIMAL NUTRITION.

BY FLOYD W. ROBISON.

Introduction.—(Continued).

It will be found convenient, yes, it is almost necessary, at this time, for the young man on the farm to do some considerable reading and studying, just as the ordinary business man must keep abreast of the modern conditions in his line of business. Inasmuch as the farmer is dealing directly with the basic principles of science, it is imperative that the young man who is to adapt his future to some agricultural pursuit should gradually accumulate in his home a small working library of standard books of reference along agricultural lines.

A Reference Library.

In the study of soils and plants, strange as it may seem, there is not available the fund of reliable information which is accessible in the study of the principles of animal nutrition. We accordingly recommend that the reader, if he takes more than a mere casual interest in the subject matter of these articles, should have at his command one or two books which we consider authorities along the lines of animal nutrition. The first book which we recommend is Henry's "Feeds and Feeding," edited by Dr. W. A. Henry, Dean of College of Agriculture, University of Wisconsin. To the matter therein presented we shall no doubt make frequent reference and therefore commend to the student farmer this book. Another valuable reference book to the stock man is the "Principles of Animal Nutrition," edited by Dr. Henry Prentiss Armsby, State College, Pennsylvania.

Animal Nutrition Involves a Study of Living Matter.

In studying the principles of animal nutrition which, in some text books is considered under the head of physiological chemistry, we are dealing with the chemical composition of the animal body and with a more or less minute study of living matter. Our best clue up to date, to an understanding of the changes which take place in the animal organism has been through a study of the food supply of the animal and a study of the natural excretions of the animal body. We have stated that more reliable information is available to the student of animal nutrition than in a study of soils and plants and we have remarked that this is exceedingly strange, for we must remember that, while the plant pathologists and the soil chemists and physicists have available material which can be divided, dissected, and analyzed to a degree without destroying its various properties, no such condition exists in the realm of animal nutrition or physiological chemistry. The most that the physiological chemist can do is to draw his conclusions from an analysis of dead matter and from analogies, the results of his duplication process in the laboratory. However, much progress has been made and step by step the mysteries of the animal organism are being brought to light.

Animal Body a Complex of Countless Cells.

The animal organism is a very complex body, in that it consists of countless numbers of single cells associated together. We have stated that the problem of the nutrition of animals is essentially, in fact completely, a problem of the nutrition of the single cell. As proof of this statement we cite the well known fact that in its embryonic stage every animal organism is a single cell. When incited by the fertilizing stimulus it begins its period of development, this cell grows in just exactly the same way that the yeast plant grows, for example, with one cell attached to another and so on until the complete structure is formed.

In the animal body these cells take up various shapes; some are round, some angular, some are elongated and few appear to bear any resemblance to the original single cell from which, by a process called growth they were once elaborated.

White Blood Corpuscles Have Undergone no Evolution.

There is a class of cells, however, in the animal body that have refused to adjust themselves to the changes which the other cells have undergone. These cells are peculiarly associated with the vitality of the animal organism. We refer here to the white corpuscles of the body, the structure of which is apparently as simple even in the highest developed animal, as

is the structure of the cell from which that animal arose.

A Cell Defined.

What, then, may we consider a cell to be? In its simplest terms, we may define a cell as a mass of living protoplasm containing in its interior a substance similar to it but more compact and solid, which is called a nucleus. Every living cell has a nucleus which is considered to be the influence governing the various activities of that cell. Living matter has various properties, all of which exist in the cell as an individual unit. The cell has, we may say:

1. Power of movement. 2. It has power of assimilation. 3. The cell has the power of growth. 4. It has the power of reproduction. 5. It has the power of excretion.

Of the various powers we attach, in our studies in animal nutrition, the greatest importance to No. 2, power of assimilation and to No. 5, power of excretion. These two properties are the properties which have given the greatest clue to a practical understanding of the animal body and which have made possible our present knowledge of the theory and practice of the feeding of the farm animal.

Metabolism Defined.

This process of assimilation of food and the process of the excretion of waste materials, common to all single-celled bodies, and to all complex organisms as well, with its various modified associations, we call metabolism. In our study of living matter, of protoplasm, we are concerned chiefly with the compound called protein. As far as is known, there is no activity of animal organism which is not in some way associated with protein metabolism.

Animal Nutrition Involves a Study of Compounds.

In our studies heretofore we have been concerned chiefly with the study of the elements which we have designated the administrative agents connected with the soil fertility and plant growth. In animal nutrition we are concerned very little with inert, inactive, elemental substances. The nutrition of animals is maintained by a utilization of the complex organic compounds built by the plant out of the elemental substances. There are a few instances in which the animal body derives nourishment and sustenance from elemental substances. Of course, the act of respiration brings into play the element oxygen and in certain cases which may be considered, however, more or less diseased conditions, iron and calcium, or lime, seem to have a direct influence in promoting healthy nutrition. More particularly, however, do they seem to be indirectly useful as in the production of hydrochloric acid in the secretion of the gastric juice in the stomach, and in the establishing of an alkaline condition in the intestinal canal.

Proximate Principles.

The compounds of proximate principles considered in a study of the nutrition of animals are: First, the mineral or inorganic compounds; second, the organic compounds.

The inorganic compounds concerned are various acids, such as hydrochloric acid, in the stomach, ammonia, water and various salts, such as sodium chloride, calcium phosphate, etc. The organic compounds are very numerous. They are the various compounds of ammonia and organic acids, alcohols, oils, fats, sugars and, most important of all, proteins or the albuminous bodies. The principle compounds with which we are concerned are water and the inorganic salts and proteins, carbohydrates and fats.

An effort will be made to prevent this matter becoming too technical but it is necessary to show the scientific foundation upon which the studies of animal nutrition are based in order that the reader may not form false ideas regarding the subsequent matter presented.

LABORATORY REPORT.

Peat as a Fertilizer.

Is there any manurial or fertilizing value in peat in its crude or raw form? If not, with what should it be combined to make its plant food available? Is gas-house ammonia water of any value as a fertilizer?

aKlamazoo Co.

J. A. H.

The manurial or fertilizing value of peat in its crude form is not very great. There are some nitrogenous constituents present but ordinary peat has not been sufficiently decomposed so that it will exert a very high fertilizing influence. If it could be

mixed with barnyard or stable manure the combination would be an admirable substance to place upon the soil.

Gas house ammonia is a good source of ammonia, provided it can be put upon the soil without being too rapidly dissipated. It should be diluted very heavily before being put upon the soil and the soil should be in such a condition that it will immediately soak in and not be dissipated in the air. It is rather doubtful if gas house ammonia in that form would be sufficiently valuable so that the farmer could transport it a great distance or pay much for it. If the company who has this material would neutralize it with, say, a little sulphuric acid or nitric acid, the resultant ammonium sulphate or ammonium nitrate would be a very valuable fertilizing material indeed, and it would be in a stable form not easily dissipated in the air.

Saxolite.

What is saxolite? A product advertised in the reading columns of our daily papers as "a rational home remedy for wrinkled, baggy skin," described as a product "which goes to the foundation of these troubles and seems to have come into general use since its virtues became known, but a short time ago." Their advertisements state further:

"In beauty culture as in the treatment of diseases, the tendency now is to seek the removal of the cause, rather than symptoms and effects."

According to the claims made, Saxolite overcomes all of these evils or ills of the flesh. Makes, perhaps, a pretty face out of a wrinkled and haggard skin. This product can be secured at any drug store, according to their claim, for the small sum of 65 cents for the ounce, the same to be added to one-half pint of witch hazel before applying to the skin.

An analysis of Saxolite made by Prof. Ziefle gives as follows:

	Per Cent.
Alum (anhydrous) AIK (SO ₄) 2.....	50.4
Magnesium sulphate (anhydrous) MgSO ₄	12.4
Water	37.5

Total100.0

In other words, then, this preparation is a mixture of common alum and epsom salts, pulverized into a fine white powder and perfumed. The principal action of alum is that of an astringent or puckering, and its most common use for the relieving of sweating feet. Epsom salts is a favorite purge where prompt action is desired.

A circular accompanying the package says:

"The tightening tonic effect should be felt soon after the application. Continued use of the lotion should make results more and more permanent."

It is true that the skin will tighten after the use of Saxolite, but there is absolutely no tonic action to this product. It can readily be seen that the stretching of the skin from its natural position will make it all the more loose, and the consumer will purchase more Saxolite to continue the tightened condition of the skin.

The claims made for this product are false and misleading when they say:

"It tightens the too loose skin, vivifies and solidifies the underlying tissues. This smooths out the wrinkles and gives the skin a firmer supporting foundation. Obviously this effect must also reduce hanging cheeks, double chin and baggy neck."

The more you use of this product, the worse the ultimate condition; the more you use, the more you will have to use in order to hide the evil effects of that first used.—Special Bulletin, North Dakota Food Dept.

CATALOG NOTICES.

"Helpful Hints for Him Who Builds a Dairy Barn," is the title of a booklet published by the James Mfg. Co., of Fort Atkinson, Wis. The matter in this book is prepared by Mr. W. D. James, general manager of this company, who takes up the various essential factors of barn building in a practical and interesting manner, including arrangement, construction, ventilation, equipment, etc. Incidentally, the interior of barns equipped with the James' goods are shown. This booklet is finely illustrated and is free for the asking. Mention this paper when writing.

"Tons Tell," is the title of a book recently published by the Sandwich Manufacturing Co., of Sandwich, Ill. This company has kept pace with the wonderful improvements in hay presses during recent years and now manufactures a motor press operated by a gasoline engine mounted on same platform, which eliminates troublesome belts, etc. These and other types of belt and horse-power presses are listed in their literature which will be sent upon application by the readers of this paper.

Fenn's Adjustable Post Hole Auger is illustrated and described in a catalog sent by the Fenn Manufacturing Co., of Charlotte, Mich.

GRANGE

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

THE MAY PROGRAMS.

State Lecturer's Suggestions for First Meeting.

Ten minutes of singing.
How can cut-over lands be cleared the cheapest?
How and why test for acid soils?
A reading lesson.
What I have read recently that is helping me now: 1. As a farmer. 2. As a housekeeper. 3. As a citizen. 4. As a parent or friend of children.
Instrumental music.
Recitation.
How I hope to secure a higher education.
Song.

Suggestions for Second Meeting.

General theme—The Home—a program suggested by State Deputy W. F. Taylor.
Recitation, "Turn backward, O Time, in thy flight."
Sanitation of the rural home.
Gardens and their influence on the family: 1. Vegetable. 2. Flower.
Reading.
Building the rural neighborhood: 1. Through the school. 2. Through farmers' organizations. 3. Through the church.
Appropriate music throughout this program.

THE GREAT RURAL NEED.

On every hand is heard the call for rural leaders. Not alone are writers and speakers upon country life topics saying that this is the greatest need, but observation in almost any hamlet or rural neighborhood discloses the fact. Instance after instance can be recalled by every person whose duty it becomes to visit local Granges, where plenty of people were in evidence but where these people were not organized for efficiency. They were wasting their possible ability because of no one to weld it into implements of usefulness.

A deputy State Master, after visiting subordinate Granges, writes: "The lack of people who are capable and willing to assume the responsibility of leadership is the greatest drawback our rural communities have at the present time! Since I have been out in the deputy work I am sure this is so. It is not difficult to interest young men in Grange work but it is difficult to find one who can or will take the initiative."

And our Granges as a rule are not doing what they should to meet this need. Leadership consists in setting others at work for clearly defined purposes. It is a key which will unlock successful accomplishment; yet whole Granges never discover it at all. Just recently a member said: "It seems as if the lecture hour in my Grange is looked upon merely as an occasion for having a good time—that and nothing more." In this comment this man described far too much of our Grange labor. It lacks point and purpose. We scatter fire. We fail to "tie ends." We waste energy instead of harnessing it for efficiency.

I was in a Grange not long ago where the reverse of this state of affairs existed. Here was a community, apparently, where everyone who came into the Grange was scrutinized in order to discover what he could best contribute for the good of all. This Grange was a factory that turned out more than one brand of wares. Every by-product was utilized and turned to account. If a member is found to be musically inclined, he is assigned to the chorus or orchestra. If he seems studious, he is encouraged to write and debate. If he is fun-loving and a mimic, he is persuaded to take part in a play or other dramatics. If he is shy and awkward, he is induced to join the degree team or help in a drill exhibition. If he seems to be no speechmaker or has had little education, but can raise better beets or potatoes or onions than others, he is called upon to show specimens of these. If he can drive a nail better, or build a better fire, his gift is recognized gratefully and made use of. If a woman member is fond of beauty, her artistic sense is given exercise in arranging decorations and costumes for different occasions; and if she is a good cook she is made to feel that her high art contributes to the success of the Grange equally with other features. The whole policy of such a Grange is to discover and cultivate ability. This is developing leadership. It comes through the practice of seeking to ascertain each individual's "leanings" and to adapt and place responsibility accordingly.

This is the highest goal any Grange can aspire to. It is worthy the best thought

and staunchest effort of any corps of officers, whether in Subordinate, Pomona, State or National Grange.

JENNIE BUELL.

AMONG THE LIVE GRANGES.

Grattan Grange, No. 170, of Kent county, closed a very successful contest in February, having taken in 115 new and re-instated members. The contest closed Feb. 15 and at that meeting 61 names were brought in. We think it one of the largest classes taken into a subordinate Grange at one time. A class of 56 remained to take the degrees at a later meeting, bringing the membership of the Grange up to 205.—Lecturer.

The Shiawassee-Genesee Pomona Meeting, at Durand, on March 26, proved an occasion of widened Grange acquaintance and deepened influence for the 150 patrons from the two counties who attended. Both Pomona are officered by younger men of the capable type, and the day together was made to count vigorously for local option, improved Grange work and legislation in which farmers generally are just now vitally concerned.—J. B.

The Kent Pomona Year Book for 1912, a copy of which came to hand a few weeks ago, is bigger and better than ever before. This Pomona adopted the year book plan of announcing the meetings for the year several years ago. This year's book is a neat paper bound book of 84 pages, containing program outlines for all Pomona meetings to be held during 1912 and much interesting and valuable Grange information. The attitude of the business men of that county toward the Grange is evidenced by the liberal amount of advertising matter which the book carries—sufficient, it would seem, to more than defray the expense of its publication.

Caring for the Orchard.—Grand Traverse Grange is giving special attention to one practical topic at each meeting, thus making it possible to have the subject thoroughly discussed. At its last meeting the orchard was given special consideration, the members contributing experience touching such phases of the subject as pruning, cultivating, spraying, thinning, etc. The latest methods along these lines, whether learned through experience or from reading and observation, were brought out. Soil fertility will be the subject taken up in like manner at the next meeting during the closing week of this month.

Manistee Patrons Appreciate the Grange.

Manistee Pomona Grange met with Brown Grange, March 19 and 20, at its hall in Norwalk. The snow was very deep and the roads bad, but the first session opened with a good house. The program included several good numbers by local talent, and Bro. R. H. Ellsworth, of Traverse City, gave a fine talk to lecturers, which was much appreciated. In the evening the writer spoke upon "The Relation of the Grange to the Farmer."

The second day opened with a fourth degree session and reports from subordinate Granges were received. These showed the order to be generally prosperous throughout the county, though some Granges should have a visit from a live deputy. Tanner Grange has over 100 members, has not lost a meeting during this cold winter, and the attendance has not fallen below 30 at any meeting. Much credit is due to Bro. Ludwig Larson, whose zeal and energy in Grange building are well nigh unlimited.

Following the reports, the writer exemplified the unwritten work and gave a short talk. The forenoon program was marked by a very good discussion of the vegetable garden. In these talks we were told to plant the tomatoes in a hotbed, and not remove them too soon as they will make little headway until the ground had gotten thoroughly warm. The middle of June is early enough to set out the plants, but the seed should be planted in the hotbed by April 20.

The lecturers gathered for a brief conference as soon as dinner was over, and much interest was shown in the work. Then came a class of five to receive the fifth degree, after which Grange again met in open session and listened to a brief local program, followed by the writer's talk on "Co-operation on the Farm."

Many of the Granges in Manistee county are new, and the way patrons turn out to Pomona would be a surprise to some of the older counties. The Grange is proving a practical help to these people. Already they are discussing current farm topics and fields for co-operation, and much good will doubtless come from such discussion.—W. F. T.

NEW GRANGES FOR PAST QUARTER.

National Secretary Freeman reports the number of Granges organized and re-organized from Jan. 1, 1912, to March 31, 1912, both inclusive, as follows:

Organized.	
California	1
Colorado	3
Idaho	5
Illinois	4
Indiana	3
Iowa	19
Kansas	10
Kentucky	2
Maine	1
Maryland	1
Massachusetts ..	2
Michigan	9
Minnesota	2
Missouri	1
Montana	8
Nebraska	4
New Hampshire ..	2
New York	15
Ohio	27
Oregon	7
Pennsylvania	14
South Dakota	18
Vermont	6
Washington	20
Total	179

Re-organized.	
Michigan	1
Ohio	2
Pennsylvania	2
South Dakota	1
Washington	1
West Virginia ..	2
Total	9

COMING EVENTS.

Pomona Meetings.

Kent Co., with Evans Grange, Wednesday, June 5.

FARMERS' CLUBS

OFFICERS OF THE STATE ASSOCIATION OF FARMERS' CLUBS.

President—J. D. Leland, Corunna.
Vice-President—D. M. Morrison, St. Johns.
Secretary-Treasurer—Mrs. C. P. Johnson, Metamora.
Directors—C. L. Wright, Caro; E. W. Woodruff, Blanchard; C. P. Johnson, Metamora; H. W. Chamberlain, White Lake; Wm. T. Hill, Carson City; Jerry Spaulding, Belding.

Associational Motto.—

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

FARMERS' CLUBS IN MINNESOTA.

Volume 1, number 1, of the "Minnesota Farmers' Library," the publication of which has just begun for free distribution among the people of Minnesota who desire to receive it, contains some interesting data relative to the organization of Farmers' Clubs in Minnesota. It is really an extension bulletin published by the University of Minnesota and, judging from this initial copy, should prove of much interest and value to the farmers of all states.

It appears from the facts presented in this bulletin that during the past two years about ninety Farmers' Clubs have been organized in the state of Minnesota through the efforts of the farmers' institute department of the university. These are very similar organizations to those existing in Michigan, the plan being to have such an organization in each small community, embracing a township at most. The entire family of each member joins the Club and attends the meetings which are held as circumstances may dictate, in the homes of the members, the town hall or even the schoolhouse.

The organization is along general, rather than specific lines, as is the case with our Michigan Farmers' Clubs, and gives the greatest opportunity for the organization as such to take active measures to promote the special interest of the community in whatever manner there may be a demand for united action. In this way it is aimed to make the Farmers' Club the social, educational and business center in the community.

A material impetus has been given the organization of these Clubs through the aid granted by the management of the division of agricultural extension and farmers' institutes of the University of Minnesota. Where the request is made by the people of any community an organizer who has had experience in Farmers' Club work is sent to aid in organizing new Clubs and, after the Club is organized, outlines for meetings and for the discussion of special topics are frequently sent to the Clubs, and on one or more occasions during each year a speaker on a special topic of interest to the community is sent without expense to the Club.

One of the advantages which is noted in this bulletin as having come from these Farmers' Clubs is the making of a rural social center and the encouraging of sociability among the farm residents of the community, which advantage is particularly appreciated by the ladies who perhaps feel the isolation of country life more than do the men. It has been noted that these Clubs, especially where they meet at the homes of members, have been influential in promoting the installation of modern conveniences in the homes, the power of example and the knowledge gained through observation regarding the same being a notable influence to that end.

The educational influence of the Club is also bound to be a valuable one, particularly through the discussions at the monthly meetings which induce wider study and reading on the part of the members. Circulating libraries are also used in many of these Clubs. The discussion of the marketing problem and other factors of the business conduct of the members' farms have also tended toward more co-operation among the farmers of the Club community than exists elsewhere.

Samples of the constitution and by-laws contained in the bulletin show these Clubs to be very similar in the plan of operation to that of Michigan, and something of the nature and conduct of the meetings held by these Minnesota organizations will be published in this department in future issues, to the end that the thousands of Farmers' Club members of Michigan may gain a more intimate

knowledge of the growth of the Farmers' Club movement in that state.

SPECIAL FEATURE WORK FOR THE SUMMER.

With the approach of summer the special feature work in which the Club will engage during the summer season may very properly be considered by Club leaders. The summer picnic has become an established institution in very many Clubs and there is an encouraging increase in the number of union picnics in which two or more Clubs join. But there are other special features which deserve attention, such as Memorial Day meetings, Fourth of July celebrations, etc., which many Clubs have found it profitable to make the occasion of special feature meetings. Whenever a special feature of this kind is arranged for it should be promptly announced through the Farmers' Clubs department of the Michigan Farmer, to the end that other Clubs may profit by the suggestion or example. We shall be glad to have every corresponding secretary send a notice of any such contemplated meeting as far in advance as possible.

CLUB DISCUSSIONS.

Question Box Leading Feature.—The Rives and East Tompkins Farmers' Club met at the home of Mr. and Mrs. John Foster, April 6. About 50 were present. After the usual good dinner the meeting was opened by singing America by the Club, followed by a prayer by the chaplain. After a short business session a good literary and musical program was rendered. The question box consisted of questions on cream separators, the new mortgage tax law, parcels post and local option, and they were all ably discussed and answered. The Club adjourned to meet May 4.—Ina Stringham, Cor. Sec.

Pass Resolutions Favoring General Parcels Post.—The regular meeting of the Hadley and Elba Farmers' Club, March 21, was so poorly attended, owing to the impassable roads, Mr. and Mrs. Bullock cordially invited them to come again the following Thursday. The invitation was joyfully accepted and about 60 braved the still nearly impassable drifts to "Orchard Home." Dinner was served in the new, roomy basement and the Club repaired to the parlors for the business and literary meeting, which was called to order by Pres. R. J. Pierson. Mrs. Nellie Phelps told of "The Many Opportunities we Miss," and Martha Davenport followed with a recitation. The paper, "Shall the State of Michigan Print its own School books?" by Mr. Tower, caused a lively discussion, led by W. E. Ivory, Mary Murphy, and others. After voting to send resolutions to Michigan's United States senators and Congressman McMorran, requesting their co-operation in securing a general parcels post law, the Club adjourned to meet with Mr. and Mrs. E. K. Younkers, April 18.—Mrs. C. P. Johnson.

An Easter Meeting.—On March 29 the Hickory Farmers' Club held their Easter meeting at the home of Mr. and Mrs. Robert Reavey, in Caro. A large company of the Club members, together with a number of visitors, enjoyed a social time until the dinner hour. The young people, with Miss Bessie Dowling, as chairman, served the dinner. It being as near April fool as Easter some of the boys placed raw eggs on several tables, but no one seemed inclined to eat them so they were collected up again. The meeting was called to order by the president, followed with singing by the Club. The Lord's Prayer was then repeated in concert. Mrs. B. B. Reavey gave a reading entitled, "The Lightning Rod Dispenser," which was thoroughly enjoyed. The subject for discussion, "The Drainage," led by E. R. Purdy, was freely discussed. Doris Reavey recited "Somebody's Mother," also "The Village Blacksmith." This was followed with a violin solo by Hazen Reavey, accompanied by Mrs. E. R. Purdy. A paper, "How can the Housewife Avoid Waste?" was read by Mrs. R. L. Robinson. Mrs. Albert Howell gave a comic reading which caused much amusement. This was followed with quotations and the question box. The meeting was closed with singing by the Club. The next meeting will be held at the home of Mr. and Mrs. George Dougherty on Thursday, April 25. This will be the last all-day meeting of the season.—Mrs. R. L. Robinson, Cor. Sec.

Good Meeting Despite Bad Roads.—The March meeting of the Conway Union Farmers' Club met at the pleasant home of Mr. and Mrs. Henry Crope, Friday, March 29, a goodly number of members and many visitors being in attendance, notwithstanding the bad condition of the roads. A good dinner was provided by the hosts, President W. M. Horton called the Club to order and after the opening exercises proceeded to the discussion of the topics on the program which proved to be of more than ordinary interest to those present, and showed conclusively that those to whom the topics had been assigned, as well as those who followed in the discussions, had given much thought to the subjects, by the many excellent ideas brought forward. The question box proved the usual number of good things, which always adds much of interest to our meetings. The business part of the meeting resulted in the election of the families of Clay Gordon and Alton Grant to the vacancies in the Club membership. The Club adjourned to meet with Mr. and Mrs. J. B. Fuller the last Friday in April, with the program, followed by supper.

MARKETS

DETROIT WHOLESALE MARKETS.

April 17, 1912.

Grains and Seeds.

Wheat.—This has been a very exciting week in the wheat market, prices having advanced from 6 to 7c during four successive days. This unusual change in price was the result of reports of damage to the growing crop over a large part of soft winter wheat belt. It has been estimated by many conservative reporters that a shortage of 60,000,000 bushels is promised by the damage already known. Many predict that the increased values do not proportionately cover the extent of the damage and that quotations will continue to go higher, while the bears feel that the market has reached the crest of high prices for the season, unless more extended damage is done. Hard winter wheat sections and the spring wheat sections are calculated to produce a large crop. These calculations may, however, fail, in which event further bullish tendencies will prevail. On Tuesday, Liverpool was easier with a slight decline. She, however, is depending on grain from Canada which it is hoped can be moved very soon. The flour situation is about steady with last week. One year ago the price for No. 2 red wheat was 87c per bu. Quotations for the week are as follows:

	No. 2	No. 1	May	July
Thursday	\$1.02½	\$1.00½	\$1.02½	\$1.02
Friday	1.04½	1.02½	1.04½	1.04½
Saturday	1.06½	1.04½	1.06½	1.06½
Monday	1.08	1.06	1.08½	1.07
Tuesday	1.08	1.06	1.08½	1.07½
Wedn'sdy	1.09½	1.07½	1.09½	1.08½

Corn.—In sympathy with wheat, corn values have advanced, although the margin is not as great, corn already being quoted at unusually high figures. Delayed spring work is also responsible for the strong position occupied by corn, although the weather of the past week has aided materially in pushing farm work forward. A year ago No. 3 corn was quoted on the local market at 50½c per bu. The visible supply shows a decrease of nearly two and a half million bushels. Quotations for the week are:

	No. 3	No. 3
	Corn	Yellow
Thursday	77½	79½
Friday	78½	80½
Saturday	79½	81½
Monday	79½	81½
Tuesday	79	81
Wednesday	79½	81½

Oats.—An advance of 1c is noted in the price for oats the past week, the advance being made on Friday and Saturday of last week, since which time a steady market has prevailed. There is very little activity in oats due to the short supply. Substitutes are being largely used where that is possible. The decrease in the visible supply amounts to only a few thousand bushels. One year ago the price for standard oats was 36½c per bu. Quotations are as follows:

	Standard	No. 3
	White	Yellow
Thursday	61	60½
Friday	61½	61½
Saturday	62	61½
Monday	62	61½
Tuesday	62	61½
Wednesday	62	61½

Beans.—Last Friday beans dropped 2c in both cash and May delivery. There is but a small volume of trade on the local market. Farmers have on their hands an unusual amount of damaged beans which are being sold at a variety of prices. Quotations are as follows:

	Cash	May
Thursday	\$2.42	\$2.47
Friday	2.40	2.45
Saturday	2.40	2.45
Monday	2.40	2.45
Tuesday	2.40	2.45
Wednesday	2.40	2.45

Clover Seed.—This market is steady and prices were unchanged until Tuesday when a decline of 50c for cash seed of the common variety and 25c for alsike occurred. The demand is less urgent from farming sections. Quotations are as follows:

	Cash	April	Alsike
Thursday	\$12.75	\$12.60	\$12.50
Friday	12.75	12.60	12.50
Saturday	12.75	12.60	12.50
Monday	12.75	12.60	12.50
Tuesday	12.25	12.50	12.25
Wednesday	12.00	12.25	12.25

Rye.—Dullness still prevails in this trade. The grain, however, occupies a strong position and advanced 1c during the week, the present price for No. 2 rye being 94c per bu.

Timothy Seed.—Sales of this seed were made on Tuesday at \$6.20 per bu., which is 30c below the price quoted a week earlier. The market is easy and dull.

Flour, Feed, Potatoes, Etc.

Flour.—Market rules steady with trading dull.

Straight	\$5.25
Patent Michigan	4.85
Ordinary Patent	4.80
Rye	5.20

Feed.—All kinds are steady with last week. The carlot prices on track are: Bran, \$30 per ton; coarse middlings, \$30; fine middlings, \$32; cracked corn and coarse corn meal, \$32; corn and oat chop, \$30 per ton.

Hay and Straw.—All grades of hay have gone up about \$4 per ton with the offerings limited. Straw is steady. Quotations: No. 1 timothy, \$26@26.50; No. 2 timothy, \$24.50@25.50; clover, mixed, \$24@25.50; rye straw, \$11.50@12; wheat and oat straw, \$11@11.50 per ton.

Potatoes.—The increased shipments of potatoes following improved weather con-

ditions caused a drop of 10c in local quotations. New potatoes are steady. Car lots on track are quoted at \$1.15@1.20 per bu.; new potatoes, \$3 per bushel.

Provisions.—Family pork, \$19@20; mess pork, \$18; clear, backs, \$17.50@19.50; picnic hams, 10c; bacon, 14@15½c; pure lard, 11½c per lb.

Dairy and Poultry Products.

Butter.—With an improvement in the supply, butter declined 1c in creamery goods since last week. Dairy and packing stock are steady. Quotations are as follows: Extra creamery, 31c; first creamery, 30c; dairy, 22c; packing stock, 21c per lb.

Eggs.—The increased volume of offerings has caused a decline of ¼c in egg values. While the demand is large it is not sufficient to absorb the offerings and maintain quotations. Fresh receipts, cases included, are quoted at 19½c per dozen.

Poultry.—This market has a firm tone and offerings are very scarce. Quotations: Spring chickens, 15@16c; hens, 15@16c; turkeys, 16@18c; geese, 11@12c; ducks, 14c; young ducks, 15@16c per lb.

Veal.—Veal is lower. Fancy, 10@10½c; choice, 8@9c per lb.

Cheese.—All grades of cheese are higher except brick cream. Michigan, old, 22c; Michigan, late made, 20½@21c; York state, old, 22@23c; do. new, 20½@21c; limburger, 21@22c; domestic Swiss, 22@24c; brick cream, 20@21c per lb.

Fruits and Vegetables.

Cabbage.—Steady; now selling at 3½@4c per lb.

Onions.—Higher; \$2.40 per bu.

Apples.—Trade is firm with prices steady. Baldwins are selling at \$3.25@3.75; Greenings, \$3.25@3.50; Spies, \$3.50@4; Ben Davis, \$2@2.50 per barrel.

OTHER MARKETS.

Grand Rapids.

Tuesday's market on fresh eggs was 18½c, jobbers to country trade. Dairy butter is worth 25c. The potato market is easier. Some large local shippers say that they are not buying for the present, but are waiting to unload stock on hand. The paying price for potatoes is around \$1. The bean market is still weak and the price to farmers is on the \$2.05 basis. In live poultry, fowls are worth 13c; ducks, 14c; turkeys, 18c and geese 10c. Dressed hogs are quoted at 8½@9c.

Chicago.

Wheat.—No. 2 red, \$1.11@1.12; May, \$1.10½; July, \$1.06½.

Corn.—No. 3, 77@77½c; May, 76½c; July, 76½c per bu.

Oats.—No. 2 white, 58@58½c; May, 56½c; July, 53½c per bu.

Barley.—Malt grades, \$1.10@1.38 per bu; feeding, 75@85c.

Butter.—Creameries have declined 1@2c, the better grades suffering most, due to an indifferent demand. Dairies steady and unchanged. Quotations: Creameries 28@30c; dairies, 24@28c.

Eggs.—This market is holding up well under the heaviest offerings of the year, prices showing a ½@¾c decline since last week. Demand active. Quotations: Firsts, 19c; ordinary firsts, 18@18½c per doz; at mark, cases included, 18@18½c.

Potatoes.—While receipts are materially lighter than last week, prices continue to decline, the loss since this time last week running from 8@10c. Business active at the lower range of values. Michigan and Minnesota stock now quoted at \$1.22@1.27 per bu; Wisconsin, \$1.20@1.25.

Peas.—Steady and unchanged. Quotations: Pea beans, choice hand-picked, \$2.65 per bu; prime, \$2.50@2.53; red kidneys, \$2.50@2.60.

New York.

Butter.—The past week provided a weaker market and quotations are off about a cent, except for packing stock which advanced a fraction. Creamery special, 33c; extras, 32½c; firsts, 31½@32c; packing stock, current make, No. 2, 24c per lb.

Eggs.—Supplies are swelling and values are lower. Quotations: Fresh gathered extras, 22c; firsts, do., 21½c; seconds, do., 19¼@19½c; western gathered whites, 21½@22c per dozen.

Poultry.—Alive.—Market is easy. Western fowls, 15½c; turkeys, 15c per lb. Dressed—trade is easy. Fresh killed fowls, 14½@17c; turkeys, 13@22c per lb.

Boston.

Wool.—The past week has been a quiet one in wool circles and prices are about steady with those formerly quoted. Following are the leading domestic quotations for fleeces on the local market: Ohio and Pennsylvania fleeces—Delaine washed, 30@31c; XX, 28c; fine unmerchantable 23c; ¼-blood combing, 26½@27c; ½-blood combing, 27@28c; ¾-blood combing, 27@28c; delaine unwashed, 25@26c; fine unwashed, 21c. Michigan, Wisconsin and New York fleeces—Fine unwashed, 19@20c; delaine unwashed, 23c; ¼-blood unwashed, 22c. Kentucky, Indiana and Misosuri—¾-blood, 27@28c; ¼-blood, 27@28c.

Elgin.

Butter.—Market firm at 31c per lb., a decline of 1c from the price of the previous week.

THE LIVE STOCK MARKETS.

Buffalo.

April 15, 1912.

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

Receipts of stock here today as follows: Cattle, 132 cars; hogs, 80 double decks; sheep and lambs, 85 double decks; calves 2,600 head.

With 132 loads of cattle on our market here today, and 21,000 reported in Chicago, all the better grades of cattle sold fully 15@25c per cwt. higher and the com-

moner grades sold from 10@20c per cwt. higher. The market was active and everything was well cleaned up by 1 o'clock.

We quote as follows: Best 1,400 to 1,600-lb. steers, \$8.40@8.65; good prime 1,300 to 1,400-lb. steers, \$7.75@8.25; do. 1,200 to 1,300-lb. do., \$7.25@7.75; best 1,100 to 1,200-lb. shipping steers, \$7@7.40; medium butcher steers, 1,000 to 1,100, \$6.25@6.75; light butcher steers, \$5.50@6; best fat cows, \$5.50@6.25; fair to good do., \$4.50@5.25; common to medium do., \$3.75@4.25; trimmers, \$2.75@3.25; best fat heifers, \$6.25@6.75; good fat heifers, \$5.25@6; fair to good do., \$5@5.25; stock heifers, \$4@4.25; best feeding steers, dehorned, \$5@5.25; common feeding steers, \$4@4.25; stockers, all grades, \$3.50@4; prime export bulls, \$5.50@6; best butcher bulls, \$4.75@5.25; bologna bulls, \$4@4.50; stock bulls, \$3.25@4; best milkers and springers, \$40@50; common to good do., \$25@30.

With 80 cars of hogs on sale here today, market opened active and prices 5@10c higher on all grades but pigs, which were 5@10c lower; the bulk of the good grades sold generally from \$8.15@8.25; lights from \$7.25@7.40; pigs, \$6.50@6.75. The market closed steady on all good grades, but slow on pigs and lights; almost impossible to sell lights at anything like satisfactory prices. The weather is very warm here today, and would advise being very careful in loading hogs, for a continued hot spell will surely mean plenty of dead if not loaded properly.

The lamb market was active today; most of the choice lambs selling from \$8.40@8.50. Look for little higher prices the balance of the week. The sheep market was active; prices about the same as last week. Prospects steady.

We quote: Best wool lambs, \$8.40@8.50; clipped lambs, \$7@7.25; cull to common wool, \$6.50@7; wethers, \$6@6.25; bucks, \$3.50@3.75; yearlings, \$7@7.50; handy ewes, \$5.75@6; heavy ewes, \$5.75@6; cull sheep, \$3.50@4.50; veals, choice to extra, \$8.25@8.50; fair to good do., \$7@8; heavy calves, \$4.50@5.50.

Chicago.

April 15, 1912.

Cattle. Hogs. Sheep.
Received today 21,000 34,000 25,000
Same day last year 16,031 28,921 23,753
Received last week 41,371 120,114 76,108
Same week last year 48,472 120,978 74,651

Here is another Monday with limited cattle receipts, and prices are strong to a little higher, three sales of heavy beefs being recorded at \$8.75, 5c higher than any sale of last week. Hogs are strong to 5c higher, with sales of light lots at \$7.50@7.95, and quite a good showing of \$8 strong weights, but buyers are contesting the advance. The hogs marketed last week were much the heaviest of any seen in a long period, averaging 228 lbs., which compares with 221 lbs. a week earlier, 238 lbs. a year ago and 229 lbs. two years ago. The big number of hogs left unsold daily last week bears witness to the determined efforts made by buyers to hold prices down below the \$8 mark. The sheep and lamb market starts off very well, and some prime lambs brought \$8.10, an advance of a dime, but the general market is not perceptibly higher. Current receipts are coming mostly from the big feeding stations located not far from Chicago.

Cattle have not been marketed of late with much freedom, floods in the west and muddy country roads tending to lessen shipments, and at the same time muddy feed lots discouraged farmers from refilling feed lots. As is usual at this season of the year, the demand has been quite moderate, the dearthness of beef and abundance of reasonably low priced eggs tending to curtail the consumption of beef, but for all that, cattle sales were largely at 15@20c advanced prices on account of the light supplies. Beef steers sold largely at a range of \$6.50@8.20, with a pretty fair showing of \$8.25@8.70 steers on Monday and very few on other days. Inferior to fair light-weight steers sold at \$5.50@6.75, and medium grade steers went at \$7 and over, good cattle fetching \$7.65 and upward and prime heavy beefs \$8.25@8.70. Desirable yearlings sold at \$6.75@8.20, while cows and heifers were in active demand at \$4.10@7.50, cutters selling at \$3.40@4, canners at \$2.35@3.35 and bulls at \$3.50@6.80. The customary spring marketing of calves from the dairy districts of Wisconsin, Michigan, Illinois and other states has been going forward vigorously recently, and extremely large numbers have shown up at the stock yards, where sales have been brisk on the whole at \$3.50@8.25 per 100 lbs. for inferior heavy calves to prime light vealers. While the larger part were only fit for veal, some were well worth converting into beef, and it seems a great pity to slaughter good steer calves at such a time of scarcity of beef cattle everywhere. Everything points unmistakably to a scarcity of good cattle for months to come and high prices, and a better time to begin growing beef cattle and buying young cattle to fatten could not be imagined. Recent sales of stockers and feeders have been checked by muddy feed lots, but this trade is at last starting up once more, and high prices prevail because of light offerings. Stockers have been selling at \$4@6.10 and feeders at \$5.50@6.70. Milch cows are firm at \$35@70 each, with fair buying orders.

Hogs have acted bearishly much of the time since the market was boomed to \$8.07½ per 100 lbs. for prime offerings, local butchers and packers, as well as eastern shippers, holding back frequently and refusing to make purchases except on considerably lower terms. Prices were still extremely high as compared with most former years, however, and stock feeders continued to obtain substantial profits from fattening hogs. The average weight of hogs received here has increased considerably since the early part of the year, but it is still far from being heavy, and it seems odd that more owners do not hold on longer and get more weight. On their recent boom the prices paid were the highest of the year, and no one looks for cheap hogs at any time

for months to come. The stocks of provisions held at the five leading western packing points on April 1 aggregated 337,810,936 lbs., compared with 266,190,000 lbs. a year earlier and 158,403,000 lbs. two years ago, the increase in stocks during March being only 403,000 lbs., compared with an increase of 62,553,000 lbs. for the same month last year and a decrease of 12,890,000 lbs. in March two years ago.

Sheep and lambs have been sold recently at much the highest prices seen in a long time, with a large demand on local and shipping account and only moderate daily receipts, especially of sheep and yearlings. Lambs from Colorado predominated, and there was a greatly increased proportion of clipped flocks, which were preferred by slaughterers, as they dressed to better advantage. Most of the lambs have left Colorado, but considerable numbers of Colorado and western Nebraska fed lambs are left at feeding stations near Chicago. The market has experienced some marked reactions of late, and general declines have taken place at times on smaller buying orders, medium and common grades weakening the most as a general rule. The close of the week saw lambs largely 25c lower than a week earlier, and sheep were mostly 25@35c lower. Woolled lots sold as follows at the close of the week: Lambs, \$5.25@8; feeding and shearing lambs, \$6@7.25; yearlings, \$6.35@7.10; wethers, \$5.25@6.90; ewes, \$3.25@6.50; bucks, \$3.75@5. Shorn lambs sold at \$6.25@7.10 for fair to prime. The late bad market was in response to declines in the east under larger offerings.

Horses have become more active recently, the demand embracing farm workers weighing 1,100 to 1,450 lbs. at \$100@200 per head, chunks weighing 1,250 to 1,450 lbs. at \$150@200, wagon horses at \$160@250, light drafters at \$175@225 and heavier and better ones at \$230@325, with few going near the top price for draft horses. Southern buyers are no longer calling for small southern chunks to any great extent, but are more favorably inclined to good farm mares. F.

LIVE STOCK NOTES.

The possibilities of the future production of beef cattle in Iowa are to be put before Iowa farmers by the new Iowa Beef Producers' Association, which has a fund of \$7,500, appropriated by the last state legislature for this express work. It is probable that a special train will be sent through the state carrying beef men and members of the animal husbandry faculty of Iowa State College.

Late reports from entirely reliable sources of information regarding the range conditions existing in Montana, Wyoming, South Dakota and Nebraska show that the past winter was one of unusual severity and duration, and in no recent year has the snow fall been so great. However, cattlemen and sheepmen have exercised sufficient forethought to provide for such conditions, and in anticipation of a hard winter, they provided unusually large quantities of both hay and grain. The expense was heavy, but the stockmen thought that it would pay, and the outcome is that stock came through the winter in better shape than many owners had hoped for. Under such conditions, losses will be above the normal, but they will not be heavy enough to cripple financially the cattle, sheep or horse men of the great western range country. The Sheridan, Wyo., Post of recent date has the following bearing on the situation: "While the forage crops were short the past season, and but little better the season previous, there was in the country much old hay that had been carefully conserved by stockmen and ranchers for this very emergency, and it has been upon this supply that the country has drawn and which, together with grain shipped in, has saved the herds from starvation."

Word comes from Kentucky that there were far less lambs born in January than a year ago because of unusually severe weather and snow storms, but sheepmen had much better luck in the following two months. They carried larger numbers of ewes into the winter than usual, and most of the ewes came through in good condition, as feed was fed unstintingly in spite of its dearthness. Ample shelter also was furnished. There has been considerable contracting of early lambs for June delivery at \$6.50 per 100 lbs., or \$1 higher than last year, and indications are that the later lambs for July delivery will cost still higher prices. Liberal mid-June shipments of lambs are promised.

Owing to the winter drought in Arizona and California there will be a big reduction in the number of fat sheep and lambs to be marketed from these states this spring and summer. Early outside lambing in Idaho was lowered materially by the wet, cold storms in February, while marketings from Oregon and Washington will not be heavy this season because of reduced flocks in both states and the large demand from Pacific coast killers.

The recent floods in the west have interfered seriously with the marketing of live stock from such districts, and extremely bad country roads elsewhere have greatly checked such shipments, while muddy feed lots discouraged farmers from buying more cattle to restock such feed lots. Then the lack of rough feed and the extremely high prices for corn and hay are naturally potent factors in discouraging many farmers from buying stockers and feeders at this time. Feed lots are described by stockmen as the worst known for months past, with deep mud and cattle standing in some places almost knee-deep in the mud.

Recently there has been a strong demand in the Chicago market for prime fresh cows, largely from eastern dairying districts, with very small numbers offered for sale. Near-by places are also sending in larger buying orders, and at least twice as many as are available could be sold easily. For a good class of backward springers there is active killer competition.

THIS IS THE LAST EDITION.

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

DETROIT LIVE STOCK MARKETS.

Thursday's Market.
April 18, 1912.

Receipts, 745. Market strong and 25¢ higher than last week on all grades, trade very active.

We quote: Extra dry-fed steers and heifers, \$7.35@7.70; steers and heifers, 1,000 to 1,200, \$6.25@7; do. 800 to 1,000, \$5.50@6.50; do. that are fat, 500 to 700, \$4.50@5.25; choice fat cows, \$5@5.50; good fat cows, \$4.25@4.75; common cows, \$3.25@3.75; canners, \$2.50@3.25; choice heavy bulls, \$4.75@6.25; fair to good bolognas, bulls, \$4.25@4.75; stock bulls, \$3.50@4.50; milkers, large, young, medium age, \$40@55; common milkers, \$20@30.

Bishop, B. & H. sold Schuer 5 cows av 1,004 at \$4, 7 do av 881 at \$4, 2 do av 975 at \$4; to Newton B. Co. 3 steers av 763 at \$5, 9 do av 728 at \$6, 7 do av 936 at \$7, 1 do weighing 920 at \$6; to Sullivan P. Co. 3 do av 1,177 at \$6.75, 16 do av 1,225 at \$7.70, 9 do av 883 at \$5.60, 3 butchers av 800 at \$4.25, 5 cows av 1,024 at \$5, 13 steers av 914 at \$7, 2 do av 825 at \$6, 3 cows av 907 at \$5; to Parker, W. & Co. 2 bulls av 1,420 at \$5, 3 cows av 917 at \$4.85, 2 do av 725 at \$3.60; to Newton B. Co. 2 do av 850 at \$4.25, 3 steers av 1,117 at \$7.20, 2 do av 810 at \$5, 9 butchers av 861 at \$4.25, 1 steer weighing 830 at \$6; to Parker, W. & Co. 1 bull weighing 2,000 at \$5.25; to Sullivan P. Co. 7 butchers av 753 at \$5.25, 24 steers av 840 at \$6.90, 34 do av 1,150 at \$7.65, 9 do av 1,250 at \$7.65, 1 do weighing 1,050 at \$6, 12 do av 1,018 at \$7.40; to Parker, W. & Co. 8 cows av 864 at \$3.75, 3 do av 890 at \$4; to Thompson Bros. 7 steers av 835 at \$6.25, 9 do av 912 at \$6.75, 2 do av 1,000 at \$5.25, 6 do av 411 at \$4.50; to Newton B. Co. 8 steers av 994 at \$7.50, 4 do av 925 at \$6, 1 bull weighing 1,190 at \$6.50; to Thompson Bros. 8 bulls av 1,032 at \$5.25.

Haley & M. sold Nagle P. Co. 46 steers av 1,042 at \$7.10; to Schuer 1 cow weighing 740 at \$3.15, 2 do av 1,036 at \$4.60, 2 do av 935 at \$3.25; to Sullivan P. Co. 27 steers av 1,022 at \$7.10, 19 do av 936 at \$6.75, 5 do av 892 at \$6.50, 1 cow weighing 980 at \$5, 2 do av 980 at \$4.75; to Regan 2 bulls av 465 at \$3.80, 2 heifers av 600 at \$5; to Schuman 20 steers av 853 at \$6.85; to Applebaum 8 butchers av 700 at \$4.85; to Kull 1 steer weighing 680 at \$5.50, 2 do av 738 at \$6; to Kamman B. Co. 2 cows av 1,075 at \$5.25; to Parker, W. & Co. 25 steers av 914 at \$6.85.

Roe Com. Co. sold Sullivan P. Co. 11 steers av 1,110 at \$7.25; to Newton B. Co. 3 do av 603 at \$4.50, 4 butchers av 702 at \$4.75, 1 cow weighing 850 at \$3. Spencer & R. sold Sullivan P. Co. 15 steers av 1,099 at \$7, 5 do av 880 at \$6.25, 1 bull weighing 1,400 at \$4.85, 20 steers av 1,035 at \$7, 19 do av 1,166 at \$7.55, 1 do weighing 1,000 at \$6.50; to Mich. B. Co. 1 cow weighing 900 at \$3.50, 2 do av 1,045 at \$4.50, 1 steer weighing 1,000 at \$6, 12 butchers av 827 at \$4.90, 3 cows av 923 at \$4.60, 3 do av 860 at \$3.25.

Robb sold Kamman B. Co. 7 steers av 970 at \$6.75.

Lovewell sold same 1 do weighing 1,170 at \$7, 2 cow and bull av 1,175 at \$5.

Receipts, 839. Market 25¢ higher than last week. Few choice at \$7.75@8; good, \$7.25@7.50; common, \$4@6; milch cows and springers dull.

Bishop, B. & H. sold Newton B. Co. 5 av 108 at \$5.50, 19 av 135 at \$7.50; to Hammond, S. & Co. 6 av 95 at \$5.50, 20 av 125 at \$7.50, 2 av 95 at \$5, 12 av 140 at \$7.50, 7 av 125 at \$6.50; to Sullivan P. Co. 3 av 100 at \$5.50, 5 av 155 at \$7.50, 2 av 110 at \$5.50, 7 av 140 at \$7.50; to Goose 12 av 135 at \$7.25; to Rattkowsky 11 av 130 at \$7.25, 12 av 135 at \$7.25; to Thompson Bros. 4 av 95 at \$5, 12 av 130 at \$7.25; to Rattkowsky 12 av 135 at \$7.75; to Parker, W. & Co. 19 av 125 at \$7.50, 5 av 112 at \$6, 7 av 160 at \$7.50; to Burnstone 10 av 148 at \$8.

Spicer & R. sold Kull 8 av 140 at \$7.75, 4 av 155 at \$8; to Applebaum 1 weighing 150 at \$8.25; to Sullivan P. Co. 14 av 120 at \$5.50, 2 av 80 at \$4.50.

Kendall & D. sold McGuire 18 av 150 at \$6.75, 4 av 125 at \$7.50.

Haley & M. sold Goose 2 av 125 at \$5, 8 av 130 at \$7.50, 8 av 135 at \$7.50, 3 av 95 at \$5, 2 av 120 at \$5; to Parker, W. & Co. 2 av 100 at \$6, 8 av 125 at \$7.

Youngs sold Applebaum 2 av 120 at \$7.50.

Long sold Goose 4 av 145 at \$8, 5 av 115 at \$5.75.

Receipts, 3,060. Sheep steady; lambs 25¢ higher than last week. Best wool lambs, \$8@8.30; fair to good lambs, \$7@7.75; light to common lambs, \$4@5.25; clip lambs, \$6.25@6.85; fair to good sheep, \$4.50@5.25; culls and common, \$2.75@3.25; spring lambs, \$10@11.

Spicer & R. sold Sullivan P. Co. 118 clip lambs av 75 at \$6.75; to Mich. B. Co. 10 do av 58 at \$6.25, 12 sheep av 85 at \$4.25, 18 lambs av 55 at \$5.25; to Bray 37 clip lambs av 65 at \$6.40, 36 do av 47 at \$4; to Kull 51 lambs av 63 at \$6.45; to Sullivan P. Co. 34 do av 55 at \$4.50, 1 sheep weighing 80 at \$2; to Breitenbeck 28 sheep av 120 at \$4; to Sullivan P. Co. 65 clip lambs av 83 at \$6.85, 2 sheep av 130 at \$5, 55 clip lambs av 80 at \$6.85, 1 buck weighing 150 at \$3.50; to Bray 2 lambs av 95 at \$7.75; to Sullivan P. Co. 11 spring lambs av 60 at \$11.

Long sold Mich. B. Co. 6 spring lambs av 58 at \$10, 23 lambs av 75 at \$7.50.

Bishop, B. & H. sold Thompson Bros. 12 lambs av 80 at \$7.50, 11 sheep av 100 at \$5; to Hammond, S. & Co. 94 clip lambs av 75 at \$6.75, 19 do av 60 at \$6.85; to Sullivan P. Co. 12 sheep av 90 at \$3.50; to Mich. B. Co. 7 do av 107 at \$4.50, 8 lambs av 85 at \$8, 211 do av 70 at \$8.25, 10 sheep av 121 at \$5.25, 425 lambs av 77 at \$8.30, 239 do av 80 at \$7.20; to Parker, W. & Co. 7 sheep av 85 at \$4.75, 4 lambs av 80 at \$7.50, 144 clip lambs av 67 at \$6.50; to Barlage 48 do av 50 at \$5, 51 do av 63 at \$6; to Hammond, S. & Co. 24 mixed av 65 at \$4.50, 12 clip lambs av 67 at \$6.85, 87 do av 75 at \$6.85, 6 do av 48 at \$5; to Fitzpatrick Bros. 12 sheep av 90 at \$4.50.

Roe Com. Co. sold Barlage 15 clip lambs av 50 at \$5, 43 do av 63 at \$6.

Bordine sold Newton B. Co. 321 clip lambs av 65 at \$6.75.

Youngs sold Hammond, S. & Co. 74 lambs av 68 at \$8.

Receipts, 4,306. Market strong at Wednesday's prices; pigs 25¢ and heavies 25¢ 20¢ higher than last week; lights steady. Range of prices: Light to good butchers, \$8; pigs, \$6.50; light yorkers, \$7.25@7.60; stags one-third off.

Haley & M. sold Hammond, S. & Co. 285 av 200 at \$8, 150 av 185 at \$7.90, 45 av 170 at \$7.85, 35 av 150 at \$7.75.

Spicer & R. sold same 350 av 195 at \$8, 175 av 180 at \$7.95, 100 pigs av 105 at \$6.80.

Bishop, B. & H. sold Parker, W. & Co. 1,215 av 200 at \$8, 740 av 180 at \$7.95, 555 av 175 at \$7.90, 315 av 165 at \$7.85, 450 av 165 at \$7.80.

Roe Com. Co. sold Sullivan P. Co. 70 av 225 at \$8.05, 64 av 200 at \$8, 66 av 190 at \$7.90, 58 av 125 at \$7.05, 17 pigs av 115 at \$6.50.

Friday's Market.
April 12, 1912.

Receipts this week, 1,538; last week, 1,774. Market active at Thursday's prices.

We quote: Best steers and heifers, \$7@7.50; steers and heifers, 1,000 to 1,200, \$6.25@6.50; do. 800 to 1,000, \$5.25@6; do. that are fat, 500 to 700, \$4@5; choice fat cows, \$4.75@5.25; good do., \$4.25@4.50; common cows, \$3@3.50; canners, \$2.50@3; choice heavy bulls, \$4.50@4.75; fair to good bolognas, bulls, \$4@4.25; stock bulls, \$3.50@4; milkers, large, young, medium age, \$40@47; common milkers, \$20@30.

Receipts this week, 1,518; last week, 1,644. Market very dull and 50¢@75¢ lower than Thursday's opening. Best, \$6.75@7; others, \$4@5; milch cows and springers very dull.

Receipts this week, 3,462; last week, 4,564. Market steady at Thursday's prices; quality common. Best lambs, \$7.75@8; fair to good lambs, \$6.75@7.50; light to common lambs, \$4@6.50; clip lambs, \$6@6.75; fair to good sheep, \$4.50@5.25; culls and common, \$2.50@3.50.

Receipts this week, 7,347; last week, 7,082. Good grades 5¢ higher; pigs and lights steady; few choice brought \$7.70; bulk at \$7.65.

Range of prices: Good butchers, \$7@7.70; pigs, \$6@6.25; light yorkers, \$7.25@7.50; stags one-third off.

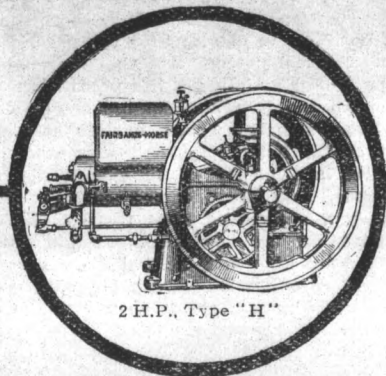
J. D. McGregor, the widely-known Angus cattle breeder of Manitoba, has returned from Scotland bringing 20 head of as fine breeders as could be purchased. He says they are scarce over there. He adds that the whole world is up against a serious beef shortage. Mr. McGregor says: "The Angus herds of Scotland have been down upon so heavily by both North and South America, that and so many have been disqualified by tuberculosis, that a man has no easy task in picking out a car load of clean genuine top-nothers. As scarce as good cattle of that breed are on this side of the Atlantic, the are still more scarce in Scotland compared with the demand. Those on this side of the line need not figure upon what western Canada will be able to do in the way of beef production for a while, as western Canada last year had to draw cattle from the east to supply its home trade, and it doubtless will have to do much more of the same during 1912." He adds that meat is sold in Scotland for little more than half what it costs either in Canada or the United States.

Sheep and yearlings were scarce articles last week, the daily receipts being made up mostly of lambs. Prices continued to rule very high, being greatly in advance of values seen earlier in the season, when there was a rush to market stock from feed lots in the region tributary to Chicago, and prime lambs sold especially high, as usual. Feeding and shearing lambs were in good demand at very high prices, not many being available, and the percentage of shorn flocks showed further marked gains. Light and handy-weight lambs were prime favorites, these being wanted for the Easter trade. Sheep and lamb receipts at other western and eastern markets were apt to be light in volume, and this tended to strengthen the Chicago market. Woolled lambs sold freely during the week at \$5.50@8.25 from culls to prime, while yearlings advanced to \$6.60@7.40, wethers to \$5.50@6.45 and ewes to \$3.50@6.50, with bucks selling at \$4.50@5.50 and feeding shorn wethers brought \$6.25 and prime and shearing lambs at \$6@7.25. Prime shorn ewes \$6, both advancing sharply.

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THE DAIRY

CONDUCTED BY COLON C. LILLIE.

THE CO-OPERATIVE BREEDERS' ASSOCIATION.

I wish I might place before the readers of the Michigan Farmer in a few words the advantages of the co-operative breeders' association. The state has been endeavoring for some time to convince the people who are keeping live stock, of the value of community breeding. As yet the results have not been as great as might have been expected. But the plan is right; it would seem to commend itself to every practical man, and without doubt this movement will become very popular in time.

The members of the association should own at least 120 cows, and 150 would be better. They, as soon as they are organized, proceed to purchase three or four sires of the breed which they have chosen. Right here they are to take a step which will largely determine the worth of this movement to the community in the future. It is well to take time and trouble in the buying of these animals. Their mothers ought to be in the register of merit class. They may cost a few dollars more for that but no money is likely to be so well spent as that which we pay for good breeding in the animal that is to be the sire of our future herd of cows. It is often hard and sometimes it seems impossible for a single individual to pay the price of a sire which is as good as he would like, but a number of these persons can unite, in which case the burden is not heavy for any one of them.

Thus, in our own association, we have two of the best sires that ever came into the county. Few of us would have thought of owning either of them as individuals, but to buy them in the association, was a very easy matter.

The company arranges with a responsible party to care for each of the bulls. It is stipulated that he must give the animal opportunity for exercise in winter, and a well fenced yard containing at least a half acre where he can run in warm weather. This last item is very important for many a good bull has been rendered valueless for want of exercise.

The price paid the keeper varies, but it is usually from \$40 to \$50. Each member of the company pays for the service of the animal, though the price is usually not above one dollar, while it is customary to collect a fee of two dollars from those outside the company. The fees are collected in advance. This is very important, in fact, in any form of co-operative effort, the matter of prompt payment is always vital to success.

After two years, these bulls can be exchanged, e. g., after number one has taken the place of number two, two will pass on to the home of number three, and three will be brought to the former place of number one. Here they may remain for another two years, when another exchange can be made if desired. By this time, however, the heifers from these sires will have been at work for some time and their worth may be known to some extent, at least. We may conclude that it is best to dispose of one or more of these sires after the four years trial, but if not, then we may exchange again and thus have the use of each sire for six years.

It may happen that one of these animals turns out to be of great value, and if so, we can keep him longer and use him on our old cows. It has happened many times that a very valuable sire has been disposed of before his worth has become known.

I have been thinking of sires owned in this section, within the last ten years, and I do not believe that one of them has been kept long enough to find out what he was really worth. Time has proven the worth of some of them after it was too late to get them back, and our neighborhood is a fair sample of the more progressive communities in the state. A very fine bull was sold here last spring for \$50 for beef. It turns out now that some of his daughters are animals of much promise and could the bull have been kept, he might have been of great service to the herds in this vicinity, but it is too late, the butcher has done his work, and all that is left is a lesson in breeding which we ought to heed.

The individual who keeps a bull for profit, cannot retain it too long, for if he does he will lose patronage, as the young heifers should be bred to some animal not akin to them, and since another mate

must be found for the heifers, the owner will be likely to use him for the old cows also. So it happens that this man who keeps a bull mainly for the profit resulting from the patronage of his neighbors, must get something new, or lose a large part of his business.

There are plenty of pure-bred males for sale, and they can be bought so cheaply when calves, that there is little demand for an old sire. If his real worth were known, if he had a wide reputation, it would be different, but all the community knows is that he is registered and that there are a lot of his heifers that must be bred somewhere else, that the owner will get a new male which will be registered, and which, for aught they know, is as good as the old one, and so we go on and on.

One of the best things about the association is, that it gives an opportunity to find out what the sires are actually worth, when tried out, and provides a way by which we can keep and use them as long as we like at the lowest possible expense in cash.

But there is a still greater advantage than this. It is the help which grows out of association. No sooner does a community unite to breed better live stock, than each individual is possessed of a wish not to be left behind in the race. Our association was formed last spring, and I doubt if anything else has ever done as much to increase the interest in better breeding of live stock. Several cows from this section will be admitted to the register of merit class on a year's test, and there will be more next year. Progress of this kind is always inspiring, for it heralds the coming of a better day, but the men who join a co-operative breeders' association are not making personal sacrifices for the public good. They are going to get their pay back in hard dollars. They are going to grow a number of good grade heifers which they will not need, and in time they are to become breeders of pure-bred cattle, and the association will advertise what they have to sell by the mere fact that the best dairymen are in it. The people who want dairy stock will buy it from members of the association if they can, and they will always be wise in this, for there will be the best cattle be found.

In closing, I desire to ask every reader of this article to consider whether, in his judgment, it would not be wise for his neighborhood to unite for the breeding of better live stock? This movement is a part of the great work of rural community building, and as representatives of the most essential calling of mankind, we should give it our hearty support.

Oceana Co. W. F. TAYLOR.

COMPUTING DAIRY RATINGS.

Scientific men have given much study to the ration problem, and the conclusions they have arrived at have saved dairymen and stock feeders millions of dollars in giving information that enabled a more economical selection of feeds for domestic animals. But the standards of feeding are not yet satisfactory. Men are still devoting study to the problem and we are of opinion that there is still more to learn and perhaps to unlearn, than has already been found out.

Prof. H. E. Van Norman, of the State College of Pennsylvania, has given the matter of dairy ratings close attention and made public a new standard of figuring ratings which is less complicated than the old standards and is claimed by the author to come more closely to the experience of feeders in the actual operations of feeding than the old systems of calculation. He calls the new standard the net energy standard. The old standards are based upon the amount of digestible nutrients contained in the feeds used to compound the ration, and explains the feeds in terms of their composition; while the net energy standard states the value of feeds in terms of power to do work.

In the net energy standard there is deducted from the feed the losses in the feces, in gas, in urine and in labor required for mastication, digestion and assimilation of the feed; what is left being the amount that the animal economy utilizes in the production of milk. For example, in feeding 100 lbs. of corn meal, 9.2 per cent is lost in the feces, 9.3 per cent is lost in gas, 3.9 per cent is lost in urine and 36.3 per cent is lost in labor, making a total of 58.7 per cent, leaving but 41.3 per cent of energy for the production of milk. In feeding 100 lbs. of timothy hay 48.9 per cent is lost in the feces, 3.8 per cent in gas, 3.1 per cent in urine and 29.5 per cent in labor, making a total loss of 85.3 per cent and leaving 14.7 per cent to actually go into the pro-

duction of milk. Again, in feeding wheat straw to dairy cows, 54.8 per cent is lost in the feces, 9 per cent in gas, 2.5 per cent in urine and 27.7 per cent in labor, making a total loss of 94 per cent, and leaving 6 per cent for producing milk.

In order to compare the old and the new standards of feeding it is well to take these three feeds and mark the difference as measured by the old standards and the net energy standard as set forth by Prof. Van Norman. Taking corn as a basis and following the computations given in Henry's Feeds and Feedings, we determine that with corn meal having 100 per cent digestible nutrients according to the old standards, timothy hay then has 65 per cent digestible nutrients, and wheat straw 51.9 per cent, and these form the comparative values of these feeds so far as digestible nutrients are concerned. Whereas, following the new method of determination we find that where the net energy of corn is 100 per cent, the net energy of timothy hay is 35.5 per cent and of wheat straw is 14.5 per cent. A review of these figures in the light of experience with feeding the different feeds will quickly tell the practical man that wheat straw does not contain one-half the value, weight for weight, that is had from corn meal; but the net energy figures which states that the wheat straw has about one-seventh the value for milk production comes more nearly to the actual merits of these feeds.

Acting upon this new method of computation the professor has worked out a scheme of determining rations in which he uses the "therm" as the unit of measure. Scientifically defined, a therm is equal to 1,000 calories. It may also be expressed as the amount of energy required to do work which, when converted into heat, will raise approximately 1,000 lbs. of water through four degrees of temperature, F.

Now, a cow requires a certain amount of net energy to maintain her body. It is estimated that a 1,000-lb. cow needs six therms of net energy to maintain her one day. If she is producing 20 lbs. of milk per day then she will use another six therms, or 12 therms in all. If she produces but 10 lbs. of milk per day then she will require but three therms of net energy, or nine therms for the day. The amount of energy, in other words, required above what is needed for maintenance varies in proportion to the amount of milk that the cow gives, and naturally to the quality of milk also.

Besides the net energy, the cow must have protein. To limit the protein in the ration is to limit the milk production. Our question, then, resolves itself into one of knowing how much protein and net energy a cow requires and then to determine the amount of protein and net energy in the different foods available. The elements of cost, palatability, bulk, variety and effect upon the cow's health must enter into the computation of the ration; and having a knowledge of these elements, with a table showing the amount of protein and the amount of net energy in the available feeds, one can with very little calculation, determine the kinds and quantities of food stuffs to use. A full discussion of the net energy method of computing rations is contained in Bulletin No. 114 of the Pennsylvania station, together with tables giving the protein content and the energy value in the most common grain and roughage feeds.

LOCATION FOR SILO.

Where do you think it would be the best place to put a silo, on the south side of a barn in an inconvenient position, on the north side where it would freeze more but where it would be handy, or on the east side?

Newaygo Co.

SUBSCRIBER.

I would locate the silo where it would be most convenient for feeding and pay no attention to the freezing. I don't think it would make very much difference about freezing weather, whether it was located on the north or the south side of the barn. When we have real cold nights it is just as cold on the south side of the barn as it is on the north side, it might thaw out a little bit quicker on the south side, however, than on the north. But in an ordinary winter this question of the freezing of silage is not a very important one. Usually we have a few cold days and then we have a warm spell and silage will thaw out. It doesn't injure the silage to freeze it, it is simply an inconvenience in feeding. Of course, no one would want to feed frozen silage to the cows. You must allow it to thaw out first. I think the only sure way of preventing a silo from freezing is to have a little oil stove or some heating device

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in the silo in the extreme cold weather, and then keep this burning nights. However, the slight inconvenience caused by freezing would amount to practically nothing compared with the inconvenience of moving the silage when silo is located on the wrong side of the barn.

HANDLING THE HEIFER.

With the increased importance attached to the raising of dairy cows on the farm where they are to be used, men are giving the methods of developing the heifers into cows of merit, increased attention. No doubt a few of the generally accepted rules and observations of leading dairy-men along this line will be of interest to the amateur and possibly to the old dairy-men who heretofore have ascribed merit in the cow kingdom altogether to inheritance, or who think that after the cow has come to give milk is time to begin according her the attention that is to get results.

First, as to the time to breed the heifers. It is the usual practice among dairy-men to have the heifers come fresh at about two years of age. This is a good rule to follow. But exceptions should be made. If one has a heifer that is delicate and slow of development there can be no question but that a delay in the breeding would react in much benefit in the later history of the animal. The later breeding would give a better opportunity for the heifer to mature. On the other hand, if the heifer is well-developed and shows a tendency to become "beefy" then it is well to have her freshen before two years in order that the dairy instincts may be nurtured. It often would be to the advantage of such an animal to have her freshen at 20 and even 18 months of age. The judgment of the owner should be discriminating in this matter.

Months before the heifer is to become a mother she should be allowed to run with the dairy herd. She will thus become accustomed to their company. Where the heifer is kept by herself until she has her first calf and then allowed with the herd, there is apt to be too much excitement for her good, and besides, she is pretty sure to be teased by the older members of the herd as a stranger. In turning the heifer with the herd care should be exercised that she be not injured by the other cows or that dogs do not scare her.

Above all, handle the heifer before she freshens. At that time she needs to be relieved of all unnecessary annoyance; hence, she should be acquainted with the person or persons who are to care for her and milk her. Manipulate the udder, cury her occasionally, give her a little grain from the hand and in other ways seek to gain her confidence in you and her affection. Time spent doing these services, as occasion offers, will go a long way toward producing a gentle cow that milkers will not object to milk.

The first calf should probably best be removed from the young mother within 24 hours. The dairyman should take the calf out of hearing distance from the mother and then go back to the mother and pet her, carefully rub her inflamed udder and draw a little milk, which will offer relief. If this is done carefully then the heifer will look upon the man as her comforter and benefactor. It perhaps would be well to take the clippers and remove the hair from about the teats. When these hairs get under the milker's hand and the hand is manipulated for drawing milk the action pulls the hairs and causes pain. By removing them this source of annoyance is eliminated.

The young heifer should be milked as long as possible during her first lactation period. This first period is strong in its power to establish the habit of long milking periods, and should not be neglected even though the owner does not secure what he considers enough milk to pay. The heifer is being cared for, not alone for the day, but for the future cow she is to make, and since from this attention her usefulness as a mature cow is to be greatly enhanced, the owner needs to mark such time as he here spends as invested to bring profits later.

It is generally recommended that the second breeding time of the young cow should be delayed. There are two reasons for this: First, it gives the opportunity for extending the first period of lactation for the purpose above stated, and second, it allows the heifer to recover from the strain of her milking period and to go on with her bodily development. It is important that she grow to a normal size. This end is apt to be thwarted by crowding her first lactation periods too closely together.

It is useless for us to comment upon the necessity of giving the heifer a liberal ration. In proportion she must have a heavier ration than the older cows for

besides producing milk and maintaining her body she must grow, all of which requires food. Then, too, her milk production later will depend upon her ability to assimilate food. If her assimilating powers are restricted then her milk flow will be limited. Good, palatable, succulent, nutritious feeds will do a great deal toward developing a desirable food capacity in the young animals.

SAVING THE LIQUID MANURE.

I bought a farm and undertook to remodel the barn to accommodate 20 head of cattle. I put in a cement floor with tight cement gutters so that the liquid manure would all be retained. The plan was to fill a large bin in the tool shed near by with muck and use that as an absorbent, to build a manure shed and use a litter carrier, but I did not get around to any of these last year and I can assure you that liquid manure has been a problem. I think I have paid for it, say twenty times its worth, this past winter. Now, I know a man who milks cows enough so he starts a milking machine, whose gutter opens into a tile drain, and I had a young man from Ohio who says he worked in a 100 cow dairy and that both gutters opened into a tile drain. I thought I was planning to do some good farming, but I want your advice. I can cut through to these gutters and send all that liquid on its way to a county drain, or I can finish as I planned. Some of my one and two cow neighbors are very sure I must have the drains in the end, and advise against my wasting any more money on it.

Eaton Co.

E. F.

The liquid manure can be saved and applied to the land with no great amount of trouble, but one must have a good supply of bedding as an absorbent. You can get along almost entirely with straw if you use plenty of it. Take a little pains in pressing it into the gutter so that it will absorb the liquid manure. It, of course, would be a fine thing to have the bin of muck, because muck or dried earth is a good absorbent of the liquid manure. Land plaster or acid phosphate is also a good absorbent, but you should place your main dependence upon straw and use plenty of it. Tramp it into the gutters to absorb this liquid manure. We save all of our liquid manure at Lillie Farmstead with cement gutters in this way. I never saw any particular use of having a cistern to run the liquid manure into it and save it in that way when it can all be saved by absorbing.

By no means chisel through the ends of your gutters and allow the liquid manure to escape. This is a valuable part of the manure, and we cannot afford to lose it. If the horse barn is not too far removed from the cow barn it is an excellent plan to put the horse manure in the gutters every time after the cow manure is removed. Horse manure is a good absorbent of liquid manure, and by handling the horse manure in this way it prevents all possibility of loss from the horse manure heating and fire fanging. But it is not necessary to use horse manure or any considerable amount of dry earth or muck as an absorbent. It can practically all be saved by a liberal use of dry straw or shredded corn fodder as bedding.

HUMAN FOOD IS PREPARED IN THE DAIRY BARN.

Many of our readers will be building barns for their dairy animals this spring. In considering plans for these structures the fact should not be lost sight of that in them human food is to be manufactured by the cows. They should therefore be put up with that same consideration for sanitation that the kitchens of the homes of the same men are planned and built. Cleanliness, ventilation, light, should be controlling factors in their arrangement and erection. Because the type of dairy barns which secure these ends is being advocated through every avenue of publicity it should not be taken that they are necessarily more expensive than the type of barns that we have been in the habit of building. Some have even gone so far as to declare that the new type is cheaper. It is certain that the expense will be but little more, and that the margin of additional cost will be out of all proportions to the better returns accruing from the herds kept under the improved conditions, and besides the greater satisfaction will prove an ample reward to the owner.

Wayne Co.

A. H.

When the cows teats become sore or chapped, treat them with vaseline or lard.

If the cows have become lousy spray with a two per cent solution of a coal-tar disinfectant.

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WHY THE DAIRY BUSINESS IS GROWING.

Statistics are not necessary to show the expansion of the dairy business. That it is growing, everyone in a position to observe, will admit.

One of the chief reasons for its growth is the improvement in the demand for dairy products. The demand is larger because of the increased proportion of urban population to the rural population. This is also enlarged because dairy products are now being used in a greater variety of ways than formerly. We have but to note the extensive use of milk and cream for ice cream, which a few years ago was a luxury indulged in by few. Condensed milk and powdered milk also add to the demand made upon the dairy farmer. This wide demand is an important element in the growth of the dairy business, since it has not only maintained prices but pushed quotations to the extreme heights attained the past few years.

Another element in the improvement of the dairy business is the utilization of by-products. In another article in these columns is set forth the many uses that skim-milk is now being put to. Butter-milk is also becoming more popular as a drink where it can be secured fresh, and whey is being recognized as an animal food that is worth too much to be thrown into the gutter. The use of these products is bringing an increased income into the pockets of the dairy farmer.

A third factor in raising the dairy business to the popular position which it now occupies is the higher intelligence which men are gaining of the variation in economic production by different animals. Perhaps there is no division of farming where such a wide margin exists between the profits on a poorly conducted farm and a well conducted one. The general recognition of the possibility of securing large profits through the selection of good cows has done much to place the business upon its present high level in our agricultural economy. A good cow that will yield around 300 pounds of butter per year produces from the feed she consumes about \$75 worth of products when butter is figured at 25 cents as the farm price. In addition to this she also produces 6,000 pounds of skim-milk which, at 20 cents per cwt. is worth \$12, and a calf that is valued at \$10, making in all a total income of about \$97. The average cost of feed for such a cow will run between \$45 and \$50 per year. At the highest figure there would remain a net profit of \$47 per cow. This calculation is only tentative in that under conditions where the milk can be sold directly to a retail trade the net profit can at least be doubled. This, however, shows the possibilities of an attractive income for the man who applies intelligence to the work.

But possibly the chief source of encouragement and enthusiasm in the dairy business arises from the indirect benefit accruing to the land itself. Dairying has rehabilitated many acres of land that otherwise would have had to be abandoned. The business increases the capacity of the farm, not by adding more acres, but by increasing the number of blades of grass that will grow upon the area. This, in turn, enhances the labor put upon the fields. Corn, oats and any crop can be grown cheaper upon rich soil than upon land poorly provided with plant food. Thus, the dairy business enables the farmer to increase his profits in a sort of a geometrical ratio and it is this feature, combined with others, including dairy farming to the front in our northern states. And certain lines of practices, such as the increasing use of the silo and the production of alfalfa, seem to prophesy a larger future for this agricultural specialty.

A. H.

BEST VARIETY OF CORN FOR SILO.

Would you please advise me as to which is the best kind of corn for me to plant to fill my silo on my farm in Lake county, Michigan? I have been told to plant Evergreen sweet corn.

Lake Co.

E. H. S.

The opinion of a great many men who have had experience in raising corn for silage is, that sweet corn does not make the best kind of silage. There is so much sugar in sweet corn that it has a tendency to make an ensilage that contains too much acid, which, in a measure, is objectionable. Good dent corn makes the highest quality of ensilage and you can get more tons of digestible dry matter to the acre with good dent corn than you can with any other variety. What is wanted is the largest variety of dent corn that will properly mature for ensilage in your neighborhood. It isn't necessary that

it get dead ripe, but it ought to be mature. The corn should be glazed and the earliest ears dented. I wouldn't advise planting a real early variety. I think it would be better probably to get ensilage corn from say 100 or 150 miles south. Then plant it considerably thicker than you would for field corn. I would use 10 or 12 quarts to the acre if the land is good and rich. Drill it in so that the kernels are three or four inches apart in the row and you will get more tons of cow feed per acre than you can in any other way.

If you go too far south for your ensilage corn and will get a late maturing variety it probably will not mature sufficiently to make good first-class silage. If you get seed that is grown 100 or 200 miles south and it is a good favorable season you can select the earliest ears for seed the next year, but I would not carry this selection too far as it will result in a diminished yield. Every two or three years, at least, I would select seed from farther south. It will grow larger and furnish more feed per acre.

A PLAN FOR A SMALL DAIRY HOUSE.

Developments in dairying have caused a large demand for a dairy house which will fulfill sanitary requirements and at the same time be practical and inexpensive. It is a well known fact that milk which is poured or strained in the barn, or allowed to stand there, is apt to be contaminated by germs and to absorb stable odors. The best practice is to remove the milk to the dairy houses as soon as each cow is milked. Milk should also be cooled immediately; so the dairy house should be provided with proper facilities for this purpose and be located conveniently by.

Realizing the necessity of aiding dairymen in constructing a cheap but effective dairy house, the Bureau of Animal Industry of the Department of Agriculture has made a study of the question and has recommendations to make.

The principal purpose in building a dairy house is to provide a place where dairy products may be handled apart from everything else. To carry out this idea it is necessary to divide the interior of the building so that utensils will not have to be washed in the same room where the milk is handled.

It is impossible to furnish a plan which will suit all conditions, but the plan suggested below is thought ample to meet the needs of the average dairy that ships either milk or cream in cans. For larger dairies the same arrangements may be used on a larger scale, each room being made of greater size.

The building suggested is 20 feet long, 10 feet wide, eight feet six inches high in front, and six feet six inches high in the rear, and is covered with a shed roof. The exterior of the building may be covered with sheathing and building paper, or weather boarding and shingles; expense, durability, and appearance being the deciding factor. The interior, however, should be carefully finished, so that the walls and ceiling may be smooth and free from corners or projections which might accumulate dust and dirt.

The equipment consists of a one and a half to two horse-power vertical boiler, which supplies steam to the sink and steam jet in the drain board; a galvanized iron wash sink, a can rack, a Babcock tester, a concrete cooling tank, a milk cooler, and milk scales. A hand separator may also be located in the milk room if desired.

Between the milk room and the wash room a little closet is provided in the wall to hold bottles in which composite milk samples from each cow may be kept. The closet can be opened from either room, so that the samples can be placed in the bottles from the milk room, and when the samples are to be tested the doors on the wash room side can be opened and the samples measured into the test bottles, thus saving the labor of carrying the bottles from room to room. This is but a sample of the general plan of the dairy house which is built according to a design that will economize labor and the avoidance of unnecessary steps. It is recommended by officials of the Department that the dairy house should be located so that the milkers do not have a long walk from the barn, yet it must be located at a distance from the contaminated surroundings. It should be built somewhat away from the barn on a well-drained spot, and the drainage of the dairy house itself should be carried away from the building. If possible the ground should slope from the dairy house toward the barn, rather than from the barn toward the dairy house.

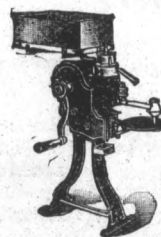
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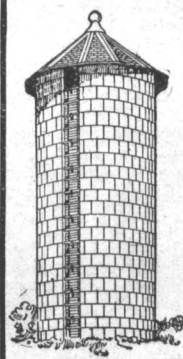
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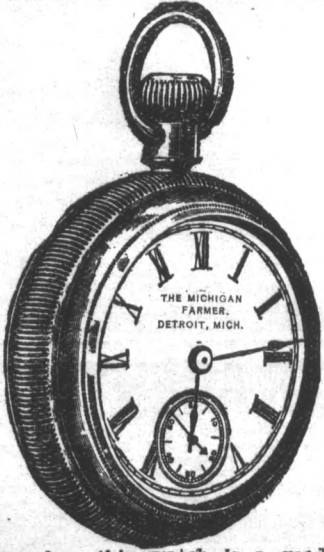
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The Michigan Farmer, Detroit, Mich.

HORTICULTURE

GROWING CELERY WITH FERTILIZERS.

Can I raise good celery on fertilizer year after year and keep the ground in good condition? And what kind of fertilizer would you advise me to use? Or would you advise me to buy Chicago manure which will cost about \$1 per ton and have to be drawn 2½ miles? I would like to know what would be the cheapest and keep the ground in good shape.

Ottawa Co.

H. R.

1. If your land is peat you can raise good celery by using only commercial fertilizers, since peat contains an abundance of vegetable matter. 2. Celery fertilizers analyze from one to two per cent nitrogen, eight to 10 per cent potash and six to eight per cent phosphoric acid, or from 20 to 40 pounds of nitrogen, 160 to 200 pounds of potash and 120 to 160 pounds of phosphoric acid per ton. Two hundred and fifty pounds of nitrate soda contains 40 pounds of nitrogen. Four hundred pounds of high-grade sulphate of potash contains 200 lbs. of potash. One thousand pounds of acid phosphate contains 150 pounds of phosphoric acid. 3. Many large growers of celery use well rotted manure, sulphate of potash and acid phosphate, so I should think that it would pay you to buy some manure to use with your commercial fertilizer. 4. Chicago manure varies so that I could not give a satisfactory answer to your fourth question. If you will consult the tables given on page 220 of the Michigan Farmer, Feb. 24, 1912, you can figure out what a ton of any particular manure is worth. Celery grown year after year on the same ground is more liable to become affected with fungous diseases than if it is rotated with some other crop.

Wayne Co.

W. POSTIFF.

A COMPARISON OF THE COMMON FUNGICIDES.

Fungicides for spraying purposes have only been known since about 1885 when Prof. Millardet, of France, found that a solution of copper sulphate to which lime was added was efficient in controlling the downy mildew which was destroying the vineyards of France at that time. Since that time that mixture of copper sulphate and lime has been known as Bordeaux mixture and has been the fruit grower's only efficient and practical fungicide until a very few years ago.

Within recent years, due to the fact that Bordeaux injury or russetting of the fruit by Bordeaux mixture on apples and pears developed and also due to Bordeaux mixture injuring peach foliage regardless of how diluted it was used, there has been some dissatisfaction with Bordeaux and two new fungicides have evolved. Both of these are combinations of lime and sulphur, the one, boiled lime-sulphur, being a chemical combination of lime and sulphur and the other, self-boiled lime-sulphur being a mechanical combination of the two. The boiled lime-sulphur used as a fungicide is a dilution of the standard scale controller. Self-boiled lime-sulphur is the result of experimentation by Prof. Scott, of the United States Department of Agriculture.

At the present time there is much discussion of the value of these three fungicides. Therefore, a short comparison of them might be of value.

Lime-sulphur (boiled) is as efficient as Bordeaux mixture in the control of the fungous diseases of the apple, pear, plum and cherry, and has the advantage over Bordeaux mixture in that it does not cause the russet injury on the fruit, especially of the apple and pear. It also has the advantage over both of the other fungicides in economy, lack of wear on pump, of clogging of nozzles and in the general ease of application. If prepared at home it can be made at leisure time and stored for future use. This is an important feature as very often time is valuable during spraying operations. Fruit colors up better when it is used because it does not cover the fruit with a thin coating of lime as do self-boiled lime-sulphur and Bordeaux mixture. The disadvantages of lime-sulphur are that it is detrimental to the growth of the grape vine and cannot, as yet, be used safely on the peach. Its fungicidal value is increased when arsenate of lead is used with it.

Bordeaux mixture, first used on grapes, is still the most efficient remedy for grape fungous troubles. It mixes readily with all poisons which boiled lime-sulphur does not. It is as good as any fungicide on plums and cherries but on apples and

pears, while a very good fungicide, its russetting of the fruit offsets its fungicidal value. The extent of the russetting of the fruit is determined by varieties and the condition of the season mainly. Improper combinations of copper sulphate and lime will also cause russet injury. It is more expensive than boiled lime-sulphur and has to be made as used.

Self-boiled lime-sulphur is the best fungicide for the fungi of the peach. It is though, the hardest and most disagreeable to make. It is the most expensive of the three and is most liable to clog nozzles and pumps. On account of these bad features it can not be recommended except for where it cannot be replaced by the other fungicides which is on the peach.

Briefly, for apples and pears use lime-sulphur, (boiled); for cherries and plums use lime-sulphur (boiled), or Bordeaux mixture; for grapes use Bordeaux mixture, and for peaches use self-boiled lime-sulphur. Many use Bordeaux mixture on pears successfully as it is not as essential to keep the fruit free from russet as it is with apples.

So. Haven Ex. Sta. F. A. WILKEN.

CABBAGE AS A GARDEN CROP.

On the average farm the kitchen garden receives scant appreciation and even less attention. Farmers are more or less busy during the summer months and consider it a waste of time to get down on their hands and knees to weed garden "sass" when the regular farm operations are demanding their time and attention 14 hours out of every 24. Nearly all, however, grow enough potatoes for their own use simply because they are a crop that can be cared for with horse tools. For the same reason every farmer should raise what cabbage he needs for his own use.

About three varieties should be grown to provide a good succession. Copenhagen Market and Jersey Wakefield are good early sorts. One ounce of seed will furnish enough plants to set a quarter acre so that a packet of an early variety will be enough of that kind for most families. The seed may be sown in a box in the house or in the garden as early as possible. The Succession is a good mid-season variety and one-half ounce of seed planted in 250-ft. drills about May 1 will furnish an abundance of plants at about the right time for transplanting. As much more seed of the Danish Ballhead, sometimes called Holland or Hollander, should be planted at the same time as the Succession to furnish plants for winter cabbage. The Holland is a good keeper and can be had in good condition till May 1, or later.

Transplant the plants into the permanent rows when they get about eight inches high. Cabbages will stand quite a lot of hard usage in transplanting but they are not improved by it. If the weather is hot and dry set out the plants in the afternoon any time after four o'clock.

Mark out the rows three feet apart and set the plants from 18 to 22 inches apart in the row. Get the roots well down in the ground and see that the soil is packed around them.

The cabbage is a hearty feeder and land that will grow potatoes will raise cabbage. They respond to good treatment and the richer the soil the larger will the heads be. Cabbage is a good crop to clean up weed infested land. They are a splendid crop on such land as the ground can be kept harrowed till quite late, destroying numberless weed seedlings. Then, when transplanted the plants make a rapid growth and smother out all weeds that cannot be reached with a horse cultivator. This reduces the necessary handwork to one or two times over the patch with a hoe to cut out what few weeds have gotten ahead of the cabbage.

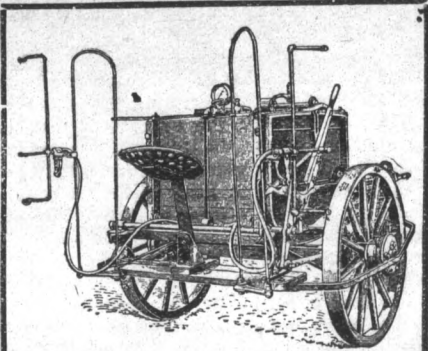
The cabbage worm and cabbage louse may bother some. For the first, mix one part of Paris green and four parts of either sifted air-slaked lime, road dust, or flour, place in a cheesecloth sack and shake on the cabbage while the dew is on. Usually one application is all that is necessary. The lice will only affect a few plants and these we always bury right where they stand.

The Succession and Hollander both make good sauerkraut but the latter is the best keeper for winter use so it is a good plan to use the Succession for sauerkraut and fall consumption. Summer cabbage will not make satisfactory kraut.

Wayne Co.

W. POSTIFF.

Pyrox fills the barrels with the apples that used to go on top. Write Bowker Insecticide Co., Boston, for book.



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CATALPA spec. (guaranteed true.) Choice 1 yr. trees \$1.00 per 100, \$3.50 per 500, \$7.1.000. Cat. Forest. Fruit, Shade trees, etc. Brosius Nurseries, Tiffin, O.

SEED CORN—Reid's Yellow Dent, Imp. Early Learning and White Cap. Tested Seed. Also Seed Oats. Catalogue free. Theo. Burt & Sons, Melrose, Ohio.

Regenerated Swedish Select Oats—Limited amount, re-cleaned seed at 90 cents; sacks 10 cents extra under 5 bush. T. V. HICKS, R. No. 11, Battle Creek, Mich.

2 year No. 1 Concord Grape Vines \$15 per 1000; Straw 2 berry Plants \$5 per 1000; Peach Trees 3 cents and up; 20000 Apple, Plum, Cherry and Pear. Catalog free. W. A. ALLEN & SONS, Geneva, Ohio.

DOUBLE THE YIELD of your potatoes by planting northern grown seed, bred up by hill selection. Prices reasonable. Circular free. B. Follett, Hale, Mich.

CHOICE re-cleaned pure bred Odorbrucker Seed Barley \$1.50 bu. f. o. b., bags free. Earl Hutchins, dealer in Seeds, Fertilizers, Implements, Gasoline Engines, Cream Separators, Motor Cycles, etc., Clayton, Mich.

Seed Corn! Early yellow and white dent \$1.50 Bu. shelled (56 lbs.) Bags, 20 cents. PLEASANT VIEW FARM, Camden, Mich.

SYSTEMS OF PLANTING FOR STRAWBERRIES.

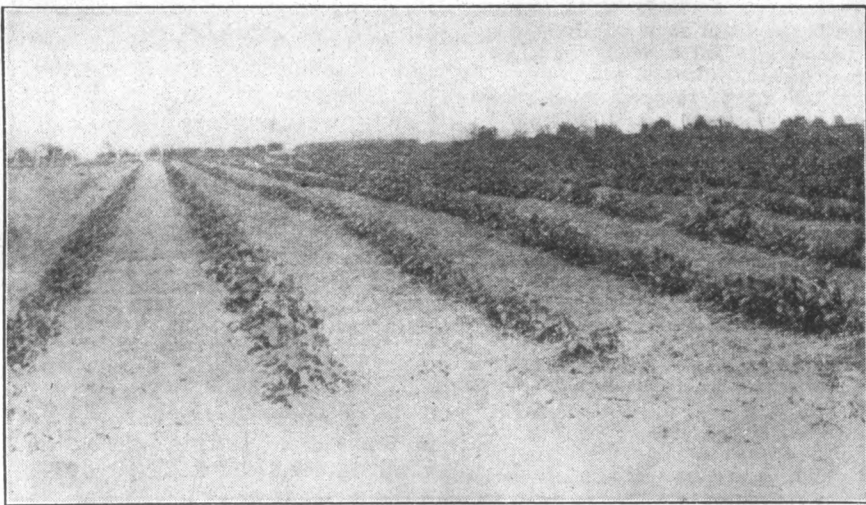
The productiveness of a strawberry bed and the size and quality of the berries varies greatly with the system of planting and caring for the bed. When large first-class berries are desired, it is frequently advisable to grow them on some other system than that of the common matted row, where the plants are allowed to produce innumerable runners and mat closely together. Although this system is the easiest of all to care for, which makes it the most popular, the plants are not equally spaced and do not allow of cultivation between them where it is most needed. The result is that very little first-class fruit is produced in the center of the row but most of it will be found along the edges where the plants have received better cultivation and care. To produce the best berries, therefore, some system where each and every plant is equally spaced, can be carefully cultivated and is not allowed to weaken itself by producing an excessive number of runners, should be practiced. Of all the various systems possessing these advantages, the hedge-row system or some

color. The Brandywine, on the other hand, was not of as good color, the berries not as large and the plants not as productive as the former. The patch measured 60 feet by 240 feet and yielded 66 1/4 crates. The berries were sold in a local market for a total of \$70.45. Considering the unsatisfactory results from two of these varieties and the distance the plants were set in the field, this is a very fair return and serves to show the possibilities in growing strawberries on the single and double hedge row systems. Mich. Agri. Col. C. P. HALLIGAN.

TILE DRAINING LAND FOR PEACHES.

Much has been said and more has been written against planting peaches where artificially drainage is necessary. And, for that matter, not only peaches but practically all tree fruits. Now while my experience may not be at all conclusive it may lead to further experimentation which will be beneficial to horticulture in general.

Some twelve or fourteen years ago our vegetable garden was concluded to be too large, so in order to use up some of the



modification of it is the most practical for either the home or commercial strawberry patch.

The strawberry patch seen in the picture was planted in the spring of 1910 and the photograph taken just before blossoming in the spring of 1911. The patch had been planted to cucumbers the previous year and kept very clean of weeds. The following winter, the land was heavily manured and this was plowed under very early in the following spring before setting the bed. The plants were set on the typical single-hedge row system, the rows being three feet apart and the plants set 30 inches apart in the row. Every plant was allowed to produce two runners, one running in each direction of the row, while all subsequent runners were cut off. Thus the plants were trained to grow in the form of a single row or hedge, which permitted every plant to be equally well filled by the cultivator and produce good, strong fruiting crowns for bearing the following spring. A modification of this system would have given a heavier yield and is therefore, more profitable for the intensive commercial grower. The plants might have been set 18 inches apart in the row instead of 30 inches and with two runners produced from every plant, it would allow a space of six inches in the row for each. Then, instead of setting the rows three feet apart the plants are often set in double rows ten inches apart with a two and a half or three-foot space between each double row. These modifications would have undoubtedly more than doubled the yield although probably have caused a little more labor in caring for the patch.

As the strawberry is such a shallow and fibrous rooted plant, frequent but very shallow cultivation is necessary. This patch was kept very clean of weeds during the growing season and mulched with clean straw in the early winter after the ground had frozen. When the soil had thawed out in the spring, and growth had commenced, the straw was carefully removed from the tops of the plants and placed around the roots, as seen in the picture. The straw then served as a mulch for the plants, thus taking the place of cultivation, and during the ripening season, kept the berries clean and free from sand and grit.

The varieties planted were the Texas, Pride of Michigan and Brandywine. The Texas was a very unsatisfactory variety, the berries being small with many nubbins and the plants very unproductive. The Pride of Michigan proved the best, being very productive, of good size and

space, about one-third of it was set to peaches, 36 trees in all. No especial thought was given as to whether peaches would do well or not, but they were just set to take up the space. This space was crossed lengthwise by the cellar drain, which was about four feet deep. This ground was quite heavy clay and would have been wet if it had not have been for this drain. Well, to make a long story short, these trees bore eight good crops and then succumbed to the yellows. Since that time I have planted two thousand peach trees on similar land underlaid with tile. Last year the oldest of these trees, 500 at three years old, yielded 100 bushels of fine fruit. It has been my practice heretofore to prune the peach trees well in early spring, that is, open them up well for the sunlight. This spring I have done no pruning at all, because I believe the trees will prove to be killed back quite badly and where this winter killing is evident the pruning can be done much more advantageously to the tree.

I am not sure, but I believe the peach trees will be found to be much more seriously winter killed on this tile drained land than on sandy land naturally drained. If they are too badly killed I shall remove them and replant the ground next year as all the peaches I have are used as filler for apple orchard. And the chances for our having another such winter again soon are not great enough to warrant people discontinuing the growing of peaches.

If others have had successful experience in growing peaches on tile drained land in Michigan, I should like to hear from them through The Farmer.

Berrien Co. R. G. THOMAS.

LOW TEMPERATURES AND PEACH BUDS.

Work done by the federal weather bureau in Ohio will serve to impress upon those about to set orchards, especially peach, the importance of choosing a location adapted to the purpose. We run the following report of observations taken:

Dormant buds of some varieties of peaches are killed when the temperature of the air falls to about 12 degs. below zero, while other varieties will stand a temperature of 15 to 18 degs. below zero.

During January, 1912, the temperature was 37 degs. below zero at Milligan, Perry county, and was over 30 degs. below zero in low valleys in parts of Portage, Columbiana, Guernsey, Hocking, Athens, and Ross counties, of Ohio.

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We guarantee this successful horse power machine cuts tile ditch, 10 inches wide, 24 inches deep, at the rate of 300 rods per day in ordinary soil.

In our valuable free book, showing The Money Making Way of Draining Land. C. G. Elliott, Drainage Expert of U. S. Dept. of Agriculture, shows how with good drainage—"Land is ready for seeding earlier. Crops begin healthy growth at once. Fertilizers are not wasted by surface washing. Crops are better able to withstand drought. Frost does less injury to crops. Crops make much more vigorous growth. Profits from land are greatly increased. Disease among farm animals is decreased." The

Cyclone Tile Ditching Machine

pays for itself over hand labor 'n tiling the first 20 to 40 acres, according to spacing of laterals—the added returns from the land, year after year are clear profit.

When you have finished your own ditching with a Cyclone, you can make money by cutting tile ditches for others. You can earn more money with a Cyclone Ditching Machine than with a threshing outfit which costs about ten times as much.

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if you take proper care of it. Proper care means frequent and thorough spraying with

ELECTRO Arsenate of Lead

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and other "Electro" products. Three sprays will make your fruit trees highly profitable.

Our Free booklet of 68 pages, "Spraying Simplified," tells how and when to make these sprays. Tells how to know what is ruining your fruit trees and the best way to protect them.

Send for it today and put those old apple trees of yours on a paying basis.

If your dealer cannot supply "Electro" products, accept no substitute (because there is none "just as good"), but write for prices and name of nearest dealer.

The Vreeland Chemical Co.
26 Church Street
New York



The Seed Box is Hung in the Center

That makes the Acme Corn Planter handy for either right- or left-handed men. Gives it balance, too. It has double springs on the trip lever. Its drop is accurate and can be changed in the field without a screwdriver.

ACME CORN AND POTATO PLANTERS

Don't furrow out for your potatoes, break your back dropping them, and then still have them to cover. Plant them as you walk along, regularly, at even depth, and leave the ground level when finished, with an Acme Potato Planter. Write for booklet, "The Acme of Potato Profit," and name of nearest dealer. If it is handier for you, we will ship, prepaid, on receipt of price.

POTATO IMPLEMENT CO., 311
Front St., Traverse City, Mich.

Insist on planter with
this trade-mark



WANTED—RIDER AGENTS in EACH TOWN

to ride and exhibit a sample 1912 Model "Ranger" bicycle furnished by us. Our agents everywhere are making money fast. Write at once for full particulars and special offer. NO MONEY REQUIRED until you receive and approve of your bicycle. We ship to anyone, anywhere in the U. S. without a cent deposit in advance, prepaid freight, and allow TEN DAYS' FREE TRIAL during which time you may ride the bicycle and put it to any test you wish. If you are then not perfectly satisfied or do not wish to keep the bicycle you may ship it back to us at our expense and you will not be out one cent.

LOW FACTORY PRICES We furnish the highest grade bicycle it is possible to make at one small profit above the actual factory cost. You save \$10 to \$25 middlemen's profits by buying direct of us and have the manufacturer's guarantee behind your bicycle. DO NOT BUY a bicycle or a pair of tires from anyone at any price until you receive our catalogues and learn our unheard of factory prices and remarkable special offer.

YOU WILL BE ASTONISHED when you receive our beautiful catalogue and study our superb models at the wonderful low prices we can make you. We sell the highest grade bicycle at lower prices than any other factory. We are satisfied with \$1 profit above factory cost. BICYCLE DEALERS you can sell our bicycles under your own name plate at double our prices. Orders filled the day received. SECOND HAND BICYCLES—a limited number taken in trade by our retail stores will be closed out at once at \$3 to \$8 each. Descriptive bargain list mailed free. TIRES, COASTER BRAKE and everything in the bicycle line at half usual prices. DO NOT WAIT—but write today for our Large Catalogue beautifully illustrated and containing a great fund of interesting matter and useful information. It only costs a postal to get everything. Write it now.

MEAD CYCLE CO., Dept. A-77 CHICAGO, ILL.

The temperature was more than 15 degs. below zero in nearly all sections of the state except along Lake Erie, in parts of the Ohio river valley, and on some of the highest points in the state.

The lowest temperature occurred generally on the morning of the 13th when the air was clear and comparatively still. At such times the air outside the large cities always gets colder than in town, because in the cities the cooling by radiation is largely prevented, while in the country the radiation of heat from the surface of the ground is very rapid and this surface, and the air in contact with it, gets very cold.

The valleys are always colder than the hills; also, on such nights, the air that has been cooled on the hillsides slides down into the valleys and is replaced by horizontally moving currents of warmer air.

On January 13, the temperature was 10 degs. below at Hiram, Portage county, but was 30 degs. below at Garrettsville, only a few miles away but in a valley, 235 feet lower. At Bangorville, Richland county, the temperature was 10 degs. below and at Cardington, Morrow county which is 370 feet lower, it was 21 degs. below.

On one of the hills near Philo the temperature was 7 degs. below, while down near the river it was 27 degs. below. At Somerset, Perry county, the temperature was 10 degs. below, while at Milligan in the same county it was 37 degs. below.

Other high-level points showed temperatures from 10 to 15 degs. below zero, hence it is probable that peach orchards located at or near the highest points of land escaped complete loss, while all those at lower levels were killed.

The temperature was only 5 degs. below at Toledo and Sandusky, and only 8 degs. below at Cleveland. The record at other stations outside of the cities, however, and only short distances from the lake, indicate that the temperature was close to the critical point all along the lake shore.

The temperature at the weather bureau office in Columbus at an elevation of 173 feet above the street, was 5 degs. below, at the kiosk, at the state house grounds, it was 8 degs. below, and on the Ohio State University grounds, it was 23 degs. below. In this case the difference in elevation made a difference of 3 degs. and between the city where the radiation was checked and the country where it was rapid a difference of 15 degs. Whenever it is cloudy or there is much wind the temperature is practically the same in town and out and at different elevations.

Experiments in orchard heating show that the temperature can be kept, from 10 to 15 degs. higher in the orchard than prevails outside.

This being the case, systematic orchard heating might have saved the bulk of the peach crop during the cold spell last winter at an expense of \$2 or \$3 per acre.

Orchard heating is rapidly coming into favor to protect fruit crops from spring frosts, but the heaters are used in California to protect citrus fruits from winter damage and the plan seems just as practicable in this state.

USE A FIVE PER CENT CARBOLIC ACID SOLUTION.

After cutting off limbs affected with twig blight or canker one should disinfect the wound with a five per cent carbolic acid solution to prevent further infestation at that point. By a typographical error in our issue of April 6, page 430, Mr. O. K. White was made to say in his article on "Pruning the Orchard," that a 50 per cent solution of carbolic acid should be used on wounds in such instances. It should read five per cent and not 50 per cent. Those who file the Michigan Farmer would do well to turn to the article and make the correction with a pen.

A GOOD GRAPE FOR THE NORTH.

Sometime ago we suggested in the Michigan Farmer the planting of Vervennes grapes in our northern counties. Mr. Henry Voorhees, of Grand Traverse county, following this advice, has found the variety to be entirely satisfactory under his conditions. He writes that "the grapes are a marvel in every respect," now that he has had opportunity to test the fruit. Others who are interested in grapes and intend planting will perhaps find it to their advantage to secure from their nurseryman plants of this variety, together with other kinds that are known to succeed in the northern part of the state.



"Bull" Durham Smoke Curls Up from Millions of Pipes and Cigarettes

Every year for over 52 years the number has increased. Every day new smokers discover "Bull" Durham.

There is something about it that all smokers hanker for, whether for the friendly pipe or rolled into a "Bull" Durham cigarette. Nothing else seems to satisfy the man who once tries

GENUINE "BULL" DURHAM SMOKING TOBACCO

Forty "rollings" in each 5c muslin sack

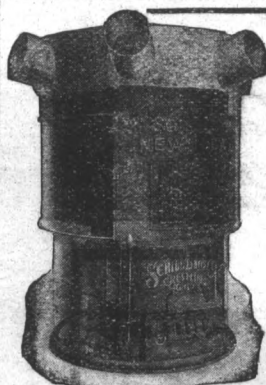
The flavor that has pleased three generations—that is still pleasing millions of smokers—is the pure, wholesome, natural "Bull" Durham flavor, unchanged by manufacturing processes. There is nothing artificial about "Bull" Durham. It contains no coloring, no dressing, no adulterants of any kind. It comes to you in the plain muslin sack just as generous Nature made it.

Try this grand old tobacco today. See for yourself why so many million men prefer it—why men smoke more of it than of all other high-grade tobaccos combined. See why they go on smoking it year after year—and will not be satisfied with anything else.

Sold by practically every tobacco dealer in the U. S.

A book of "papers" free with each 5c muslin sack.

Blackwell's Durham Tobacco Co.

A "New Idea" Heater in Every Home.

Every farmer can have one. A furnace makes home more comfortable and you can afford one. Burns wood or coal.

Our "New Idea" Furnace is the most *practical, convenient* and *economical* of any furnace built. Put a furnace in your home this summer and be ready when the winter comes. *Will heat your entire house as cheaply as you heat three or four rooms with stove.*

Write to-day for full plans and catalogue. Mention this Paper and your Dealer's name and address. All our furnaces sold on our positive guarantee.

THE SCHILL BROS. CO., MANUFACTURERS, CRESTLINE, OHIO.



BEE SUPPLIES AND BERRY BASKETS

Bee hives, Sections, Foundation, Smokers etc. Send for 64-page catalog of bee supplies, **BERRY BASKETS** and **CRATES**. Send for special Berry Basket catalog.

M. H. HUNT & SON, 400 Condit St., LANSING, MICH.



BEST STOCK and BEST FRUITS!

Buy Direct and Save Money at our low prices! Peach trees, fine at 40 and up. Apple and Cherry, 80 and up. All kinds of fruit and shade trees, Berry plants, etc. Catalogue Free.

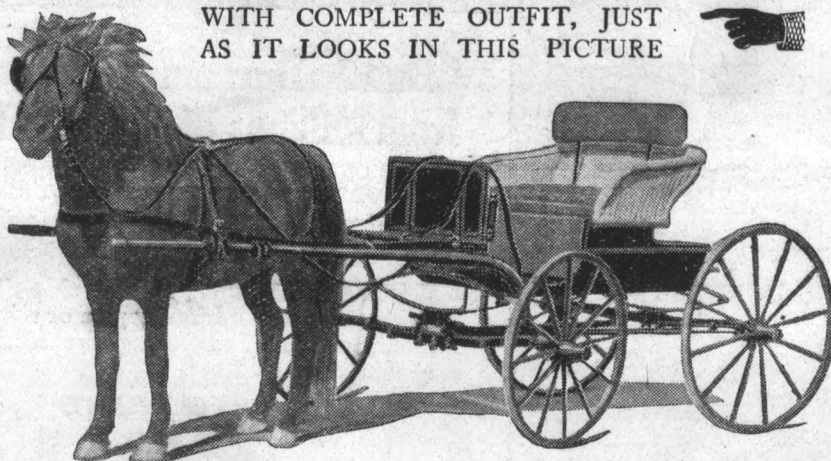
ERNST NURSERIES, Box 2, Moscow, Ohio

THIS PONY FREE!

"Scotty"

"Scotty" is a dandy three-year-old coal black Shetland Pony, 43 inches tall and weighs about 360 pounds. You can readily tell from his picture that he is as handsome a little Sheltie as you ever saw. See how proudly he holds his beautiful head. We have owned at different times over 50 ponies but we have never given away a better pony than "Scotty" which we are going to give to you or some other boy or girl. We selected him at the famous Heyl Pony Farm, Washington, Ill., where there are hundreds of the finest kind of Shetland Ponies. Hitched up to his nobby pony wagon he will haul you and all your boy and girl friends that can pile in, just about as fast as you want to go. And when you are not riding or driving him he will play with you and you can teach him to come when you whistle, and lots of cute tricks. You would be just the happiest child alive if "Scotty" were yours. Didn't you ever notice what good times children have who own ponies and how pretty these cute little fellows look trotting up the road? Everybody runs to the door and stops to look at a Shetland Pony going by. Can you think of anything you would like to own better than "Scotty"? Read this page through carefully and then send us your name and address at once.

WE WILL GIVE YOU OR SOME OTHER BOY OR GIRL, THIS PONY WITH COMPLETE OUTFIT, JUST AS IT LOOKS IN THIS PICTURE

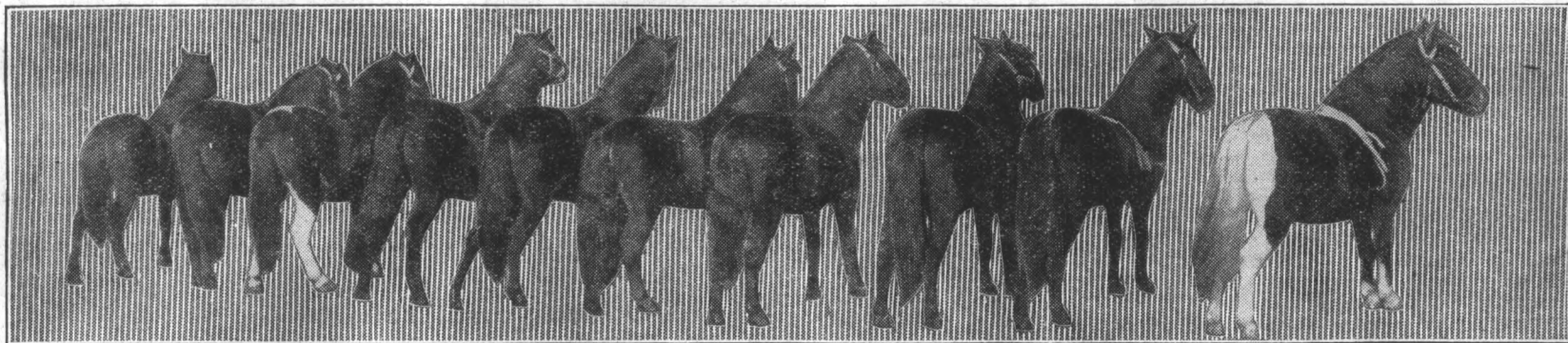


The Outfit

And best of all we send free with "Scotty" the complete Pony Outfit just as you see it in the picture. The pony wagon with its basket seat is just the most comfortable riding and easiest pulling we could buy for our purpose. We have given away so many that we know exactly what kind most boys and girls like. The handsome nickel trimmed harness looks just fine on "Scotty" and the riding bridle is imported and the saddle which we also send we had made to order for "Scotty". No child no matter how rich his parents may be owns a nobbler or more desirable pony and outfit than this one which we shall send free and all freight and express charges paid. This is surely the best chance you ever had to get a Shetland Pony, so if you haven't any and think you would like to have us give you this one, send your name and address to us right now so it will be sure to get to us quickly.

Send Us Your Name Today If You Want to Own "Scotty"

As soon as we hear from you we will tell you how to become a contestant for "Scotty." Don't let anyone persuade you that you cannot win this pony because our plan of conducting pony contests is different from others. The fact that we have given ponies to forty-three boys and girls already is proof that we give them away. We publish The Farmer, The Farmer's Wife and Poultry Herald. The banker or postmaster in your town knows that we are one of the largest publishing houses in the United States so we can well afford to give ponies to boys and girls to advertise our papers. Our contests are very short and you or some other child will get "Scotty" and have him to drive to school and everywhere. We never heard of one of these forty-three boys and girls until they wrote and told us they wanted a pony which shows how fair and square our pony contests are and that no matter where the winner lives "Scotty" will be sent without any cost to you. You must send us your name and address right away.



We Have Given Away 43 Ponies

Here are the Names of the 43 Boys and Girls who Won Them. Read Them! Count Them!

43

1. "QUEENIE," Stan J. Malicek, Redwood Co., Minn.
2. "BOB," John B. Corn, Jr., Pulaski Co., Ark.
3. "BONNIE," Amye Kafer, Carroll Co., Iowa.
4. "NED," Jules and Ruby Kobelin, Yellowstone Co., Mont.
5. "SPARKLE," Elsie Savage, Codrington Co., S. D.
6. "SONNY," Elmer Hoth, Allamakee Co., Iowa.
7. "FRITZIE," Marie and Margie Parker, Knox Co., Ill.
8. "TONY," Maurice Himle, Chippewa Co., Minn.
9. "KING," Vic J. Breitbach, Dubuque Co., Iowa.
10. "BILLIE," Hazel McMartin, Kingsbury Co., S. D.
11. "DUKE," Dorothy Lee Eagle, Jackson Co., Mo.
12. "DON," Oliver E. Olson, Koochiching Co., Minn.
13. "ST. NICK," Marcella Conley, Chickasaw Co., Iowa.
14. "BEAUTY," Bertram Eldridge, Stark Co., Ill.
15. "SPOTTY," Mildred Elter, Watouwan Co., Minn.
16. "BROWNIE," Twyla Hart, Shelby Co., Ohio.
17. "JACK," Bernice Harvey, Union Co., Iowa.
18. "MAC," Ruth Mead, Saline Co., Mo.
19. "TEDDY," George Cooper, Stearns Co., Minn.
20. "TRIXIE," Frank Harris, Yellowstone Co., Mont.
21. "DAISY," Leta Hainline, Adair Co., Iowa.
22. "FAIRY," Lawrence Ulrich, Washington Co., Minn.
23. "EVANGELINE," Gladys Houx, Saline Co., Mo.
24. "LADDIE," Robbie E. Notton, Chickasaw Co., Iowa.
25. "TOM," Helen Herrmann, Cumming Co., Neb.
26. "DERBY," A. Fitzsimmons, Clayton Co., Iowa.
27. "MISCHIEF," Orville Himle, Chippewa Co., Minn.

28. "BESS," Wilfred Dearehs, Kossuth Co., Iowa.
29. "JERRY," Clea Johnson, Douglas Co., Kansas.
30. "DANDY," Grace Burrows, Wright Co., Minn.
31. "CAPTAIN," Ida O'Keefe, Mountrail Co., N. D.
32. "PRINCE," Norris Nupson, Fillmore Co., Minn.
33. "ROINE," Clarence F. Busick, Adams Co., Ind.
34. "INEZ," Edwin Kobenstein, Goodhue Co., Minn.
35. "GINGER," Charles Foster, Randolph Co., Mo.
36. "PATSY," Rena Smith, St. Lawrence Co., N. Y.
37. "BINGO," Jeanette Lansing, Knox Co., Neb.
38. "DIXIE," Walter F. McLaren, Moody Co., S. D.
39. "JEWEL," Arthur Marode, Douglas Co., Neb.
40. "JIM," Joey Edwards, Barton Co., Kansas.
41. "MAJOR," Margaret Roth, Rice Co., Minn.
42. "GUS," Frank and Vera Brown, Dakota Co., Neb.
43. "JOE," Harold R. Palmer, Oswego Co., N. Y.

43

Notice that we print the names of the children to whom we have given ponies which we wouldn't do if it wasn't true that we give away real live Shetland Ponies. You will see that we have given them to children all over the United States so it don't make any difference where you live we would just as soon send "Scotty" the next pony we are going to give away, to you as to any other boy or girl. The first thing these 43 boys and girls did was to send us their names and addresses which you must do if you want us to send you "Scotty" and his complete outfit.



EACH CONTESTANT A PRIZE WINNER

All contestants will surely get a prize of their own choosing from a list which we will send them. Besides the Pony Outfit and Twenty-five Grand Prizes we shall offer Gold Watches, Base Ball Outfits, Gold Bracelets, Fountain Pens, Hand Bags, Flash Lights, Rifles, Shot Guns and dozens of other desirable prizes. If you become an enrolled contestant in this Pony Contest you can't lose. But don't let anyone persuade you that you can't win "Scotty" because you have the same chance as any other child.

CUT OUT AND SIGN THIS COUPON OR COPY ON A POSTAL CARD AND MAIL TODAY

THE FARMER'S WIFE, 323 Webb Bldg., St. Paul, Minn.

Please send me Certificate of Entry, and pictures of "SCOTTY" and tell me how to take care of Shetland Ponies and feed them. I haven't any Shetland Pony and want to own "SCOTTY."

Name _____ R. F. D. _____
P. O. _____ State _____

SEND YOUR NAME TODAY

Our ponies are given away so quickly that you will stand a better chance to get this one if you sit right down and write us a letter or a postal card or send the coupon opposite filled out with your name and address (either way will be all right). The work we require you to do to become a contestant for "Scotty" is something that any boy or girl who could drive a pony can do, and any child who becomes a contestant will win a fine prize even if he fails to win "Scotty" which is the best prize of all.

Be sure to address postcard or envelope **THE FARMER'S WIFE 323 WEBB BUILDING, ST. PAUL, MINNESOTA.**