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1915 INDEPENDENCE DAY



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INDEPENDENCE FOREVER"

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DETROIT JULY 3, 1915.

Independence Day

NEVER on earth did bell peal forth a more splendid message to mankind than the Great "Liberty Bell" in the tower of Independence Hall, Philadelphia, in the forenoon of July fourth, seventeen seventy-six, as it announced the birth of Independent America.

To the Continental Congresses of 1774 and 1776 the thirteen colonies sent strong men. They were men of independent views and on many questions, had widely varying opinions but a love of reasonable liberty so dominated their souls that they were able to subordinate and adjust all differences in behalf of the one great purpose.

Literary ingenuity and fanciful studies of uncertain historical data, have at times given a touch of confusion as to the authorship of the Declaration of Independence; but history seems to have made concerning the matter, this final entry.

The document was prepared by Jefferson at the instance of the committee and approved by them with but the very slight change of a word or two.

Later the committee yielded to the urgent request of numerous delegates and eliminated the paragraphs concerning the slave trade.

As so reported by the Congress it was adopted with but one dissenting vote.

There is glory enough for us all in the fact that the Declaration of Independence was "made in America."

That declaration which the old bell announced has stood for a hundred and thirty-nine years and this day finds the great republic which was constructed upon the foundation of the federated colonies, grown to vast proportions, cherishing one flag, in a unity of purpose and spirit that is the marvel of human history.

Well may the peoples of Europe wish that some liberty bell might ring out glad tidings for them!

Well may the despairing millions of Europe call to the bells of Tennyson: "Ring out the old: ring in the new

Ring out the thousand years of war

Ring in the thousand years of peace

Ring in the Christ that is to be."

CURRENT COMMENT.

The idea of safety and safety in the celebration of Independence

Day has steadily gained ground during recent years. While most of our people are generally appreciative of

this gain in safety in the celebration of the national holiday, there are still some who talk of the good old times and long for the noisy celebration of long ago. This misplaced enthusiasm should not, however, cause any relaxation of our vigilance for the safety of the young patriots to whom the Fourth of July is a red letter day

Statistics carefully collected show a very remarkable gain in the direction of safe celebrations during recent years. In 1903 there were reported 417 cases of tetanus in 30 states resulting from the injuries sustained from the use of dangerous explosives in Fourth of July celebrations. In 1914 there were but three cases in three states, although there were, of course, many minor injuries which could easily have been avoided by a further application of the safety idea. Two of the three cases of tetanus mentioned were caused through injuries from the use of blank cartridges, which are said to have caused a large part of the tetanus infection from the injuries suffered during the celebrations of the past 12 years. So important is this fact considered that the health department of a nearby state has issued a warning against the use of blank cartridges for such celebration.

While there has been, as above noted, a large decrease in cases of tetanus infection from the injuries suffered in celebrating the Fourth, last year's record was high enough with 40 persons killed and 1,466 injured. Every precaution should be taken by parents to prevent the injury of their children from the use of dangerous explosives in such celebrations. Not only that, but in case of injury, prompt action should be taken to have the wounds properly dressed, and in view of the peculiar danger from wounds of this kind it is always a wise course to call the family physician at once to dress the wound, even though the injuries may be considered as slight or even trifling.

Michigan people do their share of complaining about the weather. It is generally too hot or too cold, too wet or too dry to please a very large number of people, particularly farmers whose business as well as pleasure depends upon weather conditions to a greater degree than is the case with almost any other class of citizens, but while we may have backward springs like the present, while it frequently may be too wet for best results with crops on poorly drained land and while severe midsummer drouths have occurred within the memory of most Michigan farmers, yet seed time and harvest come with considerable regularity and the harvest generally compares favorably with that secured in any other section of the country.

The diversity of our agriculture makes this more certainly true, since weather conditions which may be unfavorable for one crop do not handicap others so severely. If we pause to make a comparison of our climatic conditions with those in other sections of the country, where rainfall is insufficient and where untimely frosts are an almost certain handicap, we would not be inclined to complain so greatly about Michigan weather.

We are in receipt of a letter written to a prominent Clinton county farmer by his son who lives in one of the semi-arid western states where dry farming methods have been in vogue in recent years, but where irrigation is now being developed in order to make crop production reasonably certain. In this letter a surprising climatic condition is described which will afford food for thought as well as material for comparison when we are inclined to think that Michigan weather is the worst possible. The letter contains a statement to the effect that a good many homesteads had

been leased for crop growing purposes with resulting crop failures for successive years until the leases were considered valueless because the rainfall was insufficient even under the best methods of conservation to grow good crops, but this year it is different. Last fall copious rains fell, last winter there was a good fall of snow with neither freezing nor thawing of ground, the snow going off gradually, and the water all soaking in. This spring it continues to rain, with the surprising result that fields which were seeded to grain one, two and three years ago are producing volunteer crops which promise an excellent harvest.

People who are frequently heard to assert that Michigan has the most disagreeable and variable climate of any state in the country may at least find consolation in the fact that while it is sufficiently variable so that we never lose a mild interest in the weather, it is not so erratic as to make our crops altogether uncertain or our agricultural wholly a gamble.

The catalog of the Michigan State Fair for 1915 is now being distributed. The premium list for this Sixty-sixth Annual State Fair which will be held at Detroit September 6-15, inclusive, lists liberal prizes for every kind of agricultural product which might be exhibited. It should be carefully studied by every up-to-date farmer who has products of exceptional merit, which if exhibited would add to the educational value of the fair. The act of entering and exhibiting products in such competition should not, however, be looked upon as a philanthropic undertaking by any farmer. Whether he succeeds in carrying off a sweepstakes prize or not, the exhibition of farm products of any kind will give the exhibitor an added interest in the fair, and will cause him to study other exhibits more carefully than he would otherwise do, thus making the fair of greater personal educational value to him through the very act of entering the competition.

It will be profitable to any farmer who has products of high quality to enter same for exhibition at the state fair. If he is a good judge of quality, he should be able to pay his expenses to the fair from the premium awards, and if he is not a good judge, he will be a far better judge after competing in this show.

The farmers of Michigan should make the fair of even greater educational value this year than ever before by increased interest in all departments. Send for a copy of the catalog and look over the premium list; it may result in an inspiration.

In another column of this issue appears an article on fitting the colts for exhibition. Probably many Michigan Farmer readers may not be directly interested in this discussion. Not so long ago we would not have considered it a topic of sufficient general interest to warrant its publication. Now we do.

Last winter a colt show was held in connection with the annual live stock meeting held at the Agricultural College. The show brought out a fine lot of exhibits which were watched at their paces in the ring by a large and appreciative audience. One who saw that fine lot of colts and the enthusiastic farmers who viewed them, could not do less than acknowledge the educational value of such a show. Nor could he doubt that it is worth while to produce colts good enough to compete successfully in such a show.

It will pay the farmer who has some well-bred colts in his field, to feed them for exhibition whether he ever shows them or not. The idea of generous feeding is one which may be profitably entertained by every owner of young animals, and the production

of show animals is a wholesome incentive to that end.

A CORRECTION.

A typographical error in the advertisement of the Ohio Rake Co., Dayton, Ohio, which appeared on Page 643 of the Michigan Farmer for June 5 made the first paragraph in the advertisement read as follows:

Imitation is the sincerest form of flattery. The Hayes-Dayton of flattery. The Hayes-Dayton market last year—since that time a flood of imitators have followed in its wake. But the Hayes-Dayton has been tried and found right.

This paragraph should have read as follows:

Imitation is the sincerest form of flattery. The Hayes-Dayton was perfected and put on the market last year—since that time a flood of imitators have followed in its wake. But the Hayes-Dayton has been tried and found right.

The same advertisement appears on Page 15 of this issue.

HAPPENINGS OF THE WEEK.

Foreign.

The German Allies continued successful in their campaign against the Russian army in Galicia until they captured Lemberg. The Russians consider the capture of no great importance as the retreat was an orderly one. During the latter part of the week the Russians succeeded in checking the Teutonic advance. The Germans succeeded in crossing the Dniester River and are driving the Russians back to the north and east of Lemberg. At the western front the French were successful in capturing the Labyrinth, an important defense work of the Germans in northern France. David Lloyd George, the new minister of munitions, has given British labor seven days to get enough men to man the factories to produce a maximum supply of munitions of war. Compulsion will be used if an adequate supply of labor is not secured. The French and British succeeded in making gains in their land operations on the European side of the Dardanelles.

Hungary is now taking control of all the grain crops of that country, with the exception of maize. Farmers will be permitted to reserve a supply for their own households at the rate of 40 pounds per head per month.

National.

Last week English sterling exchange fell to the lowest level it has ever reached on the New York market. This caused some depression in business circles of this country by reason of the fact that the sterling has hitherto been the international standard of value. The large balance of trade in our favor during the past season has enabled this country to absorb the gradual sale of American securities held abroad and thereby maintained and strengthened our financial position among nations. The question of utmost importance is just what means will be employed to finance the large purchases being made and to be made in this country by foreigners. Domestic business shows gradual improvement, fewer men are idle, collections seem good and crops are promising.

General Victoriana Huerta, former provisional president of Mexico, and General Pánel Orozco were arrested at El Paso, Texas, June 27, on charges of conspiring to incite a revolution against a friendly country. United States officials learned that ammunition was being shipped to Huerta's activity. Both generals will be held under bond until word from Washington is received.

William Lefler, an American who resides in Detroit, but worked as watchman at the Tate Electric Co., of Walkerville, Ont., was arrested as an accomplice in the dynamiting of the factory of the Peabody Co., of Walkerville, June 25. In his confession he claims to have been hired by another Detroit to do the work, the dynamite having been smuggled across the river. The same night an attempt was also made to blow up the armory at Windsor. The Peabody Company made uniforms for the British army. Lefler is of German descent.

The post office department will begin the distribution of mail in rural communities on 105 R. F. D. routes by automobile on August 2. The length of these routes will range from 55 to 57 miles and will serve from 130 to 470 families, which is about twice the number served by the slower vehicles. This service is to be installed where the roads will permit the regular use of motor cars.

Growing Sweet Clover

THERE are several enthusiasts writing and talking very freely about the merits of sweet clover. Some seem to wish to convey the idea that it is a new discovery, and they must do their utmost in lauding it to attract the attention of farmers and induce them, if possible, to grow it. One writer goes so far as to declare it "the best of the clovers."

While it is only recently that farmers have tried to grow sweet clover as a forage crop, it has been known to them for many and many years. A long time ago it was introduced into this country from Europe simply because it is a fragrant flowering plant. Farmers' wives planted it in their flower gardens. The seed matured and dropped to the ground, grew the following year and became, in some cases against the wishes of the owners of the premises, a plant which was inclined to cling to the place where it was first given a chance to take root.

In many different ways the sweet clover seeds were carried to different places on the farm, taking root and thriving well in out of the way and abandoned places. In some way unknown to the farmers the seed has been spread and left on the hard and stony places by the side of the road, seeming to thrive best when abused the most. It being a rank grower it has been declared and treated as a nuisance.

A peculiarly disagreeable flavor of the sweet clover plant while growing, no doubt, had much to do in deferring the day when it would be utilized as a pasture plant. Farm stock have eaten other herbage around it and left it alone for many years, and it was considered a worthless encumbrance of the ground. It was subsequently discovered that farm stock could be starved to eat it and learn to like it. Another important discovery was made; when the sweet clover had been cut and cured, as we cure hay, the disagreeable odor and flavor had departed and farm stock consume it with a relish. Then chemical analyses established its value as feed.

Where to Sow Sweet Clover.

I am not one of those that seem to be ready to say that sweet clover is the crop we should use to revolutionize and change our well established system of stock and grain farming. I am not ready to say that I think that sweet clover should take the place of June clover in the rotation of crops, only in exceptional cases. We had better study its nature and its needs before we place too much dependence on it as a forage crop in the rotation. Because it thrives at the outer edges of stone piles, in gravel pits, beside the highway, on the hard surface beside the traveled road, and many other places where other forage plants can not be successfully grown, it should be remembered that those isolated spears of sweet clover have a considerable ground to themselves and can secure an abundance of plant food, but if compelled to exist beside several other plants of the same kind, the whole of them would make but a feeble growth.

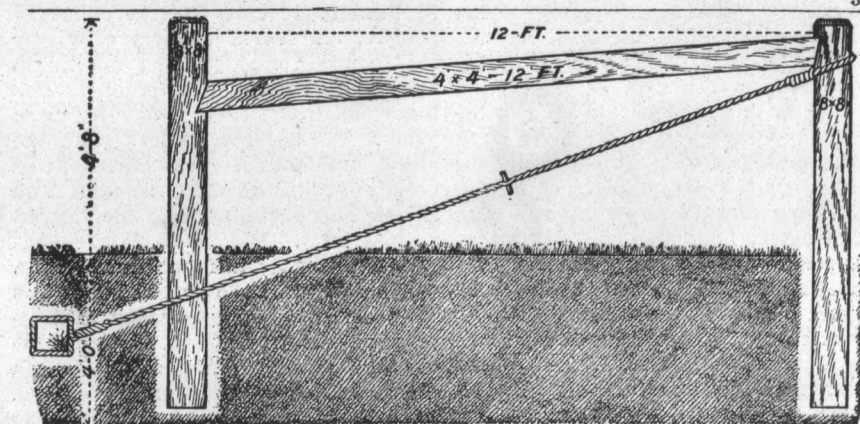
It has been found that sweet clover will make a good growth on light, sandy places if supplied with the necessary requirements as to moisture, nitrogen gathering bacteria and lime. It will get a foothold on hard, white clay where but little else will grow. It will grow on land too wet for other clovers, and so sour that they can not stay. It will make a good crop on land so stony that it is nearly, if not quite, impossible to mow the other clovers, and as it is a rank grower, it can be cut high, leaving a long stub of the stalk, and at same time yield a good crop of forage. If you have a hard, poor piece of ground lacking in humus, try sweet clover.

Wait until you learn it pretty well before putting it on your best and most fertile fields.

Some Things Sweet Clover Needs.

It should be remembered that sweet clover is a legume, and therefore must have an abundance of lime in the soil in order to be successfully grown. That is one reason why it thrives so well in coarse gravel. Such soils have considerable available lime in them. If there is not sufficient lime in the soil to meet the needs of the clover it is best to supply it before sowing the seed.

It is claimed that sweet clover is a second cousin to alfalfa, and like the alfalfa must be accompanied with the



A New and Efficient Method of Bracing.

same kind of bacteria that gather the nitrogen from the air that circulates in the soil. Before sowing where neither alfalfa or sweet clover has been grown, either use what is called the commercial culture for alfalfa, or get some dirt from a field or spot where some sweet clover has been grown, sow it on the surface of the ground, and work it in at once, before sowing the sweet clover seed.

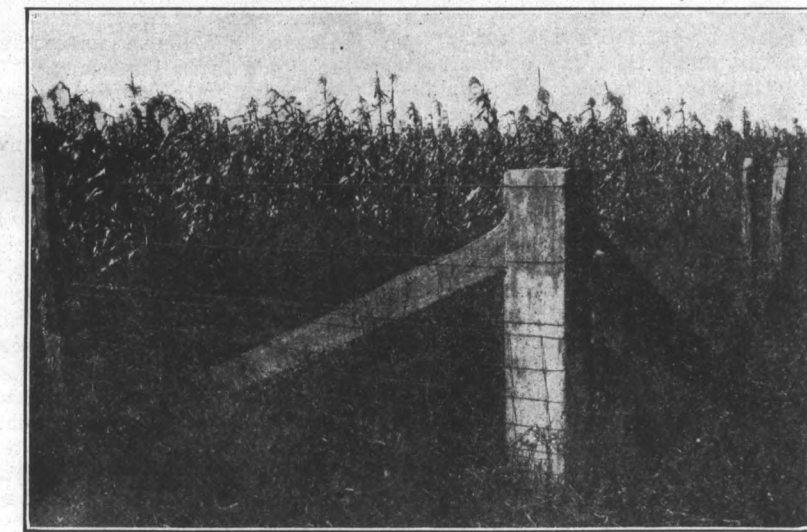
The seed bed where sweet clover is to be sown should be packed down hard, as it does not like a loose soil in which to start.

Sweet clover improves the physical condition of heavy soils where it is grown. The fertility of the soil is improved by the large quantities of

nitrogen left in the soil where sweet clover has grown. Animals eating sweet clover when it is green, do not bloat, as is often the case after eating alfalfa or June clover.

There are two kinds of the sweet clover; one produces yellow blossoms and the other white ones. Both kinds yield a large amount of forage, but the kind bearing white blossoms is considered better than the other.

Give sweet clover a trial; learn its needs and supply them, and in due time it will be appreciated for all the merit there is in it. If adopted and used in the place of June clover and alfalfa as a crop to raise on the best fields, there are reasons to believe that disappointment will follow.



A Common Method of Bracing End Posts.

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Wayne Co.

N. A. CLAPP.

BUILDING WIRE FENCE.

The life of a wire fence and the satisfaction in its use depends largely on the methods used in its erection. The most important consideration in this connection is the method of anchoring the fence at the ends, or the bracing of the end posts. The following method, originated by a leading manufacturer has points of exceptional merit.

The end brace shown in the accompanying cut is both simple and effective, and has the same effect as a cable brace running from the top of the end post to an anchorage fifteen feet back, and has not the disadvantage that such a brace would have in that in most cases it would be very much in the way. By the accompanying cut it will be seen that the brace

stretched at a time, if you have a good stretcher, by splicing the bales together.

When splicing two bales always put two stays together and wrap the ends of the line wires on the opposite side of the stays. If the ground is uneven the fence should be drawn to the post and stapled temporary behind the stay before applying the tension. Draw the fence up until it sings. If braced according to our instruction the end post will hold, and the fence wants to be drawn up until nearly all the crimp is pulled out of it. In low places the posts may have to be anchored to keep the fence from drawing them out of the ground. An anchorage for this purpose is simple and can be put in without any trouble.

Dig a hole about two feet square and about two or two and a half feet deep, and in the center bore a regular post hole to the depth the post should be set in the ground. Place the post in position and mark the level of the bottom of the large hole. Remove the post, and cut mortises in about two inches deep on either sides, and spike a 2x4 scantling two feet long on either side. Then nail a board or two on the scantling on each side of the post, thus forming a small platform on the post. Now insert the post in the hole and fill in the earth. Tramp the filling in solid and the post will not pull out.

For fence to stretch on uneven ground always use a rectangular mesh fence as it will conform to the lay of the land much better than any other.

If putting in anchorage for posts in the yard fence, when putting up a narrow walk gate, one anchorage will do for both braces. It is necessary when bracing this way that the fence be spliced around the end post so the fence when under tension will not twist the post, thereby displacing the brace.

Staples should never be driven tight on the line posts as the fence is more elastic when under pressure from some animal running against it or to climatic conditions when it can move freely under the staples. It is also a good plan when driving the staples to twist them sideways so that the points will not be one above the other. If driven perfectly straight over the wire they are more easily pulled out later on when the post dries out and shows cracks. Any of the many clamp stretchers are suitable for the work. With a double draw stretcher you can stand a much better chance of making a good job of your fence as you can pull both top and bottom even, which is not always easily done with a single draw stretcher.

DRAINING THE FARM.

A young college student was asked one day by his father what he considered the best paying investments on the farm. The boy replied that the silo and the farm drain were of the greatest value. And he just about hit the nail on the head. Most farmers have the silos now but there are many farms which would be greatly improved if they were properly drained. When we say properly drained, we mean that very thing because a drain is of no value unless it is properly laid.

The effects of drainage are many and important. These are some of the more important effects.

1. Drainage opens the inter spaces between the soil particles, thereby allowing the air and sunlight to enter the soil. The entrance of the air into the soil promotes the growth of the nitro bacteria which are so important.

2. Drainage makes a greater depth of soil, loosening the soil to a greater depth, enabling the plant to get more out of the soil.

3. Drainage increases the soil temperature because it removes the water from the soil. The increase in tem-

peratures of the soil is of great importance.

For the brace cable use about four or six strands of soft No. 9 wire, the number of strands depending upon the length of the stretch. Before fastening fence on the end post put the brace wire in place, and twist until the post barely starts to slant. Then stand a roll of fence near the end post with enough unrolled to reach around the post. Splice the fence around the end post, taking great care to have the stay wire perpendicular for if you are not careful in this matter, all the stays will be curved, and will not give a presentable appearance. Lay the roll on the ground with the bottom of the fence to the post and unroll. In a straight stretch eighty rods can be

perature is from six to ten degrees.

4. Drainage improves the texture of the soil by loosening the soil and the water in going down through the soil deposits considerable fertilizer and plant food. When the water is taken away, the land does not bake as it does when the water is allowed to stand on the land.

5. Drainage lengthens the seasons because the land can be worked earlier in the spring when it is drained. Wet weather does not hinder the working of the soil so much when the water is taken care of.

6. The sanitary conditions of the farm are increased and the diseases among the farm animals and among the people are decreased.

7. Drought and frost effects are lessened and the losses from washing are decreased by drainage.

8. And the attractions for the farm are promoted and the profits of the farm are increased when the farm is drained.

Kind and Capacity of Drains.

The kinds of drains to construct is a question which the local conditions ought to control. The closed drain is more expensive to buy and construct, the repairs are expensive and obstructions in the drain are difficult to locate. However, the advantages of the closed drain in most cases more than offset the few disadvantages. In the closed drain you have a perfect and uniform channel which is not easily obstructed. The water has to go through the soil to reach the drain and so the fertilizing elements are left in the soil. And the closed drain can be worked over and no space is rendered unfit for cultivation. For the general farm and for general conditions the tile drain is the best when taking all these points into consideration.

The size of the tile to be used will depend altogether on the amount of water to be removed. I believe that the smallest tile that should be used is four-inch tile. Smaller tile than that stop up too easily to be practical. When figuring drains for city use, the maximum must be provided for, but on the farm it is more economical not to provide for the exceptional showers which occur occasionally. The farm drain should provide for the removal of one-half inch of rainfall in 24 hours. That would mean 1815 cubic feet of water per acre.

Grade and Depth of Tile Drains.

Where drainage is most necessary, there is generally the least grade. A grade of three inches to 100 feet is possible with a four-inch tile but a larger grade is much more satisfactory. The grade must be uniform. Many of the drains which are put in are placed by guess and the ditcher guesses wrong. The grade should be all figured out before the ditch is dug. If a level is not handy, a common carpenter's level and a straight-edge can be used to advantage.

Most drains are not put in deep enough. A deep drain will not work so well as will a more shallow one for the first year or so, but after the ground gets loosened up the water will find its way to the deeper drain and it will come from a wider strip than it will to a shallow drain. Three and a half feet is about the proper depth for the lateral drains. The distance apart for the laterals depends upon the soil and the topography of the land. Authorities differ upon this question and recommend from 60 to 200 feet. There is an old rule which says that the distance between the laterals should be as many rods as the tile is feet below the ground.

Silt basins at intervals along the line of tile are a very good thing. They allow for the collection of the silt in the drainage water and also help you to find the obstruction in the tile. These basins should be placed by the fence or in some place where they will not obstruct the cultivating of the land.

And one of the most important as well as neglected things about drainage is keeping a record of the drain. So many drains are put in and then when, for some reason or other they have to be taken up, you have to dig all over the lot to locate them. It is not much of a job to make a map of the drain when it is put in and it will save considerable trouble later.

As in all lines of work, good horse sense should be the predominating influence in making a drain. There are no set of rules and there is no one system of drainage which will meet all the conditions which come up when

you start to drain. Each piece of land presents a different problem. The general rules for draining are invaluable but they have to be altered to fit the individual case at hand. As our farming becomes more intensified, the better will we have to drain our land. If it is a good thing for intensified farming why is it not good for the farm where the farming is not so intensified. Farm drainage is rapidly gaining in favor at the present time and the sooner that farmers realize the benefits derived from it, the more profits will they realize from their farms

L. S. BRUMM.

Grain Versus Stock Farming

I WAS very much interested in the article, "Stockless Farming," which appeared in the Michigan Farmer for May 29, 1915. This was partly because it was the first of its kind I have seen in the paper, and partly because it opens up an exceedingly large field for discussion. It has been my good fortune to be educated at the Illinois Agricultural College where strong emphasis is laid upon the subject of soil fertility. The statements and arguments that I shall make use of were largely obtained while there, from instructors, and from Dr. C. G. Hopkins' invaluable book, "Soil Fertility and Permanent Agriculture."

The term "Stockless Farming" or "Grain Farming," as it is more properly called, means a system of farming in which the products of the farm are sold directly, and not through being fed to live stock. Of course, all farmers must have some horses to work with, and most farmers prefer to keep enough cows and hogs for their own use. The question that these farmers ask is, How can I best maintain the fertility and productiveness of my farm? And the answer usually given is, "Keep live stock." Which answer is very poor advice. It is a fact that a farm can more easily be kept fertile without live stock than it can with live stock. A great many readers may question this fact, but it remains a fact nevertheless. In a great many cases grain farming can also be made more profitable than live stock farming. This, however, is largely a matter that depends upon location, preference of the owner, etc.

I do not mean that one can raise grain, hay, etc., then sell everything, including the straw, hay, and cornstalks, and still maintain the fertility of the soil. It is not possible to do that. We must understand that soil can wear out, and that very quickly, and in order to keep it producing good crops indefinitely we must return to the soil the equivalent of what we remove from it. We must return as much fertility to the soil as we take from it. If we do not it will be but a matter of years until our soils will not produce as they can easily be made to produce.

On most Michigan soils the two chemical elements which are most liable to be exhausted are nitrogen and phosphorus. Of the two nitrogen is the most necessary to secure, and also the easiest. It can be taken from the air by growing legumes and plowing them under. Clover is most commonly used. Phosphorus must be bought and can be most cheaply obtained in the form of raw rock phosphate. If it so happens that the soil on a farm has become sour and acid and will not grow clover, it must be sweetened by the application of ground limestone.

Let us, for example, consider a grain farm on which a three-year rotation of corn, oats and clover is practiced. All of the cornstalks, straw, clover, and clover hulls would be returned to the soil, and only the corn, oats, and clover seed would be sold. Assuming yields of 50 bushels of corn 30 bushels of oats, three bushels of clover seed and two tons of hay and chaff, we can soon find out about the nitrogen. Fifty

bushels of corn, 50 pounds of nitrogen, 50 bushels of oats contain about 20 pounds, and three bushels of clover seed contain five pounds, making a total of 75 pounds of nitrogen that is removed from each acre in three years. We assume no loss from the straw and stalks. The clover plant secures two-thirds of its nitrogen from the air and one-third from the soil, on normal soils. It also contains about two-thirds of its nitrogen in the tops, and one-third in the roots. From this we can see that the nitrogen contained in the hay and chaff is really obtained entirely from the air, that in the roots being taken from the ground. Now clover hay contains about 40 pounds of nitrogen per ton. So, in a two-ton yield, 80 pounds of nitrogen would be secured, which was taken from the air. If we return this to the soil we would really return five pounds more than we have taken from it. If one grows sweet clover instead of red clover, still more nitrogen will be returned to the soil, because it will yield nearly double what red clover will.

Now suppose again, that instead of selling the grain, one should feed it all to stock. The corn would best be in the form of silage, the straw would be fed or used as bedding, and the hay would be fed. Two cuttings of hay would probably be made and no seed crop taken. The main difficulty in this system of farming is that of saving the manure. In order to get all of the fertility in the manure it should be spread on the land the same day it is made, and all of the liquid should be preserved. We can understand why the liquid is so important when we know that in a mature animal nearly two-thirds of the total nitrogen consumed is excreted in the liquid manure, and about one-third in the solid. The only way fertility can be maintained in this kind of farming is through saving every bit of the manure. This means concrete stables, a concrete cistern for the liquid manure, a tank wagon to sprinkle the liquid on the land, manure spreaders, and a great deal of hired help.

Another difficulty encountered here is the fact that cattle destroy about three-fourths of the organic matter that they consume, in the digestive processes and in maintaining the heat of the body. Organic matter is the life of the soil and must be supplied if a soil is to produce as it should. It fills the soil with bacteria, gives them food whereby to carry on their work of making plant food available, and helps to keep the soil open and warm.

In conclusion, let me say that these are not theories, but facts, that have been proven by men of science with unlimited means to secure the truth in regard to this, the greatest of agricultural problems. And facts always go much farther than opinions.

Mecosta Co. D. D. TIBBITS.

Editor's Note.—Neither scientists nor practical farmers are agreed as to the most economical method of supplying needed phosphorus on Michigan soils, where conditions are much different than in Illinois. The preponderance of opinion among the latter favors the use of available phosphoric acid, except perhaps where the soil is unusually well supplied with vegetable matter.

THE SOIL FERTILITY PROBLEM.

The editor, Mr. Johnson, of the Grand Rapids News, has offered Mr. Haight, a rich Muskegon manufacturer, \$1,000 for one bushel of wheat grown on a 10-acre field of Muskegon county lake shore sand, the whole field to produce 300 bushels of 30 bushels per acre. I think Mr. Haight will get the \$1,000. I feel sure the thing can be done, but it will cost more than the wheat is worth to produce it.

Those of us who have given some thought to the essentials of soil fertility can believe that this light land can be made productive. Any land can be made productive. It is a simple matter, but it costs. The real question is, is it practical? There are four essentials for a fertile soil:

First, the soil must be well drained. This sand is. Heavy soils must be tiled. Drainage is the foundation of fertility.

Second, the soil must be sweet, not sour. Crops can not thrive on sour land. Soil must contain sufficient carbonate of lime to keep it sweet. This Muskegon sand does not. Large quantities of lime must be supplied. All soils in time must be supplied with lime to give best results. In time the best of soils will fail to produce good crops unless lime is applied.

Third, a fertile soil contains a sufficient amount of organic matter to enable it to hold moisture for the growing plant. If one had complete control of the moisture supply, then humus would not be so important. This sand is very deficient in humus and large amounts must be supplied.

Fourth, soil must contain sufficient available plant food. Our rich soils do contain a good amount of plant food and the decaying of organic matter renders the food available. After a time our best soils become deficient in available plant food and to get the best results it must be supplied. This light sand is deficient in plant food to begin with. It must be supplied at the start in liberal quantities. This can be done by applying stable manure or commercial fertilizer.

Mr. Haight is a man of ample means and he can supply any element or essential the land lacks. He can build this soil up until it is very productive. There is not a doubt in my mind about that. And he will have a lot of pleasure in winning Mr. Johnson's \$1,000 and he will accomplish some good, too. No man ever did a thing like this without being a benefactor to man. But I don't believe he will solve the problem of cheaper living for the people. The practical farmer can not at present prices take that kind of land and farm it and make it pay. That is the point. The practical farmer must live off his farm.

It is a hard enough proposition to take land that was once fertile, but now run down, and build it up and make a living at the same time, but this proposition is much more simple than Mr. Haight's. Land that was once fertile perhaps needs only a little humus, a little lime, a little fertilizer to grow good crops, but this sand land needs nearly the whole ration for the plant. My judgment is that the prices of products must be higher than they are today before it will pay to farm the greater portion of our sandy plains. We will first rehabilitate the producing power of our vast area of "run-down" land which can be done at very much less expense. While Mr. Haight is attempting a very interesting problem, Mr. Hill is solving a much more practical one in the northwest.

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Horticulture.

Summer Care of the Strawberry Patch

ALMOST before this year's crop is out of the way we should begin to prepare for the next one. The several things that one can and should do during the growing season to the strawberry patches have great influence on the next season's crop.

If the strawberry patch is going to be kept for fruiting another season, the process of renewing it should begin shortly after the crop has been harvested. The matted rows, if left as they are, will be crowded with old plants which are beyond their best use for productive purposes, and which take the moisture and fertility from the soil that should be available to the new plants. The process of renewal is simple and is practically the starting of a new bed in the place of the old one without taking the old one up.

Burning Over the Patch.

If the patch has been given proper care before harvesting it will have a nice strawy mulch on it. This mulch should be loosened up and raked in windrows and if the patch is so situated that it can be burned over the tops of the plants should be cut off with a mower. The tops and the straw should be spread over the field and allowed to dry thoroughly and when the wind is in the proper direction and the mulching and leaves dry enough to burn quickly it should be set afire. If the mulch does not burn quickly or is too thick over the plants injury to the crown will result.

The object of this burning over is to destroy the weed seeds and various insects and diseases. This makes it chiefly a work of sanitation. The fertilizing effect of the ashes is also of value. If the patch is not burned over the mulching has to be raked off before the patch is renewed, and thus the mulching is of little value as a fertilizer.

After burning over the patch, or raking off the straw the rows should be narrowed to the width of one plant by plowing away from them on each side. The ridge of plants left should preferably not be what was the middle of the old matted row as it contains the oldest plants in the patch but if the ridge is to either one side or the other most all of the plants left will be new ones.

Encouraging Plant Growth.

As this work is usually done during a dry time the ridge of plants left will dry out if the work of renewal is not completed immediately. The plants in the rows should be hoed out to distances of about a foot, and if necessary the plants worked out of the turned-over ground, and then the earth drawn back to the row. Throughout the rest of the season the patch should receive thorough cultivation so as to encourage the growth of new plants. If the plants are rather tardy in growing, an application of 50 to 100 pounds of nitrate of soda may be made. This should be applied by hand along the rows of plants. Great care should be taken to keep the fertilizer off of the plants as it will burn them if it touches them.

This method of renewal entails quite a little work and many prominent growers think that the results are more satisfactory to plow under a patch after it has fruited once, setting out a new one each year to take the place of the one plowed under. The majority of the strawberry men, however, believe that two years of fruiting is the profitable life of the strawberry bed.

A patch left longer than two years is not often profitable unless one of the hill culture systems is used. A plant cannot make runners and bear

fruit without becoming depleted in vitality. Experience has proven this to such an extent that many growers refuse to take plants for new patches from fruiting beds, but take them from beds that have not fruited or buy them from the nursery. Such plants will give better results because they are more vigorous and are not "run out."

Long-lived Patches.

To get profitable results from a long-lived patch some form of the hill system must be practiced. This system consists of keeping the runners off of the plants entirely, letting the plant devote its entire energies to fruit production. By this method patches have been kept profitable for nearly ten years. The crown of the plant gets larger and higher each year and the plants attain a good size.

The past few seasons have not been profitable ones to the average strawberry grower. Rainy weather causing soft and watery berries, or hot weather which ripened them to fast and thus caused a slump on the market, and the help problem at harvesting time are given as reasons for unprofitable results. While these are to an extent influencing factors in making the strawberry unprofitable, the greatest cause is that many of us have not come to realize that it needs intensive care, good cultivation and fertilization. The time is past when we could make a profit out of strawberry patches that "just grew." When one can get a yield of 3,000 quarts per acre he is quite sure of a profit. Intensive care will often bring the yield up to 4,000 and 5,000 quarts. Those who are bringing about such yields and are giving some attention to the marketing end of the business are not complaining. Such growers might be called strawberry specialists. A specialist is one who has given a thorough study of the work he is undertaking. It takes a specialist to make a go of anything now days, even strawberries.

MORE ABOUT HUCKLEBERRIES.

In The Farmer of June 13-I saw, under "Trouble Department," an inquiry from a Barago county subscriber relative to raising huckleberries, so-called. I think if he follows the advice given, he will get more trouble than huckleberries. Why not advise the burning over of raspberry and blackberry patches to get a new growth? I have been in the huckleberry business for a great many years and find it a very

pleasant and rather profitable business, and would just as soon think of setting my barn afire so as to have a new one, as I would to fire my swamp.

The rearing of high bush blueberries, i. e., huckleberries, is as safe and sure a business as that of raising any other variety of berries or fruit. The plants are easily grown from seed, or slips and range from very sweet to very sour, and in ripening from June 30 to September 10.

Kent Co.

W. JOHNSON.

The authorities on the huckleberry that we have been able to look up agree that the burning over of the huckleberry swamp, or patch, is one of the essentials in the management of it. The Maine Experiment Station has made an extensive investigation of huckleberry culture and in one case they found 40,000 acres in huckleberries which belonged to one man. He divided this acreage in small tracts and leased them to others. One of the chief provisions in the leases was the proper burning over of the patch.

A burning over once in three years is considered proper by prominent huckleberry men. This should be done in spring before it gets too dry, otherwise injury from burning too deep will result.—Eds.

THE RHUBARB PATCH.

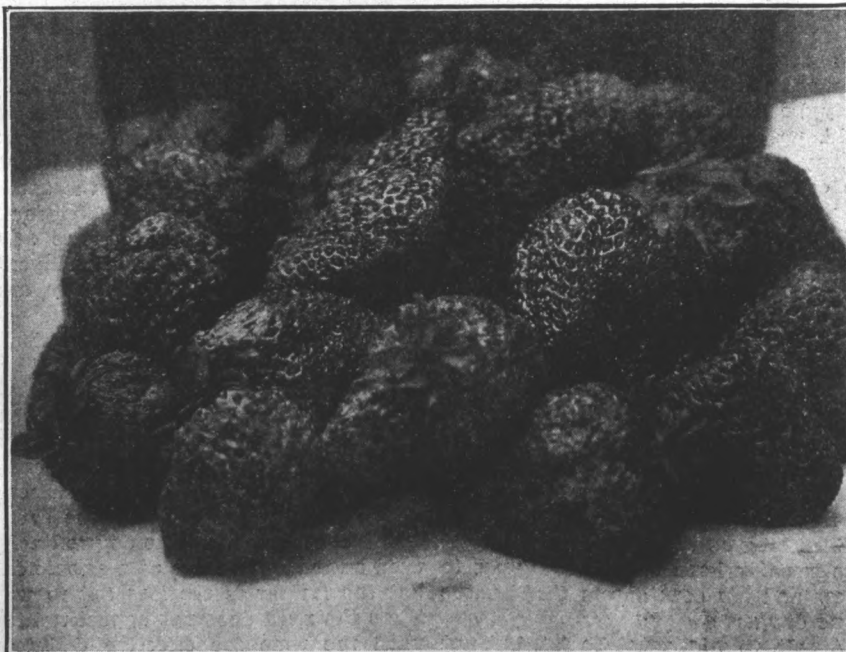
In my market gardening work I have found that there is but little demand for rhubarb after the middle of June, as after that time there are so many other vegetables and fruits that customers prefer. The rhubarb is usually quite profitable, so we can well afford to take great pains with it, and be very liberal in the use of manures or commercial fertilizers. Rhubarb is a gross feeder and the more plant food we put in its reach the more profitable will be the returns.

Private customers are much more anxious to buy from the grower than from the grocer. The fact is that much of what the grocers sell is far from No. 1. At the opening of the season we often get from seven to ten cents per pound, but as the season advances, and we are compelled to compete with other growers and prices often go as low as two or three cents per pound. This, however, is not until about the last of May.

Some growers do not believe in using commercial fertilizers on the rhubarb plantation. We have found, however, that it pays to use it; and use it quite liberally—say 2,000 pounds per acre. We apply it in the spring, just as it is beginning to start growth. The manures we apply late in the summer, using only manure that is thoroughly rotted. This is usually thoroughly decomposed by spring when the commercial fertilizer is applied, which is scattered evenly, and raked in.

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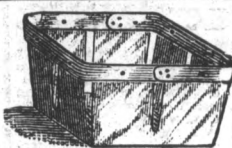
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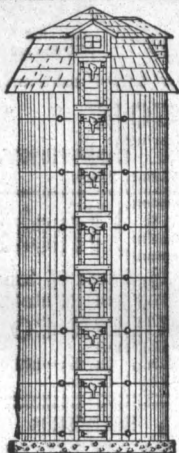


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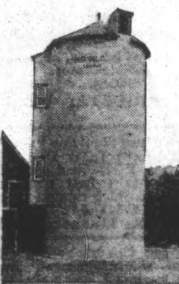
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Growing Colts for Exhibition

IN many sections of the country, especially in the states of the middle west, annual colt shows are coming to be regular features to which the farmer breeders look forward with a great deal of interest. Some of these shows have attained such importance that the breed associations have contributed trophies or prize money. In other sections boards of trade or other civic commercial bodies have contributed to the prizes offered, in acknowledgement of the benefits which accrue to any locality where these shows encourage the breeding of more and better horses.

Some of these colt shows have become marked by the exhibition of colts of such high quality that the attendance includes a number of men from a distance who make a business of buying and developing high-class draft horses and some big prices have been paid by them for colts shown at these colt shows.

There is no locality where breeding draft horses is a prominent branch of farming in which an annual colt show could not be held with advantage to the community, provided the farmers who are raising horses would take the proper interest in securing the greatest growth possible during the first six months of their lives. A colt well started in this respect will always be ahead of one not enjoying this advantage.

Feeds and Feeding.

The more nearly a foal may come to possessing the development of a mature horse, the more favorable will be the attention he will attract from the judges in the show ring. Growth and enough flesh to make him smooth and well filled out are what the breeder should have in mind who wishes to develop a colt that will make an impression on the judges. In feeding a colt, however, one should never lose sight of the fact that the digestive apparatus of the little fellow is delicately organized and unable to properly assimilate a large amount of rough forage. If the pasturage is good, and it should be, the colt's growth should be assisted by oat meal or crushed oats, preferably sifted, or rolled barley which should always be sifted, with the addition of bran and ground flax seed.

Cows' milk, when available when fresh from the cow helps the growth wonderfully but, owing to the tendency it has to produce soft joints, it should be used with caution. A good way to use it is to make a drink of milk in which an oat meal gruel has been mixed, preferably at night, and using not to exceed two quarts of the milk. To make the gruel use a pound of clear oat meal and three ounces of jelly made from pure flaxseed, secured by placing ground flaxseed in an earthenware vessel with enough water to make it "jelly" which will require about 12 hours. This jelly will readily mix with the milk and oat meal and it may be given to the colt warm or cold.

Any system of extra feeding should be commenced gradually, working up to what experience will show the colt will readily eat. All foals will not take or require the same amount as there is usually considerable difference in the size and age if more than one or two are being raised. It is surprising how fond the little fellows will become of this drink and the way it will make them grow is no less surprising. The breeder, or whoever has charge of the colts, must watch them keenly and be ready to notice any signs of trouble. It is easy to overdo a colt's feeding, but as long as the little fellow's appetite remains keen and he continues to grow and his coat shows thrift there is no danger.

A colt, to win, must be fat, but not too fat. While it is most unusual for a thin colt to win over those carrying

a good coating of flesh, it is not desirable that one be so fat as to be called "beefy." A moderate coat of flesh is better than not enough and will enable its possessor to beat the equally good, but thin colt nine times out of ten.

Education.

It is not alone feeding, however, that counts when the foal parades before the judges. The ability to show himself properly, or rather to permit himself to be shown properly, goes a long way in the show ring. The task of making the colt a promising show candidate will be much simplified if, during the first week of his life a well-fitting halter of soft leather be carefully placed on his head and his first lesson in leading be given to him. An easy way to start him is to have the mother led some distance away and held. The colt will be very anxious to reach her and almost before he realizes it, he will be obeying the pressure of the halter when his leader precedes him in the same direction. A few lessons will thoroughly break him to lead.

After the colt gets so he may be led without trouble it is well that he have frequent lessons in posing and the movements required of a colt in the show ring. It is not a difficult task to learn a colt to stand with his legs properly placed; to start up quickly, trot away briskly and turn gracefully to come back and pose again. Many a good colt has lost first honors just because he had not been learned to do these easily taught things. Even the naturally good colt with a proper coating of flesh will be sadly handicapped in the eyes of the judges if he is brought into the ring only partly halter-broken and makes it impossible for his exhibitor to show his good qualities to any advantage.

And when, as the result of good feeding, watchful care and a little time spent in educating the colt, his breeder not only gets the favorable opinion of the judge in the show ring, but also finds that there are plenty of buyers looking for colts that have been grown and educated in that way, and willing to pay well for them, he is never likely to regret the time and care given him, or to fail to profit by the lesson one's first experience of this kind teaches.

New York.

H. L. ALLEN.

DISINFECTANTS IN THE STABLE.

The use of disinfectants in the stable is happily becoming much more common on the average farm than in former years. This practice should become still more general. In fact the emergency medicine chest on every farm should be supplied with a suitable disinfectant which will serve either as a germicide or an insecticide. One of the standard coal tar dips and disinfectants is most suitable for this purpose for the reason that these preparations are standardized and must be up to the government requirements. This is a guarantee that these preparations will give the same results in use at all times, which fact, in addition to their convenience and safety, makes them peculiarly adapted to fill the need for which they are specially manufactured.

Too often the use of such disinfectants is limited to the combating of insect pests. If the sheep are infested with ticks or the hogs or other stock with lice, the average farmer worthy of the name will take steps to eradicate them by using a suitable insecticide. The chances are that the same disinfectant may be quite as profitably used on the same farm as a germicide, but the farmer is far less apt to use it, as the need does not appeal to him until the time for effective disinfection has passed.

Many a valuable colt might have

been saved had the dam's stall been suitably disinfected before she foaled, thus forestalling the dreaded navel infection. Many a calf might be started more thriftily on the road to baby beef by proper disinfection of pens and stables. And besides the saving of loss from the spreading of infectious diseases among the live stock the use of a disinfectant will generally prevent the serious infection of wounds in accident and emergency cases and is an invaluable safeguard in performing the minor surgery incident to the conduct of every farm.

In fact, there are so many uses for an efficient and cheap disinfectant about the stable, that no farmer can afford to be without some such preparation, especially during the hot summer season, when germ life abounds.

Oakland Co.

A. R. FARMER.

WHAT TO FEED YOUNG PIGS.

What is the proper feed for pigs at weaning time? Am feeding a slop of milk and middlings and a few whole oats twice a day. Have fed no corn for fear of fattening them too quickly. Is it safe to feed the whole oats? Please advise a ration.

Calhoun Co.

L. A.

A slop made of skim-milk and wheat middlings and then a little dry corn, is as good a ration as anybody can advise for young growing pigs. Wheat middlings contain the protein and the carbohydrates in just about the right proportion for growing pigs. In other words it makes a ration with a nutritive ratio of about one to four. Now skim-milk is too rich in protein to be a balanced ration; that is, it contains more protein in proportion to the carbohydrates than is necessary, and wheat middlings doesn't balance it up because it is a perfect ration in itself. Therefore you want some other food that is not as rich in protein as skim-milk to make a balanced ration, and there is nothing better than corn. I wouldn't be afraid to feed young growing pigs all the slop made of wheat middlings and skim-milk that they would eat and then all the corn that they would eat once a day up clean. Oats are a very good feed for growing pigs if you don't have middlings or if you don't have skim-milk, but if you have skim-milk and middlings I don't think you need oats at all. Pigs don't like oat hulls. They are chaff. They are practically worthless as food. Horses would not eat the hulls if they didn't have to. The hulls on oats are no better than oat straw or wheat straw, but the berry in the oats is a splendid nutritious food. If you could separate the berry from the hull of the oat the oat meal would make a splendid feed for growing pigs, but this is expensive. We can get along without it if we have middlings and skim-milk. However, you needn't be afraid of the oat hulls hurting them. If you will grind the oats they won't eat enough of the hulls to hurt them. They will pick out everything else and leave the hulls. If you feed them whole of course they have got to eat the hulls, but they will do no harm.

COLON C. LILLIE.

LIVE STOCK NEWS.

The impression in certain quarters in the United States seems to be that the consumption of horses during the war has been so great that the European supply will be exhausted for a long time and that stallions for export will not be procurable thenceforth. The French Department of Agriculture, however, states that on account of the actual events, the exportation of horses from France has been only temporarily prohibited by a statute dated July 31, 1914. Mr. Fernand David, Minister of Agriculture, adds moreover that the production of pure-bred, half-bred and draft horses, especially Percherons, has not been interrupted and that as soon as hostilities are closed stallions and mares will, as in former times, be offered for sale and that the decree inhibiting exportation will be cancelled.

Dairy.

CONDUCTED BY COLON C. LILLIE.

LILLIE FARMSTEAD DAIRY NOTES.

One of the most enjoyable things about farming is to salt and inspect the young stock after they have been turned out to pasture. We have 30 heifers and heifer calves in one woodland pasture at present and it is an enjoyable sight to see them and speculate upon their individual excellence as future dairy cows. Who can tell by the looks of a growing heifer her future excellence at the pail or churn?

I once asked Prof. Clinton D. Smith to select the one of a bunch of dairy heifers that would make the best cow. He replied that he could not be sure. Once he thought he could, but the scales and the Babcock test had proven that his judgment could not always be relied upon. No man can tell; he can guess. The more he knows of the history of the calf the better his judgment will be, but it is a guess largely, at the best. You might almost as well guess what kind of a man a boy will be. He doesn't always pan out as he is expected to.

Hard to Select the Best.

This does not prove that there is nothing in blood, or heredity. Well-bred animals are much more apt to make profitable animals than cross-bred or mongrel animals. That goes without saying. But the question is to select the best cow, not the best looking. In all probability, in a bunch of well-bred heifers every one of them will be economical producers. That is, they will take a given amount of feed and convert it into milk or butter at a profit. But of this bunch which will make the most profit? That is the thing that can not be told by external appearances. It would be just as difficult to select the best one among a bunch of miscellaneous fed heifers, where in all probability, not half of them would make profitable cows at all.

Butter Prices.

A friend of mine who purchases butter for a large New York butter house tells me he expects storage butter to rule high this season. It is high, 27 to 28 cents for June butter is a splendid price. I can remember when we only got 14 to 15 cents, half of the present price. I asked why he thought butter prices would rule high. His reply was, people are raising grain as they are tired of milking. I predicted this very thing. If one can get above \$1 for wheat it looks pretty good, compared with dairying or any kind of live stock husbandry. The fellow who grows wheat works short hours compared with the live stock man. He also has a short season; he doesn't have to work the year around. There is some leisure in grain farming, provided there is profit enough in it. The grain farmer can go to the show, the fair or to the institute, but the live stock man must stay and care for his stock. That is the way they figure the proposition. There is something in it.

Will Continue in the Dairy Business.

Well, we shall keep right on milking twice a day. We have got into the habit and can't very well stop. The old saying is, "habit is the best part of one's self." Besides, the more who quit milking and go to raising grain, the better price dairy products will bring, and with the creamery paying 28 to 30 cents for butter-fat one can have something left to pay for the feed. With good cows, good pasture, and summer silage butter-fat can be produced for half that price, and pay for a little high-priced grain besides.

SOME HOLSTEIN HISTORY.

What is the color of the Holstein-Friesian cattle in their native country and also when was their registered herd book started in the same country? W. J. N.

While the origin of Holstein-Friesian cattle is ancient and obscure, it has been claimed that the people of Holland have kept them over a thousand years, during which time they have been famous for their dairy qualities. Early writers refer to Dutch cattle as being large, more or less white in color and great milk producers. The present type of black and white dairy cattle have, however, existed in that country for a longer period of time.

Old and well marked as this breed is, it is a peculiar fact that organizations for the promotion of the breed were first developed in America, the first herd book being established in 1872, nine volumes being published by the organization which established it. In 1878 what was known as the Dutch Friesian book was established, which organization published four volumes. In 1885 these two organizations were amalgamated into the present Holstein-Friesian Association. The first herd book in Holland was established in 1875, when the North Holland herd book association was organized.

MILKING THREE TIMES A DAY.

We did not milk three times a day only for a period of one month. The cows all increased in milk flow some, the increase depending on the time of freshening largely. The further along in the period of lactation the cow was, the less increase in the flow. We only tried this experiment on six cows, but this seemed to be the governing factor, though other causes in some instances were evident. One cow increased from 30 pounds daily to 40 pounds, or an increase of over 30 per cent. We do not know that this increase could have been maintained for any length of time. Other cows increased only five per cent, and others 10 per cent.

We have too much to do at the present time to carry on an experiment of this kind long enough to get reliable data; besides, I believe the practice is impracticable.

STIR MILK WHILE COOLING.

Experiments by the Dairy Division of the Department of Agriculture, show that the milk in the top of the can just above the water level in the cooling vat cools much more slowly than the milk that is below that level. The cold milk being heavier than the warm will remain at the bottom of the can, while the warmer, and therefore lighter portion will remain at the top, and practically no circulation will take place. It is therefore important to stir the milk while cooling. In the experiments all the cans were cooled by the same method. The milk in some of the cans was stirred every 15 minutes while that in others was not. The water in the cooling tank was 62.6 degs. F. The milk that was stirred cooled from nearly 90 degs. to slightly above 60 degs. in three hours. The unstirred milk did not get down to a similar temperature for four hours and fifteen minutes. Meanwhile, in the unstirred milk all the milk above the water level in the running water was 5 to 6 degs. warmer. The advantage of stirring is emphasized by the fact that at the time the milk was stirred the temperature of the room was over 6 degs. warmer than was the case when the unstirred milk was put into the running water. The time taken to cool the milk in either case, however, is too great for good results, and the test served best to demonstrate the necessity of employing some form of milk cooler suitable for farm use, and more efficient than running well water.



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The Relation of Chemistry to Agriculture

By FLOYD W. ROBISON

I HAVE been requested to prepare an article dealing with the relation of chemistry to agriculture. It seems advisable to preface such a paper with a description in the form of a definition of these two allied sciences.

Chemistry Defined.

What is chemistry? A definition which appeals to me would be as follows: "Chemistry is that division of science which has for its special province the study of the changes (constructive and destructive) occurring in nature," and agricultural chemistry is "that branch of chemistry, the province of which is to deal with such above changes as occur in the development of agriculture."

Agriculture Defined.

What now may we consider to be a definition for agriculture? Agriculture may be defined as the science of soil management, and deals with the practical problems growing out of soil manipulation.

It must be obvious to the reader that one who takes upon himself the task of defining in a few concrete terms either one of these two important sciences has a herculean task before him, and it is perhaps hopeless to attempt to show in an article or a short series of articles of any reasonable length the complete relationship of these two sciences to each other. Agriculture itself is by no means a simple science. It is a science and it is an art as well, and in the same way chemistry is an art as well as a science. But they are both sciences in that they reach their greatest development through constructive mental research.

The Rusting of Iron.

Chemistry has been defined as that science which deals with such changes in nature as are typified by the rusting of iron and if we inquire technically into this definition, the more we inquire the more pertinent does this definition become. We have become accustomed in a non-scientific way to the association of the rusting process in iron to destructive changes in nature. We say that rusting is an index of corrosion and by corrosion we mean a wasting away, or an eating away, of the product under observation. Now that, of course is what takes place when iron rusts but it takes place in a way opposite to the general observation. The iron is being destroyed as iron in the process of rusting and the peculiar properties by which it was recognized in its metallic state are being lost, but during the rusting process none of the iron has disappeared from that locality. It has taken on a new form due to its being united with the oxygen of the air, thereby forming an oxide of iron.

One of the most interesting experiments in chemistry is one of the early experiments, which shows that the rusting process is actually concomitant with an increase in the weight of the iron. In other words, when a pound of iron changes to rust the weight has increased so that there is considerably more than one pound present. The oxygen gas of the atmosphere, due to the peculiar conditions which promote rusting or oxidation, has combined with the iron to form the iron oxide or rust, in which condition the weight has been increased by the amount of oxygen taken up.

Oxidation and Reduction.

Now the province of chemistry deals with a study of just such changes and the problems of agricultural chemistry are to deal with the changes of this type which occur in the development of agriculture. What are some of the chemical changes which occur in nature? There are two general types of changes which are representative of

chemical conditions and at the same time representative of changes which are all the time occurring in the development of agriculture. These two changes are called oxidation and reduction, and all of the problems connected with agriculture have to do at various times with one or both of these two changes.

What do we mean then, by the term, oxidation? Oxidation, briefly, means that type of change brought about by the supplying of oxygen gas. The rusting of iron, therefore, is a typical example of the change known as oxidation. This same change occurs when wood is burned under certain conditions and to show that the burning of wood is very closely associated with the supplying of oxygen let us observe what occurs when the supply of oxygen is cut off. There is no more certain way of stopping a conflagration than by shutting off its supply of oxygen.

The changes occurring in the soil are fundamental for the production of crops and depend on supplying a liberal amount of air, or oxygen, to the soil. The changes most pronounced in animal life are promoted, in fact made possible only, through the phenomenon of oxidation, that is, the supplying of oxygen; and we find animals peculiarly equipped with an apparatus to make use for full constructive life purposes of the oxygen which is prevalent in the atmosphere.

Life changes therefore, both vegetable and animal, are promoted through this process of oxidation.

In what respect also is this change which we have designated as reduction associated with agriculture? All oxidations are accompanied simultaneously by reductions. When a substance is oxidized, that is, when it is furnished with oxygen by another substance, then that substance which furnishes the oxygen is itself reduced and the great purpose of reduction is to supply for the constructive purposes of nature simple substances with which to build. If as an illustration for purpose of clearness, we pass water vapor over red hot iron filings, the oxygen from the water will be removed and will perform the phenomenon of oxidizing the iron, forming iron rust or iron oxide. The water vapor, losing its oxygen, is itself actually reduced and the hydrogen which is liberated is thereby called a reducing substance. It is then free to exert its reducing influence on other substances which would encourage the supplying it with oxygen. Certain living organisms which live in the soil have the power of reducing other substances by taking to themselves the oxygen supply and are consequently called reducing organisms.

Chemistry Has Proven Intensely Practical.

Chemistry and its allied sciences, by measuring the extent of these oxidations and reductions is able to diagnose certain conditions of nature and certain conditions in soils and because of this, remedies may be prescribed. Therein lies the fundamental potential value of chemistry to agriculture.

As an abstract science chemistry made very little headway. It is one of the oldest sciences which we have but was always associated with the other abstract sciences, such as astronomy, which made an interesting accumulation to a man's fund of information but was not considered to be of any practical value. Consequently alchemists of old were largely considered men of profound knowledge but dissociated from any active participation in worldly affairs.

Chemistry Has Played the Major Part.

It remained for almost the present century to awaken people generally to the practical importance of chemis-

try; in fact, to awaken chemists themselves to a realization of the potentiality of chemistry as applied to agriculture. The present day has been so aptly called the "age of science" and in that role, chemistry has played the major part for those sciences which may not be considered typically chemical themselves have used chemistry as a measure of their value to agriculture. Bacteriology has exhibited a very pronounced relationship to agriculture but the measure of its importance has been demonstrated through chemical methods and in chemical ways. So intimately bound to chemistry is bacteriology that it is now quite customary and quite in order to include that science when chemistry is discussed. Within the scope of agriculture, that is, soil management, and the various problems growing out of soil manipulation, chemistry has much to do.

We shall attempt in the next paper to show in some detail what these agricultural and various relationships are.

The thirty-fourth of 52 special topics to be discussed in consecutive issues of the Michigan Farmer.—Eds.

OIL-MIXED CONCRETE FOR DAMP PROOFING.

After extensive laboratory and service tests the Department of Agriculture has secured results which appear to establish definitely the value of oil-mixed concrete for damp-proof construction. Detailed results of these tests, which were carried out in connection with the work of the Office of Public Roads, are contained in the new bulletin, No. 230, of the Department, entitled "Oil-Mixed Portland Cement Concrete." Briefly summarized, the conclusions to be drawn from them are that the admixture of certain mineral oils in small proportions, not to exceed 10 per cent of cement used, does not lessen the tensile strength of mortar; that the decrease in the compressive strength of mortar and concrete is not serious; that concrete mixed with oil takes much longer to set hard, perhaps twice as long, but that the increase in strength is nearly as rapid in the oil-mixed material as in the plain concrete. The use of oil does not make the concrete impervious to heavy water pressure, but it does make it practically non-absorbent under low heads.

The value of oil-mixed concrete is said to be particularly great in the construction of basement floors and walls, watering troughs, cisterns, barns, silos, and in all parts of concrete structures that are to be made damp-proof.

The oil should in no case exceed 10 per cent of the weight of the cement and for the most part, five per cent is all that is necessary. Since a bag of cement weighs 94 pounds, 4.7 pounds of oil, or about two and a half quarts, should be added for each bag of cement used in the mixture. The sand and cement should be first mixed with the proper amount of water into a stiff mortar, to which is added the correct amount of oil, and the whole mass again thoroughly mixed until all traces of oil have disappeared. Particular care should be taken to insure that the oil is thoroughly incorporated in the mixture and the time of mixing should be practically double that when the oil is not used. For this reason a continuous mixer should not be used in oil-cement-concrete work, as it is difficult with this type of machine to increase the time of mixing sufficiently.

The kind of oil is also important and the following technical specifications are suggested in the bulletin in order to prevent the use of certain oils

which might tend to impair the strength of the mortar or the concrete

1. The oil shall be a fluid petroleum product and shall contain no admixture of fatty or vegetable oils

2. It shall have a specific gravity not greater than 0.945 at a temperature of 25 degs. C.

3. It shall show a flash point of not less than 150 degs. C. by the closed-cup method.

4. When 240 cc. of the oil is heated in an Engler viscosimeter to 50 degs. C., and maintained at that temperature for at least three minutes, the first 100 cc. which flows out shall show a specific viscosity of not less than 15 nor more than 30.

5. When one part of the oil is shaken up with two parts of hundredth normal caustic soda, there shall be no emulsification, and upon allowing the mixture to remain quiet the two components shall rapidly separate in distinct layers.

For practical use the addition of oil will be found particularly useful in the construction of basement floors and walls. Many of these now in existence are continually damp and such a condition may be remedied by the application of an oil-mixed mortar coat to the old surface. A mortar composed of one part of cement and two parts sand and containing five per cent of oil should be sufficiently non-absorbent for this purpose

Watering troughs and cisterns made of oil-mixed concrete should also prove of considerable practical value in the conservation of water. In the construction of barns, where oil-mixed concrete is used, the interior will be noticeably drier than when ordinary concrete is used. Owing to their durability, cleanliness, and resistance to fire, concrete barns are becoming more and more popular, but they suffer from the disadvantage that during a long beating rain the side walls are inclined to absorb much moisture, which ultimately penetrates into the interior. The addition of oil to the extent of five per cent of the weight of cement in the concrete used in the side walls obviates this objection. Barn floors can also be constructed in the same way with advantage. A damp-proof floor is warmer because of the lack of evaporation from its surface, and it is also more sanitary than an ordinary concrete floor because of its non-absorbent character.

There are, of course, any number of other types of buildings and structures of all sorts in which oil-mixed concrete may be used advantageously, or, if this is not necessary, a coat of oil-mixed mortar may be applied effectively.

Attention is called, however, to the fact that extreme care in proportioning, mixing, and placing the concrete is absolutely necessary if the addition of any water-proofing agent is to be of value. The process of mixing oil with concrete has been covered by a public patent so that anyone is at liberty to use it. The methods of using this material are discussed more fully in the bulletin already mentioned.

WHAT LIGHTNING RODS MAY BE EXPECTED TO DO.

This is the season of lightning and thunder and with the summer thunderstorms often come death and destruction. Many dwellings and buildings might have been saved by the installation of lightning rods, but nothing had been done because of the question, "Do lightning rods really protect the buildings?" In fact, that has been a question since lightning rods came into being. The lightning rod has been investigated by the Department of Agriculture, and the answer of the experts of that Department is that lightning rods do protect, provided they are of proper character, properly installed and properly grounded in relatively moist earth.

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

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

The FARM BOY
and GIRL
SCIENTIFIC and
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This Magazine Section forms a part of our paper every week. Every article is written especially for it, and does not appear elsewhere.

ONCE again the old Liberty bell has gone ajourneying, this time to the opposite side of the continent to add its quota to the attractions of a great exposition. All along the route hundreds have gazed upon it in wonder and awe, not because it looks so very different from many other old bells, but because of its significance, its silent symbolism of liberty. On its side are these words inscribed: "Proclaim liberty throughout all the land unto all the inhabitants thereof." And right faithfully did it perform that task for many years, until, as someone has fittingly said, "It had lived out its life, as men live out their lives; its work was

done." This last work for the splendid old bell was on July 8, 1835, when while tolling for the funeral of Chief Justice John Marshall it cracked suddenly, and forever after can inspire us only by its silent suggestion of all the stirring events which had gone before. The bell was first cast in England, being modelled like "Old Tom," the famous bell of Westminster Tower, London. During the voyage to this country it was damaged, so that the Philadelphia firm of Pass & Stowe

was commissioned to recast it. It was then hung in the State House belfry on April 17, 1753.

Its first work was in calling together the people as loyal subjects of the British crown, but there came a time when the great Revolution was born, when Washington and his men were fighting for the very liberty suggested by the bell. And at last there came a day when Thomas Jefferson, Benjamin Franklin, John Adams, Roger Sherman and Robert Livingston met

together, and with bright hopes cradled in desperation they drafted the so-called "Declaration of Independence." The Congress made a few changes, and it was adopted by all thirteen states on the Fourth of July, 1776.

Crowds of people had been attracted to the vicinity of the state house, knowing that portentous matters were at stake, and the old bell ringer, one Andrew McNair, stationed himself in the belfry while the declaration was being considered, leaving his grandson below to warn him the moment the vote was secured. Various writers have told us of how the lad ran excitedly up the stairway, calling to his grandfather to "ring out for

The Liberty Bell

By MAE Y. MAHAFFY

WORLD EVENTS IN PICTURES

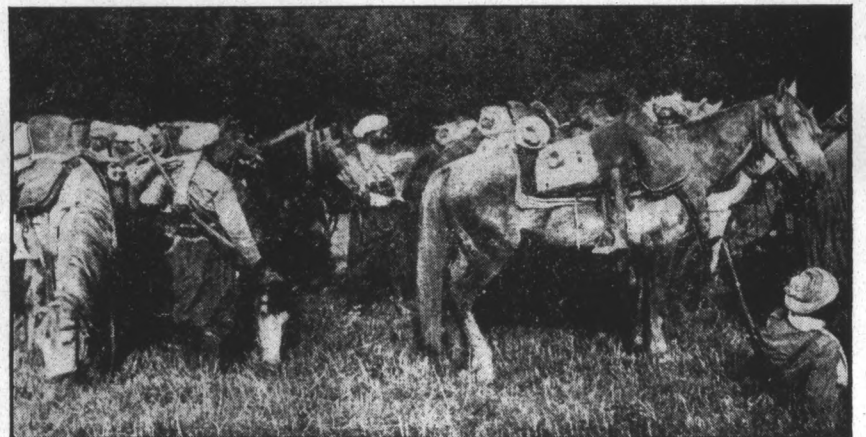


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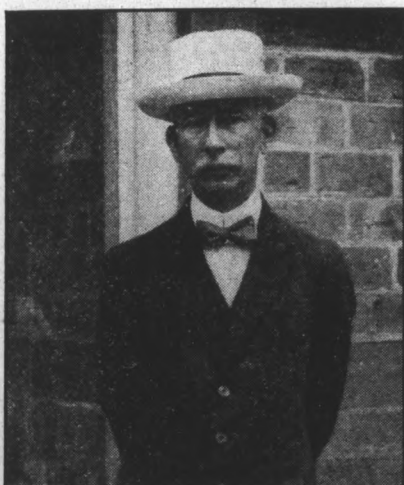
President Wilson and his Grandchild by his Daughter, Mrs. McAdoo.



Turkish Artillery and Ammunition Wagons Enroute to Assist Against the Invading Allies.



Indian Horsemen with the Allies in Flanders Resting Before a Charge.



Col. House Visited Warring Nations.



Great German Advance which Resulted in the Capture of Libau, Russia.



Belgian Millionaire as a Private.

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liberty!" And never before or since did the old bell carry such a message, though it was several years before King George and his soldiers were forced to allow the colonies the "free and independent" status they claimed in the Declaration of Independence. Ever since that Fourth of July so

long ago the old state house which housed the old Liberty bell has been known as Independence Hall, and each succeeding Fourth we recall their story, and plead with the latest generation to revere and honor them with the same patriotic devotion as have those of the past.

THE RED MIST.

By RANDALL PARRISH.

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CHAPTER XIII.—(Continued).

Waiting the Next Move.

"Before they leave—yes; but it is hardly probable they will search up here again. Anse will be in ill-humor enough when he decides we have really escaped, but will never imagine that our hiding place is in the house. They will give up by daylight, and then the way will be clear."

"And where will you go?"

"Why," in surprise. "I could not leave you alone until I placed you in the care of friends."

"At Lewisburg, you mean?"

"If that is where you wish to go."

Her eyes met mine frankly, but with an expression in their depths I failed to fathom.

"Not wearing that uniform," she said, "or under the name of Lieutenant Raymond. Do not misunderstand. There is friendship between us—personal friendship, the memory of the past, a knowledge of the intimacy between your father and mine. More, I am grateful to you for the service you have been to me this night; nor do I hold it against you that you risk your life in the cause for which you fight. But I am Union, Tom Wyatt, and I cannot help you in your work, nor protect you. When daylight comes I am going to say good-bye—and forget that I have ever seen you."

"But," I protested, "why could we not part, if we must, at Lewisburg, after I know you are safe?"

"There are Federal troops at Lewisburg. They know me, and their commander is aware of my acquaintance with the officer whose name you have assumed."

"Then you knew me for a fraud from the very first moment of our meeting?"

"Yes; I knew you were not the man you claimed to be. I said nothing, for I wished to learn your object."

"Yet, in a measure, at least, you trusted me?"

The eyes into which I gazed smiled slightly.

"Hardly that, perhaps. Your face is an honest one, and there was a vague familiarity about it which made me determined to learn who you were. Besides—well really, I had no choice; I was alone here, and helpless."

"True; yet you have not confessed all."

"All! What else?"

"My guess is you possessed a strong desire to protect Lieutenant Raymond."

"Oh, indeed!" she laughed, but her eyes fell. "That might have been an added motive—yes. I naturally desired to discover, if possible, why anyone should pretend to be he. My interest was—not personal, however; it was patriotic."

"But you are friendly?" I persisted, unable to resist the impulse. "This lieutenant is not a mere acquaintance?"

"I feel under no obligation to answer that question," she returned, her cheeks flushed. "There is no reason why you should ask. My interest in the Union cause is sufficient explanation. I am not a little girl, any more."

"Nor am I a mere boy, Miss Noreen. We have met here as man and woman," I said earnestly. "Our past is a bond between us; to me a pleasant memory—but I do not rely upon it for the future. Even although I am a Confederate soldier, I want you to consider me a personal friend—one in whom you feel an interest equal at least to that shown Lieutenant Raymond."

"Why, I do," her eyes opening widely. "It is for your own protection I refuse your escort to Lewisburg. I am a traitor to my flag not to take you there, and surrender you a prisoner. If—if I did not care I would."

"You mean memory of the boy restrains you?"

She hesitated a moment, her lips parted, a frown wrinkling her forehead.

"No," she acknowledged slowly, as though the thought had just dawned. "That memory is not even vivid. I—I believe you to be a man I shall be glad to know—Hark! that was a shot!"

"Yes, and another; they sound to the west of the house."

"In the orchard, beyond the stable. Can there really be someone hiding there?"

"They are certainly firing at something—there speaks another rifle farther south. Those fellows will be back presently, and we must be out of their way. What room is that beyond the chimney?"

"It was used by the housekeeper. Do you know where Parson Nichols was left?"

"In the room at the head of the stairs; why yes, your room. Could they have killed the man?"

I pushed open the door, which stood slightly ajar, and looked in. Nichols had partially lifted himself by clinging to the bed, and his eyes met mine. The marks of the savage blow with which Cowan had felled him, were plainly evident, and the man appeared weak and dazed. Yet he instantly recognized me, and crouched back in terror. His return to consciousness, his knowledge of our presence in the house, only meant increased danger. Anse and his followers might not search again for us, but if they returned they would certainly examine into his condition, and he would immediately confess all he knew. The preacher might feel no eager desire to aid Cowan after the rough treatment received, but fear would compel him to speak, and there was no love in his heart for either of us which would restrain his lips. Our only safety therefore, lay in having him completely in our power. If those fellows found him gone, they would naturally suppose he had recovered consciousness, and escaped in the darkness. They would scarcely care enough to search the house. I stepped into the room, and gripped his collar.

"Stand on your feet, man! Oh, yes, you can; you're a little groggy yet, no doubt, but with strength enough for that. Come, I'll hold you. Now, out into the hall. Miss Harwood, may I trouble you to open that door—yes, the housekeeper's room; we'll hide ourselves in there. By jove, that sounds like a regular volley!"

I pushed the man forward, and flung him down on the bed, still retaining my grip on his collar.

"Not a move, or a sound, Nichols! Attempt to betray us, and your life is not worth the snap of a finger. Miss Harwood."

"Yes."

"Close the door, and lock it; is there a bolt?"

"A strong iron one, but it seems rusty."

I stepped across, and forced it into the socket with a sharp click. The same instant a vivid flash of red lit up the whole interior, the light glaring in through the unshaded windows, and reflecting from the walls. Nichols started up with a little cry of terror, but I forced him back.

"It is not the house," I said sternly. "They must have fired the stable. Keep down out of sight. Miss Noreen creep across to that nearest window and take a glance out—be careful that no one sees you. I'll keep guard over our preacher friend."

She left us quietly, crouching close against the wall, until she could safely peer out from behind the fold of a chintz curtain. This so shadowed her face that I could distinguish merely its dim outline. The glow from without reddened the entire room. Nichols began to groan, and mutter, but whether the words were those of prayer, or not, I was uncertain. That the fellow's brain tottered on the brink of total collapse was evident, and I was too fearful he might create alarm to desert my guard. Eager to learn what had occurred I called across to the girl:

"Is it the stable, Miss Noreen?"

"Yes," with a quick glance backward. "The whole west end is ablaze; I think it was fired in two places."

"Do you see anything of the men?"

"Not clearly, except two or three passing back and forth between the house and the stable. I think there are horses picketed beyond in the orchard, but am not sure—yes, there are men there with them. The fire, as it

blazes up, gives me a better view."

"Can you tell how many?"

"No—they form merely a shadow under the trees where the light streams; occasionally one moves, and stands out separate enough to reveal himself as a man. I cannot really tell anything about them—but—but I didn't suppose Anse Cowan had so many with him, did you?"

"Why, really I cannot tell, for I have no conception either way. There must have been a dozen altogether in the house, and doubtless others were on guard without. Hasn't it ceased storming?"

"Yes; I wonder what time it is; why I actually believe the sky is becoming lighter in the east already."

She stared out intently, and then sank to her knees.

"Come over here quick! they are getting ready for something."

"I swept my eyes over Nichols, who lay motionless, his arms folded across his face. To my mind the fellow was acting a part, and was not half as badly injured as he pretended to be. However, he could do us no great harm at present, and I stole silently across the room, and knelt beside her. She held the curtain aside, leaving just space enough for my eyes. For an instant the glow of the burning building blinded me, and intensified the surrounding darkness. I shadowed my eyes with my hand.

"Where are the men you saw? To the left?"

"Yes—back under the trees, close to the first negro cabin; see! just where I point."

Once located I could perceive the shadowy outline, which grew more distinct as I gazed. There were men there beyond doubt; it seemed to me twenty or thirty, although it was impossible to judge the number. But the shadow seemed to be disintegrating. Even as my eyes focused it, a section moved to the right, and then another swung into the open, circling along the orchard fence.

"There is a slew of them," I muttered unthinkingly. "Anse meant to have company at his wedding."

"Oh, hush!" her hand caught my sleeve. "They—they are coming back to the house now."

CHAPTER XIV.

A Marriage by Duress.

THE girl was evidently right, although the path the party followed swung so far to the left I could see little of them from the window. The fence concealed their number, but there was a dozen, at least, and they moved steadily, the red flames gleaming on what I took to be gun barrels. They disappeared behind a low shed, merging almost mysteriously in its shadow. I heard no orders given, no sound of a voice. The silently moving figures seemed more like specters than men. As I strove vainly to discover where they had vanished I perceived the faint tinge of gray across the eastern sky. Daylight was coming; the gang meant to search the house again, perhaps fire it as they had the stable, and then ride away before the Federal garrison at Lewisburg could receive the alarm. The light of the fire would certainly be perceived by the sentries, and reported. Perhaps already the troopers were in their saddles—but they would be too late. I turned away from the window to perceive Nichols sitting up on the edge of the bed.

"What's afe?" he asked.

"The stable," I answered crossing the room, "and, as near as I can make out the whole gang is headed back this way to finish the job. Get down in the corner, where you cannot be seen from the windows. Oh, yes you can; you are not so badly hurt. Miss Noreen."

She did not answer, but came to where I was standing, gliding swiftly along in the shadow of the wall. The light of the blazing stable illumined the face upturned questioningly to mine.

"What do you suppose those men will do?"

"That is all guesswork. The firing of the stable may have been an accident; but if it was done purposely then I believe they will also apply a torch to the house before they leave. But I am not so afraid of that, as I imagine the cowards will ride away as soon as they are assured the fire is well started. They will fear the approach of soldiers from Lewisburg. Of what does that garrison consist?"

"Two troops of cavalry—but what is it you most fear?"

"That the search without has convinced Cowan that we are still hidden in the house. Anything else is preferable to having you fall into the hands of that villain. He came here with one object in view; and will not give up while there is a hope left. Is there any other place better than this in which to hide?"

She shook her head.

"Well, then we must fight it out here

if they come; you have your revolver—ah! the squad is already below; listen!"

We stood side by side, scarcely breathing, close to the bolted door. The flames of the burning stable were dying down, yet there was sufficient light to render every object in the room plainly visible. Intent as I was on every slight sound below and without, I kept my eyes on Nichols, seated dejectedly in one corner. Feet tramped noisily back and forth in the lower hall, and the sound of voices reached us, the words indistinguishable.

"They—they are searching the house," she whispered, her voice shaking, "and—looting it. Do you hear that? They are even tearing the carpet from the floor. Some of them will come up here."

"I am afraid so—but you must not lose your nerve. We shall have to fight!"

"Fight! yes; but what use?" and she grasped my arm with both hands. "Why—why they are ten to one, and there is no chance for us to outwit them. Do not think me a fool or a hysterical girl—it is not that! I—I would not be so afraid, only for that man. I cannot fall into his power. I will kill myself first! You do not know Anse Cowan; but I do; he is a dirty, foul, cruel dog; I would rather die than have his hands upon me. I hate and despise him; he is an incarnate brute—and—and he is here after me!"

"Hush!" I urged, holding her tightly, her slight form trembling. "Do not let go yet; they may not even come up the stairs."

"But they will," she insisted. "I tell you I know the man. He—he swore he would marry me two years ago; he told me so, and I laughed at him. He stopped my father on the road, held a rifle to his head, and boasted that some day he would make me pay his debts. This is no mere incident of war—it is revenge! I—I would not be frightened but for that—that awful alternative. Tell me—tell what what to do!"

She stared pleadingly into my face, but, reading no answer there to her wild appeal, sank to her knees, and buried her face in her hands. All that was strong about the girl seemed swept away by sudden, uncontrollable terror—by dread of Anse Cowan. While there appeared to be some hope of escape her courage had sustained her, but now, all at once, it gave way entirely, leaving her in a perfect panic of fear. I realized fully the nature of this threat which had broken her spirit. She was no less womanly, no less worthy of respect and love, in her shrinking of terror. It was not death she dreaded, nor any physical danger—it was dishonor; the contaminating touch of a brutal hand, the foul insult of a dirty cur. But what could I say? What could I do? I stood helpless, uncertain, unable even to find words of encouragement. No thought, no plan occurred to me—only to defend her while I lived. A hoarse, strange voice roared out an order, seemingly from the very foot of the stairs.

"That's enough of that, Samuels! Here, take your men up above. Be lively now, and don't let a rat get away."

The girl lifted her head; then got to her feet clinging to the bed-post. I could see the glitter of a pistol in her hand. A thought swept through my brain—so daring, so reckless, I gasped at the mere wildness of the suggestion. Yet it might answer; it might succeed! But would she consent; even in her desperation, in the extreme of her terror, would she grasp at such a straw? There was nothing else—not another chance. This might not be one—yet it would surely serve to delay; it would place me in between her and Anse Cowan. He could only reach her over my dead body; for the moment, at least, it would block his plan. She could not legally marry him, if she was once my wife! Of course, the man might not hesitate in his mad anger, even at murder—yet again it was possible that my uniform would save me—the troops at Lewisburg were not far away; fear of them might make the villain cautious. It was a chance—a desperate, reckless chance—and no more! But the thought—crazy as it was—flashed instantaneously through my brain; took possession of me. Only the girl whose eyes just then met mine—

"I—I have thought of one way," I said eagerly, the words coming forth almost incoherent. "That is if you will listen to what I propose. There is nothing else feasible so far as I can see. They—they are in the front rooms now—hear them! We haven't a moment to lose. Will you—will you consent to marry me?"

"Ye-es—but—"

She shrank back a step, staring at me with wide-opened eyes, breathing heavily.

"Marry! Marry you?" she faltered wildly. "Why, what can you mean? I—I do not understand!"

"Of course not—the conception is wild, impractical, perhaps. It must

seem so to you—yet listen. It is the one way left open to save you from Anse Cowan. You can trust me? You do trust me, do you not?"

"This is no time to question. They are coming here now, those fellows with Anse Cowan at their head. You know what for. Whatever the real object may be some among them have not hesitated at murder for its attainment—they will not spare you. The question is not do you wish to marry me; but do you trust me more than you do Anse Cowan? Do you hear them breaking down those doors at the front of the house? There, by the sound, someone is already in the next room to this. Listen! it will be a form only—I am not conceited enough to believe you desire me for your husband. But you know who I am; you have confidence in my honor, and I offer you this opportunity to escape from that brute. He cannot marry you if you are already my wife—"

"He—he could kill you."

"Yes, there are enough of them; but that might happen anyway. No doubt it would, for otherwise I should fight to the end. I do not think being your husband will add in the least to my danger—and it will possibly, legally, protect you."

"But how can I? Will it be legal?"

"Noreen, don't stop to argue, or doubt," I urged, grasping her hand in eagerness. "We haven't time. Listen to those voices in the hall! Of course it will be legal—Nichols is an ordained minister, and no license is required. I shall never attempt to hold you, Noreen, and any court will set you free the moment you tell the story. The one, the only thing, for you to consider now, is escape from Anse Cowan."

"You do this to—save me?"

"To keep you from falling helplessly into the clutches of a beast—tell me yes! My God, girl, there they are now trying the door! Answer—will you?"

"Yes—yes, Tom Wyatt—"

With one leap past her I had Nichols by the collar, the muzzle of my revolver at his head. A heavy foot crashed against the door, and a voice without gave utterance to an oath.

"Marry me to this girl," I commanded sternly. "Come now, not a word; don't wait to ask a question. Noreen, take my hand—"

"Open up in there or we'll break down the door!" came hoarsely from the hallway.

My eyes never left Nichols' face. What he read of threat I know not, but his lips began to stumble through the form, though I could scarcely distinguish a word. His face was gray with terror, and I dare not look aside at the silent girl—only I vaguely realized that the hand held in mine trembled, and once, when she had to speak, the two words uttered were almost a sob.

Never surely was there a stranger marriage in all the world. The dying embers of the stable fire shot red gleams of flame over us through the unshaded windows, giving to Nichols a ghastly look, and glowing on the steel barrel of the revolver I held poised at his head. His voice faltered and broke, and clotted blood rendered hideous one side of his face, while his hands shook as if with palsy. All the sneaking coward in him was manifest. Outside a dozen voices roared, one rising gruff above the others shouting orders. Once a single shot crashed through the upper panel of the door and broke the glass of a window opposite. The girl, startled, reeled against me, and the preacher stopped, gasping for breath.

"No firing, you fool!" roared a deep voice angrily. "We don't want any dead ones—beat down the door!"

"Go on!" I ordered grimly, and thrust the black muzzle hard against his cheek. The preacher choked, but the usual words of the ritual—sounding almost like mockery—dropped mechanically from his tongue.

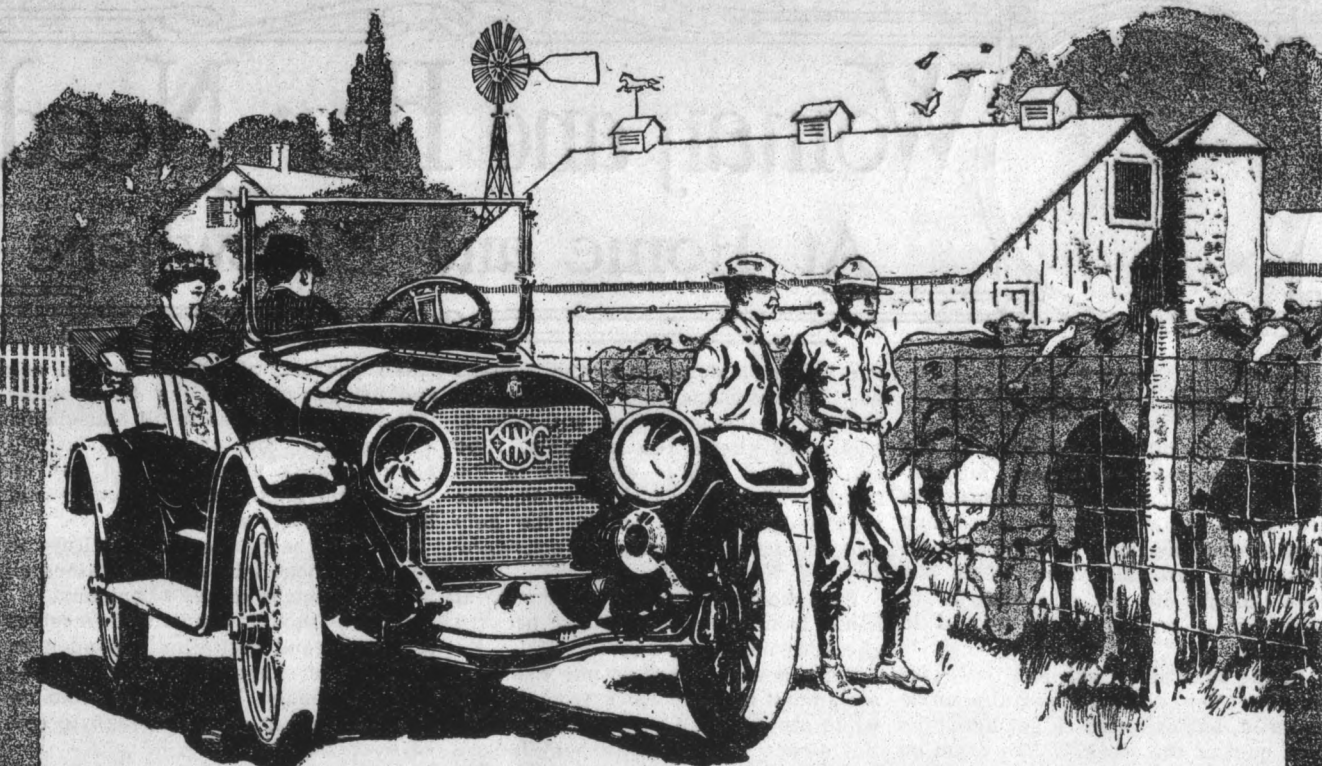
"And now I pronounce you man and wife, and whom God hath joined together, let not man put asunder. Amen."

She gave vent to a little sobbing cry, half stifled in her throat, and shrank away from me. I knew that her face was buried in her hands, yet had no time to look that way, or utter a word. Rifle butts were crashing in the panels of the door; I could perceive already dim figures revealed through the jagged openings made in the light wood, a vista of faces, a gleam of weapons.

"Hit lower down!" yelled the same gruff voice of command. "There is a bolt that holds fast—reach in Saunders!"

"Get back—behind the bed," I called, pushing her behind me, and bracing myself for the first shock. The door gave, sagging aside on its hinges, and half falling inward, and through the opening men tumbled forward, carbines gripped in their hands. The red light gleamed ghastly across their faces, and revealed—the blue uniform of Federal cavalry.

(To be continued).



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Woman and Her Needs

At Home and Elsewhere



The Visitor

WE are often given hints in the women's department, for hostesses, but it is my intention to give some ideas to visitors as to how they shall make their visits pleasant to those who entertain them. This has been thought out during a visit to my home of a mother with two little children.

In the first place, she left the exact time of her arrival by train unannounced, but expected to get here "the first part of the week." She came on Saturday. She could have chosen a more convenient time. She did not tell definitely the length of her visit, and prolonged it very much longer than she originally planned to.

She worked a great deal trying to do as much as she made, but as she chose herself what work she would do, and sandwiched it in between caring for her two children, their laundry work and caring for her room, her part of the family housework was often most unsatisfactorily done. She seemed to think her two rather delicate children had, as such and as guests, rather more privileges than the children or old people of the family. Being a town dweller, she revelled in our farm fruits, cream, fresh eggs and vegetables, but outwardly she seemed hard to please. She seemed to wish to give the impression she was used to better things. She discussed most of the dishes at meal times, telling how she preferred food cooked or seasoned differently. We cook with wood and light our house with kerosene, but she told many times of her gas range and electric lights, but from the number of times she has moved and the rent she pays for such conveniences, I think her children will have a very little home feeling.

She left her things and those of her children everywhere and was always looking for their nursing bottles, shoes and stockings and other belongings.

She didn't enter into the family life in every way, didn't attend church, come into the room to meet callers as we farmers do, and go out to meet the neighbors. She was not particularly careful of her hair and dress, and was not "ready" to see them, and thought it too much effort to dress up to take a ride.

On leaving she left her room in great disorder with only a slight apology, "I'd like to sweep if I had time," where for two or three days previously she had done less necessary work. A careful use of the room and a gathering up of the waste as she went along would have prevented such disorder.

Now I think this will remind some readers of some of their company. It may remind someone of having done these same unpardonable things while in someone else's home.

The don'ts of this article are summed up thus:

Tell definitely when you are to arrive and keep your word, and how long you are to stay. If for some reason you cannot then get away, consider your visit is over and you are boarding and in some way make it up to your hostess. (A return visit is suggested to city guests).

The guest should consider herself for the time being a part of the family

and "when in Rome do as the Romans do." Hence rising in the morning and retiring at the same time will help to make the wheels run smoothly. She should be a source of pride to the family entertaining her, should look well and treat the family, the help and the friends with great consideration.

She should not keep the family at home from church or rides because she does not care to go.

Some housekeepers do not want any assistance in their work from guests, while others think that merely wiping the dishes is very little help indeed, compared to what one person makes.

A guest should absent herself and her children from the family for a little of each day and not "hang around" all the time, for everyone needs to be alone for awhile.

A visitor, no matter how near of kin, should not forget she is an outsider, and though told cordially "to

make yourself at home," should see and hear as little of the disagreeable things which happen in all households as possible. She should not intrude more than is necessary and yet be within the family circle to cheer and help all to have a good time.

As elsewhere, the Golden Rule is useful to those who are entertained as well as those who invite company.

Guests should conduct themselves as if a second invitation depended on it and not impose on relatives or friends simply because relationship or friendship is elastic enough to cover over glaring faults.

A letter telling of your safe return journey and mentioning some of the pleasant features of your visit is always correct. It is called "the bread and butter" letter, but it might be called bait for another invitation. The lack of it and other courtesies might cause a failure in invitations.

MRS. J. J. GARRISON.

THE LETTER BOX.

The "Grown-up Daughter" Speaks.

Dear Deborah:—Your department in the Michigan Farmer greatly interests me, in fact, we always read and discuss it. Now, have you space for my "spiel?" It may not be particularly interesting but I am sure my mind will feel better for having written it.

A few weeks ago a letter appeared in "A Warm Defense of Father." The writer and I may have something in common as to home affairs, but we don't take quite the same point of view on that subject. He evidently has a wife who doesn't want to rock the baby all the time; would like a little help. I don't want to do all the work in my part of the house and not have anything to say as to its arrangement or convenience.

I am the grown-up daughter, that member of the family who isn't supposed to have a mind for anything except "beaux and clothes." While I might be interested in them occasionally I am not crazy about either.

Since leaving school, I am now 20, I have been the cook and have done many of the domestic duties, mother having a smaller daughter to keep her busy, sewing, etc. I like the work, cooking especially, and would like to take a course in it, but the family insisted I would get so many new-fangled ideas that I wouldn't be able to do anything around here with common things after that.

Ours is a moderate-sized, well-built farm house of the times when windows, bay-windows and some more windows were the style. So many you haven't any place for your furniture nor any love left for the architect who planned the house, when you get them cleaned.

Now, here I begin on father. He has all that's modern in machinery, from hay-loader down. He has all his money sunk in these things and has none left to waste on my "whims." I don't blame him for that, didn't begin my revolution soon enough is all. But I don't like the attitude he takes on the subject. Anyway, I am not going to give up just against a little indifference.

To be sure, we have some of the smaller conveniences, gasoline flat-iron, a vacuum cleaner, etc., but they don't make the house itself any handier with well-water on one side, rain-water on the other, no kitchen and other similar defects.

I love country life in spite of all its drawbacks. "It's farm life for mine, through rain or shine." However, I started to tell you I was here to find a solution to my problem. This summer I am to have a vacation, and will spend it at summer school studying domestic science. I shall look up the architectural teacher personally and see what help I can get that way.

In the meantime the family will be taking a correspondence course, via all the advertising literature on remodeling, plumbing, lighting plants, etc., that I can find. And if by that time they aren't convinced that we might live longer and be happier by a few changes, well, I'll feel better for having learned something myself, anyway!

Anyone who thinks me right or wrong and has any suggestions, please send them in.—"Miss America."

Women and the Homestead Laws

WE hear a great deal about homesteads and homestead rights, but many of us are a bit hazy as to what the term homestead really means, and what are our rights in said homestead.

In Michigan a homestead consists of 40 acres, unplatted, together with the house and appurtenances, or a lot and house in a platted village or city. The value in either case is not to exceed \$1,500, that is, this amount only will be exempt from the claims of creditors, heirs or their assignees.

These homestead rights are intended as much for the benefit of the wife and children as for the husband, so that the husband can not waive his homestead rights. But it does not preclude the division of the estate after the husband's death, for the benefit of the heirs or their assignees. A widow whose only child dies after her husband's death and who marries again absolutely forfeits all homestead rights.

No lien except for purchase money can be established without the wife's consent and signature. But the wife can not interpose her homestead rights against a chattel mortgage on the dwelling given by her husband alone for its construction.

The wife of a purchaser under a contract has no homestead rights as against the seller, but the surrender of a contract to purchase without her consent does not deprive her of her homestead right. A breach of contract to sell the homestead furnishes no basis of action against the husband if the wife does not join in the contract. Every conveyance of land except a mortgage for purchase money must be signed by the wife.

When a husband leaves the state, abandoning his wife, the probate court may authorize her to dispose of her real estate and any personal property of her husband's within the state and to receive money owed to her husband, and give a discharge of the obligation. All money received in this way she may use as her own during his absence. She may also make contracts and deeds as though unmarried and start and defend suits, so long as he remains away, and all such contracts shall be binding on husband and wife. If the husband returns he may ask to be admitted to prosecute

or defend a suit with her. Similar rights may be given to a woman whose husband is in state's prison.

A married woman coming from other states or countries without her husband, he having never lived with her in this state, may transact business as though unmarried. If the husband follows her and claims his marital rights his coming has no effect on contracts already made.

DEBORAH.

HUGE BOUQUETS OF CONTINUOUS BLOOM.

BY JULIA RAMSEY DAVIS.

Mrs. Cary had a beautifully kept flower garden, but the most spectacular spots on the landscape were the two immense bouquets on each side of the front door yard. When questioned how the effect was obtained, she answered as follows:

"I tried, with success, last summer the popular 'barrel of strawberries,' and decided that different kinds of annual flowering plants could be grown in the same manner.

"First, I painted my barrels a pretty, dark green. When perfectly dry, I had two inch auger holes bored in the sides, a foot apart alternating in rows, beginning a foot from the top, and continuing to within the same distance of the bottom. Of course, the tops were removed from the barrels. Then I filled the barrels with rich garden soil level with the top, having first placed them where I wished them to remain.

"In the top soil I sowed in tiny drills seeds of mignonette, dwarf nasturtiums, sweet alyssum, candytuft, portulacca, or any favorite plant of low, compact growth or of trailing habit will serve your purpose. A few tall plants, as asters, or salvia may be planted in the center of the space. Cover the top with a sash, or otherwise protect from the cold if the seeds are sown early. When the plants are up transplant such as nasturtium, candytuft and mignonette, or any of trailing habit, to the holes in the sides of barrels, leaving the taller ones to grow in the top with a border of portulacca around the rim.

"By watering freely from the top a profusion of bloom will result, the barrel assuming a globular shape, completely hidden by the flowers."

Farmers' Clubs

Address all communications relative to the organization of new Clubs to Mrs. J. S. Brown, Howell, Mich.

FARMERS' CLUBS IN MINNESOTA.

(Continued.)

Each Club has become a center of activity for its members. Coincident with the thought of entertainment comes that of education. Books and magazines are purchased that the reader may become better informed. Free traveling libraries from the state are obtained for the community. Latent talent is discovered among members and made use of. Speakers from other places are obtained and almost as if by intuition the Club members become electrified with a desire to study and learn.

Through these Clubs better school facilities have been provided. Some schools have been consolidated. The school children have been interested in corn and potato-growing contests, bread-making, and meat-production on the farm; and the teachers have been interested in community activities as well as in the ordinary school curriculum. Women have discussed different methods of doing their work, have exchanged recipes and patterns, and in a general way profited by each other's experiences.

The men have learned their own deficiencies and the strength of their neighbors. They have considered in a careful, thoughtful way the value of good seed, good feed, good tillage, good stock, and good machinery. Market problems have been discussed and the best methods of preparing and marketing products decided on.

Farmers' Clubs are the medium through which many live stock shipping associations have been organized, and grain elevators and potato warehouses built. Telephone companies have been organized and lines extended to subscribing farmers where such service had been thought impossible. Co-operative creameries have been duly considered and, where proper conditions were present, have been organized. Farmers have agreed to raise the same variety of potatoes and the same breed of live stock, and to buy feed, flour, coal, wood, and fence posts together in carload lots. Cow-testing associations, the purchase of a pedigreed sire for improvement of their stock, the purchase of seeds, and the encouragement of all forms of better agriculture are some of the financial benefits brought about through these Clubs.

While the Agricultural Extension Division takes much pride in the Farmers' Clubs because of the good work they are doing to further the cause of better business, better farming, and better living in the country, it has no desire to dictate. Having faith in their power to accomplish much which can be done best through their own methods, the Division desires to assist them in every possible way.

Each Club is an independent unit entirely controlled by its members and officers. The suggested topics for discussion are given with but one desire, to be helpful.

Upon request, the Division will undertake to work out special programs for any Club and give references to sources of information.

In addition to adopting and using the topics here given, as the heavy part of each program, other numbers should be added. A program should be well balanced. Do not consider any one subject so long that the listeners become weary of it. It would be better to quit at the most interesting point, that a good impression might be left.

(To be continued.)

Grange.

STATE GRANGE OFFICERS.

Master—John C. Ketcham, Hastings.
Overseer—C. H. Bramble, Tecumseh.
Lecturer—Dora H. Stockman, Lansing.
Secretary—Jennie Buell, Ann Arbor.
Treasurer—Frank Coward, Bronson.
Executive Committee—C. S. Bartlett, Pontiac; Geo. B. Horton, Fruit Ridge; J. W. Hutchins, Hanover; W. F. Taylor, Shelby.

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

NEWAYGO POMONA MEETING.

Newaygo County Grange No. 11 met with Fremont Grange June 8-9, and the meeting was an inspiration and success from start to finish.

The master of the Michigan State Grange, John C. Ketcham, gave one of the best Grange talks ever listened to. Mr. Ketcham is a forceful, brilliant and convincing speaker.

He said in Denmark the producer has 97 cents to put down in his pocket. In America he had 35 cents. He did not believe in raising two blades of grass where one grew before, if by so doing it cheapened the other blade, and a man had nothing for his labor. Said the Grange had more influence than any other organization, that the last quarter was the biggest quarter in 40 years, and the month of March the biggest month in Grange work. All along the line we must work for increase of membership and have standard Granges. He made a fine point on individualism, said we must fling our opinion to one side; the big things could only come by organization and co-operation. He said the boys were going back to the farm, that agriculture in the schools, the way it is being taught, had much to do with this.

Congressman J. C. McLaughlin made some trite remarks. He said he was famed for sending out seeds that would not grow, and presenting arguments that wouldn't go down, and he told the Grange some of the things that were doing in Washington. He also said that no organization had the influence like the Grange with Congress.

At this point our Pomona Master marched in with the Junior Agricultural club, of Brookside, who gave a motion song in costume, "Everybody Milks in Michigan," which took the house down, and on encore sang "The Bird for the Farmer," which was just fine.

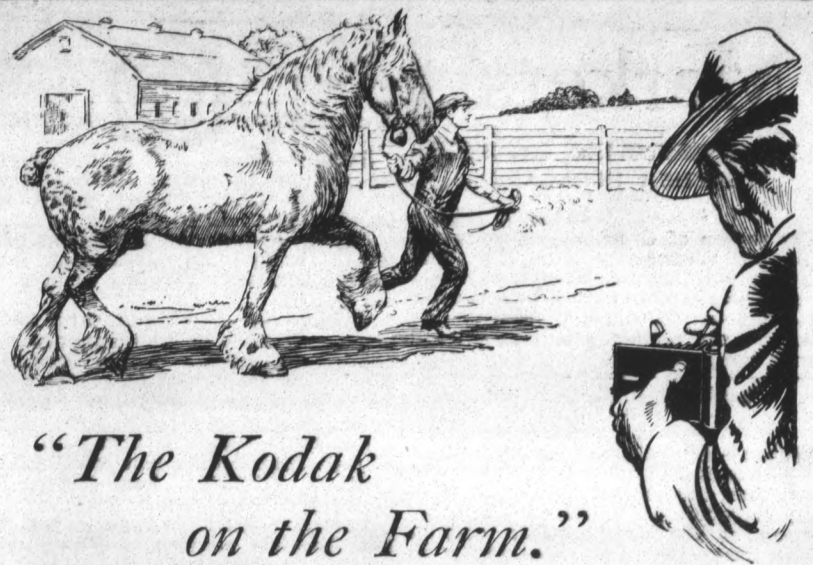
Mrs. Rose sang two solos which were much appreciated. One seldom hears a voice like that at a Grange meeting.

Wm. A. Krause, a member of W. W. Carter Grange, gave us an interesting talk on "Fresh Air Camp Work," and sang a solo, "What Will Your Harvest Be?" Mr. Krause has a plot of ground near Hess lake and he entertains the poor boys from the slums of the city every summer. He outlined his plan, and anyone who has anything to give in money or provisions to help in this work may correspond with Mr. Krause at Newaygo. He is certainly doing something humane and should be encouraged.

As Mr. Warren had to leave with his club, as they were all in the graduating exercises at Brookside, and as Mr. Ketcham was to speak out there, we decided to hold no evening meeting, but a short business session in the morning. After the meeting Mr. Ketcham held a school of instruction, which was very interesting.

Grange called to order at 9:00 a. m. Wednesday morning, and after a short business meeting the program was again taken up.

(Continued next week.)



"The Kodak on the Farm."

FOR the sake of showing the business uses, the home appeal and the pleasures to be derived from picture taking we have published a beautifully illustrated little book under the above title.

Its forty-eight pages are largely filled with pictures—pictures of the kind you would like to take and can take—with a Kodak.

Ask your dealer or write us for a copy of "THE KODAK ON THE FARM." There is no charge.

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Pure — Wholesome — Economical

If you have never used it you have a treat in store—a pleasant surprise. Order a trial sack today. Note how much longer bread made from "New Century" retains its freshness.

Not bleached. Insist on the sack with "Our Dainty Maid." Most grocers sell it.

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placed anywhere, attracts and kills all flies. Neat, clean, ornamental, convenient, cheap. Lasts all season. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed effective. Sold by Dealers or 50c per prepaid for \$1.

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WANTED—AN IDEA. Who can think of simple your ideas, they may bring you wealth. Protect Needed Inventions and "How to get your Patent and Your Money." RANDOLPH & CO. PATENT ATTORNEYS, DEPT. 67, WASHINGTON, D. C.

AGENTS WANTED

to represent a reliable concern canvassing among farmers in your own neighborhood or elsewhere. No experience necessary. Liberal pay, and supplies furnished free to right parties. Reference required. Address, ADVERTISER, CARE THE MICHIGAN FARMER, Detroit, Michigan

Markets.

WEATHER FORECAST.

June 29, 1915.

For region of Great Lakes for week beginning Wednesday, June 30. The weather will be unsettled first three days of week, culminating in a shower period about Saturday; thereafter fair weather; the tendency will be toward higher temperatures.

GRAINS AND SEEDS.

June 29 1915.

Wheat.—A week ago the bulls again got possession of the wheat trade and since then the market has been gradually advancing. Rains over a large portion of the southwestern district where harvesting and threshing is in progress is believed to have done extended damage. Harvesting is also being delayed in other sections by slow ripening, which, with an improvement in the foreign demand, has revived a call for cash wheat. Winter wheat is especially strong at the present time. The world shipments were of small volume last week, and European supplies are known to be limited. There was a falling off in cargoes from India, Australia and Argentine. Farmers in this country will probably sell wheat conservatively now that they have been educated to high values. This will undoubtedly assist in holding values on a higher basis. The visible supply decreased 2,624,000 bu. last week. No. 2 red wheat sold here one year ago at 86½¢ per bushel. Quotations are:

	No. 2	No. 1	
Wednesday	1.15½	1.12½	1.03½
Thursday	1.16½	1.13½	1.03½
Friday	1.18	1.15	1.04½
Saturday	1.18	1.15	1.03½
Monday	1.19½	1.16½	1.05
Tuesday	1.20	1.17	1.06..

Chicago.—July wheat \$1.05; Sept. \$1.01½; Dec., \$1.04½.

Corn.—From all sections of the country come reports of a poor corn crop; the state report of Kansas gives the condition as 65 in that commonwealth, and experts state that it will require fully 90 days of perfect weather to make a fair showing in the Illinois section. This condition is stimulating the purchase of old corn and supplies are fast disappearing. One year ago No. 3 corn was selling at 71½¢ per bushel. Quotations are:

	No. 3	No. 3	
Wednesday	77	78	
Thursday	77	78	
Friday	77	78	
Saturday	76¾	78	
Monday	77	78	
Tuesday	77	78	

Chicago.—July corn 73.1c; Sept. 71.6c; Dec. 63.4c.

Oats.—Some experts believe the oat crop this year will exceed the record crop of 1912. There is a large acreage and weather conditions have favored the normal development of the plant. Foreigners are making some purchases and general inquiry indicates further buying by Europe. One year ago standard oats were quoted here at 40½¢ per bushel. Visible supply decreased over 1,000,000 bushels. Quotations for the week are:

	Standard.	No. 3	
Wednesday	51	50½	
Thursday	51½	50½	
Friday	51½	50½	
Saturday	51½	50½	
Monday	51½	50½	
Tuesday	51½	50½	

Chicago.—July oats 43.3c; Sept. 37.3c.

Rye.—Market is lifeless with No. 2 cash quoted at \$1.12 and August rye at 93c per bushel.

Beans.—The demand for beans is light and prices are down 10c since last week. Detroit quotations: Cash \$2.90; July \$2.95. Chicago trade is quiet and steady. Pea beans, hand-picked choice, quoted at \$3.18@3.25; common \$3@3.15; red kidneys \$3.25@3.65.

FLOUR AND FEEDS.

Flour.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$6.30; seconds \$6; straight \$5.90; spring patent \$6.50; rye flour \$6.40.

Feed.—In 100-lb. sacks, jobbing lots are: Bran \$25; standard middlings \$29; fine middlings \$32; cracked corn \$33; corn and oat chop \$30 per ton.

Hay.—Market is steady. Carlots on track at Detroit are: No. 1 timothy \$18.50@19; standard \$17.50@18; No. 2, \$16.50@17; light mixed \$17.50@18; No. 1 mixed \$16@16.50; No. 1 clover \$14@14.50.

New York.—Steady. No. 1, \$24; No. 2, \$23@23.50.
Straw.—Rye straw \$8@8.50; wheat and oat straw \$7@7.50 per ton.

DAIRY AND POULTRY PRODUCTS.

Butter.—Steady and in fair supply. No change in prices. Extra creamery 27c; firsts 25½c; dairy 21c; packing stock 19½c.

Eggs.—A decrease in amount of offerings brought an advance of ½c in price. Quotation for the week is 27c per pound.

Chicago.—A quiet and easy feeling exists. Market is well supplied. No change in prices. Extra creamery 27c; extra firsts 26@26½c; firsts 24½@25½c; seconds 22½@23c; packing stock 20c.

Poultry.—Market is firm with prices slightly higher than last week. Live.—Broilers 25@27c; hens 14½@15c; ducks 17@17½c; geese 10@11c.

Chicago.—Little change in the market. Receipts heavy and demand moderate. Fowls, good weights 14c; spg chickens 2 lbs. and up 21@22c per lb; 1 lb. to 1½ lbs. 21@22c; small 20c; ducks 13c; young ducks 1½@2 lbs. 15@16c; geese 8@9c; guinea hens \$2.75@3 per dozen.

Eggs.—Market is firm with prices unchanged. Fresh stock sells at 18c per dozen.

Chicago.—Feeling is easy and market rather dull. Supply is good but not of the best quality. Prices slightly lower. Miscellaneous lots, cases included 16@17½c; ordinary firsts 16@16½c; firsts 16½@17½c.

Veal.—Quoted steady at 11½@12c for fancy, and 10@11c for common.

FRUITS AND VEGETABLES.

Strawberries.—In good demand. Michigan 16-qt. cases sell for \$1@1.25; home-grown \$3@3.25 per bushel.

Chicago.—Market is tame except for best northern berries. Berries from southern part of state mostly sold to peddlers. Michigan 16-qt. cases \$1@1.50, according to quality.

Potatoes.—Market is dull and weak. Quoted at 15c per bushel in sacks. At Chicago the market is steady at lower prices. Michigan white in bulk are quoted at 18@25c per bushel.

Gooseberries.—Slow. Only large kind have sale; 16-qt. cases are quoted at 50c@51.

WOOL.

Boston.—The wool market continues strong with prospects for higher values. The clothing trade is improving, which with better business conditions and demand from Europe and Great Britain to fill war orders, gives dealers an optimistic view and encourages manufacturers to take raw material at prices of the seller. English markets are advancing. Boston receipts are smaller than those of last year at this time. Michigan unwashed delaines are quoted in Boston at 26@27c; do. combing 29@34c; do. clothing 24@30c per pound.

GRAND RAPIDS.

The old potato deal is practically over now, a few loads selling this week on the city market at 20@25c. New potatoes are quoted by some of the stores at 20c per peck. The early potato crop in this section promises well and harvest will soon begin. Strawberries have been bringing good prices, owing to the short crop, fancy berries selling this week at \$1.80 per case. Cherries will be in large supply this week and prices for this fruit range up to \$1.50 per crate, according to variety and quality. Gooseberries are worth \$1. Fresh eggs are worth 16½@17c; dairy butter 21c. Grain prices unchanged.

DETROIT EASTERN MARKET.

Tuesday morning's offerings were large, with strawberries the leading commodity. Prices for this fruit ranged from \$1.90@3.25 per 24-qt. case, depending on quality. Lettuce 15@25c per bu; old potatoes 50c; cabbage 65c; home-grown tomatoes \$2 per 14-lb. basket; cherries \$2 per 24-qt. case or 10c per qt; gooseberries 10c per qt; onions 5c bunch; beets 5c bunch; eggs 25c per dozen; loose hay is offered rather sparingly with prices ranging from \$21@23.50 for good hay.

LIVE STOCK MARKETS.

Buffalo.

June 28, 1915
(Special Report of Dunning & Stevens, New York Central Stock Yards, Buffalo, N. Y.)
Receipts here today as follows: Cattle 115 cars; hogs 105 d. d.; sheep and lambs 7 d. d.; calves 1400 head.
With 115 cars of cattle on the market here today and 16,000 reported in

Chicago, our market on all the cattle of good quality was from 25@35c per cwt. higher than last week. The market was slow at the advance, but at the close everything was sold and the market closed strong, and we anticipate high prices for all fat cattle from this time on, as the fat cattle of good quality are apparently scarce everywhere and the demand is growing right along in the beef trade, consequently we expect good strong prices for all good cattle.

We had a fair supply of hogs here today and while prices were lower on the light-weight stuff, the heavy and mixed grades sold no lower than Saturday's best time. All western markets were considerable lower than on Saturday and we were very fortunate in securing the prices we did for our hogs. Anything outside of extreme heavies sold at \$8.25; heavy grades quotable at \$8@8.10; roughs \$6.50@6.75; stags \$5@5.50. Late market was extremely dull and what few hogs sold after 10 o'clock were 5@10c lower than the opening prices. Prospects favor a lower market balance of the week, although we would not look for any great change on the handy weight hogs.

The market was active today on lambs and sheep with prices 75c higher than the close of last week; most of the choice lambs selling at \$11. Look for steady prices last of week with moderate receipts.

We quote: Spring lambs \$11@11.25; cull to fair \$6@10.50; yearlings \$7.50@9; bucks \$3@4.50; handy ewes \$5.75@6; heavy ewes \$5@5.50; wethers \$6.50@7; cull sheep \$3@4; veals, choice to extra \$10.75@11; fair to good \$7@10.50; heavy calves \$6@8.

Chicago.

June 28, 1915.
Cattle. Hogs. Sheep.
Receipts today..16,000 42,000 7,000
Same day 1914..16,448 37,066 23,452
Last week.....38,740 139,780 55,987
Same wk 1914..37,045 127,151 76,724
Shipments from here last week amount to 7,521 cattle, 19,772 hogs and 1,786 sheep, comparing with 17,634 cattle, 27,948 hogs and 28,698 sheep for the corresponding week of 1914.

Sales of cattle today were rather late in starting, but sentiment was bullish, and a firmer market was indicated, because of the small supply. Hogs were in liberal supply, and buyers forced prices 10@15c lower, with sales at \$6.95@7.80. Hogs received last week averaged 231 lbs. Lambs were headed for much higher prices, with a meager number offered on the market, packers getting a large share of the supply direct from Louisville. Shorn ewes sold as high as \$5.75, and prime range spring lambs were held for \$11@11.25.

Cattle advanced sharply during the first half of last week, reaching their highest prices on Wednesday, when the bulk of the steers sold at \$8.50@9.35, the highest prices seen in a long time. The best class of heavy steers went at \$9.20@9.55, while the inferior to fair class of light-weight, thin, grassy steers sold at \$6.50@7.80, with sales of plain to medium warmed-up steers at \$7.85@8.50. Medium to good handy steers sold at \$8.55@8.85 and good to choice corn-fed at \$8.90@9.15, with choice to prime heavy beefs selling at \$9.20@9.55. The best class of little yearlings made a fresh high record by selling at \$9.25@9.70, while a good class of these steers brought \$9 and upward, with sales all the way down to \$7.50@8.50 for inferior to fair offerings. Butchering cows and heifers had a good outlet at \$5.10@9.50, the best little yearling heifers making several fresh high records, as the previous top price was \$9.25. The choicest cows sold at \$8@8.25 to a limited extent, while cutters went at \$4.40@5, canners at \$3.25@4.35 and bulls at \$5@7.75, with a few prime little yearling bulls selling up to \$8. Calves were in good demand, so far at least as the desirable light-weight vealers were concerned, these selling for \$9@10 per 100 lbs., while sales were made all the way down to \$5@7 for common to fair heavy weights. On Thursday, as is so apt to be the case on that day, the general demand for cattle became so poor that prices had to be cut 10@15c from Wednesday's high level before a clearance of the moderate offerings were made. Numerous sales of mixed lots of yearling steers and heifers were made, and there was a sale of 21 head of such cattle that averaged 1051 lbs. at \$9.60.

Hogs were marketed with a fair degree of freedom last week, and there was on the whole a fairly active general demand, with eastern shippers taking fair numbers of the better class of light and heavy barrows. After a few moderate declines in prices, the market rallied on smaller offerings and a brisk demand, with a regular boom in prices on Thursday, when the

advance amounted to 20c. Recent hog receipts have averaged in weight only 229 lbs., comparing with 237 lbs. one year ago and 240 lbs. two years ago. In quality the hogs now coming to market are not nearly so good as the average receipts of several weeks ago. Prospects are that no marked changes in prices will take place in the near future, according to the best authorities. The top prices of hogs for the week was \$7.95, with closing prices \$7.15@7.92½, top being paid for the best light, while the best heavy brought \$7.75. Pigs sold at \$6@7.60, and stags at \$6.75@7.35.

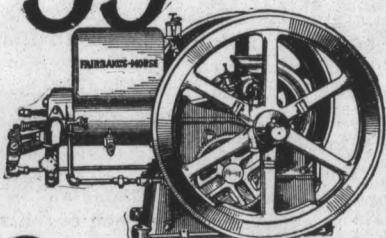
Lambs were marketed sparingly last week, as usual, spring lambs comprising most of the receipts, with only limited offerings of clipped fed lambs and shorn native ewes. Wethers, too, were scarce, but a few big bunches of Colorado woolled yearlings arrived and sold well. As the week advanced the market developed firmness, and fat spring lambs advanced sharply, as did shorn ewes and shorn lambs. Packers received a liberal share of the springs direct from Louisville. The first shipment of northwestern range spring lambs and shorn lambs and yearlings arrived from Idaho on Monday. Oregon also sent some yearlings. Spring lambs closed the week at \$6.75@10.60, while clipped flocks sold as follows: Lambs \$5@9.25; yearlings \$6.25@8; wethers \$5.75@6.85; ewes \$3@5.75; bucks \$3.75@5. Everything closed materially higher than a week earlier.

Horses were in active demand last week, with army horses chiefly wanted, mounts selling at \$135@150 and "gunners" at \$145@200.

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\$59.00

Complete with battery and accessories—ready to run.



2 HP Gasoline Engine

Strength, weight, durability, workmanship and fuel economy, all guaranteed by Fairbanks-Morse quality.

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Prices: \$5.00 per set of eight; \$6.00 per set of ten. Ask your dealer or write us.

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THIS IS THE FIRST EDITION.

The first edition is sent to those who have not expressed a desire for the latest markets. The late market edition will be sent on request at any time.

DETROIT LIVE STOCK MARKETS.

Thursday's Market.

June 24, 1915.

Cattle.

Receipts 2027. There was another heavy supply of cattle on sale this week at the local yards and as predicted last week everything but bulls and conners dropped 25c per cwt. from last week; the quality was not nearly so good as it has been for several weeks past, receipts being mostly of the grasser order. The milch cow and springer condition remains the same; nothing can be driven out or shipped for feeding purposes. It seems too bad, with no disease in the state and the farmer with plenty of grass for pasture, that they cannot get anything to feed. And the consumer can make up his mind that if he eats any beef this coming winter that it will cost him something.

Best dry-fed \$8.25@8.60; best handy weight butcher steers \$7.50@8; mixed steers and heifers \$7.50@7.65; handy light butchers \$7@7.25; light butchers \$6.50@7; best cows \$5.50@6; butcher cows \$5@5.25; common cows \$4.25@4.50; canners \$3@4; best heavy bulls \$6@6.50; bologna bulls \$5.25@5.50.

Roe Com. Co. sold Kull 5 butchers av 614 at \$6.40; to Hammond, S. & Co. 1 bull wgh 1600 at \$6.50, 7 do av 1103 at \$6, 4 butchers av 725 at \$6.75, 2 do av 1150 at \$7.75, 1 cow wgh 960 at \$5, 7 steers av 1047 at \$8.60, 1 cow wgh 1160 at \$5.75, 3 do av 930 at \$5, 2 do av 1090 at \$5.75; to Thompson Bros. 10 butchers av 722 at \$7, 1 steer wgh 690 at \$6.50; to Sullivan P. Co. 1 do wgh 690 at \$6.50; to Kamman, B. Co. 2 do av 695 at \$7.50, 2 cows av 995 at \$5.75; to Mich. B. Co. 1 bull wgh 1130 at \$6.50, 1 cow wgh 1000 at \$4.75, 1 do wgh 960 at \$4.50, 1 do wgh 1060 at \$6, 2 do av 825 at \$4.75; to Hammond, S. & Co. 16 steers av 957 at \$8.25; to Kamman B. Co. 13 do av 854 at \$7.30; to Sullivan P. Co. 7 do av 1087 at \$8; to Bresnahan 3 cows av 1253 at \$6.25, 1 do wgh 1000 at \$5.25, 1 do wgh 1350 at \$5.50; to Sullivan P. Co. 5 butchers av 740 at \$6.10; to Goose 3 cows av 1017 at \$5.35.

Haley & M. sold Sullivan P. Co. 19 butchers av 800 at \$7.55, 11 do av 950 at \$7.50; to Rattkowsky 1 cow wgh 910 at \$5.15, 1 do wgh 940 at \$4.50, 2 heifers av 610 at \$6, 1 bull wgh 1220 at \$5.10; to Hammond, S. & Co. 2 do av 1020 at \$6.25, 1 heifer wgh 760 at \$7, 2 steers av 1005 at \$6.50, 3 butchers av 1043 at \$6.40, 1 bull wgh 1700 at \$6.50, 1 do wgh 1140 at \$6.25; to Parker, W. & Co. 1 do wgh 890 at \$6, 1 heifer wgh 480 at \$5; to Heinrich 2 steers av 775 at \$7.30, 8 do av 811 at \$7.30; to Schuman 5 do av 982 at \$7.50; to Parker, W. & Co. 13 butchers av 670 at \$6.50; to Mason B. Co. 5 do av 982 at \$7.50; to Resnick 1 cow wgh 1040 at \$4.25; to Thompson Bros. 2 do av 705 at \$5.50; to Sullivan P. Co. 9 do av 1104 at \$5.75, 3 do av 950 at \$5.65; to Applebaum 4 butchers av 635 at \$6.25; to Parker, W. & Co. 15 do av 558 at \$6.50, 18 do av 778 at \$7, 2 canners av 885 at \$4; to Rattkowsky 5 cows av 1182 at \$6, 3 do av 1090 at \$5.05.

Veal Calves.

Receipts 774. The veal calf trade was active from start to finish, and a large number of the good ones sold readily at \$10 per cwt., with mediums and common at \$7@9; the close was strong.

Haley & M. sold Parker, W. & Co. 12 av 180 at \$9.75, 10 av 169 at \$10, 4 av 185 at \$10, 6 av 200 at \$10, 17 av 175 at \$10.

Reason & S. sold Mich. B. Co. 2 av 170 at \$9, 1 wgh 140 at \$9; to Thompson Bros. 2 av 170 at \$9.75; to Costello 11 av 175 at \$9.50, 1 wgh 140 at \$8; to Parker, W. & Co. 12 av 150 at \$10, 5 av 180 at \$8.

Sheep and Lambs.

Receipts 799. The supply of sheep and lambs was again light and market strong at last week's prices on everything; good springers selling at \$10.50@10.75; the close was strong.

Best lambs \$10@10.75; fair lambs \$7.50@8; light to common lambs \$6@7; yearlings \$7@8; fair to good sheep \$4.25@4.50; culls and common \$2.50@3.50.

Haley & M. sold Parker, W. & Co. 14 lambs av 67 at \$10.50, 4 do av 60 at \$8.50, 3 sheep av 135 at \$4, 9 do av 58 at \$10.50, 12 lambs av 75 at \$10.25, 17 do av 70 at \$10.25, 20 yearlings av 90 at \$8.50, 9 sheep av 150 at \$4.50.

Reason & S. sold Mich. B. Co. 12 yearlings av 95 at \$7.50; to Fitzpatrick Bros. 15 lambs av 65 at \$9.50, 5 sheep av 125 at \$4.25, 9 do av 120 at \$4.25.

Hogs.

Receipts 7128. In the hog division the market was active and 5@10c higher; packers' grades selling at \$7.90@7.95.

Friday's Market.

June 25, 1915.

Cattle.

Receipts this week 2274; last week 957; market steady. Best dry-fed steers \$8.25; best handy weight butcher steers \$7.50@7.75; mixed steers and heifers \$7.25@7.50; handy light butchers \$6.50@7; light butchers \$6.25@6.75; best cows \$5.50@5.75; butcher cows \$5@5.25; common cows \$4.25@4.75; canners \$3@4; best heavy bulls \$6@6.25; bologna bulls \$5.25@5.50.

Veal Calves.

Receipts this week 965; last week 855; market strong. Best \$10@10.50; Sheep and Lambs.

others \$7@9.50.

Receipts this week 1026; last week 1330; market steady. Best spg lambs \$10@10.50; fair lambs \$7.50@8; light to common lambs \$6@7; yearlings \$7@8; fair to good sheep \$4.25@5.25; culls and common \$2.50@3.

Hogs.

Receipts this week 9479; last week 9977; market steady to 5c lower; all grades \$7.90.

Veterinary.

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

Indigestion—Scours—Warbles. — I have a three-year-old cow that thrived well until she freshened, which was about six weeks ago; since I turned her out on June grass she has scoured. I believe she eats enough but the food fails to do her much good and she is not giving more than a quart of milk at a milking. I also have a Short-horn cow that has some bunches on back with a little hole in them, and when squeezed a large grub pops out. L. H. P., Batavia, Mich.—It is possible that the June grass she is eating is not the right kind of food for her. Better stable her for a few days, feeding her some ground oats and dry wheat bran and mixed hay. Also give her ½ oz. of ground ginger, ½ oz. of ground gentian and 1 oz. bicarbonate of soda at a dose three times a day. The bunches you refer to are warbles—each of them containing a grub which should be squeezed out then killed. If the opening that nature has made is not large enough, make it larger with a pen knife, then apply alcohol to sores daily, dusting on some boric acid after the alcohol dries.

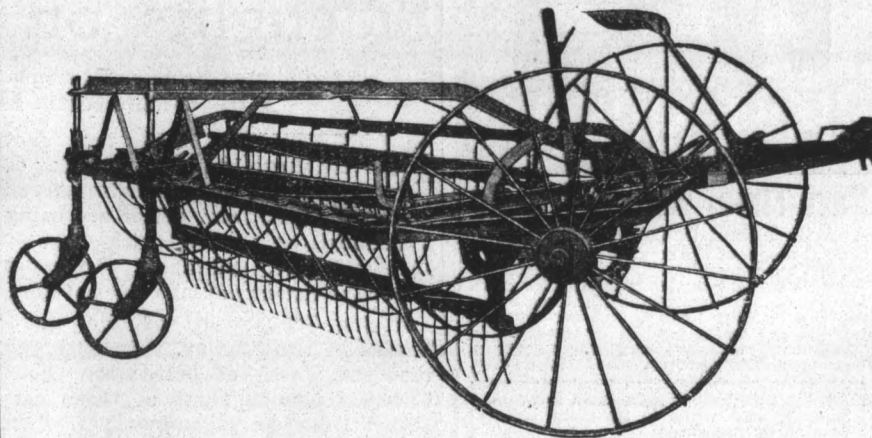
Bunch on Side.—I have a cow that has a swelling on her side above udder; walks quite stiff, but gives the same quantity of milk as before bunch came. E. W., Vassar, Mich.—Apply tincture iodine to bunch daily.

Foreign Body in Stomach.—Have a two-year-old cow which came fresh one week ago; thrived well up to three days ago; suddenly lost appetite, dried up on milk flow, bloats some, bowels inactive, and will not eat. Have given salts and applied injections. When cow moves around she grunts and moans as if suffering pain. A. D. D., Prescott, Mich.—It is possible that your cow swallowed a nail, piece of wire, or some other foreign body which has lodged in stomach and may perhaps cause her death. Give her salts, raw linseed oil and plenty of weak salt and water to wash out stomach and bowels.

Parrot Mouth.—I have a male calf three weeks old whose lower jaw lacks about one inch of being as long as his upper, thus not allowing the front teeth to come together. Do you think this will be outgrown? If not could anything be done and will it interfere with his usefulness later? R. S., Linton, Mich.—The incisor teeth assist the lips in prehension, or pulling in of food, besides nibbling grass and cutting it off; therefore a parrot mouth falls in this particular; however, it is astonishing how much nature does towards remedying this defect. Nothing can be done to assist nature in this kind of a case.

Weakness.—I have a four-year-old horse that travels stiff and water dribbles from him most of the time. G. W., Muskingum, Mich.—Give him 1 dr. fluid extract of nux vomica and 2 drs. of acetate of potash at a dose in feed twice a day. Perhaps you had better have him examined by a competent Vet. for stone in bladder.

Itchy Necks.—I would like to know how to treat horses that are troubled with an itchy condition of neck. The remedies I have applied fail to do them any good. J. A. H., Millington, Mich.—Apply one part bichloride of mercury and 1,000 parts water, or apply one part coal tar disinfectant and 29 parts water to itchy parts twice a day. Give a dessertspoonful of Fowler's solution at a dose twice a day. Your horse that died either choked or suffocated from obstruction in upper air passages.

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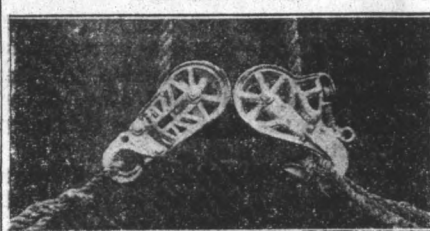
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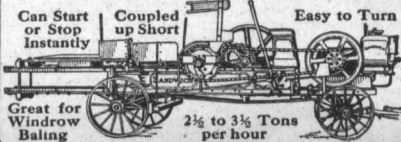
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Farm Commerce.

Sidelights on Butter Trade

Some Unusual Influences are Working that Make the Immediate Future of the Market Uncertain.

NOTWITHSTANDING the fact that there has been a feeling of uneasiness in the butter trade during the past year, prices are being maintained on a parity with those of 1914 and 1913, and about two cents above the corresponding values of 1912.

In the June report of the warehouses of the country, it is observed that the stocks of butter are about 5,000,000 pounds short of those carried at the corresponding period in 1914. The amount on hand June 1 aggregated 11,370,000 pounds; at the same time in 1914 there were 16,234,000 pounds.

This situation has probably been brought about by reason of the poor pasturage which prevailed over a large area of this country during the early part of the season. Throughout the central states where the bulk of the country's butter is produced, there was a lack of rain, particularly during the month of April. This resulted in a spring butter production below the average. During the latter part of May and the fore part of June, conditions changed and there was an ample rainfall, but coming so late this moisture tended to grow an inferior quality of pasturage, due to the presence of a large amount of weeds. With such feed cows do not produce a quality of cream that will make the highest grade of butter, which fact undoubtedly is working toward the restriction of sales.

Another reason for the smaller stocks lies in the reduction of the number and size of dairy herds. Recent high grain values have taken the attention of farmers who are willing to forego the pleasure of milking 730 times a year and confine themselves to grain production, where they may enjoy greater freedom in their going and coming.

Foreign conditions have also favored the improvement of the market here. For instance, in Belgium and northern France it is estimated that by reason of the war, fully 400,000 head of dairy cattle have been killed. This, with other restrictions upon production and the handicap imposed upon commerce by a conflict of such large proportions as the war now raging in Europe, naturally interfere to a large degree with an industry of this kind. So instead of these countries sending their usual surplus to other lands, they have become importing localities. Besides this unusual loss in northern France and Belgium, there has been a large decrease in the number of dairy cattle available for the production of butter and other dairy products in the countries of Germany and Austria.

Along with this shortage in Europe comes the very unusual spectacle of America sending butter to Australia, which is almost akin to carrying coal to Newcastle. This is due to the long drouth which has prevailed over that country. The southern island continent is a liberal exporter of this product under normal conditions, and it was feared that by this time that the American butter market would be affected materially by importations from the southern hemisphere, since the tariff wall has been almost entirely removed.

In all, the statistical situation of the butter trade is in a tolerably satisfactory shape; it would even seem that prices ought to rule higher than they are at the present time. Dealers have noted for some time, however, that

the per capita consumption in this country is less than formerly. Whether this is due to the present conservative feeling noticed in most lines of consumption during the past year or to the inferior quality of a large portion of the butter coming onto the market, or both, cannot be said. The fact remains however, and the condition keeps values from reaching higher levels and overcomes the advantages that would naturally accrue to those interested in the production and manufacture of this important dairy product with the peculiar environment now surrounding the trade.

SAVE MONEY IN SELLING LIVE STOCK.

Live stock shippers' associations have been organized in Hillsdale and Branch counties. These associations are incorporated under state laws with



Quincy Live Stock Association Started Business with Inexpensive Equipment.

a hundred shares each at a par value of ten dollars per share. Half of this share value is paid in, which represents the financial outlay necessary to become a member of the association. The business of the association is handled by a manager, secretary-treasurer, and a board of eight directors. The manager and secretary are paid four cents per hundred pounds on all stock marketed through the association, for their services. The farmers net for their stock what it brings in Buffalo minus the necessary expense in putting them on that market, viz., manager's and secretary's commission, freight, yardage, and seller's commission. One cent per hundred is reserved by the association as an insurance fund to pay for animals killed or injured in transit.

Out in Minnesota where similar associations are common the state authorities have made a survey of different methods of selling and they have learned that it costs from 50 cents to \$1.00 per hundred to market live stock from the farm to packers at South St. Paul when sales are made through a local buyer; while it costs from 30 to 40 cents through a shipping association.

This economy, the uniform supply of live stock for sale, the ease of effecting an organization and the small amount of equipment needed all promise a more general establishment of these associations.

MEAT PRICE "SPREAD" IS ACCOUNTED FOR.

The facts as to who gets the difference between the retail prices of meats on the one hand and the prices paid the farmer for live animals on the other are being sifted. Kenneth F. Warner, of the Minnesota College

of Agriculture, shows just what the situation is. It has been summarized as follows:

The weight of the dressed carcass is only 51 per cent of the live weight for cattle; 77 per cent for hogs; 47 per cent for sheep. In case of beef, the packer sells the whole carcass for less than he paid for the live animal. For example, in 1913 the average price of cattle to the packers at St. Paul was \$6.25 per hundred. Thus a 1,000-pound steer cost the packer \$62.50. He sold the carcass for \$58.65 (average), and got \$15.06 for by-products. Thus he received \$73.71 for the animal that cost \$62.50, a gross margin of \$11.21. Out of this \$11.21 the packer had to pay the expenses of his packing plant, the freight to local distributing houses and the operation of these houses.

The retailer paid \$58.65 for the carcass, and sold the whole for \$84.20 to consumers, at prices ranging from 12 or 14 cents to 30 cents a pound, an average of about 16 cents a pound for the whole carcass. The gross margin for the retailer was \$25.55, or 30.3 per cent of selling price. Since it costs retailers from 20 to 25 per cent of sales to do business, it is apparent that the retail butchers are not making inordinately large profits, but that the costs of doing business are very high.

The farmer gets for his animal

about 57 or 58 per cent of the price finally paid for the by-products and the meat together.

Crop and Market Notes.

Michigan.

Monroe Co., June 22.—The condition of wheat and rye is first-class and a full crop of each is expected. Oats growing fast and promises a good yield. Timothy short and light. Large acreage of corn planted, some fields replanted due to weather conditions and poor seed. No beans raised here. Average acreage of potatoes. But very little spraying done. Prospects for fruit are poor, no pears, a few cherries and peaches and a few apples on the trees. There are but few sheep here. Wool 25@30c; butter-fat 25@28c; potatoes 25@40c; eggs 17@18c.

Cheboygan Co., June 21.—The dry weather in early spring cut the hay crop to about half the usual amount. Pastures are coming on fine since recent rains. Wheat, rye and oats look fine. New seeding starting in good shape. Corn is very small, on account of cool weather. A frost May 27 killed a considerable amount of fruit except cherries, which may make half a crop. Quite a lot of oats, corn and beans put in, but not so many potatoes planted as usual. Butter-fat 27@29c; butter 25c; eggs 18c. Not much grain for sale.

Emmet Co., June 22.—The hay crop will be short on account of dry weather earlier in the season. Corn is making a slow growth, but potatoes, oats and peas are making good. A large acreage of potatoes and beans was put in. Wheat and rye also promising. The cherry crop was injured by a frost in May, but not much damage seems to have been done other tree fruits. There will be a fair yield of strawberries, which are just beginning to ripen. Butter 22@28c; eggs 18c; poultry, live 14c; beef, dressed 9@11c.

Gratiot Co., June 23.—At this date wheat promises to be a big crop. Oats are also 90 to 100 per cent good; hay has made a good growth the past month but at best cannot cut more than 50 to 75 per cent of a fair yield. About the usual acreage of corn was planted, and cultivating is in progress.

More beans than usual are being planted in this section. Some fields are already large enough to cultivate. Little or no spraying has been done since blossoming, and apples make no promises. Few strawberries, and some cherries. Eggs 16c; butter-fat 25c.

Pennsylvania.

Crawford Co., June 21.—Wheat and oats are looking well. Wheat will be ready to cut in about three weeks. The usual amount of corn and potatoes have been planted. Corn is now growing fast, but is small for the time of year. Fruit will not be very abundant on account of late frost. Prospects are for plenty of raspberries and blackberries. Wool is bringing 27c per pound. Milk \$1.30 per cwt; butter 25c; eggs 18c.

Ohio.

Hardin Co., June 21.—Weather wet and corn planting delayed. Haying is also late, but will make a fair crop. Corn fields are very weedy. Oats, wheat and rye are excellent. There are still some late potatoes to be planted and the old crop was well picked up. Not so much late spraying was done as earlier for the scale. Wool mostly disposed of at 28c per pound. Cream and butter-fat 25½c; eggs 16c.

Brown Co., June 21.—Meadows and pastures look well. Prospects for oats are the best in years. Wheat will not make an average crop on account of damage by the chinch bug. Early potatoes are good, and there will be a large amount of late potatoes planted. Corn is looking well considering the unfavorable season. Corn 75¢@80c per bushel; rye \$1.10; butter 20c; eggs 16c; hogs, mixed packers \$7@7.25.

Warren Co., June 22.—Corn plowing is in full swing; the past month has been very rainy; many cornfields very grassy; no doubt it will damage the crop in many places. Meadows are very good. Clover harvest is beginning; very little of the first cutting of alfalfa was taken up without rain. The early potatoes are better than average; no beans raised to speak of. Fruit prospects are extra good. More spraying done than usual and is paying well. Cherries are being marketed at \$2.50 per bushel. The wool clip was good and wool sold for 28@30c a pound, the highest price for years. Corn 75c per bushel; wheat \$1.10; potatoes, new \$1 per bushel; milk 16c a gallon; cream 25c per pound; eggs 15c. Wheat harvest will begin in a few days and prospects for a very good crop.

Iowa.

Osceola Co., June 21.—Small grains have improved wonderfully since the many rains of the past few weeks. Early oats and barley are just beginning to head. Meadows and pastures are fair. The stand of corn is good but backward and needs good warm weather. The acreage of corn is somewhat larger than last year. Apple prospects are good; other fruits not very good. No spraying done to speak of.

Missouri.

Nodaway Co., June 21.—We are having too much rain which is causing wheat to rust. Rye is almost ready to cut. Oats, hay and pastures are fine; cattle are in good shape. There is some sickness among hogs. Corn is small and very weedy, farmers being unable to get on the fields owing to the wet weather. There are no peaches, but other fruit will be a fair crop, and there was more spraying done than usual. Prospects are for a good potato crop.

Kansas.

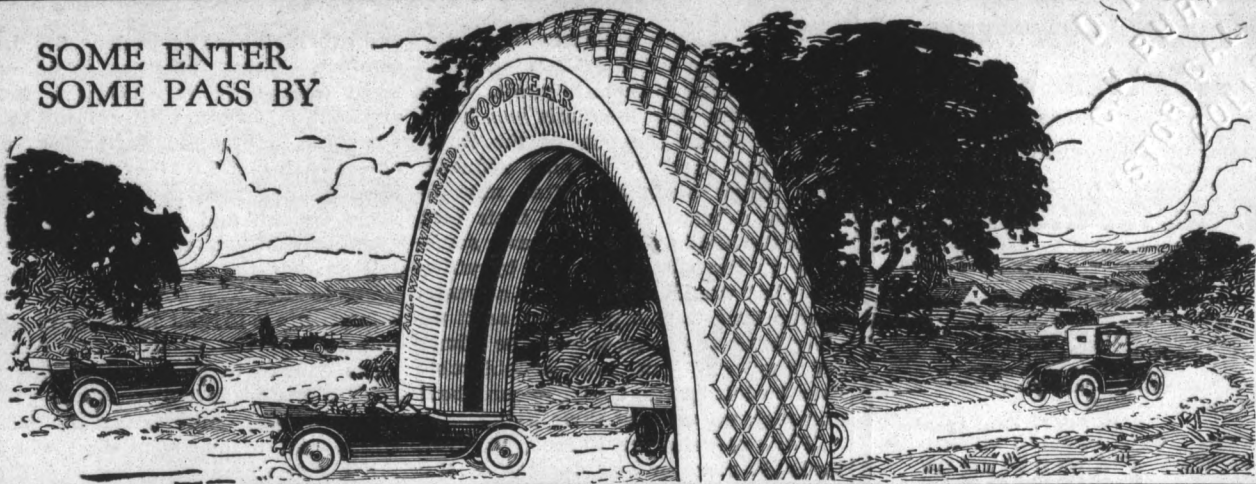
Trego Co., June 21.—Weather is cool and wet. The corn acreage is smaller than usual and it is not doing well. Early wheat is good and promises a big yield, but late wheat is poor and weedy. Harvest will begin about July 5. Hail destroyed the wheat over a large area in this county within the last two weeks. Oats and barley promise a heavy crop. Potatoes the best in several years. Wheat \$1; corn 60c; butter-fat 22c; eggs 13c.

Nebraska.

Otoe Co., June 14.—Plenty of rain and very cool, making corn very backward, and many farmers had to replant their crop. Wheat looks extra good and almost ready for harvest. Oats are beginning to head and look good. The first crop of alfalfa is cared for and the second crop coming on nicely. Potatoes and all garden crops are doing fine. Apple trees are loaded, but not much spraying done. Very little grain being marketed. Corn 71c at elevators, alfalfa hay from field \$5 per ton.

Scotts Bluff, June 14.—Weather is mostly rainy and cloudy. Small grains and potatoes growing nicely; alfalfa and corn backward. Pastures of native grass slow. Acreage of corn increased over last year, and mostly a good stand. The usual amount of potatoes. Fruit badly damaged by late frost. Farmers' unions are making preparations to handle the farm business in the near future. Corn \$1.40 per cwt., shipped in; cream 20c; eggs 11c per dozen.

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Yarding vs. Free Range for Fowls

SOME people maintain that the only true mode of keeping fowls is to confine them in yards, while others affirm that it entails less labor to allow them the run of the farm, while the expense is also reduced. Free range birds are often able to pick up a large portion of their feed from the fields and thus save something in the cost of feeding by utilizing what would otherwise be a waste. Where time is at a premium, as it usually is on the farm, it must be admitted that one can save considerable time by letting the chickens run about and pick up most of their living.

While utilizing waste food, however, fowls do more or less damage to garden and field crops. Many farmers are compelled to keep their hens confined in order to prevent depredations in the garden. Many farmers, after turning their hens out to forage, give them no attention whatever. Naturally such a system is unprofitable, as some of the eggs are lost, and also a large number of the chicks. It is sometimes maintained that if hens are on a range they will instinctively care for themselves, and in so doing save their owner many annoyances. But this is not always the case, by any means. Another argument in favor of free range is that the fowls get much needed exercise. So they do, but the advocate of confining the birds contends that just as much exercise can be given them, with little extra work, by providing scratching sheds and throwing the grain among litter so that the fowls must work for it.

The Advantages of Keeping Fowls Yarded.

When fowls are yarded one knows where they are. He knows that they are not over in some neighbor's yard, grain field or garden, and they are not scratching around his own door all the time waiting for a meal. Another satisfaction in having fowls yarded is that there are no hidden nests out in the weeds or in the grain fields out back of the barn which you do not find. When yarded the fowls must lay where you can find the eggs. And then another point in favor of yarding them is that one can quickly detect any signs of disease among the birds, while if going everywhere one bird may be sick and not be found until the disease has become well developed or even not found at all until the other fowls may have had a chance to contract the same disease.

It may truly be maintained that the best method of keeping fowls depends upon circumstances incident to each farm or location. One must look to his surroundings, his location, and to the number of fowls to be kept. If one has a large number of birds, for instance say a thousand, he cannot allow them freedom unless he has a large place and divides them up into several flocks and has the coops widely separated so they will not mix up. If one lives in town and has only a small town lot and keeps fowls he will find it almost impossible to allow them freedom and no doubt he would not want to even if his neighbors did not object. They would be too likely to get away and never come back. Some years ago the colony plan for laying fowls on the farm was strongly advocated but it never became popular with the owner of one or two hundred birds, principally on account of the amount of labor necessary to go about a farm and attend to the individual flocks. This was especially distasteful during bad weather.

Runs Should be Large.

When reference is made to yarding it should be understood that generous-sized runs are meant, and not the small enclosures such as found on city lots. Then yarded poultry must be well taken care of. The fowls must be regularly fed, must be made to exercise, the houses must be kept clean

and everything possible done for their comfort. Many poultry yards are mere enclosures in which the fowls are kept prisoners, with nothing to do but stand around and learn vices, such as egg-eating and feather-pulling. The ideal poultry yard is the yard that is large enough and well supplied with growing things in spring, summer and fall so that the fowls can find something to do. The something to do in a hen's life is to hunt for food, in some manner. If the poultry yard can be large enough to be a grazing ground, such a pasturage will prove as profitable as the pasturage for the larger stock. All of our common fowls are great consumers of grass and other vegetables, which they manufacture into a high-priced product. It is therefore evident that the poultry yard that is large enough to be a poultry pasture will be profitable. The yard must, however, not be so filled with fowls as to permit them to eat the grass down to the soil, as this is the surest way of killing out the grass. Overstocking any kind of pasture kills it, and this result is more quickly reached with poultry than any other stock, for the reason that the fowls will pull the stalks of grass out of the ground, while cattle, horses, sheep and hogs merely eat the grass down to the roots.

Keeping the Runs in Grass.

Usually where the fowls are kept confined closely in a small yard they will tramp down and spoil every blade of growing stuff. A plan that is often practiced in order to avoid this condition is to fence off one end of the yard and keep that in grass or some growing stuff and then let the fowls in it every evening for a short time. Then drive them back in the other part of the yard as soon as they have eaten what they want and before they have had time to tramp it down and dig it up. Just keep that part of the yard for supplying green food and not for running in any longer than a few minutes each day or evening. In this way they will have a supply of green food all the time. Rape is a very good plant to grow in the poultry yard; but it must be fenced off from the rest of the yard to protect the plant until it has reached the height of a foot. Another plan that gives good satisfaction to many is to have two yards, one of which is used for the fowls while the other is producing some green stuff. In this way the soil in the yard will be kept fairly sweet and pure.

Indiana.

W. F. PURDUE.

DUCKLINGS DYING.

I am raising ducks and am having trouble with them with some kind of a disease. They seem to eat quite well, but their eyes close and seem to be blind, and they die in a few hours. Would like to know what to do for them.

SUBSCRIBER.

Probably the chief obstacle in the way of raising ducklings successfully is that people do not realize that the duckling is not the same as the chick and therefore needs different care. A common mistake is to feed the ducklings dry food, such as would be fed chicks. The duck has no crop in which to grind its food, but the food passes directly to the gizzard, therefore it is advisable to feed the ducklings well moistened mash. Oatmeal is probably the best food to make a mash out for the first feedings, and after a while corn meal and other ground grains can be used as mash.

Ducks are heavy feeders and in hastily gulping down the food they might become choked on it if it is at all dry. It is therefore advisable to have a dish of water convenient so that the ducklings can drink as often as they wish while feeding. The water should be kept clean and in a dish which is so arranged that they can cleanse their bills and nostrils when they so

desire. The nostrils often become clogged and death would result if they had no opportunity to cleanse them.

One should use special care in seeing that the ducklings have plenty of green food and grit. Chopped onion tops are especially fine as green food, as they seem to have a healthful effect. Sand would do very well for grit.

Dampness is probably the cause of more deaths among ducklings than anything else. It is very essential that they should be kept dry and warm during the time they are in the downy stage. It has been the common experience of duck raisers to have a large number of ducklings die after a rainy spell. Very often ducklings which are apparently lifeless after becoming damp can be revived if taken into a warm place and dried and given special protection from dampness thereafter.

The duckling is not like the chick in showing indications of sickness. It makes no noise nor shows any outward symptoms of being ill, and usually the first indication of trouble is sudden death.

ROUP.

I am losing my hens most every day, not any roosters. Will do my best to describe their case. Some get awful thin, seem to have a fair appetite until the last, and they droop around quite a while. Some take sick suddenly and die the second day and will be fat, perhaps been laying right along. Their combs get purple and bowels are loose, droppings are yellowish and sometimes greenish. Sometimes little bunches come near their eyes or beak, which contains a hard yellowish matter. Their crops are soft. They make a rattling in their throat and seem to choke when I give them anything. I have saved two or three by giving them melted lard with sulphur and red pepper. I have a new henhouse 14x28. I throw lime upon the droppings every morning.

Lapeer Co. Mrs. J. B.

The symptoms given undoubtedly indicate that your chickens are affected with the roup. The symptoms vary considerably, some hens apparently acting dumpish for a long time, while others will retain their normal appetites and appear healthy until a few days before death. The condition of the bowels as described, the darkening of the comb, the droopy condition of the fowl and the exudations from the eyes and beak are all indications of the roup. The rattling in the throat is caused by the discharge from the nostrils getting in the air passages and partly closing them.

This disease is one of the filth diseases and the primary cause is usually damp and unsanitary surroundings or contaminated food or water. One of the chief methods of control is to thoroughly clean out the poultry house, burning all the litter and disinfecting the houses with a five per cent solution of carbolic acid. The drinking water should have a disinfectant in it, for which purpose potassium permanganate is the best. This is a crystalline substance which can be bought for from 20 to 30 cents per pound at drug stores. A saturated solution of this should be made by dissolving all of it that water will dissolve. A good way to do this is to use a large-mouthed jar or bottle, putting a liberal amount of crystals in the bottom and then filling it with water. This should be stirred occasionally and if all of the crystals dissolve more should be added. Always have in the crock more crystals than the water will dissolve. This is used as a stock solution, and one to two teaspoonfuls put into 10 quarts of water is about the right proportion for poultry use.

All dead birds should be burned or buried deeply, and affected birds should be isolated at once. It is rarely advisable to endeavor to cure birds as the results are seldom satisfactory. The main thing in ridding a flock of this disease is to have everything clean, dry and sanitary.

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FOR SALE—2 Registered Holstein heifers and one bull 6 months old for \$300, delivered. Bull sired by Hartog Clothilde Lad, 104573, whose four nearest dams' records average over 32 lbs. Pine Hill Farm, R. 6, Lakewood, Mich.

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FOR SALE—Reg. Guernsey Bull 6 years old, sure and a good stock getter. Yekkes Fernwood breeding. JAY D. RUSSELL, R. 1, Gobleville, Mich.

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HOLSTEIN CATTLE and Duroc Jersey Swine. Choice pigs of both sex now ready to ship. Prices reasonable. E. R. CORNELL, Howell, Michigan.

MICHIGAN HOME AND TRAINING SCHOOL. LAPEER, MICHIGAN. Breeder of High Grade Holstein Cattle. Lists and prices upon application.

HOLSTEIN CATTLE and O. I. C. SWINE. ELMER E. SMITH, Redford, Michigan.

JERSEYS
FOR SALE

One Bull—Two Cows—One Heifer. All registered. One cow soon to calf. A bargain at \$150 for the bunch.

NIXON FARMS, Brooklyn, Mich.

Maple Lane Register of Merit Jersey Herd. Tuberculin tested by U. S. Government. For sale bull calves and heifer calves from E. of M. dams and grand dams, and Hood Farm Sire. IRVIN FOX, Allegan, Michigan.

THE WILDWOOD JERSEY HERD

Registered Jersey Cattle of Quality. Tuberculin tested. Majesty's Wonder No. 9/717 heads the herd. Bull calves for sale, also a two-year-old bull that is right. For prices and description write or come. ALVIN BALDEN, Capac, St. Clair Co., Michigan.

Little Farmstead Jersey Cattle. Bull calves from R. L. of M. Cows, also heifer calves and several bred heifers for sale. Colon C. Lillie, Coopersville, Mich.

Jerseys. Bulls ready for service, extra quality sired by Jacoba's Fairy Emanon, No. 10711, from high producing dams. SMITH & PARKER, Howell, Mich.

JERSEYS—THE REGISTER OF MERIT KIND. BROOKWATER FARM, R. No. 7, Ann Arbor, Mich.

Jersey Bulls for Sale from high-producing dams, with semi-official test. C. B. Wehner, R. 6, Allegan, Mich.

M. The Jersey Cow is Queen of the Dairy.

C.

FISHERTON FARM JERSEYS—Some fine crossing on A. A. R. H. Hood Farm Pigs' 9th. from Register of Merit dams. FISHERTON FARM, Pontiac, Michigan.

BIDWELL SHORTHORNS

For "Beef and Milk" Registered Bulls, Cows and heifers Scotch-topped roans, reds and whites for sale. Farm at L. S. & M. S. Depot, also D. T. & I. R. Y. BIDWELL STOCK FARM Box B, Tecumseh, Mich.

Shorthorns For Sale, farm 1/2 mile east of Davis crossing on A. A. R. H. W. R. McQUILLAN, Chilson, Liv. Co., Michigan.

MILKING SHORTHORNS—Young bulls sired by a Grand May & Otis bull for sale. DAVIDSON & HALL, Tecumseh, Michigan.

Shorthorn Cattle of both Sex for Sale W. W. KNAPP, Howell, Michigan.

Shorthorns—Dairy or beef bred. Breeding stock all ages for sale at farmers prices. C. W. Crum, Socy. Cent. Mich. Shorthorn Breeders' Assn., McBride, Mich.

Dairy Bred Shorthorns of best Bates strains. Young bulls 7 months old for sale. Price \$100 each. J. B. HUMMEL, Mason, Mich.

DUAL Purpose Shorthorns. Three extra good young Bulls, from seven months to one year old, for sale. CLYDE F. BULLARD, St. Johns, Michigan.

HOGS.

Durocs & Victorias—Grand bunch of Gilts due March and April. Comprising the blood of Superba, Defender, Much Col., Orions and others. A few young boars. M. T. STORY, Lowell, Mich.

REGISTERED BERKSHIRE SOWS to farrow soon at \$20 each. B. B. REAVEY, Akron, Michigan.

FOR SALE—Berkshire hogs, both sexes and different ages. Bred gilts for fall farrowing. Poll Angus Bull Calf, not registered. Price right. Chase's Stock Farm, R. 1, Marietta, Mich.

Royalton Bred Berkshires—Boar pigs ready to ship weeks ago with registry papers. Write for pedigree and prices. D. F. VALENTINE, Supt., Temperance, Mich.

HAMPSHIRE Swine—Breeding stock of all ages from most popular strains. Write for breeding. Inspection invited. Floyd Myers, R. 9, Decatur, Ind.

Hampshire Swine, the kind that wears the belt, right. Papers furnished. E. C. MORT, Elsie, Mich.

WEST WINDS HAMPSHIRE SWINE. Booking orders for sow pigs immediate shipment. No males to offer. E. P. Hammond, owner, N. A. Wiser, manager, Pontiac, Mich.

Chester Whites—Gilts bred for Aug. and Sept. farrow. March pigs, either sex. F. W. ALEXANDER, Vassar, Michigan.

Big Type, O. I. C's and Chester White Swine.

400 fall pigs either sex, special prices for the next 30 days, also bred gilts and service males and we are booking orders for spring pig, all our stock is good enough that I will ship C. O. D. and reg. free in the O. I. C. or Chester White Assn. We won, more prizes than all other breeders put together, at Ill. and Wis. State Fairs. Write for Show record.

ROLLING VIEW STOCK FARM

Cass City, Michigan.

O. I. C. PIGS of March and April farrow and Red Polled Bulls. Write JOHN BERNER & SON, R. 4, Grand Lodge, Mich.

O. I. C. Registered Pigs Write for photo and prices. J. CARL JEWETT, Mason, Michigan.

O. I. C's—Sows bred to farrow last of June and July. Prices reasonable. G. P. ANDREWS, Dansville, Michigan.

O. I. C.—Gilts bred for Aug. and Sept. farrow. Will take orders for March and April pigs. H. W. MANN, Dansville, Michigan.

O. I. C's—Spring pigs, pairs and trics, not akin. State fair winners. AVONDALE STOCK FARM, Wayne, Mich.

O. I. C.—25 sows bred for Spring farrow. 75 Fall pigs, large and growthy. Write your wants. GLENWOOD STOCK FARM, Zeeland, Michigan.

O. I. C's—STRICTLY BIG TYPE

Gilts bred for Sept. farrow and March pigs now ready to ship. Extra good ones at prices that will move them. Pairs not akin. I will be pleased to ship them C. O. D. and record them free in purchaser's name. NEWMAN'S STOCK FARM R. No. 1, Marietta, Mich.

O. I. C. SWINE—Are you on the market for a choice bred sow to farrow the last of Aug. or fore part of Sept? If you are, write me. I have them. A. J. GORDEN, R. No. 2, Dorr, Michigan.

O. I. C's—Two good boars 12 months old, good last fall pigs, either sex, and good spring boars. 1/2 mile west of depot. OTTO B. SCHULZE, Nashville, Michigan.

O. I. C's—Service boars, gilts, sows, spring pigs—none better. Satisfaction guaranteed. A. R. GRAHAM, Flint, Michigan.

O. I. C. Pigs, 8 to 10 Weeks Old \$10. Pairs not akin \$18. Registered free. C. J. Thompson, Rockford, Mich.

O. I. C. Choice Sept. pigs, either sex. Will take orders for March, April and May pigs, not akin. ALVIN V. HATT, Grass Lake, Mich.

Way Brothers Stock Farm. The home of the big bone O. I. C. Hogs. Stock for sale. Registered free. J. R. Way, Pompeii, Mich.

DUROC JERSEYS—A few fall boars and 12 bred gilts for sale. CAREY U. EDMONDS, Hastings, Michigan.

FOR SALE—Fancy bred gilts, fall males, spring pigs, of the large, smooth kind. Price to sell. JOHN McNICOLL, Station A, R. 4, Bay City, Mich.

Capitol Herd Duroc Jersey Swine. Established 1888. C. Young boars and bred sows for sale. I pay the express. J. H. BANGHART, Lansing, Michigan.

HEAVY BONED DUROC JERSEYS FOR SALE. Some extra nice spring pigs ready to ship. M. A. BRAY, Okemos, Ingham Co., Michigan.

DUROC JERSEYS—Spring pigs either sex. Gilts bred for Sept. farrow to a son of Volunteer Grand Champion at Intern'l Stock Show Chicago. F. J. Drott, R. 1, Monroe, Mich.

DUROC Jersey bred gilts, bred for Aug. and Sept. farrow from leading blood lines; also a few good boars. Write for circular and prices. W. C. Taylor, Milan, Mich.

Duroc Jersey—March pigs either sex, sired by a son and Chicago Show in 1912. E. H. Morris, Monroe, Mich.



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

MY OH MY!
What an Opportunity.

Starting May 1st, we are going to give to the farmers and breeders an opportunity to get started right in the breeding industry. We are going to give you a chance to get hold of foundation stock that will give you a nucleus for one of the finest and best herds in your community. We are going to show you as we have others, that you will have greater success with our big type

POLAND CHINAS

than with any other breed. We want to place at least one pig, or a pair in every community, to advertise our herd. If interested, write for our plan and prices. HILLCREST FARM, Kalamazoo, Mich.

DUROC JERSEYS—Fall and spring pigs either sex, from choice strains. R. C. STAHLMAN, CHERRY LAWN FARM, Shepherd, Michigan.

SOLD POLANDS as far south as Miss. north and west as far as Washington. Every customer satisfied. I can satisfy you. Breeding stock for sale at all times. FRANK KRUGER, Ravenna, Michigan.

POLAND CHINA Spring Pigs from heavy boned prolific stock. Sows bred for Summer and Fall pigs at close prices. ROBERT NEVE, Pierson, Michigan.

BIG TYPE P. —Head boar, Hoosier Giant, also pigs sired by him, a few bred sows, 1 young boar by Big Smooth Jumbo. Mrs. J. E. Braithwaite, Brant, Mich.

Poland Chi-as, either sex, all ages. Something good at a low price. Bargains in boars ready for service. F. D. LONG, R. F. D. 8, Grand Rapids, Mich.

POLAND CHINAS of the big type. Boars for spring farrow. A. A. Wood & Son, Saline, Mich.

LARGE TYPE P. C. —Either sex, pairs and trics, not akin. Am booking orders for bred gilts. W. J. HAGELSHAW, Augusta, Mich.

Big Boned Poland Chinas. Fall gilts bred weighing from 260 to 300 lbs. ROBERT MARTIN, R. F. D. No. 7, Hastings, Mich.

Large Strain P. C. Boars ready for service and sows with fall farrow of the best breeding, to be had at bargain prices for the next 30 days, must have the room for others. H. O. SWARTZ, Schoolcraft, Michigan.

Poland China—Am booking orders for male pigs to be shipped at weaning time. G. W. HOLTON, R. No. 11, Kalamazoo, Michigan.

BIG TYPE POLAND CHINAS. We won more prizes in 1913 and 1914 than any other Poland breeder in Michigan. Fall stock for sale. BEAN CREEK FARM, Addison, Michigan.

FALL PIGS AT HALF PRICE

Bred from the largest strain of Poland Chinas on earth, none bigger. If you ever expect to own a registered Poland China, this is your opportunity. Get busy and order at once. Pairs and trics not akin \$15 each. J. C. BUTLER, Portland, Mich. Bell Phone.

BIG Type boars by Big Smooth Jumbo. Greatest B boar in State, 748 lbs. at 17 mo. These boars are long, tall, big bone, sold at farmers prices, shipped C. O. D. Call or write, Wm. Waffle, Coldwater, Mich.

LARGE TYPE P. C.

Largest in Michigan.

Bred gilts at sold. A few extra good fall pigs priced to move them quick.

W. E. LIVINGSTON, Parma, Mich.

FOR Sale—A few thoroughbred Poland China Pigs six weeks old of the 1 reg. brood. They will be registered if desired. Price upon application. G. T. HINES, Bradley, Michigan.

50 YORKSHIRES—All ages. Red Polled Cattle, Oxford Down Sheep, W. P. Rocks, I. R. Ducks. E. S. CARR, Homer, Mich.

YORKSHIRE SWINE. Boars ready for service. A gilt bred for June farrow. Weanling pigs 6-10 weeks old. GEO. S. McMULLEN, Grand Lodge, Mich.

For Sale—Yorkshire Gilts from large litters, bred for fall farrowing. Waterman & Waterman, Ann Arbor, Mich. Meadowland Farm.

Mulefoot Hogs:—Weanling pigs, pairs not akin. Bred sows and gilts for fall farrow, two service boars. C. F. BACON, Ridgeway, Mich.

Little Farmstead Yorkshires. Boars ready for service. L Gilts bred for Sept. farrow. Spring pigs, pairs and trics, not akin. Colon C. Lillie, Coopersville, Mich.

REGISTERED YORKSHIRES

Imported Strain. Both sexes. Prices Reasonable.

Hatch Herd, Ypsilanti, Michigan.

REGISTERED YORKSHIRES—MARCH PIGS fine boars. JOS. H. BREWER, Belmont, Mich.

YORKSHIRES

Bred gilts, service boars, September and October pigs. Prices reasonable. W. C. COOK, R. 42, Ada, Mich.

SHEEP.

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

Registered Oxford Down Sheep—Write your wants. M. E. GANSLEY, Lennon, Michigan.

HORSES

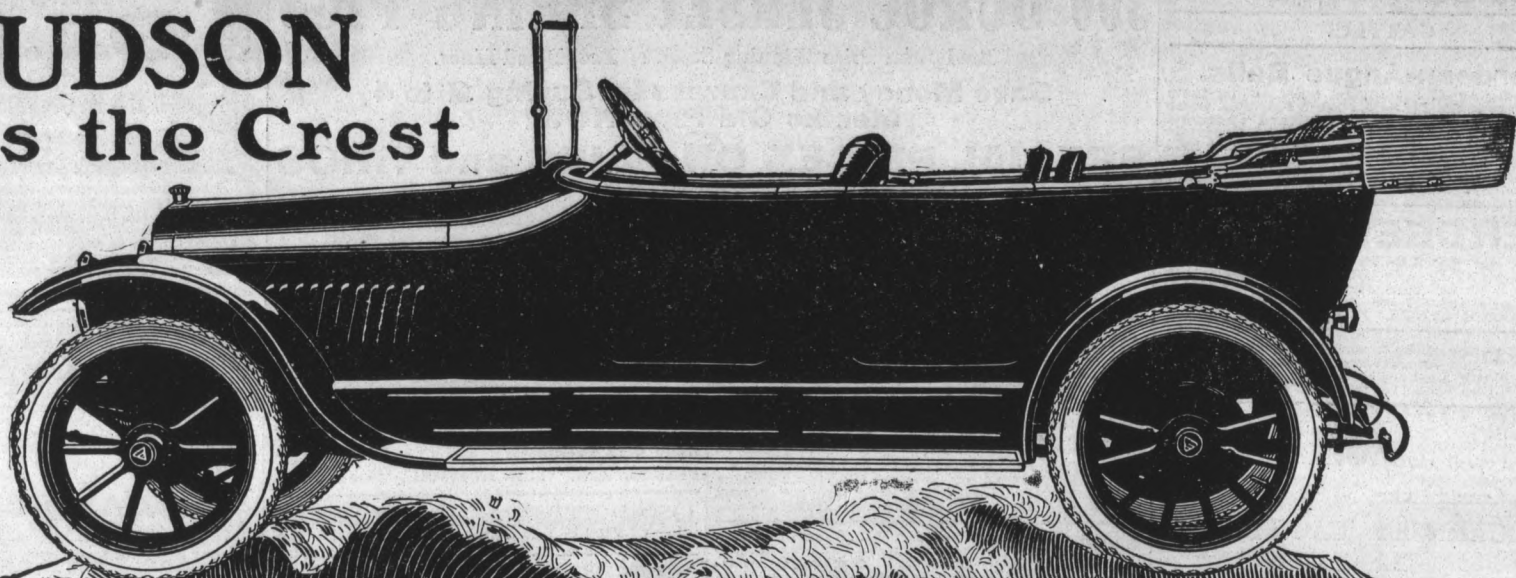
FOR SALE—Registered Percheron Stallion Mares and Fillies at reasonable prices. Inspection invited. F. L. KING & SON, Charlotte, Mich.

Pigeon Pony Farm—Reg. Shetland Ponies, mostly spots, 1 spotted stallion and young stock for sale. Dr. W. T. Morrison, Pigeon, Mich.

Registered Percherons Brood mares, Fillies and Young Stallions. Priced to sell. Inspection invited. L. C. HUNT & CO., Eaton Rapids, Michigan.

HUDSON

Rides the Crest



POPULARITY

HUDSON
\$1350
F. O. B.
DETROIT

1041 Sold in Two Days

On Monday and Tuesday, June 14th and 15th—Opening Days for This New Model—Dealers Sold to Users 1041 HUDSONS

This new-model HUDSON—for 1916—was first announced in the newspapers on June 13th. About the same time announcement was made in Farm Papers and weeklies covering America. All announced these four great innovations:

**The Yacht-Line Body
The Satin - Lustre Finish
More Room and Luxury
A \$200 Price Reduction**

On Monday and Tuesday, June 14th and 15th—the opening days—every HUDSON showroom in the country was crowded to the street. Every road around brought farmers to see this newest car.

Many thousands of men were turned away. There was no chance for demonstrations. Even careful inspection was almost impossible. Yet 1041 men in those two days bought these new-model HUDSONS. In those two days men paid \$1,400,000 for a HUDSON model none had ever seen before.

The Avalanche

June 14th and 15th broke every record in the sale of high-grade cars. We knew the avalanche was coming, but the actual demand amazed us. All over the country motor car buyers had been waiting this new model. We held our announcement until dealers could get reasonable stocks ahead.

But the first two days sold nearly half a month's output. By the time this appears our deliveries of this new model will reach 4500, probably. We are building 115 per day. But that will hardly begin to supply the men who want this HUDSON car.

Came Like a Comet

It was only 22 months ago when this HUDSON introduced the new-type Six. It was designed by Howard E. Coffin, the famous HUDSON designer, and weighed under 3000 pounds. It cut fuel and tire cost in two.

The price was \$1750 then, but that price was the season's sensation. To sell a high-grade Six under \$2000 was considered impossible then.

The demand for that car was far ahead of supply. The next

We have dealers everywhere. These are a few in your vicinity:

MICHIGAN DEALERS

Ann Arbor—Ann Arbor Garage.
Big Rapids—C. P. Judson.
Bessemer—E. H. Ekman.
Battle Creek—American Motor Co.
Birmingham—Morris Levinson.
Bay City—Peter J. Oswald.
Charlotte—J. W. McCormack.
Chassell—Edwin E. Warner.
Clare—J. B. Roe.
Detroit—The Bomb-Robinson Co., 288 Jefferson Ave.

Dundee—McIntyre Bros.
Durand—Durand Auto Co.
Eagle River—R. L. Blight.
Flint—Albertson Bros. & Lintz.
Gladstone—Holmgren Auto Co.
Grand Rapids—L. E. Colgrove.
Greenville—E. A. Kemp & Son.
Hillsdale—L. E. Roethlisberger.
Iron River—Lindwall & Lindstrom.
Ionia—Eugene Kerstetter.
Jackson—Temple Garage Co.
Kalamazoo—Kalamazoo Auto Sales Co.

Lansing—Lansing Taxicab Co.
Marquette—Superior Garage, Ltd.
Menominee—Auto Service Co.
Manistique—L. Yalomstein.
Owosso—Ferris Bros. & Wolvaer.
Plymouth—J. R. Rauch & Son.
Port Huron—George E. Yokom.
Saginaw—Sutton Sales Co.
Sault Ste. Marie—R. G. Ferguson.
St. Johns—R. G. Clark.
Union City—F. B. Hart.
Whittemore—A. J. Blumenau.
Wyandotte—A. W. Pardo.

season we doubled our output and brought the price to \$1550. On that model last summer we were at times 4000 cars oversold.

On this new model we doubled our output again, and brought the price to \$1350. In but a few months this new-type car has quadrupled the HUDSON output. It has changed the whole idea of a class car. Today it dominates in a conspicuous way the field of the quality Six.

No Car Like It

HUDSON popularity brought many a follower. Within a few months there were dozens of makers building cars in the Light Six class.

But Howard E. Coffin and his engineers had then spent three years on this HUDSON. They were working all the time to improve it. They worked out countless refinements. Within 20 months they had added to this HUDSON 51 distinct improvements. And our multiplied output had brought the price down to \$1350.

Today this HUDSON finds no rival in sight of it. Such a car at such a price is impossible with small productions. Many of the best of HUDSON features are not found in other cars. Today you cannot find even second choice to the HUDSON if you seek a high-grade Six.

New 1916 Features

This new-model HUDSON brings out the Yacht-Line body. It shows for the first time the Satin-Lustre finish. Each coat is baked on in enormous ovens. It has a roomier tonneau, a wider rear seat. It has disappearing extra seats to double the tonneau room.

It has enameled leather upholstery. It has deep, luxurious cushions.

And it has, above all, the approval of owners. Many thousands of men have proved out this HUDSON on millions of miles of road. Any owner will endorse this to you as the perfect car.

Go see it before our summer output is sold. Now you can get an early delivery. Later we fear that you cannot.

**7-Passenger Phaeton or 3-Passenger Roadster,
\$1350, f. o. b. Detroit. New Cabriolet, \$1650.**

**HUDSON MOTOR CAR COMPANY
DETROIT, MICHIGAN**

HUDSON service is one of the best HUDSON developments. It insures continued satisfaction. Ask us to explain it.