

# MICHIGAN FARMER

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**T**HE benefit derived from draining land has long been well understood. No crop can grow well in a water-soaked soil. Where the ground remains wet for any considerable length of time it may not be possible to grow successful crops and there may be so much constant free moisture that it is absolutely impossible to grow crops. Anyone who has had experience knows full well that it pays to drain this kind of soil. Some of the reasons that have been deduced from favorable results in draining may be briefly given.

Where the soil remains water soaked many of the soluble salts in the soil become dissolved and should be removed from time to time and they cannot be unless the water is drained off. Unless there is a drainage through the soil to wash it out or clean it out the soil is liable to become alkaline. Again, if the water stands in the soil continually it becomes stagnant. Besides, in a water-soaked soil there is no chance for the rains that fall to be absorbed and they run off, and in many instances wash or gully the land and do a great deal of damage.

Again, it is necessary that air circulate through the soil. The roots of plants need oxygen. The bacteria of the soil or "the yeast of the soil" also need oxygen in order that they may live and thrive. In soil that is saturated with moisture there can be no circulation of air and consequently there is no chance for the bacteria to live. Again, a wet or water-soaked soil is always a cold soil. Water is a non-conductor of heat. One can build a bonfire on the ice and not melt the ice to any considerable extent, and so the heat of the sun cannot penetrate a water-soaked soil. When the water is removed by drainage and the warm air and heat of the sun penetrates the soil, it increases the temperature several degrees and by this increase of warmth and the removal of water the soil bacteria find a congenial home and then fulfill their functions, which is to act upon the organic matter in the soil and change it into available form for plant food.

Again, drainage increases the available moisture. Plants cannot use the free moisture of the soil. The soluble plant food which the plant uses must be held in solution by the soil moisture; that is the film of moisture which surrounds each particle of soil. This moisture is sometimes called "the sap of the soil," and it is from this moisture that the plant derives its food or sustenance. Consequently, when we remove the free moisture from the soil we lose, to a large extent the total amount of moisture in the soil, we increase the available supply of moisture for the plant.

If one is in doubt as to whether his soil needs artificial draining or not let him dig a hole like a post hole in the ground. If water stands in this hole for any considerable length of time during the year, that land is too wet, and it will pay to drain it. When land needs draining, the first requisite for profitable farming on this land is tile draining. It costs money but it pays. It should be considered just as much of an investment and the same kind of an investment, as the pur-

## FARM DRAINAGE.

case of the land itself, because no one can make a profit in farming on wet land.

### Laying Out the Drains.

In the construction of drains it is necessary that one have some experience and usually it is better to turn the job over to an experienced man. In almost every community a man of considerable experience can be found, who can be trusted with the job. The average farmer hasn't the time, and has not had the

experience to go to work and properly drain land and do it efficiently. The work, however, of laying out drains and properly constructing them is not difficult.

In certain localities it may be necessary to construct open ditches to furnish outlets for the tile drains, but usually this is not necessary, and main tile drains can be laid out which will carry off all of the water necessary to be turned into them from laterals. It requires some ingenuity and judgment in looking over a

field to know just where main drains ought to be located, and just how thick or how close together the laterals ought to be laid, and if the farmer does not feel himself confident to do this it will pay him well to get someone with experience to assist him in locating the drains, especially the main system.

In this connection, the size of the tile for the purpose desired must be determined. The co-operative opinion of many practical farmers who have had much experience in draining will warrant one in attempting to give something of a rule as to the size of tile which should be used. It is generally conceded that a three-inch tile will drain five acres, a four-inch tile 12 acres, a five-inch tile 20 acres, a six-inch tile 40 acres, and a seven-inch tile 60 acres of land, and when the size of the main tile is determined that is all that is necessary because everybody concedes now that laterals should not be less than three-inch tile. In the early days two-inch and two and one-half-inch tile were used for laterals, but the expense being nearly as much as for three-inch tile, it is better to lay the three-inch tile, because they are not nearly so liable to be filled up with sediment if there is the least defect in the grade line of the ditch.

### Practical Construction.

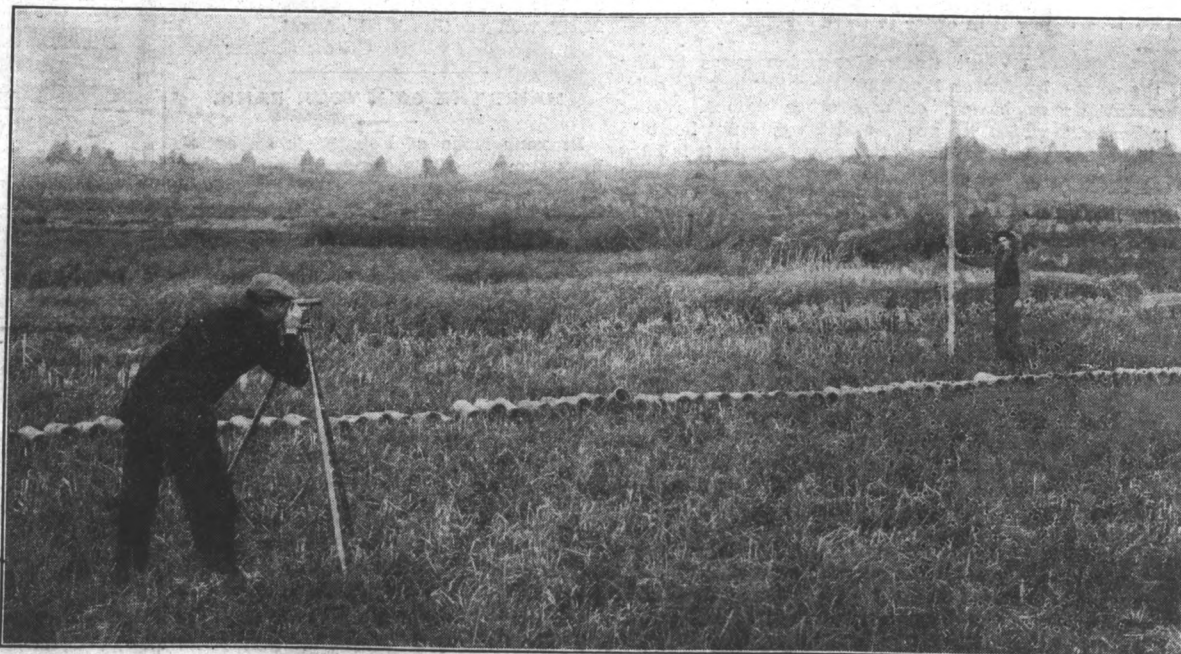
On land where the fall is very light, or where one goes through cuts or drains depressions, a careful survey of the land should be taken in order to get the grade and get it perfectly, because there is no use in going to the expense of digging the ditch and laying the tile and then not having them work well afterwards. If a farmer knows something about practical surveying, he can borrow a Y level of a surveyor and do this work himself, or perchance he has a level of his own, or for ordinary work he can construct a level which will answer the purpose, by simply having a stake with a cross-bar on which can be placed a common spirit level. For short ditches and where the grade is not difficult to ascertain this will work fairly well. Or a water level consisting of a hollow tube with an elbow on either end into which glass is fitted and then filled with water. It is set level, of course, when the water rises to the same height in each glass tube, and one can get his grade nicely. In my own case, in laying out most all of the main drains on my farm I borrowed the county

surveyor's Y level and did the surveying myself, run all the grade lines and figured out the cut for every 100 feet of the main drain, wherever there was any question about the work, but in most all ordinary draining this is not necessary, and levels can be run by simply putting up a line above where the ditch is to be and then sighting over a spirit level to be sure that there is plenty of fall. Then construct the ditch and dig the grade line parallel to this line above the ditch. In this way there is no trouble whatever in getting a uniform grade line and have the ditch work perfectly.

In laying out the main ditches it is quite important to get a good outlet. On some of my land which was creek bottomed it was difficult to get a good outlet. In fact, that outlet had to be down as low as the bed of the creek,



Laying Drain Tile with a Tile Hook.



The Surveyor's Level is the Most Satisfactory Instrument for Determining Grades for Tile Drains.



and when there is high water in the creek this will back up into the tile and the land will not be drained off until the creek goes down. This one cannot help, and where one has an outlet like this similar to the outlet shown in the picture on succeeding page, it is necessary to go every year, in fact, it is better to go every spring and every fall, and see that the outlet is properly cleaned out. Silt will run down the ditch and accumulate at the mouth of the tile and sometimes entirely cover them up, and this must be removed or it will seriously interfere with the working of the ditch. On the other hand, where there is too much fall at the mouth of the ditch care must be taken to pave with stone or cement just in front of the tile so that it will not wash, because an excavation will be made which will gradually creep up the ditch and destroy or misplace several tile at the mouth.

In the practical digging or construction of a ditch I have always plowed a furrow as deep as possible. We usually put three big heavy horses onto a big turning plow and put it clear down to the beam. Then we go back on the ditch and plow out the other way, making a regular dead furrow. In this way we can remove nearly a foot of the soil and it is a great start on the ditch. The rest of this excavation we have always done with ditching spades. Nothing is particular until you get near the bottom. Then one should have the grade line stretched overhead and measure every foot or so with a pole from the bottom of the ditch to the line above so as to get a uniform grade. When this is done and properly cleaned out with a tile scoop then one can lay the tile from the ground without getting into the ditch, properly and with little difficulty.

Numerous ditching machines are now on the market. One power machine is guaranteed to dig a ditch and dig it true to grade so that the tile can be laid immediately. This, of course, is an expensive machine, but if it will do the work well it certainly does away with a lot of labor. Of course, where one comes to a stone in the ground the machine must be stopped and the boulder removed. There are various other machines. Some of them run by steam or traction power and some can be operated by horses. Some are comparatively inexpensive, and it is claimed that they are of great assistance in the practical construction of a drain, making the excavation at very much less expense than can be done by hand labor. If I had very much tile draining to do I should certainly try some of these modern machines. As it is, the draining on Lillie Farmstead is practically completed. We have perhaps a few hundred rods yet to dig in places where we did not originally put the tiles close together, but the great work of tile draining is done, and of course, I am very thankful for it. Our farm now is just in shape to begin to realize something from the investment because we have drawn off this surplus water and put the land in condition so that we can go to work and improve its crop producing power and make a profit.

It is hard, slow, expensive work to thoroughly tile drain land. But there is no other remedy. It is the only thing to be done. In fact, it is the very basis of profitable farming upon this sort of land and the sooner one begins, the sooner he will begin to realize upon his investment.

COLON C. LILLIE.

#### NOT MUCH OF OPPORTUNITIES LOST BY MICHIGAN FARMERS.

The man who travels through the country on the cars and makes observations on the "lost opportunity of farmers," might lose some necessary time if he examined at less speed, but his observations would be of more value to himself and lead to more correct conclusions.

Suppose a traveler were to see the thousands of tons of spoiled sugar beets left at the various loading stations this year and were to seize this as a text for the wasteful manner of manufacturing and read the usual course of lectures on waste and wind up by suggesting a reduction in the tariff or sugar because of the prodigality of manufacturers, it would be a parallel case.

Everyone knows that one of the most unusual conditions of seasons made it difficult to handle the crop of sugar beets and the tops as well. Under ordinary conditions, very little waste of feed occurs and this season, with high cost of feed of all years, beet tops were saved just as far as the conditions of the season would permit.

This subject is of minor importance were it not used as a text to preach a

sermon as to how the farmers in Europe particularly in Germany, are able to increase their soil fertility by painstaking care. Another observation made like that of the farmers beet tops, without adequate information. By turning a few pages further in the same issue of the Michigan Farmer is a conservative statement in the advertisement of the American Agricultural Chemical Co., stating that German farmers expend \$20 per acre in fertilizer for beets and potatoes and find it pays. Now it naturally appeals to the spirit of economy to use the observations made on the printed page to bolster up our desires to get along without spending any money for plant food. When the season is over and a lean crop harvested because of adherence to some of these inadequate or incomplete statements harm is done to the individual farmer, the sugar manufacturers and the whole community of the producing world. It is "toil without recompense, tears without gain," and "what I have read in the farm papers does me no good and guess I will not subscribe after my year is up." To maintain the soil fertility of Europe the United States exported in 1908, 1,180,280 tons of phosphate rock, or about one-half of the total mined. Much of this going to Germany to maintain soil fertility. Germany, which is four-fifths as large as Texas, raises 125 million bushels of wheat and consumes 200 million bushels. Germany imports 40 million bushels of corn, a billion pounds of oil cake and other foodstuffs, and in this way aids in preserving soil fertility. I am always sorry when the real fundamental facts of soil fertility are not understood and an attempt made to exploit a special industry on superficial observations.

Shiawassee Co. JAS. N. McBRIDE.

#### OATS AS A SPRING CROP.

There has been a great deal said about raising corn, in The Farmer, but nothing about raising oats or other spring crops; and we, as farmers should be as much interested in raising oats, or other spring crops, as corn.

In the writer's opinion, to successfully raise oats, the ground should be plowed in the fall before, as the frosts of the winter has much to do with settling the ground and forming a good foundation on which to prepare a good seed bed.

As soon as the ground is dry enough in the spring use a disk harrow, going over the ground both ways; then, by using a spring-tooth harrow for leveling and more thoroughly pulverizing the ground, one has the field in good condition for seeding.

However, if one cannot get the plowing done in the fall, a good crop can be raised by early spring plowing, as corn stubble. Plow it as soon as the ground is dry enough, then use a heavy roller and almost as good results will be obtained in getting a solid foundation on which to prepare the seed bed.

About April 20 or 25 is early enough to sow oats.

Allegan Co.

C. N.

#### HUNGARIAN GRASS.

I have had most excellent results from feeding millet to cattle and sheep and would like to raise it every year but have heard it was extremely hard on the land. Would you kindly inform me concerning the effect of raising Hungarian millet on sandy and gravelly soils? Also what is a good crop to go before and also to follow it in order to have a rotation of crops?

Jackson Co.

J. W. W.

I don't think Hungarian grass is any harder on land than timothy hay, or oats, or barley, or any other crop like that which we grow, and I would not hesitate about growing it simply because it is hard on the land. That is what we have land for; to grow the crops that we want to use, and then we must use our skill as farmers to keep up the crop-producing crops. I do, however, question the propriety of raising Hungarian grass as a regular crop, year after year. I would prefer to raise timothy hay in a regular rotation to take the place of this and I doubt if Hungarian grass, although I know it has a good value as stock food, for I have grown it myself as a catch crop, is any better than a crop of oats cut and made into hay, and I am quite sure it is not as valuable as a crop of oats and peas grown for hay. If one wanted to grow it regularly he could put it after corn, and if he got it in pretty early it would come off in time so that the land could be plowed and fitted and put into rye or into wheat. And, while this millet, like all other millets, is a valuable food, they are not considered worthy as a regular crop in the rotation

because we have other crops which are more profitable, and millet is usually only sown as a catch crop; that is, where some other crop fails and there is still time for a crop of Hungarian grass which grows in an exceedingly short time.

COLON C. LILLIE.

#### THAT WET FIELD AGAIN.

Your answer to my inquiry at hand and notice that my description did not thoroughly describe the situation. I meant that the water only stands on this land in spots during the early spring or real wet seasons. I had an idea that this ground might be sour, but right in the lowest place where water stands the longest the beans grew better than they did on higher ground next to the hole and got ripe. The two seasons that the corn and beans did not do well were both dry seasons. I put both crops in in good shape and gave them good cultivation. The ground is in fine shape for oats this spring and would like to know if oats will do well on ground that is liable to be sour. I am satisfied that the ground is strong enough as it grew the largest hay that I ever saw, and furnished good pasture up to the time that I plowed it up for corn. Do you think that tilling this spring would do away with the acidity enough to help this season's crop much? Would commercial fertilizer or barnyard manure do away with the acidity? I have heard of putting lime on ground that is sour. If you think it necessary can you tell me where I can get it and how much to put on an acre?

Saginaw Co. O. J.

Even after reading this second letter of O. J.'s about the wet field, I am still inclined to believe that what the field really needs to permanently improve it is thorough tile draining. If water stands on any portion of the field for any considerable length of time in the spring it certainly needs tiling, and land that is too wet at any time of the year will not raise as good crops in a dry year as though it was properly tilled. It is barely possible that this land is acid or sour and O. J. can determine this by going to the drug store and getting five cents worth of blue litmus paper and burying a strip of it in the soil and leaving it there for 15 or 20 minutes and then note carefully if the blue litmus paper has turned to any tinge of pink. If it has, it is sour, and if you have got sour land the only thing to do is lime it. You can buy lime almost anywhere at reasonable prices. Look in the Michigan Farmer and you will find advertisements of lime. Probably a ton of ground limestone per acre would be sufficient to sweeten it.

I never saw any land yet but what a good dressing of stable manure or commercial fertilizer would help the crops, and I believe that it would help this land wonderfully. Tile draining would assist materially in sweetening the soil by drawing off the surplus water but it would act slowly and would not be of very much benefit to an oat crop. The oat crop will do fairly well on land that is a little acid in reaction and probably you could get no better crop for this soil, but the trouble will come when you try to grow clover, as clover will not do well on sour land. Even clover will grow on sour land if you furnish it nitrogen, but the bacteria which takes nitrogen from the atmosphere cannot live in a sour soil and consequently the clover crop ceases to be a soil improving crop if it is grown on sour land. Then, too, clover will not do well on wet land. If you can possibly get the time I think it would pay to drain this field this spring. However, if you seed it to timothy and redtop it will do fairly well on this kind of soil.

COLON C. LILLIE.

#### MAKE THE SOIL YOUR BANK.

In your issue of Feb. 17 is an article by Colon C. Lillie, under the heading, "Why Clover Fails, which I think is very interesting, because it is instructive, but to which I want to add one remark. He says: "A farmer, to my way of thinking, might better invest his money in phosphoric acid and potash if his soil needs it, than to put it into the bank. His soil should be his bank."

But the trouble is that the farmer whose soil needs such treatment, very often don't have any money in the bank. But to my way of thinking such farmers had better borrow the money at almost any cost, if necessary, in order to get those chemicals, and use them in the way Mr. Lillie suggests. I think that would be one of the surest ways for such farmers to get money to put into the bank. But that money should not be squandered for something else. It requires a little wisdom on the part of the farmer to use borrowed capital.

Leelanau Co.

ISAAC GARTHE.

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Fenn's Post Hole Auger handles hard pan soils. Free booklet on request. The FENN MANUFACTURING CO., Charlotte, Mich.



## THE MAPLE SUGAR INDUSTRY.

One who has lived 60 years in a section where maple trees abound has witnessed a progress in the process of making maple sugar, that will compare favorably with the evolution of almost any other industry.

In pioneer days, and before the advent of cane and beet sugars, the farmers were dependent upon the "sugar bush" to supply them with sugar and syrup. In these early days the process of tapping the trees, gathering and boiling the sap, and "sugaring off," as it was called, was necessarily crude. Where the land was to be eventually cleared, the conservation of maple trees was not a consideration and, until such a time as the land was to be cleared, the process of tapping was such as to seriously injure the trees. A notch was chopped in the tree, sloping downward so as to form a cup. Just below this cup, a hole was bored, usually with a half-inch augur, to tap the lower part of the cup, and an elder spile was inserted. By this notching process a much greater surface exposing the pores was secured, and thus a larger flow of sap obtained than where, as is now the case, a small hole is bored in the tree.

In those days the use of sap pails, such as are now used, were scarcely thought of or, if they were, the expense of obtaining them would have been prohibitive. Blocks of a suitable size and length were cut from trees, split in halves and these were made into troughs. Each trough was capable of holding 10 or 12 quarts, and was poured from the troughs into the gathering pail when collecting the sap. A barrel was usually mounted on a sled to which the team was attached and driven about among the trees and the sap collected by being poured from the collecting pail into a funnel fitted into the bung-hole of the barrel. When the barrel was full it was sledged to the sugar camp and emptied into a large storage trough from which it was carried in pails to the kettles. These were hung on a pole, supported by forks driven into the ground, of a proper height, and under the kettles a fire was kindled. Usually small logs were brought alongside of the kettles, and as the kettles hung between these, economy was secured in the use of fuel. The number of kettles depended upon the extent of the business or the ability of the farmer to obtain them. At our camp we used five, of graduated sizes.

The largest was hung at one end and graded in size, until at the opposite end the smallest, or syruping kettle, was placed. After all had been filled, boiled

commercial sugars of good quality and at a moderate price, and as the sugar groves were reduced in area, maple sugar and syrup ceased to be necessities, and were reduced to luxuries. With these changed conditions it became important that quality should be the leading desideratum, and therefore the processes have advanced until today these commodities will no longer compare with the dark and strong products of a few decades ago. From the old outdoor process which I have described, in use 50 years ago, the setting



A Poor Outlet for a Tile Drain.

of the kettles in an arch, and then, from the kettles to the evaporating pan over a brick oven in a sugar-house, quickly succeeded each other. But perfection was not yet. The invention of the compartment evaporator, permitting of the continuous flow of sap, and ability to draw off the syrup at the opposite end of the evaporator from where it entered, together with the use of sap pails with covers, thus preventing leaves and other foreign substances from getting into the sap, the improved clarifying processes, together with co-operation of producers, in seeking quality, have gone far to make the industry truly respectable.

Statistics indicate an annual production of sugar and syrup of a value of four million dollars in the United States. The northern states of New England, New York, Pennsylvania and Ohio, embrace the principal area of the industry. Ver-



Making Maple Sugar in the Open. Scene in a Barry County Sugar Bush.

and frequently refilled, we would begin by emptying the largest into the others and re-filling it with fresh sap. Then, as the sap boiled away we would empty the one next to it, passing the sap to the others until, finally, all would be in the little kettle at the end, and by this time it would be boiled to sufficient density to be taken off. This little kettle had a hook attached to the pole on which it hung and could be detached without disturbing the others, whose bales hung over the pole. When the syrup was poured into pails, the kettle was returned to its place and the process repeated.

At the close of the day the syrup was taken to the house where it was re-boiled to the proper density to be "sugared off" or made into syrup. At this time it was clarified by the use of milk and eggs, which were added to it while boiling. This caused a scum, containing the impurities, to rise and was removed with a skimmer.

In those days the quality was not of so much importance as now, as the commodities had but little commercial value and were used principally in the homes of the makers. But with the advent of

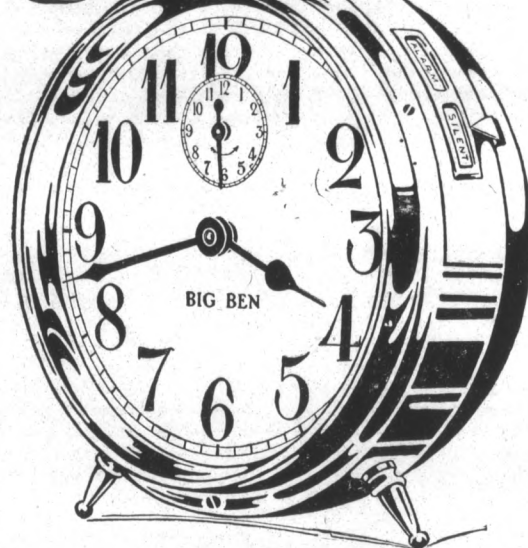
mont, perhaps, exceeding any other state.

The maple sugar industry is dependent largely upon locality and still more upon the season of the year. Those sections where there is considerable frost in winter and a gradual breaking up in the spring, with frosty nights and sunny days, are congenial to sugar making.

From the middle of February to the middle of April will usually cover the season in the sugar area. The first made is usually of the best quality as, when the season is advanced the sap is less clear, more viscid in its character and quality proportionately inferior.

There used to be a saying that when the maple leaf was of the size of a squirrel's ear, it was time to pull the spiles and gather the troughs or pails. But this is to continue the season beyond the period of good quality. It is estimated that a barrel of fifty gallons of sap should make eight pounds of sugar. Trees vary somewhat in their sugar content, usually owing to location. Trees growing in a thick grove where sunshine is excluded will contain a less per cent of sugar in their sap than others more favor-

## Big Ben



What Franklin said, I say again—  
"Plow deep while sluggards sleep"—Big Ben

Farm-work goes like clock work when it is started on time each morning. Run your farm as factories are run. Have a whistle start the work-day. Big Ben, the national sleep-watchman, will blow such a whistle for you—in other words, he'll ring his tuneful bell at any time you say. Begin the work on schedule time each day, and you'll do a great deal more. More work done, more money made.

Some men get rich on farms and others fail. What is the reason? Most always it is this:—Some farm systematically and some do not.

The best system begins with the rising hour—start with getting the farm hands up on time.

BIG BEN IS BUILT FOR THAT ONE

THING. TRY HIM ON YOUR FARM. See him at your jeweler's today. Note his big jolly sunlike face—his great, strong keys that are easy to wind, his large, clean-cut hands and figures which make time-telling easy, even in the faint morning light. Hear Big Ben's jovial voice—his whistle. You'll want him in your room and in the rooms of every farm hand on your place. Nine men will do the work of ten the first day he is used. Thus he'll pay for himself.

A community of clockmakers stands back of him—Westclox, La Salle, Illinois. If you cannot find him at your jeweler's, a money order for \$2.50 addressed to them will bring him to you express charges prepaid.

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By H. O. Gilgore, Swayzee, Ind.  
"Separated 162 bushels of wheat from 294 bushels of oats. Am not half done yet. Have already made enough to pay for the mill and am \$38.16 to the good, besides."

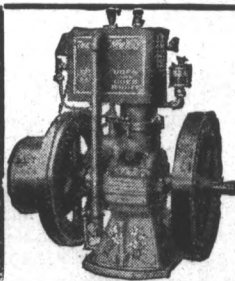
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ably situated. Trees possessing a large head and abundant foliage will give, other conditions being favorable, a greater flow of sap and of higher quality than trees where there is a less leaf surface. It is through the leaves that the manufacture of starch is engendered, and the amount of sugar depends upon the amount of starch stowed in the cells of the tree. The price of maple sugar varies, owing to quality, from eight to 20 cents per pound and syrup from 80 cents to \$1.25 per gallon. The season of their manufacture occurring at that time of the year, before the regular farm work begins, is advantageous to the farmer as his time is less valuable and his profits nearly clear gain.

New York.

B. F. MACK.

#### THE GREAT VALUE OF JUNE CLOVER.

My attention was called to the valuable article of Mr. Lillie, "Why Clover Fails," in the issue of February 19, and also to "The Soil Fertility Problem," from Mr. Brady, of Cass county. These two subjects are of great importance and should command the most earnest attention of all progressive farmers. When I was in Chicago last fall I had the pleasure of hearing a short address given by President Taft in the interests of agriculture at the dairy show. He gave some very valuable data and figures on how the farms in general were decreasing in production and how rapid the consumption, each year, was increasing in comparison—which is due, of course, to increase of population and demand for food stuffs which depend entirely on the fertility and management of the farms. He pointed out that in time the situation could become alarming if proper methods were not adopted to retain a higher standard and greater production from the farms now under cultivation. It is a known fact that we have been living from the "cream" of the land, which nature has endowed to us for our great benefit. But the time has come when the "cream" has mostly been utilized in our efforts to gain wealth, as well as an existence.

Those millions of fertile prairie lands, which only required to be tickled with the plow to produce wonderful crops, are a matter of history, and by constant production without proper methods of retaining their fertility are producing less year by year, and require much more faithful labor and expense to produce the lesser yields. It costs us just as much to prepare the land to produce a poor, unprofitable crop as a valuable one—the only saving is in the harvest. But even then we have more strength and ambition to harvest a good crop than a poor one. Of course, when there is a general failure the price reaches a high figure, but someone suffers for this severely and it is much better for the farmer, as well as the millions who are depending on him for their existence, to harvest bountiful crops and a surplus rather than a deficiency. This condition can only be brought about and made possible by our earnest, careful consideration of the problem of "building up" the soil from which we have sold the cream for year after year.

When I was in Illinois last fall, visiting an uncle, I accompanied him for an auto ride out to his farm, and many miles through the surrounding country, which contained thousands of acres of corn standing in the fields and the farmers were busy husking same from the stalks. I was pointed out many fields near my uncle's farm which he told me had been continually planted to corn for 35 or 40 years, or ever since the raw prairie was first broken up. Now this looks almost impossible to continually crop land so long, especially with the same crop and get any profitable results whatever. Yet these fields in question had corn on that I should judge would yield around 35 to 50 bushels shelled corn per acre.

But right here is a point in keeping up soil fertility which was spoken of by Mr. Brady. These fields of corn have had nothing put back on the land for 30 or 40 years, except the "weeds" and cornstalks. Of course, the stalks were pastured down after husking, by herds of cattle and horses, which left in the land a certain amount of fertilizer at no expense whatever. I want to ask the farmers of Michigan what would this land have produced if it had been skinned of every vestige of vegetation, as are the corn fields here?

Michigan has a great salvation of protection over Illinois, owing to the fact that it is perfectly adapted to red clover, which in my opinion is the very best and most economic method of fertilizing

our land. For some reason clover does not thrive in Illinois, and it is hard to get a good catch of even timothy there in many locations, but in the nine years I have lived in Michigan I have not noticed a failure in general in getting a good stand of seeding. However, I do not think quite as Mr. Lillie does regarding the dry seasons not effecting clover seeding. When I came on this farm two years ago there was 70 acres of new seeding which was sown in wheat, the timothy being sown in fall and red clover in March or April the year before. This started out for a splendid hay crop, but after it was several inches in height it stopped growing for the lack of moisture. We not having any rain to speak of in April or May, consequently this hay yielded only three-fourths of a ton per acre and I am positive if the moisture had been sufficient it would have yielded over twice that. Now this is enough to prove that clover must have rain, no matter when starting or after it is nicely started. Of course, Mr. Lillie is a thorough, progressive farmer and as he has owned and managed his land for many years he no doubt has it in the highest state of cultivation and production, while many others have recently bought land that has not been managed before as it should have been. I think perhaps Mr. Lillie's land is heavier soil than my farm and is more adapted for grass and will naturally retain the moisture longer.

Since I came here we have had two successive dry spring which have made a serious loss to all farmers. I have seeded over 200 acres and have no stand whatever, which is a loss to me of at least \$1,500. This has seldom happened on this farm or anywhere in the county, and is caused only by the excessive hot, dry springs. I am told that the former owner of this farm was quite successful in seeding clover in the spring without any other crop. One field here was seeded in April in the corn stubble by harrowing well and they cut 90 big loads of hay from around 70 acres in September. The next year this also produced a big yield of clover. There was no timothy in this seeding.

Now I am going to try this same method of seeding. Even though I should not get a profitable crop, or even any, hay, the first season, I believe I would have a stand for the next season, which would be much better than to throw time and money away like I have done.

As Mr. Lillie says, "your farm is your bank," and that is another thought we often do not think of. It would well pay all of us if we would sacrifice a "whole crop of clover" if necessary, every few years, and plow the same under, instead of taking off the second crop down to the roots year after year, which will mean ruin to the land in time. Of course, we could husk the corn on the hill, like Mr. Brady states, which I always did in Illinois, and plow down the stalks. But I believe it is less work and cheaper to cut the corn with a harvester and manage as I have stated than to husk it from the hill. I have not husked a "shock" of corn in the field, by hand, since I have resided in Michigan. As I figure that this is useless work and very expensive. But I do think if one wants the corn husked that the shredder and husker is about the best method employed to do the work and Mr. Osborne, of Van Buren county, seems to think that the fodder can be kept all right, which has been my only serious objection to the shredder, which I used to employ. I think it pays well to save the fodder, although if we have big yields of clover hay, I would prefer that as feed in preference to fodder. The stalks, after the corn is harvested in the field, make a quantity of quite valuable feed for any stock but you lose nearly one-half its value by not harvesting same.

Of course, we have different opinions as to some of these problems and perhaps take the proper method for our own situation. But we must carefully study every method of "improving soil fertility," which means the saving of time and labor, as well as to keep that bank account on the increase, and this can be easily done by plowing down the "clover" which dear old Michigan will produce in abundance.

Washtenaw Co. B. F. WASHBURN.

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No matter where you plan buying your seeds, you should be sure to write to Northrup, King & Co., 693 Bridge Sq., Minneapolis, for their large, beautiful 1912 catalogue. For 28 years this house has been selling the best seeds obtainable. Their seeds are sold by over 12,000 dealers.

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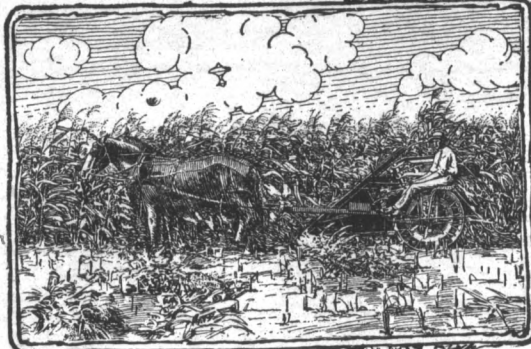
Corn is the most valuable crop of the country both on account of its grain value, and also the feeding value of its stalks and leaves. The crop must be harvested at the right time. If cut too early the grain is affected; if too late, the feeding value of the fodder is decreased. When your crop is ripe you go right into the field with a Johnston Corn Binder and in the least possible time the entire crop is harvested. The Johnston has the greatest power, lightest and most direct draft, requires less power, and wastes the least corn of any other machine on the market. The Johnston has no neck-weight and no side draft. It saves corn, time, power, labor and money. Remember "Corn is King."

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## FARM NOTES.

## Combating Grain Rust.

I have been a reader of the Michigan Farmer for some time and have received much good from your columns. I would like to have a little advice on a matter of soil. I have black muck ground and my oats get about half grown when they are attacked by the rust. It is not in the seed, as I have changed seed.

Wayne Co.

E. E.

What is popularly termed rust as relating to cereal grains is the result of the ravages of a number of fungi or parasitic plants. This disease has been well known since the fifteenth century. There are several species of rust attacking both wheat and oats, but all belong to that type of fungi which have several stages of development separated by two or more rest periods. During the life history of these parasitic fungi several entirely different types of hosts are frequently utilized, and it is because of this complex life history that the rusts of cereal grains have for so long been inadequately understood. A review of the life history of rusts would, however, be superfluous at this time. Suffice it to say that there is no known remedy by which rust can be successfully combated, except that all conditions are helpful to that end that tend to mature the crop before the rust becomes abundant.

For this reason fields devoted to grain crops should be properly drained, clean seed of good germinating quality should be sown on properly prepared ground. Wild grasses and weeds, barberry shrubs, etc., growing adjacent to these fields should be destroyed and if the trouble cannot be controlled in this way the growing of grain crops upon land where rust has been troublesome should be abandoned until the trouble disappears by growing grain crops less frequently in the crop rotation. On a muck soil the addition of mineral fertilizer may hasten the ripening of crop sufficiently to overcome this difficulty. Try an application of phosphoric acid and potash to supply a deficiency in the plant food ingredients in this kind of soil.

## Growing Cucumbers.

Please give your opinion through the Michigan Farmer, on growing cucumbers on light sandy ground; land in pretty good condition. What time to plant, also would it pay to use fertilizer, if so, would you advise putting it in the hills early in the spring, on account of it drying out the ground so, then keeping the ground well dragged? Of course, I would mark the hills.

Gratiot Co.

J. G.

Fairly fertile, sandy land is suitable land for the growing of cucumbers, which need a rather warm soil for best results. They can best be grown upon a clover sod to which an early application of stable manure has been made and the crop will be improved by the use of either composted manure or fertilizer in the hill. This, however, should not be applied until the crop is planted, when it should be well mixed and covered with soil before the seed is planted. The ground should be plowed early and kept well harrowed until planting time. The crop is usually planted by the middle of June. Plenty of seed should be used to insure a good stand and later thinned to three or four stalks in a hill. The hills should be about five feet apart each way. Thorough level culture should be given until the vines get too large to permit of such cultivation. Cucumbers are a fairly profitable crop but require a good deal of labor in harvesting and should be grown on a small scale until experience has been acquired in growing and handling the crop.

## Flax Culture.

Can flax be successfully grown in Michigan? When should it be sown?

Montcalm Co.

G. D.

Flax can be successfully grown upon the better soils of Michigan and was formerly quite extensively grown in Huron county, but the crop has given place to the growing of sugar beets and chickory largely, in recent years. Moist, deep, strong, loamy soils are best for flax, whether for fiber or for seed production. Good corn land is very satisfactory. The soil, however, needs to be very well prepared by thorough working before the crop is sown, to make the plant food contained in the soil as readily available as possible. The crop is sown in the spring as soon as the weather settles and the ground begins to warm up, generally the latter part of May. For seed, two or three pecks per acre are sown and for fiber one and one-half to two bushels. The trouble with the flax industry in all parts of the United States where the crop is grown is that it is subject to a fungous disease which makes it necessary for a long crop rotation and makes it difficult to grow the crop continuously in one lo-

## Do You Grow Beans?

An Up-to-Date Farmer Tells How to Make the Bean Crop Profitable.

"Grow beans as a cash crop and that is my hobby. I have fertilized beans for eight years, and what I know I have learned by experience.

There are only two ways to use fertilizer on beans. Either sow 200 pounds per acre on each side of the bean row, that is, by using a fertilizer grain drill, 11 hoe, and let six tubes sow fertilizer and five tubes the beans, and get on 200 pounds to the acre. Don't let the fertilizer run in with the beans as there is too much danger of burning them.

I am going to sow fifty acres of beans this Spring. Some of the ground is very poor. On the poorest I will sow 300 pounds of A. A. C. Co. High Grade Fertilizer broadcast with a drill and work the ground in good shape, and then when I sow my beans will sow 200 pounds more per acre on each side of the beans, making 500 pounds per acre on the poorest ground.

I have used many kinds of fertilizer—different kinds and analyses. But at the extra cost I prefer A. A. C. Co. High Grade Fertilizer with a high analysis, especially for lighter soil. Some authorities claim that you don't need any Nitrogen for beans. My experience in growing beans is to use a quick acting fertilizer with high percentages of Nitrogen, Phosphoric Acid and Potash. Last season on a soil that would not grow ten bushels of beans per acre, by using 500 pounds of A. A. C. Co. High Grade Fertilizer I grew 28 bushels per acre.

Let me say, don't be satisfied with 10 or 11 bushels per acre. If your soil is not too heavy, and if you get it rich enough, you can grow 30 to 40 bushels per acre. I am speaking of pea beans. They are the kind I grow. Sow from three pecks to one bushel per acre according to size of beans. Above all, don't use cheap Fertilizers, for they are too dear to buy for the plant food they contain." (Name given on application).

We furnish quick acting, high grade Fertilizers of many different compositions to meet the requirements of all crops grown on various kinds of soils. We make grades where either the Nitrogen, Phosphoric Acid or Potash are component parts, with the right percentages of the other elements of plant food to properly balance the Fertilizer to use on muck land, clay, light soils, etc.

If your land is rich in Nitrogen you will save money by using Phosphoric Acid and Potash to balance out the plant food in the soil. Progressive farmers who study

out these things are more successful than those who have not realized the great difference in Fertilizers. Even at the same price, one grade of Fertilizer under certain conditions will produce more profitable results than another.

In selecting Fertilizer the farmer cannot be any too careful. He should make sure that the goods are manufactured by a reliable firm, so that he may depend upon getting full percentages of plant food and of the highest agricultural value, also in first-class mechanical condition. The reputation of the manufacturer is very important.

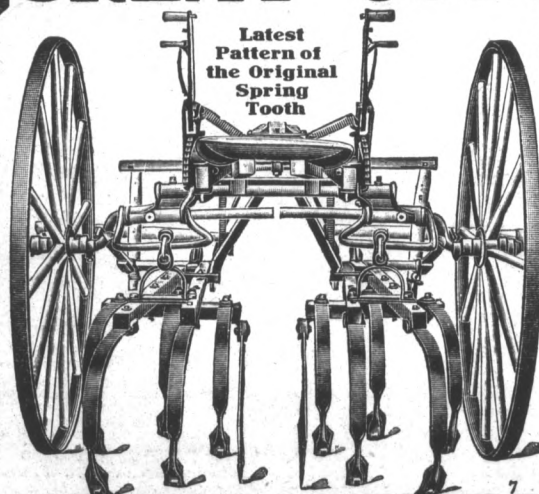
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cality for any number of years. Owing to the ravages of this fungous disease flax seed has fallen off in production in recent years and has brought an abnormally high price.

#### Inoculating Soil for Alfalfa.

Will you kindly advise me if manure from a stable where alfalfa is fed will help in any way, the inoculation, or benefit a new field where I wish to sow alfalfa seed this summer? I really do not expect inoculation from the manure, but I thought there may be some extra benefit derived from it. If there is, kindly advise me in your paper.

Ohio.

C. E. R.

While it would be possible to secure inoculation of the ground intended for alfalfa by the application of manure from the feeding of alfalfa hay, it would hardly be a safe dependent. The bacteria peculiar to the alfalfa plant inhabits nodules which form on the roots of plants through its presence. The only method by which this bacteria could easily become prevalent in hay would be through contact with the soil at the time it was harvested. Still, there is no doubt but that the application of stable manure makes the soil a more suitable home for bacteria, and in this way would be not a little helpful, while the occasional colonies of this bacteria which would be distributed from the source of alfalfa hay would doubtless soon spread until a complete inoculation was secured. However, it would, in the writer's opinion, be far preferable to inoculate this soil from a successful field, or the seed with a pure culture of the bacteria when the same is sown.

#### WHY THEY GO TO THE CITY.

A great deal has been said and written as to the mad rush of young men from the farm to the city. A great many things are suggested as the cause of this exodus. Much of truth has been said in regard to this, in fact, there is a grain of truth in almost every article, but it seems to me that the real fact has never been prominently and properly taught. To me this desire to get to the town grows out of a basic principle in physics, mechanics, industry and all lines of human activity, I might even suggest theology, and that principle is the tendency to follow the line of least resistance, which, when sociologically applied, is another name for laziness. The fact is that farming calls for a diversity of intellectual qualities, a versatility of practical knowledge, that means hard and strenuous work of brain and body, to bring results, and this hard work is what, in my mind, sends the boy away from the farm home.

The farmer to be successful must be far ahead of the city chap in ability to turn his hand to a hundred different things. He must be a manager of finance, a student of natural conditions, a boss of men, a workman himself. He must be able to do what, in dozens of ways, are in the city regarded as separate and distinct occupations, each of which demands special training. He must be able to care for his stock, faithfully as when the race was pastoral and when cattle meant capital, as it once did. He must, in order to do this, be a careful observer of the habits and needs of these dumb and faithful friends. What they should have to thrive on and give best results, must be a part of his education. He must be a botanist in its original meaning, for this work first means fodder, and the expert in finding pastures was the first botanist. He must be tender and patient toward these, his living chattels, which, by their health and fatness, make so much for his success. The study of nature, such as Burroughs has followed, must be a pleasure to him, and the various signs of changes of weather must spur him to activity in caring for his crops. The laws of growth, the chemistry of the soils, the creation of those favorable conditions that make for exuberant plant life, must be his care. The literature that comes to him in these days is abundant, and should be studied with intelligence. He should not feel himself all-sufficient, but should consult the experiences of others. He must be something of a carpenter, and when the barn, the fence, or the implements of his labor require repairs, he must not delay, but should have and use the simpler tools to protect them. He may easily spread the prepared paint, mend the harness, and make many of the labor saving tools for the farm.

The tree surgeon has become a fad lately, but the farmer has practiced this in a way for centuries. His orchards respond in dollars for his attention and care. The various insect plagues that bother the inert orchardist, must be

fought, and fought with intelligence. Sanitation for his family, his stock, his crops, his trees, is an ever-present problem, and with all these various duties, he must give a portion of his time and energies to the duties of citizenship, to the economy of organized society, to buying and selling, to the world conditions that affect the farm and its produce.

Over against all this complexity of activity and multiplicity of duties, take a look at city life. There everything has, by the development of industries, become divided. Each man has some simple part to act, that is, simple when compared to the farmer's part in the economy of modern society. The young man goes to town and gets a job in some of the great plants. He is taught to run some machine which is almost automatic. He feeds the thing. Perhaps it is simply a machine that cuts the thread on a bolt, and his product goes on to another machine for another process, and is only one of a thousand such simple processes, but which in the aggregate make up, when assembled, the complete machine. He turns on the power and the machine does the work, he simply feeds and watches it. Turns off the power, and this, day after day, week after week, until the very monotony becomes fearfully oppressive. His life becomes a routine unvarying, and for this he receives wages measured by his necessities, for the organization of that great industry comprises that as a part of its accurate cost system. By care and faithfulness he may get another machine that requires greater care, and advanced wages. He is, so long as he holds his job, secure in a competence, but this at the price of all initiative. He is not his own boss. He may enjoy the life of the city, but that which is open to him is narrow, and tinselled, shining with cheapness, and far removed from the permanency and comforts of a home where a reasonable profit is assured by reasonable energy, and greater rewards are sure to follow the exercise of greater industry guided by intelligence. The prospects of the farm are today growing broader and those of the city narrower. Organized industry is demanding more men who can work without thinking, and the farm is demanding every year more who can think and work out their thoughts. Every year the advance of population makes the city less attractive, and the country more attractive to the young man, and there is no field in which the future promises so much of reward for active and intelligent effort, as on the farm.

The rush from the farm to the city is to be deplored, and when the young men know the reality of the facts, they may find that the more astute foreigners, the people of Europe who have there learned the real value of land ownership, as a foundation for permanent fortunes, have supplanted them, and that they have gravitated to the lower level of mere workmen, whose wages are determined by industrial conditions over which they have little control.

Let us not mince matters by euphemistic terms: It is today the love of ease, the beck of luxury, that is urging our young men along the line of least resistance, another name for laziness, but the promise of the siren will never be fulfilled by reward, except to the rare and rarer growing individual who, by reason of some questionable means of promotion, manages to grasp the fortune that someone else has earned.

In saying these things I confess that I am somewhat autobiographic, for when I left the farm many years ago, I thought that it was to seek the broader field for the exercise of the abilities that I thought I possessed, but I now know that it was mostly laziness, a shrinking from the hard work of that farm which, under my father's care had been a good old home, and an ample provider for all my reasonable wants.

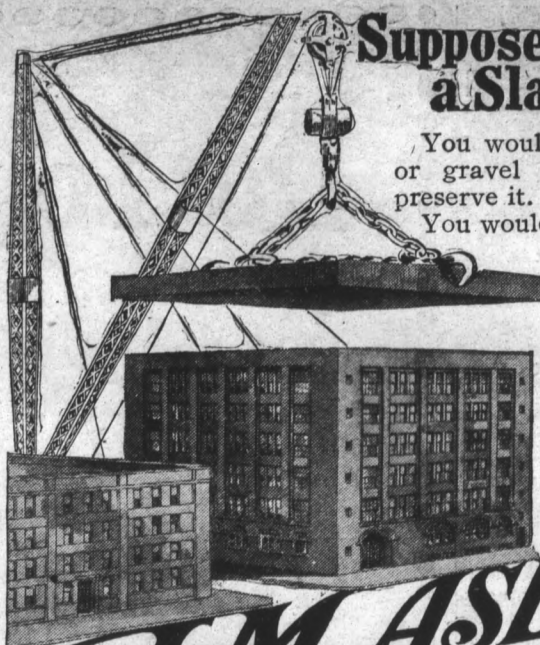
Genesee Co.

WM. VERNON.

Many farmers start the garden propitiously in the spring but fail to give it the attention demanded when the rush season comes upon the farm, but it will pay for a few hours or days of hired labor if such is necessary.

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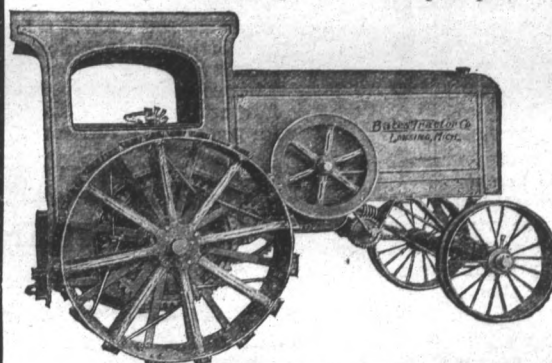
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Takes the place of *hired men*. Your boy can run it. 25-30 H. P., weight 8,000 pounds. Will do as much as 16 horses and costs a great deal less. Great saving over horse power. Will pull plows up any hill or on soft ground where horses can go.



Plowing made easy in hot weather when the ground is baked hard. *Comfortable* enclosed cab. Heavy duty engine, large bearings, simple in construction and easy to operate. Equipped with friction clutch pulley to run all all kinds of stationary machinery. Write for catalog.

BATES TRACTOR CO.,  
Bates Street,  
Lansing, - Mich.

## WANTED!

I want 10 men or more in every township to write me *quick* for a special offer on the sized engine they need. When you get this offer you'll buy. I make it practically irresistible. Then *everybody* in your neighborhood will know the *truth* about Galloway—his quality and savings—and all will *understand* the foolish tales the dealer tells in order to get his big price and personal profit.



## 10 OR MORE MEN

Write Now to Galloway

You'll soon see the reason for the really funny things that dealers say of Galloway. "Galloway has no factory"—"Galloway's pretty near broke"—"Galloway's stuff is poor quality"—those are a few of their stories. But I'm going to call their bluff and make such prices to 10 or more men in every township that will bring the orders and show up the dealers' "jokes" in their true light. In the meantime I'm getting hundreds of letters like this: A. L. Westphal, St. Francis, Minn., writes: Last winter I investigated 5 or 6 different engines on the market, but I bought the Galloway, and I am very well satisfied with it. I have saved at least \$100.00 on it.

Write quick for Big Engine Catalog and special prices. I'll also send my fine new General Line Catalog in five colors.

WM. GALLOWAY, President

THE WM. GALLOWAY CO 645A J Galloway Station, WATERLOO, IA.

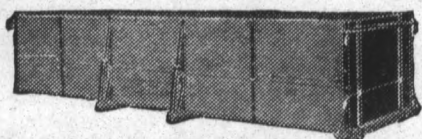




# 30 Days Free Trial

## Not One Penny Down

## Freight Prepaid

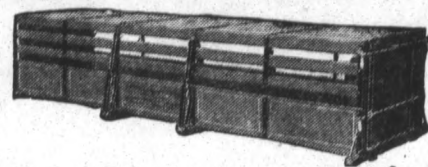


This illustration shows the Melrose as a grain tight box bed. The depth is 29 inches; width either 38 or 42 inches, outside measurements; length, 9½, 12, 14 or 16 feet, as you may prefer.

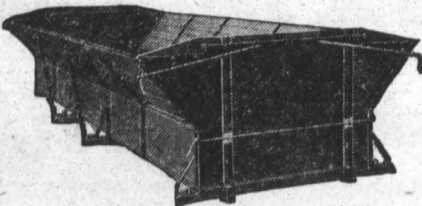
One Wagon Bed for Everything. No Changing of Boxes or Racks. Once on the Gears, Always on the Gears.



Fifteen Wagon Boxes, Racks and Beds in One. No Lifting, Tugging, Straining or Suffering Injury. A Great, New Modern Invention.



Have one box for all purposes—not a lot of heavy, back-breaking, space-taking makeshifts that cost you more for the expense of sheltering and handling each year than their actual money value. You can prove the Melrose at our expense.



Instead of using extra sideboards as you do with an ordinary box, use the Melrose in this position. It will haul 65 bushels of ear corn; 115 bushels of shelled corn.

## The Melrose Convertible Wagon Box

I am making you an offer on this page that as a progressive, thinking, modern business farmer you cannot afford to overlook. I am willing to prove, at our own expense, that the Melrose Convertible Wagon Box will save you more money, in the way of time, labor and inconvenience, this summer alone than your whole outfit of old-fashioned, clumsy, back-breaking boxes and racks would cost if made new this minute—and the Melrose is good for the same saving to you during the next fifteen years. You can't wear it out.

I am not asking you to take my word for it; nor the company's word—but *take your own word for it*. You ought to be willing to do that. We agree to ship the bed to you by *prepaid freight*, so you will have nothing to pay when you get it. We agree to let you use it for 30 days (one whole month) in order to give it a thorough test and trial right on the gears of your own wagon in your everyday work. Then, if you are not perfectly satisfied, just take the bed to your station and tell the agent to ship it right back to us, *freight to be paid by our company*. You are not asked to pay one penny down—you are not asked to pay one penny of freight charges or any other expense. This is an offer of a FREE TRIAL, and it means just exactly what those two words say.

**A Fair, Square Free Trial Offer** Attached to this offer there are no strings, no tricks, no catch, no conditions, no contract, no agreement, no deposit, no concealment, no bait, no risk, no expense, no joker, no red tape, no obligations, nothing left out for you to find out later—you know all there is to this offer, and you know it NOW. It is a FREE TRIAL offer on our part to prove the actual value of this invention to you—and we hereby *openly take all the risk*. We want to send this bed to your farm and let it sell itself to you, which it is bound to do just the moment you realize what a wonderful, new, practical time-saver, money-saver, labor-saver it really is.

Study these illustrations surrounding these words. Think what it will mean to your farm to have this modern, convertible box that will take the place of all your heavy, time-expensive, old-time boxes, boards and racks—and that any 12-year old boy can make any change alone, out in the field, at town, or anywhere, any time.

The Melrose Convertible Box is guaranteed for five years—an absolute, open and above board guarantee—just the same as this Free Trial Offer. It will last three, four or five times that long—and its first cost is but very little more than the cost of a good, standard make, single-purpose box, that must be lifted on or off every time you want to haul hay, or stock, or chickens, or fertilizer, etc., etc. One minute and the Melrose can be changed for any of a hundred different purposes required of a farm wagon—the *implement you use more than any other piece of machinery you own*. Why not make it modern—and save money, time, inconvenience, labor, and your own peace of mind.

**Risk One Cent** Send just a postal card, giving your name and address today, and receive by return mail our big book of complete information, full detail illustrations drawn from actual, daily use on farms, together with copy of iron-clad signed guarantee, and our great, fair, man-to-man FREE TRIAL OFFER that will place this modern invention on your farm for one full month's test, without paying anything down or depositing any money in the bank, or anywhere, or without signing any agreement of any kind. This is a FREE TEST offer and we take all the risk, excepting the price of the postal card you are to send before you turn this page. Send that card today. INVESTIGATE. We will give one Melrose Box a free ride on the train to your station, if you will give it a free ride around your farm and plenty of exercise for a month—we furnish return ticket if you get tired of your visitor. Send that card today.

### PONY MELROSE

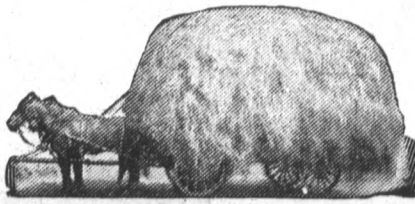
Inventor of the Melrose Convertible Wagon Box

**REMEMBER** The MELROSE costs but little more than a standard make of old-fashioned, single-purpose wagon box. It weighs less than an ordinary, cumbersome, single-purpose hay rack, regardless of the fact that it is steel bound, silled, braced and bolted throughout—absolutely indestructible. It is guaranteed—it has been tried, tested and proved. It is recommended by farmers and endorsed by Government Agricultural Experimental Stations. Address postal to

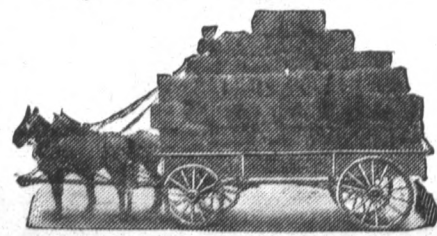
**The American Wagon Co., Dept. 46 112 West Adams St., Chicago, Ill.**



The width of the bed in this position is 6 ft., 2 in., and the drop end gate adds two feet to the length. The bottom is seed tight, thus saving enough in one season to pay you a big profit on your investment.



Here the strength is absolutely proved—4800 pounds of baled hay. Yet with all this strength the Melrose weighs even less than an old-fashioned hayrack. The entire bed is practically indestructible and will last a lifetime.



Gentlemen:—I would not own a wagon without a Melrose Convertible Bed. It is everything you claim it to be.—Grover C. Hinton, Mt. Scott, Oklahoma.

Gentlemen:—Received my Melrose Wagon Bed some time ago, set it up and have been using it ever since. It sure is a

fine box, and can haul anything on it. It only takes a few minutes to change it from one kind of box to another, and I would not sell it for twice its price if I could not get another like it. If anyone around here writes about the Melrose Box and is afraid to buy, send them to

me and I will show them that it is all right.—R. E. Riedesel, Glidden, Iowa.

Gentlemen:—Beg to advise receipt of Convertible Wagon Bed. From appearances should judge it all you claim for it. All who have seen it speak in good terms. Think it just the thing. Think so myself

and feel it is going to fill a long felt want. Fearful weather conditions here. Not out much with it. All whom I have met stop me. Before they hardly knew me. Makes me feel like a gentleman. Thanking you for generous treatment, I remain, J. Bert McConnell, Ligonier, Ind.



## THE DAIRY

CONDUCTED BY COLON C. LILLIE.

### MICHIGAN DAIRYMEN'S ASSOCIATION.

The annual meeting of the Michigan Dairymen's Association was held in Kalamazoo, February 20-23, inclusive. Taking everything into consideration it was one of the most successful meetings ever held by the association. Considering the weather, the attendance was good. There were representative creamerymen and dairymen from all over the state. The local attendance, however, of the dairymen around Kalamazoo was light, owing to the severe blizzard which prevailed, beginning on the 21st. The country roads were simply impassable. Even the street cars in the city of Kalamazoo were put out of business, and on the railroads not a wheel turned for the whole day of the twenty-first.

Because of the fact that the trains were so much delayed the program of the meeting was much interfered with. In fact, some of the speakers could not get there at all. Others were very late, and the program had to be transposed and re-arranged several times.

The meeting of the Creamery Owners and Managers' Association which met on Tuesday did not suffer as badly from the storm as the regular Dairymen's Association for the following three days, and their program was carried out more in detail.

Owing to severe illness in his family, President Marston could not attend at all, but the association was very fortunate in having an able presiding officer in Vice-President Vandenberg, of Marquette. Secretary Powers was overworked. The necessary work of the secretary of the Michigan Dairymen's Association is becoming very strenuous, and it is almost impossible for one man to do it. The work in arranging for the details of the program and providing for the place of meeting, and making arrangements and taking care of the butter and cheese exhibit, and making arrangements for the display of machinery, makes such a multitude of work that one cannot possibly attend to it as all would like to have it. In much of this work, however, Mr. Powers was ably assisted by Mr. Bechtel, of Caro, Mr. Ferry, of Lapeer, and also by other members of the executive committee, so that everything was taken care of in good shape.

The machinery exhibit was one of the best ever held. The large hall in which this exhibit was held was filled to overflowing. In fact, it was too full for the convenience of visitors, and every form of dairy utensils, almost, was on exhibition. This exhibition hall proved a very popular rendezvous, and everybody was delighted to meet old acquaintances.

At election of officers, F. L. Eldridge, of Breckenridge, was elected president, and W. T. Bechtel, of Caro, secretary for the ensuing year.

It was impossible to get the program in detail as much of it was not rendered and scarcely any of it occurred in regular order. The leading papers will be presented in The Farmer in full in future issues of the paper.

### THE BEST WALL FOR EXCAVATION FOR SILO.

I am thinking of building a silo, 12 ft. inside and perhaps 30 ft. above ground. My barn has a basement and I can go 10 ft. in the ground with the silo. Which would be the best, also the cheapest, for the part in the ground, solid concrete, blocks, or stone? I have the stone on the farm, the gravel I would have to draw 2½ miles. Would the wall need reinforcing? If not, how would you reinforce the part in front where the feed room would be? How reinforce around the door? And how make a perfectly tight door?

Livingston Co. J. T. R.

Since you have stone at hand it may make a cheaper wall than the other materials. I don't know if it would last any better, but it perhaps would be cheaper. All the way around on this silo a stone wall could simply be stacked by earth on the outside and only the inside would have to be faced. Where the wall comes around by the barn, of course there it would be better to face it on both sides. If you build a heavy solid stone wall I don't think there will be any necessity of re-inforcing it. In fact, the early silos were built out of stone wall for a considerable height above the ground and no one thought of re-inforcing them. The

weight of the wall itself has a considerable resisting force to pressure on the inside. The stone wall has to be built about 16 inches to two feet in thickness. I have never heard of a solid stone wall silo giving out from the pressure on the inside. Of course, if one thought there was any danger it could be re-inforced with wire laid in the stone just as well as in cement blocks of grout, and there would be no objection, and could be none, to using some wire in the connection.

I think the best way would be to lay the wall up about three feet from the level of the stable floor and then put in a regular door frame three feet square. Make the frame so that it will be larger across the inside than across the outside; that is, have the frame taper on every side. Then make a door out of matched flooring, double, with tar paper between, and taper the edges just so they will fit and come even with the inside of the door frame. This door will only go in from the inside of the silo and cannot go through the opening because the opening is smaller on the outside than it is on the inside of the silo. Then all you will have to do is to nail narrow cleats around as stops for the door. Built this way, you will have a perfect door for a silo. Above this door frame, if you wish, you can put a steel bar across and lay your stone wall on top of this again to a height of three feet and then put in another doorway in the same way. If you finish the silo on top of the ground with cement blocks or grout I should continue the doorway in the same way, i. e., put doors with a three-foot space between them.

### OHIO GROWN SEED CORN FOR THE SILO.

Will Reid's Yellow Dent or Leaming corn grown in Illinois or Ohio, mature for the silo as far north as this and be ready for siloing before the first of October. Sanilac Co. S. W. McR.

I have several times grown ensilage corn from Ohio grown seed. Last year I raised some from seed grown in the southern part of Ohio and it matured sufficiently to make splendid ensilage, and I think any seed corn obtained either from Ohio or Illinois will do the same if it is planted fairly early in this state. The trouble comes in when we go down as far south as Virginia or Georgia and get the corn. It takes a much longer season for it to mature, but where you only go 150 or 200 miles south that corn can almost invariably be depended upon to properly mature for silage. It doesn't want to get dead ripe to make good ensilage. I don't think that there is very much danger in getting the seed from either of these states.

### COMPENSATION FOR TUBERCULAR CATTLE.

In the dairy columns of the Michigan Farmer of February 17, I noticed an inquiry in regard to tuberculous cattle and the answer. I would state that at the third term for me in the legislature, the session of 1909, the live stock sanitary law was amended; also, three new sections were added. These were intended to deal with the question of partial compensation, also better restriction and control of this disease. These sections can be found in public acts of 1909, page 337. Section 24 deals with the compensation. Of course, this section or the law does not compel testing, but with a maximum pay of \$25 for each animal condemned, it was thought that a more general testing would be desired. We had to be careful and not "open the doors too wide," for even full compensation without compelling, as you say, would swamp the state. I do not know anything about how many are taking advantage of this law, or how it is working out. Mr. H. H. Hinds, president of the commission, can tell you all about it.

Barry Co. W. H. SCHANTZ.

I am much pleased to get this letter from Ex-Representative Schantz. I had entirely forgotten the law, though now, when my attention is called to the matter I remember about it at the time it passed the legislature. While \$25 is not much for some animals, yet it is better than nothing and, taking everything into consideration, perhaps it is as much as the state should do.

It is the experience of good dairymen that the greatest economy in feeding the dairy cow results when a liberal ration is supplied the animal, since a certain amount of feed is always required for the maintenance of the animal.

## 730 TIMES A YEAR—You'll Be Mighty Glad That You Selected a GREAT WESTERN Separator

Twice a day—730 times a year—for a lifetime—you'll be mighty glad you chose a Great Western Separator instead of any other.

Whenever neighbors are around while you skim—or when you happen to be at your neighbor's when he is skimming with some other make—you'll feel proud of your judgment in selecting a Great Western. You'll realize then, what Great Western

The Great Western is ball-bearing throughout. The balls we use are absolutely uniform in size and test 50% to 100% harder than balls others use.

The ball races in the Great Western are tempered so hard that you cannot cut them with a file. That is why the Great Western beats them all for easy running and long service—why it is positively the greatest and undisputed

### Quality

means to you. You'll realize what it means in close skimming, easy turning, easy cleaning and in bigger profits from quality cream and butter. Let us tell you the facts.

The Great Western bowl follows nature's laws by delivering the cream from the top and the skim milk from the bottom. There is no chance of their mixing—so you get the utmost in quantity and quality of cream—even when skimming COLD milk.

The bowl of the Great Western is self-draining and self-flushing. There are no long tubes, no minute slots, nooks, corners, crevices or ragged edges to hold milk and collect dirt.

Write for our fine book today.

Rock Island Plow Co., 285C Second Avenue, Rock Island, Illinois.

### Value

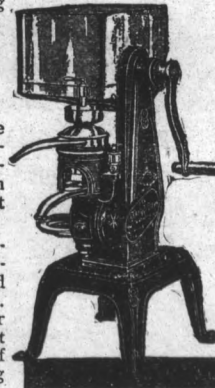
ever offered in a cream separator. We will arrange to give you any kind of a trial you want on any size Great Western.

Test it yourself on every point, close skimming, ease of turning, ease of cleaning, sanitary construction, quality of cream, quality of butter and every feature that means durability—the most cow profits for the longest time.

Our 5 year guarantee and Security Bond prove our confidence in the Great Western.

### Write Us Now

Let us send you our big book on more dairy profits. See how you can make from \$10.00 to \$15.00 more each year from every cow you milk. See the only separator that follows natural laws. The only separator cleaned in a jiffy. Skims warm or cold milk to a trace.



## HERE'S \$20

## To \$45 From Galloway

Victor Sitts, of Holt, Mich., writes: "For quality you certainly make a price on your separator that is right, and I will say that I saved from \$25 to \$30 by ordering from you. I will always have words of praise for the Galloway." Let me show you how much I can save for you. I just want a chance to show you a cold cash saving of \$20 to \$45 on the cream separator you need. And I want to prove that you'll get a better separator at this big saving than if you pay agent or dealer the high prices they ask. No separator made can beat Galloway's Bath-in-Oil Cream Separator for easy turning, close skimming, quick cleaning—long service.

**WRITE!** and get the proof—the low price—30 to 90 days free trial—long guarantee, and you return it if not satisfactory, all backed by my \$25,000 Bank Bond.

**My Free Catalog** will open your eyes to the money-making advantages of a Galloway separator and give you valuable Dairy Information not found anywhere else. Also my new catalog on Galloway's general line.

**Wm. Galloway, Pres., THE WM. GALLOWAY COMPANY**  
643AK Galloway Station, Waterloo, Iowa

Get My Price And Long Free Trial NOW

### Get the Dairy Dollars You're Losing

Absolutely sanitary conditions in the dairy mean money saved and made. Before you buy another milk can it will pay you to examine the sanitary, durable

### Sturges Milk Cans

Every inside seam is smoothly soldered, tinned and retinned. As easily washed as a glass tumbler.

Sturges material and workmanship is of the highest. We guarantee satisfaction.

If your dealer doesn't handle Sturges cans, write us about it now. Ask for catalog 46.

When ordering you can save freight by specifying shipment from our warehouse at Pittsburgh or Detroit.

**Sturges & Burn Mfg. Co.,**  
508 S. Green St., Chicago, Ill.

### CHALLENGE CHURN

Makes First Class Butter in 2 to 7 Minutes.

Guaranteed. Easy running, sanitary durable. Write for free catalog. Agents Wanted. **MASON MFG. CO.,** Dept. M, CANTON, OHIO

HARD MILKING COWS MADE EASY MILKERS by use of the "Miller Teat Opener." Harmless but very effective. Sent postpaid on receipt of 50 cents. **MILLER MFG. CO.,** Allegan, Michigan.

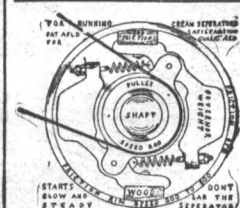
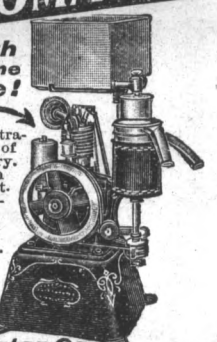
**FOR SALE, CHEAP**—Slightly used U. S. Cream Separator. **COLE BROS.,** Ypsilanti, Mich.

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### The AUTOMATIC Separator & Engine In One Machine!

You'll be astonished at low price, delivered with demonstration. Strongest guarantee of dependability. Most sanitary. Skims faster than 10 men can milk. Bowl runs without slightest vibration. Needs no watching. When Milking's Done—Skimming's Done. One size for any size dairy. Thousands in satisfactory use everywhere. Can trade in your old hand-crank machine. Book tells all. Write today sure. Address: **Morton Decker, Pres., Standard Separator Co.,** 259 Reed Street, Milwaukee, Wis. Be Sure To Ask For Book W



**Dairymen Take a Look at the Strite Governor Pulley.** It's the original and "only thing" for driving cream separators with gasoline engines. Once tried, always used. TRY ONE. Ask your dealer for a "STRITE" or write us direct. Don't take an imitation. **Strite Governor Pulley Co.,** 808 So. Third St., Minneapolis, Minn.

**CREAMERY FOR SALE OR FOR RENT** near Sault Ste. Marie (Upper Peninsula) Michigan. New, and in perfect order. The Upper Peninsula of Michigan holds all the State records for best dairy products. Natural conditions for dairying here are unexcelled. Jacob Bainbridge, Sault Ste. Marie, Mich.

**The New York World 3-a-week and the Michigan Farmer Both 1 year for \$1.65.**

You get practically a New York daily and the best farm paper at an extremely low rate. Send all orders to

**THE MICHIGAN FARMER,** Detroit, Mich.



# BEET TOP ENSILAGE.

We expect to raise sugar beets on some of our Minnesota farms and possibly on some out here next year, and if the tops make good ensilage we would like to put them in our silo. Any information you can give us along this line will certainly be appreciated, and if you do not think it advisable to put the tops in the silo, what is your advice in the way of feeding them? There is so short a time between the harvesting of the beets here that we do not get time to feed the tops before freezing.

Minnesota.

I have always fed our beet tops to the dairy cows. The first crop of beets I ever raised, about seven or eight years ago, we began feeding beet tops to the cows, hauling them from the field just as fast as we delivered the beets to the cars. The cows love the tops. When we uncovered the piles of beets in the field we were careful in taking the tops off to leave them in two or three small piles so they would not dry off so much, or freeze too hard when cold weather came, also, in case snow came before we got them fed out we could easily find the piles. It was far along in the winter before we finished feeding the beet tops. Snow had come and plenty of rain, the ground was soft and it was a difficult matter to get the tops at times, but we finally fed them all. The next year, in order to obviate this difficulty of bad weather, and wet, soft fields, I conceived the idea of putting the tops into the silo. My regular silo was filled with corn in September and by the middle of November, when we had our beet tops ready, quite a considerable amount of ensilage had been fed out. I got the man who filled the silo to run the beet tops through his ensilage cutter and put them in on top of the corn silage. This was the old-fashioned elevator carrier used at that time but we run them through and got them into the silo. They settled down and made good ensilage and we fed them without any loss, and the cows liked them. But we began raising a larger acreage of beets and there was not always room in the regular silo to put these beet tops in, and consequently I conceived the idea of building a separate silo for them. This was built by the side of the bridge approaching the barn so that we could drive up on the bridge and unload the beet tops from the wagon with a fork and save hauling them and running through the ensilage cutter. I built the silo 18 feet high and we filled it full to the top and then allowed it to settle, and then refilled it. At this time it was cold weather. The beet tops had more or less snow adhering to them and I was a little afraid that they would not heat, settle down and make good silage, but they did after awhile. In putting the tops in whole without cutting them there was considerable loss on top because the air could extend down in for quite a little distance, but after this was removed we had a fine quality of beet top ensilage and the cows liked it very much.

The next year, to do away with the loss on top of the silo, I conceived the idea of getting a carload of wet beet pulp from the factory and after we had filled the silo to run this in on top. In the meantime I had increased the capacity of the silo by extending it higher, making it 36 feet high, and then I had to rig up a carrier and operate this carrier with a gasoline engine to elevate the beet tops. The carrier worked fairly well. We run the wet beet pulp up in the same way. This worked splendidly. The beet pulp being heavy packed in close and excluded the air and there was no loss whatever.

In the meantime I had read about the German farmers mixing straw with the beet tops to absorb some of the surplus moisture. The first year that I put the beet tops in the silo by themselves I did not use straw, and there was so much moisture in the beet tops that it seeped through the silo and run all over the yard. There was a colored stream more than ten rods from the silo. To obviate this I thought it would be a good thing to follow the German practice of mixing straw with the beet tops, so we put in a layer of oat straw and then a layer of beet tops, and then a light layer of oats straw, and so on clear to the top. This worked well. The straw absorbing the flavor or juice of the beet tops and being in a moist condition when taken from the silo the cows ate all of it clean. There was one layer where the men got the straw too thick, that slightly moulded, getting so much dry straw in the center of the silo, and this the cows did not like very well. But where it was placed in evenly and not too thick they consumed every particle of the oat straw.

This last year I cut up the cornstalks on the field that we husked for feeding

purposes and mixed them in with the beet tops instead of oat straw. We had such bad weather last fall that the cornstalks were saturated with moisture and I knew if we husked then and shredded them in the regular way and put the stalks into the hay mow that we would lose much of it by moulding. The man who filled my silos said he believed he could cut the stalks and the beet tops together and blow them into the silo, and so we kept the machine until after we had harvested the beets. It was a late fall and the weather was bad and we did not begin to fill the silo until after we had hauled all of the beets, which was along about Christmas, and in the meantime the weather had become very cold. The beet tops were frozen hard. Being frozen they did not feed in the ensilage cutter very well, but the men were persistent and by having a load of cornstalks and a load of beet tops at the cutter at the same time they mixed them when they were feeding them in, and while it took a little longer, (more from the fact that the beet tops were frozen than any other reason), they finally succeeded in filling the beet-top silo full, allowing it to settle, re-filled it, and then they moved back to one of the regular corn silos and put the balance in there. It filled a space of about 12 feet in height in the 16½ ft. silo. We are feeding this ensilage now. While the beet tops were frozen when they were put in, yet they have thawed out, heated up, and settled down, and made good silage. The cows eat not only the beet tops but practically all of the cornstalks. I do not believe that these dry cornstalks filled in this way make as good a feed as the corn plant when it is cut at the right stage of maturity to make good corn silage, but I am of the opinion that I am getting a greater feeding value out of these cornstalks in this than in any other known way. It is certainly working all right this cold weather. While the corn silage is frozen to a considerable extent in the silo the beet top ensilage is warm and it has scarcely got through heating yet. It hasn't frozen a particle, so that for one feed a day our cows have had warm silage during this cold weather. We feed beet top silage only once a day because where it is fed in excess it acts as a diarrhetic and also a purgative. One good feed a day and then a feed once a day of regular corn silage works very nicely.

Of course, I have made no careful experiment which would enable me to determine the real value of an acre of sugar beet tops for silage, but I have got it into my head that they are worth at least \$10 per acre in the field, and I believe much more, and I am convinced that they are well worth the saving.

## THE CREAM FOAMS.

My cow gives rich milk but I can't get any butter out of it. It will fill the churn with foam. I am feeding hay and corn fodder and grain. The cow will be fresh in May.

Barry Co.

S. A. P.

I think the difficulty can be entirely overcome by ripening the cream before it is churned and warming it so that it is not above 60 degrees. It evidently comes from sweet and cold cream. It is a good plan where one makes butter from one cow in this way, to sterilize the milk before it is set in pans. Simply put it on the stove and heat it until it gets quite hot. Don't cook it, but thoroughly heat it. Then put it into pans and allow the cream to rise. But then the cream should be ripened or soured before churning, and it should be warmed to the proper temperature. When these directions are followed I do not believe you will have any difficulty in getting the butter to gather.

## REDUCING THE SIZE OF A STAVE SILO.

I would like some advice regarding my silo which I wish to reduce in size. My plan is to run 2x4's horizontally across from one point in the circumference of the silo to another so that five would reach around the silo; and then put in another frame of the same material cut the same length and placed in the same manner, except that the joints of one frame come just half way between the joints of the other. Will put these frames every 16 inches apart one above the other, and then nail No. 1 yellow pine flooring up and down.

Gratiot Co.

J. S.

Of course, the plan proposed of placing a frame work on the inside consisting of two pentagons in shape, one pentagon cutting the sides of the other, making a ten-sided figure on the inside, and boarding this up and down with matched lumber, will reduce the size of the silo and make a fairly good job. Before the day

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of the round silo this used to be a popular shape for a silo because the corners are not pronounced. But, this will make a large expense and you still have your stave silo setting up on the outside, and that is all that is necessary for a silo. Now my idea would be this. Why not tear this stave silo down, build a new foundation wall on the inside of the old, just the size you want your silo, take your hoops and cut them in two and splice them the proper length, leave out what staves you want and set up your silo, giving it just the diameter that you think you desire. Lay these extra staves away and sometime you may want to use them. Now you will have just as good a silo as you ever had and with one-quarter, yes, one-tenth part of the expense that you would have to build a new frame work on the inside of this silo and boarding it up with matched lumber.

#### BALANCING A RATION WITHOUT SILAGE.

I have been a reader of the Michigan Farmer for three years and I have not noticed mention of a balanced ration for dairy cows where there was no ensilage or beet pulp. I have milked cows and tended cheese factory more or less for nine years. What I want to ask is, what is the best grain ration where one has no silo? I am feeding corn in ear, oil meal, cornstalks, wheat bran, mixed hay and some oat straw. Can a man, at present prices of milk, with good cows selling at \$60, and feed so high, get out with a profit for his labor?

F. A. F.

You can make a balanced ration without silage just as well as you can with silage. Corn silage has nothing to do with the principle of balancing a ration. In a balanced ration there is a direct proportion of protein to the carbohydrates of the ration to meet the demands of the cow, and the principal thing in determining a balanced ration is to have sufficient protein so that the cow can supply the waste in her system, keep her system properly built up, and produce a maximum flow of milk, which requires protein for a great deal of the milk. Now, we can substitute almost any food for corn silage. The principal reason why corn silage is a valuable food in the ration is on account of its succulency and also its palatability. Cows do better if the bulky food in the ration is a succulent food, because the succulency has a good effect on digestion. It keeps the cow in good condition. In the foods which you have compounded so as to make a balanced ration you have two foods rich in protein, the oil meal and the wheat bran, and these, fed together with corn as the concentrated part of the ration, and your cornstalks and oat straw and mixed hay, make a very good ration, but as I say, you lack some succulent food in the ration, like beets or turnips, which will tend to give you better results, not from the fact that they contain a large amount of digestible nutrients, but because they would assist in the digestion of the other foods and keep the cow in better condition.

I would suggest, however, that instead of feeding ear corn that you grind this into meal and mix it with the oil meal and the bran, by mixing them equal parts by weight; that is, 100 lbs. of corn meal, 100 lbs. of oil meal, and 100 lbs. of wheat bran. Feed once a day of your mixed hay, once a day of corn stover, and once a day of oat straw. Feed as much as the cows will eat up clean, then feed the grain in two feeds, morning and night, and feed as many pounds per day as the cow produces pounds of butter-fat in a week. I don't believe you can get any better rule than this for feeding. If you are not selling the milk by the butter-fat content then I would feed a pound of the grain ration for each four pounds of milk produced in a day if she produced three per cent milk, and a pound of grain for every three pounds of milk she produced in a day if she produced above four per cent butter-fat.

I do not see why one cannot make a fair profit in the production of butter or cheese or any dairy product at the present time, even if the feed is high, because dairy products are at better prices than they usually are. Of course, if dairy prices were no better than they were a number of years ago when feed was much cheaper it would be a different proposition. With butter and cheese at the present price you can dispose of it at an increased price and one need not be afraid of making money with good cows. Of course, you can't make money with poor cows, and if you have poor cows in the herd the only thing to do is to get rid of them as fast as possible.

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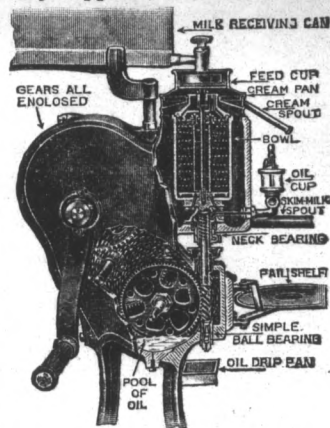
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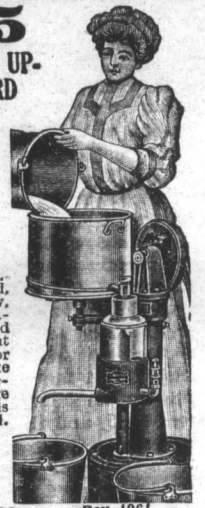
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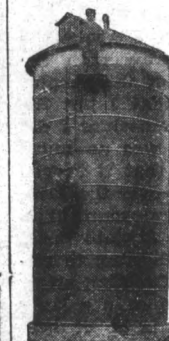
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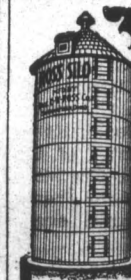
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## LIVE STOCK

### MINERAL MATTER IN ANIMAL NUTRITION.

As the country reaches an agricultural maturity many of our very proper systems of rotation and stock feeding may sometimes be found weak in the restoration of the mineral elements to the soil. This fact, together with the more general use of various feeds of commerce from which the manufacturers have removed more or less of the mineral elements, requires that we devote special study and attention to this phase of feeding if satisfactory results follow our efforts.

Men have written and talked for years of the advantages that the limestone sections hold for growing high-class stock over some of the other parts of the country. Lime is an important element in animal nutrition. In England lime is used freely on meadow and pasture land. The same is true of France and Germany. In a recent duck feeding experiment it was found that the development of these rapid growing birds was largely dependent on their food containing a sufficient supply of bone-building material. Cattle, especially young animals and cows in calf, may be seen chewing bones and lumps of dirt or old plaster where lime or phosphorus is deficient in their food. Iron and sulphur may also be lacking. Horses that receive pure spring water have been known to fall off greatly in condition when they had previously been supplied with water that came through miles of iron pipe.

The functions of these mineral elements in animal nutrition have been scientifically considered in but few cases in this country, and the general assumption has been that they were in sufficient quantity. This, however, has been too broad an assumption, as practical results and modern investigations show that various effects of different feedstuffs are due in part to these influences. Lime, phosphorus and iron are used in the formation of the structures of the body. The red blood corpuscles, containing iron, carry oxygen from the lungs to the tissues, where it is liberated for energy to support life. Sulphur and phosphorus are present in the proteid compounds and as the life processes disintegrate protein these elements form acids in the blood which must be neutralized. Sodium and potassium perform this function and so important is it, that if the food is completely free from these salts for a few days the animal will die.

Mineral salts assist in the movement of the liquids through the body and tissues, for example, from the alimentary canal into the blood and also the reverse of this action, and from the blood into the tissues, and from the tissues into the blood through the kidneys. In this way the salts of foodstuffs act as laxatives and stimulate the action of the secreting glands; they also preserve the cells in their normal condition by regulating their distention by liquids. It has been recently shown that it is the mineral constituents of wheat bran which make it a laxative feed, because if it is freed from these salts it is quite constipating. This seems to explain, at least in part, the well known laxative effect of a bran mash and discredits the idea that this action is due only to the mechanical condition of the food. Lime in the blood is essential to its coagulation. It is a safety precaution without which small wounds would result in death by bleeding. Mineral salts keep in solution various nitrogenous elements which are not soluble in water.

Considering the distribution and function of these minerals in animal bodies we find that sodium salts predominate in the blood, serum and lymph; potassium salts in the blood corpuscles, muscles, brain and liver; lime salts in the bones; iron compounds chiefly in blood corpuscles, lungs and liver; magnesium in the lungs, muscles and nervous tissues. Phosphorus is found in greater quantities in the bones; sulphur is present in nearly all proteids, but especially in the hair and horn.

Females that are carrying young, and young growing animals have a great craving for these mineral constituents because nature stores up these elements in the body of the unborn animal in anticipation of the poverty of the milk in these essential elements. During all of the suckling period the little animal is drawing upon this reserve, and lowering the per cent of mineral nutriment in its body, so, if an animal is kept too long on milk alone it will become anemic.

Experience and exact experiments show that to properly develop the bone, the young animal must make a rapid growth and have plenty of feeds rich in protein and mineral matter. Two-thirds of the weight of the dry material of bone is mineral matter and one-third albuminous matter. The more solid the bone, the richer it is in mineral matter. This shows why protein and mineral matter must be furnished abundantly if great bone development is produced.

The experiments made in pig feeding are perhaps of the greatest interest because pigs make a more rapid growth than other animals and because corn, their principal feed on many farms, is deficient in the mineral constituents. In trials made at the experiment stations in Wisconsin, Kansas, Missouri and Alabama, an abundance of protein and mineral matter in the feed not only increased the development of all the vital organs and of the muscles, making a greater proportion of lean meat in the carcass, but it increased the strength of the bones. In feeding pigs corn alone, corn and wood ashes and corn and bone meal, Professor Henry, of Wisconsin, reported that the pigs fed corn and bone meal developed bone twice as strong as those fed corn alone, and the bones of those fed corn meal and wood ashes were 93 per cent stronger than those fed corn alone. This shows that in feeding corn to growing pigs we cannot afford to overlook the importance of having an abundance of protein and mineral matter in their rations.

In feeding dairy cows a ration made up largely of corn ensilage and gluten-meal we have had more or less trouble with abortion and weak calves that showed no disposition to live and thrive, but after listening to Prof. H. M. Cottrell address the Kansas Improved Stock Breeders' meeting at Topeka, Kansas, in 1903, we practically eliminated this trouble from our herd by following his advice and feeding finely ground bone meal to our cows once a day. Prof. Cottrell claimed that the abortion and weak calves might be caused by a lack of minerals in the feed and I was so much impressed with his arguments that I began feeding bone meal and have had very little trouble from abortion and unthrifty calves since following this practice. Feeds like the best gluten-meal that have had the proportion of their constituents changed during various processes of manufacture must be supplemented by other feeds to restore these elements removed by the manufacturer if they produce good results and furnish sufficient mineral matter for making milk and developing the unborn calf.

Lime and phosphorus are the two mineral elements most used in the production of bone. Potash is of especial value in the making of new tissues, both bone and flesh. To produce the full development of bone the work must be commenced before the animal is born, by the use of these elements liberally in her rations during the time she is pregnant. As the development of bone to the full extent carries with it an increase in the size and vigor of all the vital organs and a large increase in the proportion of lean in the carcass it can easily be seen that we cannot afford to neglect to supply our animals with plenty of bone-making material.

This brings us down to the problem of supplying these mineral elements in the most healthy and economical form. The legumes are particularly rich in lime. In general, roughage contains more lime than grains. Among the feeds of commerce, such as gluten-meal, etc., where the outer hulls have been removed there is a deficiency of lime. Phosphorus is abundant in tankage, wheat bran, cottonseed meal, malt sprouts, soy beans and linseed oil meal. The phosphorus in these feeds is in a readily available form. Potassium, magnesium and iron are present in sufficient quantities in any practical ration for the stock. Sodium, the base of common salt, is not present in adequate amounts for the animal's needs, but this deficiency has long been recognized and the salt supplied. Sulphur is usually present in the common feeds, but sheep seem to be especially benefited by attention to this element. It is especially valuable in the growth of hair and wool. Cabbage, rape and turnips, so highly prized by sheep feeders, are very rich in phosphorus. Next to common salt lime-phosphate is the most common mineral fed to stock. This is made from green bone by treating it with hydrochloric acid to dissolve out the bone earths and precipitation of the same by lime. This is done to get rid of the mineral matter in the manufacture of gelatine. In this process lime and phosphate are supplied at once. Some claim

it is superior to ordinary bone meal, but my experience feeding bone meal has been so satisfactory that I would not advise anyone to make a change if the bone meal gives the desired result.

The main problem to bear in mind in making up rations containing an adequate quantity of mineral matter is to feed a variety of foods. By feeding a variety of foods some containing one and some others of the necessary minerals, one is more likely to approximate the right proportions than by confining his stock to but few kinds of food. The young animals and breeding stock need more mineral matter than the older animals. Of all grain foods corn is especially deficient in mineral nutriment. Legume hay and pasture grasses are valuable sources of these elements. Stock farmers should raise more alfalfa and clover hay and depend less upon purchased feeds of commerce if they desire to promote the health of their breeding females and young stock of all kinds on their farms.

New York.

W. MILTON KELLY.

### BREAKING A COLT TO BACK.

I have a four-year-old colt which is very stubborn about backing. Will you answer through your columns the best way to teach him? He also has luxation of the joint, making it difficult.

Van Buren Co.

M. N.

It is always quite a particular job to break a colt to back, or to break a colt to drive anyway and have him properly educated. If a colt is inclined to be a little bit stubborn sometimes it is an extremely difficult task to teach him to back. It requires a great deal of patience. The one thing to guard against is to not lose your temper. Be patient. Don't expect a colt to know more than you do. Be sure that the colt understands just exactly what you want done before you attempt to use any force. As a matter of fact, I don't believe it pays to use force anyway. A colt must first get the idea in some way what is wanted of him and then he will usually do it.

A neighbor of ours used to be an expert horse trainer. In fact he broke nearly all the colts in the neighborhood, and when he got through breaking them one could do almost anything with them that was wanted. In other words, he taught them, he educated them, and he did it without being harsh. I never heard him speak to a colt above a common conversational tone of voice. He never got angry, at least, he never showed it. He was very careful to let the colt get an idea of what was wanted of him, and then usually he had no trouble. I can remember, however, of one particular colt that was quite mulish, or stubborn, on this question of backing, and he worked several days before he got it into the colt's head what was wanted, and even then and afterwards the colt acted stubborn when one wanted him to back, especially if it took considerable effort to back. Never try to get the colt to back where the backing is hard. Be sure and turn where the wagon is down hill so that the wagon will run down hill. Of course, not too steep a hill, but where there is a down grade so that the wagon will run easily. If you attempt to back a wagon up hill on the level with the colt the first thing, you generally discourage him. It is like hitching him to too large a load to get him to pull the first thing.

Don't work with a colt long enough at one time to get him tired and discouraged. If you find the colt is getting mad you had better quit, and give it something to eat; get on the right side of it; get it out of its mulish temper, and when it is rested up try it again. Perhaps the bit will hurt the colt's mouth. If it does don't continue to pull on the bit. Better get him out single on a side hill, and then when you say back, push on his breast and fairly push him down the hill, and keep working patiently until the colt understands what is meant by the word back, and when it does understand this he will find it just as easy to step backward as forward. It is probable that the reason he does not back when one wants him to is because he doesn't know just what is intended, or he expects to be jerked on the bit and have his mouth hurt, or he expects to be struck with a whip, and perhaps over the head with a whip, or something of that sort. This is not the right way to break colts. If one man couldn't push the colt back when you say back, I would have somebody help me and I would gently push him back, and I would keep working until he knew what was meant for him to do when the command is given. It is just exactly the same as getting him to go ahead. At first he doesn't know what is meant and neither does he know when you ask him



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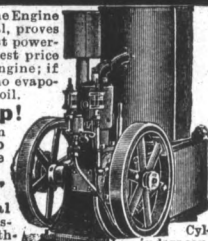
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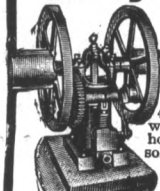
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to stand over in the stable, and he must be taught the meaning of these words.

COLON C. LILLIE.

#### SELECTION OF BREEDING STOCK.

Address by Prof. W. J. Kennedy, of Iowa State College, before the Interstate Breeders' Association, held at Sioux City, Iowa. This address is here reproduced, owing to the fact that Prof. Kennedy has been successful in picking embryonic winners of International honors, and his judgment in the matter of desirable points has been verified in the show ring.

This is a day and age of agricultural development. People, in all vocations of life, are manifesting an unusual interest in the farm and its products. This is as it should be. Every human being is more or less dependent upon the farm. We can never give too much attention to the study of agriculture. From a humane standpoint it is necessary. Before the middle of the twentieth century the farmers of this country will be called upon to feed at least one hundred and fifty millions of people. This problem can only be solved by a more intensified form of agriculture.

As an American people we are a nation of meat eaters, not vegetarians. This being true, we must not neglect our live stock industry. It is up to us to produce the beef, pork and mutton products demanded by our people. In the past this has not been a difficult problem. In the future it is going to require business methods on the part of the producer. Both the land and feeding stuffs used are sure to be higher in price. The finished product cannot go much higher. This means either more pounds of edible meat from a given amount of food fed the animal, or a loss to the producer. This can only be secured through a more careful and intelligent system of breeding and selecting domestic animals. The "scrub" animal, whether pedigreed or not, must be obliterated.

There always has been and I believe there always will be, in our agriculture, a place for each and every class of live stock. We must have horses, beef cattle, dairy cattle, sheep and swine. The man who breeds the right kind of animals of any one of the above mentioned classes will always find his work both useful to the community and profitable from his own standpoint. We need them all in our farming operations. Some men will succeed with one class of stock and make a failure with another, and vice versa. The real secret of success in any line of work depends a great deal upon the amount of individual attention given it. The amount of enthusiasm and interest which any particular individual will give to any line of work will always be governed very largely by his own likes or dislikes for the same. This being true, each man had best select and breed the class of stock which appeals to him most strongly. Where such a system is adopted success usually follows.

For over twenty years I have studied carefully the methods pursued by breeders of live stock, both the successful and the unsuccessful. The former are comparatively few in number compared with the latter. It has been my good fortune to have had the opportunity of observing the methods pursued on the best farms in the United States, Canada, and eleven different European countries. I am frank to say that in no other line of work is a well-defined purpose so necessary as in the successful breeding of live stock. Each and every one of our present day breeds of live stock was brought up to its very highest degree of excellence by the sheer determination to carry out a well-defined purpose on the part of some two or three men. It is true that hundreds and thousands of men were breeding, but only two or three in each instance, really succeeded. Why did the others fail? Simply because they were like the man walking slowly along the public highway and when stopped by a stranger who asked him, "Where are you going?" and his reply was, "I don't know, but I am on my way." It is just so with a great many breeders of stock, they don't know where they are going but they are on the way, too often on the road to failure.

No man ever has succeeded and no man ever will succeed for any length of time in breeding live stock who does not have as his slogan that one word, utility. Almost a century ago, Amos Cruickshank, "the herdsman of Aberdeenshire," said that, "the real test of value in beef cattle is their ability to turn straw, turnips and cake into pounds, shillings and pence at a profit." When ridiculed by his fellow breeders because he overlooked fashionable pedigrees and color markings, he re-

plied that the only question in his mind was, "what is best for our country, our agriculture and our people." It would be a godsend to our American live stock interests if we had today a thousand Amos Cruickshanks, so that we might put one in each of the thousand counties which constitute our corn belt states. The useful animal has always been a money-maker and will continue to be so in the future.

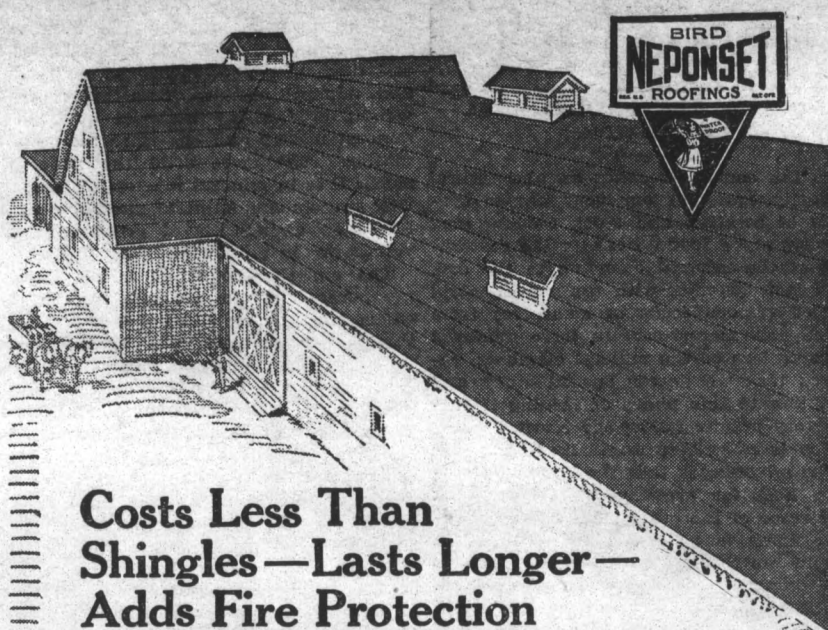
No man ever has succeeded and no man ever will succeed for any length of time in breeding live stock who attaches his kite to "faddism." We do not need to mention any one particular individual to demonstrate the folly of such work. There is hardly a county in any live stock section of this country or any other country, which has not anywhere from one to twenty men, who have clearly demonstrated that "faddism" is always a fore-runner of failure. By "faddism" I refer to the tendency on the part of many men to disregard the really useful features on an animal and go to the extreme on certain blood lines, color markings, shape of ear, head, etc. I do not wish to be understood as being opposed to beauty of form, color or general appearance. I am not. In fact, I always like to see the same when combined with the utility points. But if I had to sacrifice something in selecting a breeding animal it would be the fancy points and not those which indicate utility.

The longer I study and handle live stock the more I am convinced that the first and most important point to be observed in all meat and milk producing animals, is a good middle. The signs of constitution and digestive capacity present their most visible manifestations in the body and not in the extremities. The animal is simply a machine to convert feed into more edible products, such as meat and milk. Its capacity is governed almost solely by the size of the middle. These are points which mean dollars and cents to every man who handles live stock.

We must pay more attention to the question of size and vigor in our animals. Size always has and always will be a vital point. It is usually associated with heavy and economical gains. Vigor is absolutely essential. It is associated with heavy gains and also helps to safeguard the animal in time of disease outbreaks. One of the chief causes for deterioration in both size and vigor of our animals, is the use of immature sires and dams for breeding purposes. While both sire and dam exert an influence, it has been clearly proven that the immature dam is the most detrimental to progeny. The continued use of immature sires and dams, especially where corn rations are fed, will seriously reduce both the size and vigor of any breed or class of live stock. Anything which lessens the size and vigor of the animal renders it less profitable on high-priced land. Too much attention cannot be given to the importance of selecting breeding stock from mature parents. In this way, and only in this way, can we retain size and vigor in our herds and flocks.

The man who succeeds in breeding draft horses must ever keep in mind size, quality, feet, legs and action. These are all utility points. The markets demand horses weighing 1,700 pounds and upwards, that have good body conformation, large feet of good texture, strong, clean bone, large, sound joints, heavy, muscular development, combined with good, straight snappy action. Such horses command high prices and are very scarce. The statistics for the year 1911 show that only one horse, out of every twenty, sold at our leading horse markets filled the bill. This is surely a good line of work to pursue for many years to come. The vast majority of our farmers make a serious mistake when they sell their good draft mares to go to the cities. A good draft mare is worth twice as much on any farm, if she is used for work and breeding purposes, as she will sell for in any horse market. Only mares of good weight, body conformation and absolutely sound should be retained for breeding purposes. It is very important that the stallion used should be sound, drafty, stand well on his feet and legs, short and straight in his back, heavily muscled and show good disposition as indicated by width and flatness of head between the eyes. Avoid unsound, small footed, light boned, crooked legged or shallow bodied stallions.

The profitable beef animal of the future must have size, large heart girth and middle, giving him constitution and capacity. He must also be low set, straight in his lines, heavy in the quarters, wide in the back and loin and carry a good



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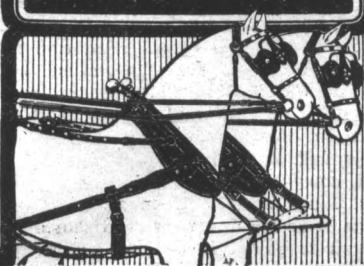
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covering of natural flesh over these parts. The head must be short and wide between the eyes, the neck short and shoulders smooth on the sides and wide on top. Width on the top of the shoulders goes with good fleshing properties throughout. The hide should be soft and pliable. These are all utility points. We must ever keep the block type in mind because the block is the ultimate end of all beef cattle.

In selecting dairy cattle it is always difficult to judge accurately with the eyes. The real test must be the weigh scales and the Babcock tester. The cow is a machine to convert food into milk, thus she must have a large middle and a strong constitution to insure best results. She must also have a large udder, large milk wells, large, crooked milk veins and good-sized teats. Her head should be lean and angular in appearance with the eyes standing out prominently. The neck should be rather long and lean in appearance, the shoulders pointed and the backbone rather prominent. The skin should be loose and soft to the touch. In selecting herd bulls, either mature animals which have already demonstrated their worth as sires, or younger animals from high-testing dams and sires, only should be used. Remember that the best and surest results will always follow the use of a mature sire which has sired heifers with good records. A good dairy bull should be kept until he is twelve or fifteen years old, in fact, as long as he is a sure sire. Real good sires are so rare that when we do find one, he should only die of old age. All breeders of dairy cattle should secure yearly tests on each and every cow in the herd. Shorter tests do not really mean very much. It is the cow that stays by her job that is really valuable.

Few lines of work offer greater financial returns for the capital invested than a good flock of breeding sheep. This is especially true when good mutton conformation is combined with a long, dense, fine fleece. The question of constitution is very important in sheep. In selecting rams, blockiness, lowsetness, wide backs, loins, and heavy, well filled hind quarters should always be demanded. The head should be broad and masculine in appearance, the neck short and the shoulder broad and compact. The legs should be short and straight, especially at the hocks. The skin should be pink in color and the fleece long, dense, fine and uniform on all parts of the body. Too much attention cannot be given the importance of density of fleece. It insures a heavier clip of wool, protects the sheep from rain, snow and cold weather, and also sheds chaff and other foreign material so detrimental to the wool.

Breeders of hogs will do well to pay more attention to the utility end of the business and much less to the fad end as illustrated by the pedigree craze, shape of head, ear, nose, dish of fact, etc. The one great need today in the hog business is a hog with size, quality and prolificacy combined with early maturity. Such a hog is best described as the kind that never lies to the assessor, that is, he is born after the assessor is around this year and marketed, weighing three hundred pounds before the assessor comes back next year. Some such hogs may be found in almost any of well-known breeds. With careful selection and judicious mating it is surprising how rapidly this type can be revived. In addition to the evil results of "faddism," the exclusive use of a corn diet and the policy of breeding from immature sires and dams, have been detrimental both from the standpoint of size and prolificacy. It is safe to say that over seventy-five per cent of all the sires and dams used in the state of Iowa are under one year of age. It has been clearly proven by experimental work that pigs from young sows are inferior in every way to those from mature sows. The continued use of young sires and dams, especially when associated with corn feeding, will cause marked deterioration in any breed of swine.

In selecting breeding swine attention must be given to size, quality, strength of bone, evenness of fleshing, and the use of more mature boars and sows. All pigs intended for breeding purposes should be selected from well developed, mature sows. If the sires are mature animals, so much the better. These pigs should be fed on ration calculated to produce bone and muscle, not fat alone. In this way we could materially improve our swine herds without changing breeds.

In conclusion, I wish to once more emphasize the importance of utility in all classes of stock. Beware of "faddism" in any of its various forms. Demand masculinity in the sires and femininity in he

dams. Also remember that the best results can only be obtained where careful selection is combined with intelligent mating and the proper feeding and management of the animals.

## VETERINARY

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

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

**Partial Paralysis.**—Mare got down a week ago; since then have helped her up but she moves about in an uncertain manner. She is now down; has no pain, has good appetite, makes efforts to get up but is unable to do so. She stands with difficulty when on feet. F. J. R., South Lyons, Mich.—Your mare suffers from functional paralysis, an affection of spinal cord and nerves of hind quarter. A recovery in such cases is doubtful. Give her 1 1/2 drs. ground nux vomica and 2 drs. iodide potassium at a dose in feed three times a day. Bowels should be kept open; apply mustard and water to spine three times a week.

**Indigestion—Unthrifty Condition.**—My horse has been out of condition all winter; is very thin, but does not appear sick. W. B. H., Rochester, Mich.—Give 1 oz. ground gentian, 1 dr. ground nux vomica and 2 drs. powdered sulphate iron at a dose in feed three times a day. Groom him well twice a day, keep in a warm comfortable stable and increase his food supply.

**Worms—Diabetes.**—Five-year-old horse is in good condition, but occasionally passes a worm or two; have been feeding him worm remedy advertised in this paper. A nine-year-old horse that passes too much urine but is in good condition. J. H. G., Sunfield, Mich.—Give horse 1 dr. santonine at a dose once a day, three times a week for two weeks. Give other horses 2 drs. potassium iodide at a dose three times a day for ten days.

**Colt Has Worms.**—Three-year-old colt has worms; was advised to give him tobacco, which I have done, but fail to see any good results from it. Colt passes long round worms. M. D., Zeeland, Mich.—I have never thought well of tobacco as a vermicide for horses; however, I have given it to sheep with fairly good results. It is not always an easy matter to rid a horse of worms. Give colt 1 dr. santonine, 20 grs. calomel and 1 oz. of ground gentian at a dose in feed once a day for five days, then discontinue giving it for a week, then give five more doses, one dose daily.

**Torpid Liver—Indigestion.**—Four-year-old horse is dull and languid; his coat is nearly two inches long and rough. I feed him corn and all the clover hay he will eat. F. B., Irons, Mich.—Give him 10 grs. calomel, 1 dr. ground nux vomica, 1/2 oz. ground gentian, 1/2 oz. ground ginger and 1 dr. powdered sulphate iron at a dose in feed twice a day for 15 days.

**Injured Shoulder.**—Six months ago I let a horse-breaker take an unruly young mare to break. He was obliged to use force in controlling her, which resulted in an injury to one fore quarter. I think the trouble is in shoulder, but treatment fails to help her. In traveling she steps short with sore leg and wears toe of shoe most. F. M. M., Mason, Mich.—Apply 1 part turpentine, 1 part aqua ammonia and 3 parts raw linseed oil to shoulder and coronet every day or two. Walking exercise, and perhaps light work, would not do her any harm.

**Out of Condition.**—Black mare seven years old, weighing 1,500 lbs., does not thrive; she eats well but is dull and dumpish; coat dry and rough. I feed her corn and wheat bran twice a day. T. B., Hillsdale, Mich.—Give your mare 1 oz. of ground gentian, 1/2 oz. powdered cinchona and 1 oz. bicarbonate soda at a dose in feed three times a day. Increase her grain ration, groom her twice a day and keep her in a warm place.

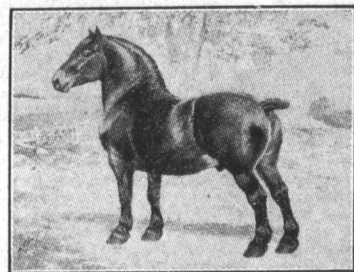
**Diabetes—Indigestion.**—Horse is slightly out of health; have had him examined by two different Vets. who differ in their diagnoses. One claims it a case of indigestion, the other says diabetes. This horse has had a few bilious attacks and occasionally coughs. S. P., New Hudson, Mich.—Your horse may suffer from both ailments. Give him 20 grs. calomel, and 1/2 oz. bicarbonate soda at a dose three times a week for two weeks; also give him 1/2 oz. ground gentian, 1/2 oz. powdered rosin and 1 oz. powdered charcoal at a dose in feed three times a day. Feed him enough well salted bran mash and a few roots to keep his bowels open.

**Punctured Foot.**—Cow stepped on rusty nail, making wound between toes of front foot; accident occurred six weeks ago. Local Vet. has treated her but she is still lame. S. H., Pigeon, Mich.—Apply equal parts powdered alum, oxide of zinc and tannic acid twice a day; cover foot with plenty of oakum and put a cloth boot over it. This will keep foot clean and give it a chance to heal.

**Barren Cow.**—Cow had her last calf two years and ten months ago; she is still giving 7 qts. milk daily but fails to get with calf. She has been mated, at different times, with three different bulls. G. V., New Era, Mich.—I believe that your cow will remain barren; however, you might use the yeast treatment, or inject her when she comes in heat, with a soda solution made by dissolving 2 oz.

## HEWO STOCK FARM

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of cooking soda in 3 pts. tepid water. The yeast treatment formula has been repeatedly printed in this column and you doubtless are familiar with it.

**Tapping for Bloat—Abdominal Abscess.**—Several weeks ago one of my cows had an attack of acute indigestion; local Vet. found it necessary to puncture her. This operation no doubt saved her life but she has not done well since. Her appetite is poor, she urinates often and water is thick. She had a calf three months ago but is not now pregnant. Bowels seem to be in fair condition and she chews her cud; is only eight years old. M. C. W. Mason, Mich.—An operation of this kind, where particles of food drop out of paunch into abdomen, frequently produces an abdominal abscess, or one may take place where wound is made; however, it is not very common in cattle, but frequently occurs when puncturing horses. Your Vet. should be consulted. Give her 30 grs. quinine and 1 oz. fluid extract gentian at a dose three times a day.

**Spasm of Larynx—Choking.**—Pigs commence to eat and, after taking a mouthful or two, one or two of them will rush back, fall on side, kick and squeal for a minute, turn on belly, breathe heavily, then seem to get over it. One seems to have lost use of hind quarters. These pigs are ten months old. R. B. Harrisville, Mich.—Your pigs suffer from spasm of larynx, or they choke. Feeding warm feed, placing it so that they cannot get too much at a time, seems to prevent this. Loss of use of hind quarters is perhaps the result of feeding an unbalanced ration—too much corn and not enough oats, oil meal, roots, etc. Give the paralyzed pig 10 drops tincture nux vomica and 5 grs. iodide of potassium at a dose in feed twice a day. Apply mustard and water to back three times a week; also give it 3 oz. lime water at a dose two or three times a day.

**Barren Sow.**—Berkshire sow comes in heat regularly; has been served by a boar that is sure, but fails to get with pig. She is healthy and in good condition. L. B. Le Roy, Mich.—Dissolve 1 oz. bicarbonate soda in a pint of tepid water and inject her when she first comes in heat and do not breed her for a few hours after giving injection.

**Thrush.**—Five-year-old horse has thrush in one foot. P. H. Hibbetts, O.—Keep foot dry and clean. After applying hydrogen peroxide, apply calomel and wrap with a piece of oakum to keep out dirt. The foot should be dressed twice a day.

**Looseness of Bowels.**—When my seven-year-old gelding rests his bowel movements are normal, but when driven they are too loose. He has a ravenous appetite and is fed oats, corn, and wheat bran. I notice him passing whole oats and I forgot to mention that his legs stock. M. B. C., Birmingham, Mich.—His teeth should be floated, watered before eating grain and not too soon after. While driving him his water supply should be limited, but after his journey let him have all he wants. A good quality of oats and well cured timothy seems to prevent purging on the road. Give him a tablespoonful of powdered catechu and a teaspoonful of sub-nitrate of bismuth at a dose in feed before using him.

**Indigestion.**—Our 11-year-old mare ate too much new hay last July, which produced acute indigestion and since then she has had a few light attacks. She is lifeless and after eating certain kinds of food or drinking much cold water she points nose to sides as if suffering a little pain. S. D. V., Coopersville, Mich.—Careful feeding and watering and by giving her exercise daily, she should recover. Feed a good quality of food, keep her bowels open by feeding her oil meal and roots. Also give her a tablespoonful of cooking soda and two tablespoonfuls powdered charcoal at a dose in feed three times a day. Avoid letting her have too much very cold water to drink at a time.

**Obstructed Tear Duct.**—Horse, 14 years old, seems healthy, but eye waters. W. H. L., Geneva, O.—The blocked tear duct can perhaps be opened by air pressure; if not it will remain blocked.

**Horses Ate Too Much Alsike Clover.**—Have three horses which I have fed alsike clover and grain, but they did not thrive. One of the three was a white horse, that had melanotic tumors and after eight days' sickness died. Another horse seemed to have a sore mouth, sick about the same length of time, died 15 minutes later than first one. My driving mare fed on same feed is seemingly all right. What caused their death? F. E. B., North Star, Mich.—Badly cured alsike clover fed in large quantities to horses frequently causes sickness and may produce death. The first horse that died may have been in bad condition from having melanotic tumors and this might have contributed towards his death. Better feed remainder of alsike clover to your cattle.

**Diseased Tooth—Catarrh—Sidebone.**—Mare, five years old, has offensive discharge from nose. Another mare has sidebone. S. S. B., Greenfield, Ind.—Probably first-mentioned mare has a diseased molar tooth; if extracted the nasal discharge will cease. Apply 1 part red iodide mercury and 5 parts lard to sidebone every week or 10 days, and when shoeing keep her heels low.

**Grease Heel—Barren Mare.**—I have not taken your paper for a number of years and things have gone to rack and ruin with me ever since I discontinued it. I renewed my subscription a few weeks ago and now shall avail myself of your veterinary advice. My Clyde mare has sore heels which discharge a watery fluid and she must itch for she is inclined to rub them against stall. Our local Vet. prescribed a remedy which failed to help her. I have another 18-year-old mare that formerly raised four colts, but has failed to get in foal during the past three years. Have had her teeth exam-

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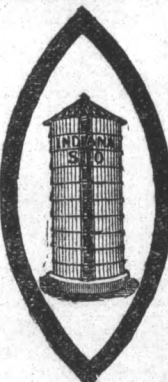
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Sire—King of Hengervelds, whose sire has 98 A. R. O. daughters, 8 have records that average over 30 lbs. butter in 7 days and 12 that average over 100 lbs. milk in one day, and whose dam has an official record of 633.2 lbs. milk and 29.27 lbs. butter in 7 days at 4 yrs. 7 days old, and is a sister of Aggie Cornucopia Pauline, who has an official record of 34.32 lbs. butter in 7 days, which still stands as the World's senior 4-yr-old record. Dam—Winona De Kol 2d, who has given 14034 lbs. milk in ten months and traces twice to Clothilde who gave 26000 lbs. milk in one year and three times to Pietertje 2d, who gave 30318 lbs. milk in one year, world's largest year's record. This young bull is a fine individual, nicely marked, with more white than black. Price \$100.

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**Improved Chester Whites**—A few choice young sows, bred for late March & April farrow. Also three young boars, cheap, to close them out. W. O. WILSON, Okemos, Mich. Both phones.

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ined. The Vet. found them all right. P. R., East Saginaw, Mich.—Dissolve 1/4 lb. sugar of lead, 3 ozs. sulphate of zinc and 3 ozs. of carbolic acid in a gallon of water and apply to sore heels two or three times a day. Give her 1/2 oz. Fowler's solution at a dose in feed three times a day; also give her a dessertspoonful of powdered saltpeter at a dose once a day for ten days. It is needless for me to say that her heels should be kept clean and dry until they heal; besides, she should be fed less grain, more well salted bran mashes and roots. Your mare will perhaps remain barren. Give her good care and plenty of nourishing food and don't overwork her.

Indigestion—Colic.—Nine-year-old mare has had four different attacks of indigestion or colic during the winter. This mare is not in foal and dislikes salt. A. E. F., Custer, Mich.—Give her 1 oz. of ground ginger, 1 oz. bicarbonate of soda and 1 oz. powdered charcoal at a dose in feed two or three times a day. She should be fed roots to keep her bowels open and exercised every day. If her bowels are costive induce her to eat oil meal.

Torpid Liver.—I have a valuable black gelding nine years old, weight 1,400 lbs., is in good flesh, but seems dull and stupid. M. H., Millington, Mich.—Give him eight drs. aloes, 1 dr. calomel and 2 drs. ginger at one dose. This will act as a cathartic and liver stimulant. Also give him 20 grs. calomel at a dose twice a week for four weeks. Give him 1 dr. of ground nux vomica, a tablespoonful cooking soda and two tablespoonfuls ground gentian at a dose in feed two or three times a day.

Ringbone—Quittor.—My six-year-old horse went lame in front foot last fall. Vet. fired him, burning a small, hard bunch at top of hoof. Horse stood still all winter and is yet lame. Another horse got tangled up with barb wire fence, cutting foot, some three years ago. The foot breaks open every few months and I am told that he also has thrush in this same foot. H. C. H., Gills Pier, Mich.—Apply one part red iodine mercury and six parts cerate of cantharides to bunch every eight or ten days. Apply one part tincture iodine, 10 parts water to quittor every day and apply calomel to frog once a day. Thrush is usually the result of wet and filth.

Worms.—Some of my horses are troubled with worms and I have been advised to give them a teaspoonful of molasses night and morning for a day or two, then give a quart of raw linseed oil. Have purchased different kinds of worm medicine that are advertised, but obtain poor results from them. F. McN., Bad Axe, Mich.—Give each horse 6 drs. aloes, 1/2 dr. calomel, 2 drs. santonine and 2 drs. of ground ginger at a dose once a week. Pregnant mares should not be given this medicine.

Rheumatism—Indigestion.—Our three-year-old mule first went lame in fore leg, then lameness shifted to hind leg and we are unable to tell what ails him. I also have a two-year-old heifer that has been in an unthrifty condition for the past 12 months. J. L., Bangor, Mich.—Give your mule 1 dr. salicylate of soda at a dose in feed three times a day and apply spirits of camphor to sore parts twice a day. Your heifer may have swallowed a few nails or a piece of wire that has punctured stomach and injured other internal organs. She will perhaps die.

Hard Milker.—Have a valuable cow that milks very hard and I would like to know how to make her milk easier. W. A. K., Marcellus, Mich.—Use milking tubes or dilate opening in teats.

Warbles.—Have a cow whose back is filled with long white grubs. I am not familiar with farming and stock raising; therefore ask your advice. S. B., Peacock, Mich.—Make opening in skin larger or cut through skin and squeeze out grub, then kill him. Apply one part carbolic acid and 50 parts water to sores once a day until they heal. If these little bunches were painted with iodine in fall it might prevent grub from maturing. Stockmen do not regard this a serious ailment, but it does lower the price of hide.

Caked Udder.—One-half of my eight-year-old cow's udder is caked and very little milk comes from it. A. J. J., Alto, Mich.—Give your cow 2 drs. iodide of potassium at a dose in feed three times a day and apply one part iodine and ten parts fresh lard or vaseline once a day.

A Teat with Two Openings.—Have a heifer that recently freshened that has two holes in same teat. N. W. B., Mantion, Mich.—Milk her through a milking tube and close opening by making teat opening raw and stitching it, or it might close by tying a tape around teat.

Worms.—A. S., Hawks, Mich.—See treatment for worms this column.

Indigestion—Surfeit.—Have a five-year-old Clydesdale mare that is not thriving, coat rough, perspires too freely, acts dumpish, and has little ambition. D. S., Bad Axe, Mich.—Clip her and increase her food supply. She should be fed enough bran mashes and roots to keep her bowels open. Also give her 1 oz. of ground gentian, 1 dr. ground nux vomica and 1 oz. cooking soda at a dose in feed two or three times a day.

Hide-bound.—We have a 14-year-old mare that is fairly well fed, but is hide-bound and out of condition. G. E., Prosper, Mich.—Have her teeth floated, increase her food supply, salt her well and keep her bowels open. Give her 1 dr. of ground nux vomica, 1/2 oz. ground gentian, 1/2 oz. cinchona and 1/2 oz. ground ginger at a dose in feed three times a day.

Rheumatism.—I have two young pigs that are stiff and not thriving. H. F., Kalamazoo, Mich.—Give each pig five grains of salicylate of soda at a dose in feed twice a day. Feed less corn, more oats and oil meal; also keep them dry and warm.

## More Milk Without Increasing Ration

Man, asserting his dominion over all creatures, has converted the cow into a machine to transform her feed into milk. In her natural state the cow gave milk only for a brief period to nourish her offspring, but in her domesticated condition, she must yield milk in abundance nearly the year round. As a big milk supply can be obtained only by giving its equivalent in feed, the tendency has been toward overfeeding, and consequent impaired digestion, etc. Furthermore, the healthy animal wastes a lot of feed through non-digestion—in fact, you can fatten your hogs on the grain that passes through your cows and other stock undigested. Now, considering the tendency to impaired digestion and the natural waste of nutrition, why not avail yourself of "The Dr. Hess Idea" which strengthens digestion. Given in a small dose twice a day.

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saves a part of the wasted feed, expels the worms and relieves minor stock ailments. Eighteen years' test has firmly established Dr. Hess Stock Tonic as a necessity to profitable feeding. Every ingredient is recommended by our ablest medical writers. Dr. Hess is himself a graduate of both human and veterinary medicine. An extra quart of milk each week covers the cost.

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## HORTICULTURE

### A GOOD SYSTEM FOR GROWING ONIONS.

A method of growing onions that is winning many producers of this crop from the old ways of planting, is what has been described as the new-onion culture. The method has merit and that is why it is gaining ground, and no doubt the time is not far away when the plan will be followed generally by those who make this crop a specialty.

The method, as usually followed, consists in sowing the seeds in the hotbed or greenhouse in March, allowing them to grow until the soil in the garden, or field, is ready, both as to temperature and preparation, when the little plantlets are transplanted in rows a certain distance apart.

Now the two chief advantages are, that the plants have a much longer season in which to grow, thus producing a larger sized bulb and consequently a better and more valuable crop, and second, that the labor required to mature the crop is less for the reason that weeding and thinning are practically done away with and that the substituted work of transplanting is less laborious and more rapidly done.

The best plan is to sow the seeds in flats and set these in the greenhouse, hotbed, or if these places are not available, in any location that is well supplied with sunlight and where the temperature is high enough to stimulate growth. The advantage of having the plants in flats are that they can be changed about so that better use is made of the sunlight, should that be provided in limited amounts, but more particularly for the convenience in planting—the flats being carried to the field and the planting being done directly from them.

The seeds usually develop more regularly when planted in the flats in rows a certain distance apart and of a definite depth and when sown promiscuously. It is well to use considerable sand with the garden soil for the reason that a better root system is developed on the plants where they germinate in soil that requires a reaching out for plant food than in rich garden loam that has all the necessary plant food close by. This large root system will make better plants for moving to the field. When the plants are the size of an ordinary lead pencil they are ready to be transplanted.

While the plants are attaining their proper size, the field can be cleared of weeds pretty thoroughly by giving the weeds a chance to grow and then harrow them down, and the time also permits of a more perfect preparation of the land. Where the soil is very rich the rows can be put close together, say two feet apart, or they may be only 18 inches, but where horse power is used for cultivating the plan is to put them three feet apart. In the rows the plants are generally set four inches apart.

The general rules of transplanting apply here: That is, it is best to do the work in the evening or during cloudy or even rainy weather. The soil should be firmed about the roots so that they will not dry out before getting a hold in their new location. The wheel hoe ought to be run over the rows as early as possible after planting to prevent too rapid evaporation, of moisture, which endangers the plants. The usual precaution of cutting away a portion of the top to correspond with the breaking away of some of the root system in removing the plant from its first habitat, is also a profitable practice. However, one can take out a considerable portion of the soil with the roots from the flat and deposit it with the new plant in the field, and this is the best practice for then the little fibrous rootlets are left intact and continue to do work. It goes without saying that the plants should be hardened off before going to the field; that is, they should be so exposed to the weather before transplanting that they will not suffer as they would from being taken out of a warm environment into the open field.

After the crop is established the program is to keep the plot well worked by means of the usual garden tools. If the field is large horse cultivators are usually found most economical unless the land is valuable and one desires that every inch must produce its maximum, when the rows can be put close together and the wheel hoes used for the after cultivation; but many find that with certain horses they can do this work when the spaces between the rows are narrow, but

hand hoes are most commonly employed under such circumstances. The cultivations should be frequent to prevent loss of moisture since this plant demands an abundance of water to carry it through to maturity. After rains, as soon as the ground can be worked safely the surface should be stirred for the same reason. Where the cultivating is properly looked after it is seldom that any weeding needs to be done and when so, the task is not an arduous one since the onions have such a start that weeds are kept down, making it necessary to take out only stragglers.

The bulbs grown by this method are large. They are generally as large as onions grown from sets. The resulting crop and the aggregate of work required for the year, as well as the better distribution of it, are sure to appeal to the business onion grower as well as to him who only produces a home supply but wants a first-class product.

### GROWING ONIONS ON CREEK FLATS.

I have about one acre of creek flats and would like to know if it would grow good onions. It was broken up one year ago and last year it grew fine corn. Do you think it would need any fertilizer and how much? What kind of an onion do you think would be best to grow?

Sanilac Co. H. J. M.  
From what information our correspondent gives, it would appear that he ought to expect a good crop of onions from this soil, providing the season is a normal one. Land that will grow a big crop of corn should make good onion soil. This soil should have perfect surface drainage, although onions require to be grown where they can reach an abundant supply of moisture throughout the growing season. You undoubtedly would get good returns from a liberal use, say 500 to 700 pounds, of a complete commercial fertilizer on this land, as this crop demands a large quantity of available plant food which the commercial fertilizer would help to provide. The application of wood ashes to the surface would also be helpful, and where available in sufficient quantities they would be equally as valuable as commercial fertilizers. Do not use fresh stable manure on the soil for onions unless it can be applied two or three years previous to the growing of the crop. As to varieties, you perhaps would obtain best results by growing some standard kinds, as Yellow Danvers, Yellow Globe, also White Globe and Red Globe and Red Wethersfield.

### WILL ORGANIZE FOR MARKETING PURPOSES.

The Minnesota Horticultural Society is now working out plans for the organization of a marketing association. The constitution is already drafted and the plans will be completed at a meeting to be held in March. The work of the different societies of the state indicate that the only manner of properly handling the products of the orchards and gardens is through organization. It is the object of the promoters of the scheme now being launched to form a central marketing station to which individual isolated growers can consign their fruit to be disposed of with that from growers of districts where a specialty is made of fruit production. It is anticipated that the organization will not only benefit the individuals who patronize it, but that it will be the means of placing the many local and state horticultural organizations on a much more substantial basis, increase the support given the societies and make them a factor to be felt in the purely commercial side of the fruit and vegetable business.

The Department of Agriculture has received a report of some experiments conducted by the Virginia station with a lime-sulphur sprays as substitutes for Bordeaux mixture in the treatment of apple diseases. Lime-sulphur solution so diluted as to contain four pounds of sulphur in each 50 gallons of spray, proved to be a good substitute for Bordeaux mixture in the control of apple scab, fruit spot, leaf spot, and cedar rust. Bordeaux, however, was superior in the control of bitter rot.

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## THE CULTURE OF STONE FRUITS.

The Best Plums, Cherries, and other Stone Fruits for the Family Orchard, and How to Grow Them.

In the latitude of New York, I advise the spring planting of all fruits, and the planting may be done up to the time they begin to leaf out. If trees are wanted for immediate planting, buy two or three-year-old trees of the nearest reputable nursery. If one can wait for them it is better to buy one-year-old trees and plant them in nursery rows, and let them grow one or two years and get acclimated to local conditions. Trees all live and grow with little check, if freshly dug on one's own place.

Plant the stone fruits on land that is well drained, and that was cultivated last year, and plant from 15 to 20 feet apart in the orchard, and somewhat less in the garden. A row of trees can be planted along one side of the vegetable garden, or division fences, driveways, etc.

Cultivate the trees at least the first two or three years, and the best way to do it is to grow hoed crops between them. The soil should be made just rich enough so that the trees will make a rather slow growth, then the trees will be more hardy and live longer. Head back to one or two feet for the garden, and for the orchard to two or three feet. Prune to get the vase form, and do not prune too closely after the tree is started rightly, as the leaves are the feeding organs of the tree, and the larger the leaf surface the greater its growth.

If one wishes to plant a plum tree, that with good care will give him fruit when the foreign varieties are all dead, he should plant the American or native plums of the Wild Goose type, i. e., if he can get them. The quality is not high but they make good sauce. Few nurserymen catalogue the native plums be-

When planted on low ground in the alluvial soils that are richer in humus, the most of the European plums live a few years and bear fine fruit. They are worth planting under such conditions if one can do no better, and they should be given a place in the family fruit garden.

Those who grow the European plums must expect to combat the curculio and black knot, which infest these more than the Japan and natives. The black knot is controlled by cutting out and burning, always when it first appears. Curculio catchers are used in the large plum orchards. Some people plant plums in the chicken yard or place the coops near a bunch of plum trees, and the chickens eat the curculio, which fall off with little or no jarring. For planting in New York, I regard the Rhein Claude, Bradshaw, Shropshire, Damson, and Fellenburg, as among the best European plums.

Sour cherries I think can be safely planted anywhere in New York, and in most of the northern states. I know of no fruit I would plant with more confidence than the Early Richmond and Montmorency cherries, and I think English Morillo generally thrives well. The Montmorency is the best of all the sour cherries. When it grows naturally it makes a very handsome tree, with little pruning. The way to grow a cherry tree is just to clip the ends of the branches to aid nature a little in keeping the form right, and occasionally thinning the branches a little to let in sunshine, or to separate the branches. Growing in moderately rich soil, this is all the pruning the cherry tree needs.

A block of sour cherries on the homestead farm is the most profitable fruit of many kinds grown. When in blossom and fruiting they are very beautiful, and one would want to eat the cherries because they appeal to the aesthetic sense—they are good to look at. These trees



Poultry will Help Control the Curculio if Allowed the Run of the Plum Orchard.

cause they have not been called for, and because it is easier to get European and Japan trees. Most of us will make the best of the situation and plant these trees. If you are in the peach belt, and want an abundance of plums of rather low quality, but which are good for canning, you can get them with very little trouble if you plant the Japan varieties.

In southeastern New York, where the temperature sometimes falls to 20 degrees below zero, I know the Japan plum can be so grown that they will not winter-kill, by planting on high land and not in very rich soil. I planted some Japan plum trees on low rich soil, and they finally all winter-killed, while those planted on high ground in the same locality were entirely hardy, but they have blossomed so early that the fruit has been killed so they have not produced a crop only about every third year. The Burbank, Abundance, and the Red June, I think are the best of the Japan plums.

In all parts of New York, and in latitudes not colder, the European plums can be grown fairly well, but when planting them the principles should be kept in mind that a tree or plant is made hardy or tender by its environment, and so plant them on an elevation, when possible, and in not over-rich soil. On the farm the best place for all fruit trees, and especially the stone fruits, is on the exposed hillside, or on the elevations and knolls, and where there is natural drainage, and then the growth of the trees should not be forced with nitrogen.

were planted on a slope. The soil is red sandstone, and had grown corn and clover, and was only moderately rich. The trees were planted 20 feet apart each way, and cultivated crops were grown between them for two or three years, after which it was seeded to clover and other grasses.

It is enough to say about the sweet cherries on this place that it is my experience that they are too tender to live many years, outside of the peach belt, unless special culture is given them. Black Tartarian and Windsor are good varieties of black cherries, and Yellow Spanish and Napoleon yellow cherries, if wanted. These will thrive in about the same conditions as does the peach.

The peach and apricot are the best desert fruits of all the stone fruits. The general culture of the peach family, which is only semi-hardy, is restricted to certain conditions of climate in our country know as "Peach Belts." It may interest many of my readers who live outside of the peach belt to learn how they can grow sufficient peaches for family use. One method which is most certain to give satisfactory results is winter protection of trees by covering.

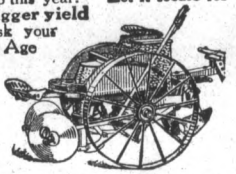
The trees may be headed low and trained to the side of a building or to trellises in a similar way to the grape vines, and then in winter covered with straw and burlap. Where the temperature seldom goes lower than 20 or 25 degrees, I have known people to have good success by hardening the trees by plant-

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ing them in rather poor soil, in the way I have described for plums. In the lot of Japan plums I planted on the low land, were some peaches. These all died, while those planted on the high land were hardy. With about the same treatment as the peach and plum, sweet cherries can be grown out of their natural environment.

The Champion peach is about the best peach we now have, for the family garden or orchard. It is both hardy and of high quality. Greensborough and Hill's Chili are good. The apricot is a little more tender than most peaches, and is given the same culture. Except under the most favorable conditions it is not grown in New York.

A knowledge of facts about stone fruits will prevent many people from making serious and expensive mistakes, especially in the matter of planting foreign varieties habituated to a warm climate, in our cold climate. It would have saved me from making one costly mistake, if I had taken the advice of some experienced and conservative fruit growers.

The Japan plums were recommended for general planting in New York, in some New York nurseryman's catalogue. I bought a lot of trees and planted them on rather low ground in rich garden soil where some European plums were doing fairly well. The trees grew rapidly for four or five years, and the large fine trees gave me much satisfaction, then the trees began to gradually die, and in two years every one was dead.

As compared with the apple and pear trees, the trees of the stone fruits are shorter lived, and the fruit quickly perishes after ripening, but the trees come into bearing much sooner and require less land on which to grow, so they are better adapted to garden culture than the standard apples and pears.

As the culture is less laborious and more pleasant, I like to grow the most of my fruits on trees. While for the northern states the apple and pear are the best tree fruits, yet we would not wish to do without the stone fruits, and it is the privilege of most people who have even a small plot of land, to enjoy the luscious peach, apricot, and plum, eaten out of the hand as a dessert fruit, and the pleasant and refreshing acid of the cherry, when picked fresh from the tree and fully ripe so we get their true flavor.

New York.

W. H. JENKINS.

(Editor's Note.—Delaware county, New York, corresponds in latitude with southern Michigan and conditions are similar to those of lower Michigan outside of the fruit belt proper).

#### GROWING CELERY—THE OLD WAY VS. THE NEW.

We are eating celery now, instead of planting it, but the time will soon be here when gardening will be in order, and the seed should be on hand whether the government seeds have come or not.

When I commenced raising this excellent vegetable more than thirty years ago, I raised it in the old, laborious orthodox way in accordance with the directions of the encyclopedia, and highest horticultural authorities. This apparently universal way was to set the plants in a ditch which had been dug two feet deep. Then some rich dirt, or rotten manure, was put in the bottom and the plants set in it about 18 inches below the surface. It is quite a job to dig ditches 20 inches wide and two feet deep, (as was formerly the rule), and partly fill them with manure and rich dirt. Then comes the back-aching work of getting down on your knees to mark the distance the plants are to be apart, and set them in their places. After this they are to be watered every day until rain comes, when they are likely to be drowned, and loose dirt washed on them, and you will find your plants buried nearly out of sight with mud, which must be carefully removed with the hands and the plants straightened up. In filling the ditch as the plants grow, great care must be taken lest the earth gets between their leaves and damage them. When the leaves of your celery show the "white plume" perhaps you congratulate yourself that your trouble is over. Not so. Your hardest job is yet to come. To dig your celery properly, another ditch must be dug at the side of the first, and two or three inches deeper, so as to undermine the plants, or the leaves will be broken in trying to pull them up.

I did not raise celery long in this manner. It was "paying too dear for the whistle." I then tried setting on top of the ground and after the plants had been earthed up considerably wrapped them up

with stiff paper secured by strings. This was an improvement on the old way, but not quite satisfactory, and I next tried setting on top of the ground, and after several hoeings and "handlings" placed boards about a foot wide on both sides of the row, secured them in place with stakes, then filled in around them with dirt as fast as they made growth. It was an improvement on the old way, as no ditches had to be dug, and to dig the celery all that was necessary was to pull up the stakes, remove the boards and most of the dirt would fall away of its own accord, and the remainder could be quickly removed with the grub-hoe. The final experiment, and the one most important of all, was to place the boards as closely to the plants as possible without injury, and put no dirt between them. To my surprise and gratification I found that my celery was just as good in every respect as when raised in the ditch surrounded with earth.

I supposed for a long time that I was the discoverer of the board system for blanching, but afterwards learned that others had practiced the method before.

"Handling" is done by straddling the row, taking the leaves of the plant in both hands, drawing them together, and holding them with the left, while the right is pressing the loose earth about them to make them grow upright without sprawling. The plants are set eight inches apart.

Our method of storing for winter use, is in boxes eight inches wide and 20 inches deep, so that it can be covered with wire netting in case rats should get into the cellar. The plants are dug with a ball of earth adhering to their roots, placed in the boxes in an upright position, and the ball of earth occasionally watered. We have kept it in this manner until spring without much rotting.

Near the city of Kalamazoo, Mich., I saw 1,200 acres of celery growing in swamp land, much of which was boarded with boards about 10 inches wide, and not a particle of earth put between them. Onions were also being grown in this moist black dirt.

J. W. INGHAM.

#### CONTROLLING ONION MAGGOTS.

I have a piece of ground that has been gardened for some years and it has got full of onion maggots or the little white grub, so they nearly destroyed my crop of onions. Is there any way to get rid of them. If so let me know through your paper, as there are a number bothered in the same way.

Shiawassee Co.

SUBSCRIBER.

It would seem, from the description given by the subscriber, that some arrangements should be made for growing other crops on this land for a few years, or until the pests are starved out. The maggots are the larvae of a little fly that looks not unlike the common housefly. Eggs are laid after the plants have started and from these the maggots hatch and proceed to live upon the host crop.

A number of remedies for keeping the pests from destroying the onions have been suggested from time to time. The general line of treatment, however is in preventing the flies from laying the eggs and thus eliminating the disastrous results which follow the presence of the little grubs. As suggested above, the rotation of crops affords an effective means of controlling onion maggots. However, in certain instances it is not feasible to do this and some other expedient must be found. Decayed organic matter attracts these flies and gives them a good breeding-place which makes them more difficult to control. If manure is to be added it is best that it should be done when a previous crop is grown that the vegetable matter may be well transformed into plant food by the time the onions are growing. Many growers have found that by using nitrate of soda, kainit and chloride of potash as fertilizers upon the land the work of the insects is reduced to a minimum, and often altogether stopped.

An effective means of keeping away the flies is by wetting some dry sand with kerosene oil, using perhaps a cupful of oil to three gallons of sand. This mixture is distributed along the onion rows close to the plants, but the oil is kept from touching them. The vapor from the oil will drive away the flies, and it is impossible for the maggots to travel through this sand and live, the oil killing them in a short period of time. Another method is to spray the plants with carbolic emulsion diluted from 40 to 50 times with water. This repellent is for keeping away the flies and should be applied before the eggs are laid.

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# INTENSIVE VS. EXTENSIVE METHODS IN THE FARM GARDEN.

The importance of a good farm garden cannot be overestimated. The value of a good garden is appreciated by every housewife, and its importance is so well conceded by every farmer that the garden is generally started out quite propitiously in the spring. That is, the ground is plowed and a variety of seed is planted, and one or two cultivations are given, when the rush season comes on and too often the garden is then neglected until it becomes overrun with weeds, and past redemption, so far as the bountiful production of staple foods and delicacies for the table is concerned. The housewife and the children generally make an effort to keep the weeds down, but the results are not at all satisfactory.

So much for intensive methods in the garden as usually practiced on the busy farm. There is, however, a method of extensive, rather than intensive gardening, which would insure a much more generous and constant supply of garden truck for the farm table which can be followed with profit, where there is not the time or inclination to practice intensive methods in the garden. This method consists in planting the garden in one corner of a corn or potato field which is located reasonably near to the house. When this method is followed the rows should be made to correspond with the width of rows to be planted in the field, so that it can be cultivated at the same time and with the same implements. The garden drill is a great convenience in planting a garden in this manner, but if it is not available one can get along nicely with a hand corn planter and a hoe.

Where this method of planting the garden is used, there will be little hand work required. The young plants will need to be hoed when they first come up for best results, and again when they require thinning, where this is needed, and the other cultivation required can be accomplished at the same time the crop grown in the field is cultivated. This will insure that the work will not be neglected, and will minimize the work of producing a maximum amount of garden stuff. The weeds will not be as troublesome as would be the case in the small plot which has been used as a garden for years, and the garden plants will be likely to do better than where grown for years in succession on the same ground.

But this method of growing the farm garden has its disadvantages as well as its advantages. One of the most serious of these is the fact that considerable extra travel will be necessary in gathering the garden stuff at a distance from the house. This item will probably offset the saving in labor in cultivating the garden crops. Then there is the fact that the small fruits cannot be grown in this way to advantage in a field which is devoted to the regular crop rotation, and every farm should have its patch of strawberries and other small fruits to supply this appetizing and healthful item of daily diet. But the "extensive" farm garden is far better than a garden failure, notwithstanding these disadvantages, and the farmer who has found from experience that he cannot or does not give proper attention to the garden when it is needed would do well to try the plan.

But the intensive garden, surrounded by a chicken-proof fence and located conveniently to the kitchen door, in which a good variety of fruits and vegetables are grown in abundance for the family table is probably the most satisfactory solution of the garden problem. But whatever the solution, it should be one which will insure a good supply of wholesome garden products. No work done on the farm will yield a better return for the time and labor expended on it than that done in a good farm garden.

Oakland Co. A. R. FARMER.

## THE GARDEN LEGUMES.

In growing our own supplies of peas and beans we desire a product that is tender and sweet and sufficiently productive to make the enterprise worth the labor required for its production. To attain these ends there are certain principles to be adhered to in the preparation of the soil, the planting and care of the crop. It is the purpose of this article to bring some of these principles to the minds of growers just now when they are thinking of the garden.

These crops should be sown early. With beans the practice is to sow as soon as the probability of any further frost has passed. Peas are not so delicate and can be put in the ground as early as it is

possible to work the soil. The latter plant will submit nobly to the stern conditions of transplanting and to gain a lap on the season it is a satisfactory practice to plant some seeds in sand in boxes or flats and start indoors with the purpose of setting in the garden rows late. The most convenient manner of doing this is to plant the seeds in little pieces of sod which are carried with the plant to the garden and set, sod and all, in the spot wanted. This minimizes the disturbance to the root system of the plant. Successive plantings of these crops can be made every two weeks through April and May for lengthening the harvesting season.

The soil for growing peas and beans should be well supplied with plant food. It is imperative where the gardener is seeking to develop the tenderest and best flavored crops to have the plants in reach of plenty of plant food. Not only should the soil be fertile but the fertility must be in a quickly available form, for should the plant have to wait for the acids of decomposing vegetable matter to act upon the rough plant food it will suffer both in size of crops and quality of the peas or beans produced. So have the soil in perfect condition by the application of fertilizers. Well-decomposed stable manure added the previous year helps fit the soil for these crops as it does for most garden products. Of course, peas and beans have the power of securing nitrogen from the air the same as clovers and vetches, but the season of the plant is so short compared with the other plants that it is better to have the nitrogen in the soil to give them a start and keep them growing until harvested, if necessary. It is a maxim among scientific gardeners that where one keeps the plants growing steadily from the first that the quality is much superior and that there is less danger from the attacks of insects and fungous diseases. This steady growth is maintained by supplying plant food nutrients to the crops and seeing that a water supply is constantly on hand to dissolve the food for assimilating by the root system of the plant.

Again, the soil should be well-drained. It is impossible to have peas and beans do well where their feeding surface is limited to the upper few inches of the soil by a high-water level. The land must be drained so that the air can get down to transform the plant food and give the nitrogen bacteria a chance to do their work upon the roots where they form colonies of nodules in the surface tissue of the plant. Many soils are naturally well-drained, but if artificial drainage is needed it should be given the garden at least. The additional harvest the first season from the garden plot will pay the expenses of the trenches, providing an outlet is not too expensive.

Correlated with the two foregoing conditions for the successful growing of these two legumes, is another which looks to the giving of each plant a sufficient territory for feeding without infringement upon the rights of its neighbor. It is better to have a pea plant every four inches in a row than to have three in that distance since better results will accrue to the gardener. The one plant will produce a fine crop while the three would live an aborted life for lack of food and sunshine. Hence, it is good practice and time economically spent to go over the rows and thin out the little plants to a distance apart that will give them room to do their best. This is not as tedious a task as it is to weed some other crops.

Wayne Co. A. H.

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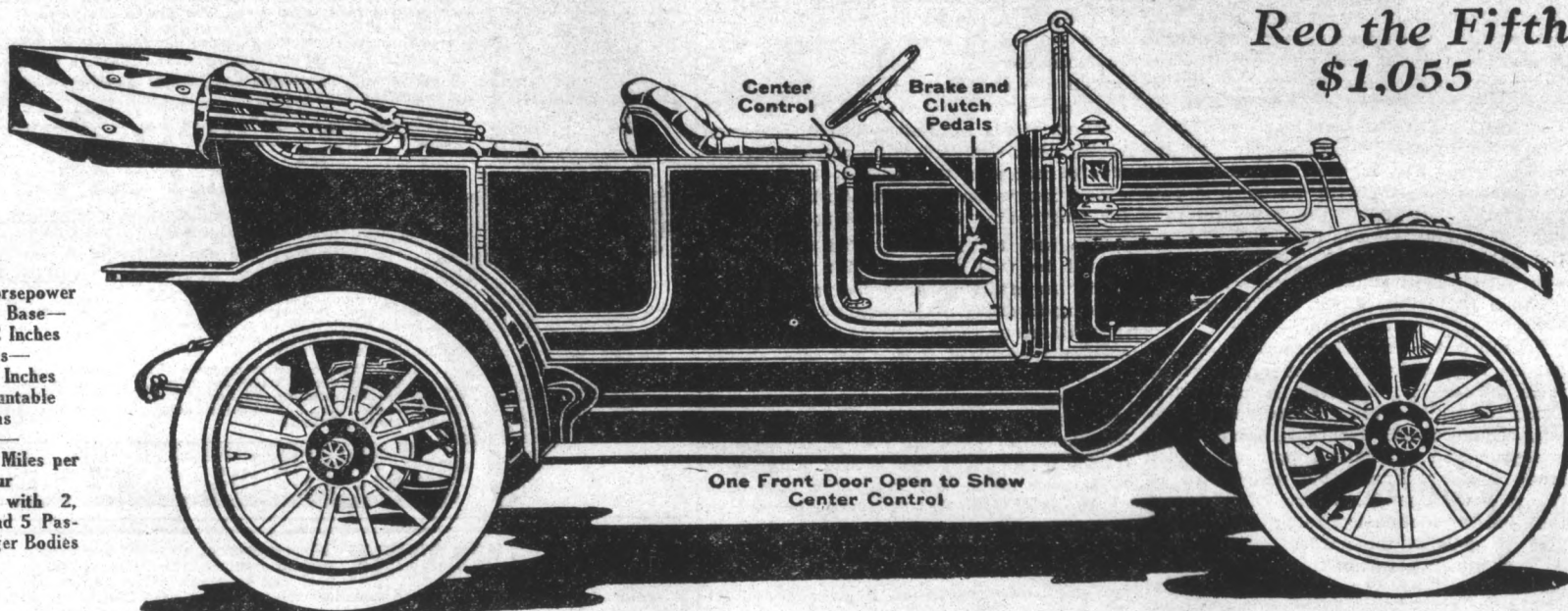


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equipment, we have been working for years to build good cars economically.

We have invented and built here scores of machines to cut the cost of production. Without them, there are hundreds of parts on which labor cost would run from ten to fifty times as much.

Each machine cuts our labor cost. Each, in addition, gives us marvelous exactness. Now we build in this shop every part of the car, by the most economical, most exact methods ever employed in a motor car plant.

### Other Economies

Gradually every part has been standardized, so the tools and machines became permanent. That saved vast expense.

Our output has grown to enormous proportions, so overhead expense is reduced to the minimum.

Selling cost, too. The cars in use sell the cars we make, so dealers are content with a very small profit.

We save nearly one-fifth on the cost of our cars by building only one chassis in this whole big plant.

We are not over-capitalized—have no bonded debt. Thus we avoid one big factor in cost. Our profits have been pared to the minimum.

Thus Reo the Fifth—my finest creation—is costing \$195 less than the Reo of last year. And that was a marvelous value.

Those are the ways in which we have economized. Now I'll tell you where we don't.

### Our Extravagance

In Reo the Fifth, in every part, I use the best steel alloy known for the purpose. That means Nickel steel for the axles and driving shaft. It means Vanadium steel for connections.

Each lot of steel is analyzed in our laboratory, and all steel is rejected which fails to accord with our formula.

I make the axles and driving shaft much larger than necessary. I use a



differential designed for 45 horsepower. I do this to leave a big margin of safety. One learns to do that after 25 years of experience.

Instead of testing gears with a hammer, I built a crushing machine of 50 tons' capacity, to prove to exactness what each gear would stand.

Reo the Fifth has more Roller Bearings than any other car of its class. That means Timken and Hyatt High Duty—the costliest and best bearings known. There are only three ball bearings in this whole car, and two of them are in the fan.

We use the same clutch as \$5,000 cars—the same grade of springs—the same efficient type of brakes.

The carburetor is doubly heated—with hot air and hot water—and adapted to even low grade gasoline.

The magneto I use is submitted to a

test, which only two makes known to me will stand.

And never was a car more carefully inspected than is Reo the Fifth in every step of the making.

### Our Liberality

In the lesser essentials you see the same wondrous care.

The wheel base is long, giving unusual room both in the front and the tonneau. The wheels are 34 x 3½ inches—generously large for a car of this weight.

The body finish consists of 17 coats. The nickel and black finish is like the costliest cars. Even the engine is nickel trimmed.

The upholstery is deep, made of genuine leather, filled with genuine hair. The design of the car has the last touch of up-to-dateness. There are ventilators which can be opened or closed. There are demountable rims.

Inside or outside, there is nothing in

this car which I know how to better. And I know every car that's made.

### The Center Cane-Handle Control—No Side Levers An Exclusive Feature

Then there is this center, cane-handle control, found in no other car. The gear shifting is done by moving this lever only three inches in each of four directions.

There are no side levers to get in the way. The entrance in front is as clear as the tonneau. Note the picture.

Both brakes operate by foot pedals. One of the pedals also operates the clutch.

This arrangement permits the left, side drive, heretofore possible in electric cars only. The driver sits, as he should sit, close to the cars which he passes and on the up side of the road.

These are features to which other cars must come, but you find them today only in Reo the Fifth.

## Can This Price Be Continued?

I firmly believe that this price is too low. It is figured too close; we can't hope to maintain it.

It is based on the lowest cost for materials which we have had in years. It is based on an output which may prove impossible.

But that will never lead to skimping this car. It will lead to advance in price.

The price of \$1,055 on this car is not fixed. All our contracts with dealers provide for instant advance. It is impossible to fix a price as close as this, and then guarantee to continue it.

My opinion is that the value we here offer will never be duplicated, by us or by anyone else.

### The Standard Car

Reo the Fifth, in my estimation, typifies the car of the future. The 30 to 35-horsepower, four-cylinder car is fast becoming the standard type.

That power is sufficient for any service, and for 45 miles per hour. Greater power means costly waste.

Reo the Fifth combines ample room with a lightness which saves on tires.

Experienced motorists, more and more, are buying this type of car. It is not too large or too small, too light or too heavy. It is not wasteful of gasoline, oil or tires. It offers all that most men want, at a minimum cost of upkeep.

That is why I adopted this size and power in creating My Farewell Car.

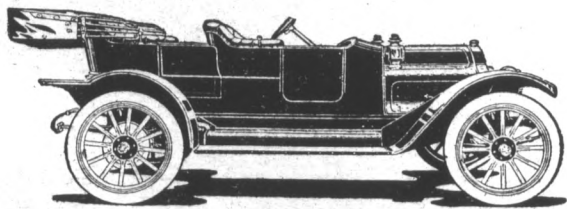
That is why this concern now stakes its whole future on this single chassis—on this ideal car.

### Ask For Catalog

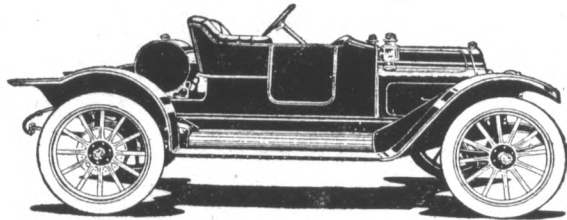
Our catalog shows the various styles of body. This car with Roadster body costs but \$1,000.

The book also gives complete specifications. It enables comparison, part by part, with any other car. Ask us to mail it to you.

Reo the Fifth is, by all odds, the most interesting car of the season. We will tell you where to see it when we mail the book. Address today.



The Demi-Tonneau—\$1,055



Roadster—\$1,000

**R. M. Owen & Co.** General Sales Agents for **Reo Motor Car Co., Lansing, Mich.**

Canadian Factory, St. Catharines, Ontario



# The Michigan Farmer

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 The Lawrence Publishing Co.,  
 Detroit, Mich.

DETROIT, MACH 9, 1912.

## DO YOU FAVOR PARCELS POST?

If So Get Busy Now.

In order to bring the greatest possible concerted influence to bear upon the representatives and senators in congress, March 18 has been set apart as parcels post letter day. To the end that this concerted influence may be the deciding factor in parcels post legislation, farmers all over the land will be asked to write letters to their representatives and senators in congress, asking their support in securing the passage of a general parcels post bill which will, at least as adequately, meet the needs of our country as the parcels post laws of other countries meet the needs of their citizens.

There has been introduced in congress the general postoffice bill, which provides for a limited parcels post such as was advocated by Postmaster General Hitchcock in his last report, from which extracts bearing upon the subject were published in the Michigan Farmer. This plan, as previously explained, provides only for parcels post on rural routes and for an investigation of the practicability of a general parcels post. That such a limited parcels post will not meet the needs and demands of the country people is a fact so patent as to require no argument. That the proposal for an investigation of the practicability of the parcels post is merely a move for postponing the enactment of a parcels post law seems apparent. When it is considered that other progressive countries of the world have had successful parcels post systems in operation for many years, these systems extending to our own country and available to our citizens for the transportation of parcels through the mails to the foreign countries where these adequate systems are in operation, this becomes more apparent and the proposed investigation appears still more in the light of a subterfuge.

Why should the greatest government in the world have the lowest weight limit for parcels by mail and the highest charge per pound of any of the enlightened nations? It has been contended by those who oppose the general parcels post in this country that it would not be practical here, owing to the vastly greater area of our country than the European countries where a general parcels post is maintained. Yet China, with an area of more than 1,300,000 square miles greater

than that of the United States, and with far more limited means of transportation has a parcels post with a weight limit of 22 pounds and a maximum charge of \$1, as compared with our limit of four pounds and a flat rate of 16 cents per pound. Certainly there is no reason why the United States government cannot give its citizens as efficient service in this regard as does China, and we believe there is no adequate reason why our government cannot give its citizens as good service as any in the world.

In this respect Great Britain is in advance of all the other nations in the world in the efficiency of its parcels post service which has been in existence since 1883. Since its establishment in that year, parcels post has not only proven popular with the people, but profitable to the government. Since the establishment of parcels post its efficiency has been increased by raising the weight limit from seven to 11 pounds and by two reductions of rate, so that at the present time the rates are six cents for one pound; eight cents for two pounds; 10 cents for three pounds; 12 cents for five pounds; 14 cents for seven pounds, and two cents for each additional pound up to the weight limit of 11 pounds. These rates are general so that an 11 pound package can be sent anywhere in the Kingdom for 22 cents. Germany has a higher weight limit with rates ranged in zone systems. The weight limit is 110 pounds, the unit of charging is 11 pounds, for each unit of which the charge varies from one cent for short distances to a maximum of 12 cents for any distance. Many other examples might be cited, including European Russia with an area closely approaching that of the United States, for instance, where an adequate parcels post is in operation with a weight limit of 120 pounds and a graduated charge, which, up to two pounds is 13 cents, from two to seven pounds, 23 cents, from seven to 112 pounds, 34 cents, and over 12 pounds a graduated charge, according to distance.

But further reference to these systems in force in other countries and extending to our own country by international agreement is unnecessary. Statistics have been published and comments and discussions have appeared in the columns of the Michigan Farmer on this subject for many years. Apparently those in authority realize that the time has come when something must be done to satisfy this popular demand, hence the proposed limited parcels post confined to rural routes, which is provided for in the general postoffice bill. Those who have been at work in behalf of the people to secure adequate parcels post legislation have found that there was a well organized and persistent opposition to the general parcels post. This opposition is being extended by every possible means, such as flooding congress with petitions in opposition to it and advocating penny postage as a means of postponing the time when an adequate parcels post law will be passed.

Readers, do you want a general parcels post bill passed by the present congress? If so, write the two senators from Michigan and your representative in congress to that effect, advocating the passage of an adequate parcels post bill which will afford you a measure of the service which is enjoyed by citizens of other countries, and oppose in no uncertain terms the propaganda for one cent postage until such time as this needed extension of postal service has been granted. Do this on March 18. It will cost you but a small effort and six cents for postage. Write them at Washington, D. C., instead of at their home address, and if you do not know the correct names and initials ascertain same at once. Your postmaster can give you the information. Put a cross on the date on the calendar which hangs in your home so you won't forget it, and get the letters written in advance of the date so that it will not be neglected for lack of time. Don't let your efforts end here, but speak to your neighbor about the matter so as to insure that he will act with you.

There is no reason why an adequate parcels post law should not be enacted. It is a success in other countries and a source of profit rather than of expense to their postoffice departments. But remember that there are powerful interests actively opposed to the legislation, and if you do not take the time and trouble to write your senators and representative in congress do not blame them if they do not lend their influence toward the passage of an adequate parcels post bill. Remember that they are hearing from the other side all the time, and if they do

not hear from those who are in favor of a general parcels post, they will very naturally come to the conclusion that there is no great interest in this subject among their constituents.

## CURRENT COMMENT.

Whether the so-called

**The Money Trust.** money trust is an accomplished fact, and whether, if such a trust exists, its machinations are detrimental to general business conditions and thus to the country at large, is now a mooted question. The position taken on this subject seems to depend not a little upon the viewpoint of the one discussing it. It is however, the opinion of a great many well informed people that a few of the leading financiers of the country have altogether too great an influence in the directing of the country's cash resources in the channels of trade and commerce, not to say speculation. Prominent financiers, who are apparently not in the trust, and others who are looking on from the outside, including members of congress and economists, declare that the money trust, so-called, is a menace to the country and that as a preliminary step to contemplated currency reform legislation, diligent public inquiry should be made into its methods.

In the meantime the country districts far removed from the financial centers have not greatly felt the ill effects of the alleged operations of this "trust," except in times of financial stringency and perhaps indirectly through the handicap placed on many public utilities through their figurative use as footballs in the playing of the financial game. Fortunately the country has been generally prosperous, and the rural districts as well as the commercial centers have shared in that prosperity. As a result the many small banks throughout the country, which have increased greatly in number in recent years, have been able to supply the needed funds for the moving of the country's crops and the transaction of local business, so that country industries have been largely independent of the resources of the great financial centers in the transaction of their ordinary business. Hence the matter of an investigation of the workings of high finance has not aroused the degree of public sentiment in its favor which it perhaps merits. Undoubtedly such an investigation, conducted in the open and with proper publicity, would be a good thing for the country. It would give an early opportunity for the correction of existing evils and restore public confidence if serious evils are not found to exist.

But there is a more immediate interest in the financial situation for the readers of The Farmer, in which they may well emulate the methods of the financiers who have found it to their interest to coalesce their interests. It is true that the average farmer has bettered his financial condition in recent years by assuming a closer relation with his local bank, thus adding to his financial independence through his ability to call the bank's resources to his aid in making the conduct of his business more profitable. Yet there is much to be desired in securing a still greater financial independence for the farmers of the country. In the matter of securing long-time loans, they are at the mercy of a restricted local money market and are compelled to pay a high rate of interest compared to that paid by industrial combinations which are backed by the noted financiers of the country. This is an undesirable condition, and one which could be obviated by the coalition of the resources of the farmers of the country to that end, in which respect we would do well to take a leaf from the history of the agricultural countries of Europe.

**European Systems of Farm Finance.** The European systems of farm finance above referred to are well

worthy of our most careful consideration and study, since they exemplify one of the most profitable and praiseworthy forms of co-operative organization of farmers. There are three systems under which co-operative rural credit is extended on a large scale in Europe. These systems were recently briefly described in an open letter written by Hon. David Lubin, the American delegate to the International Institute of Agriculture, at Rome, to the Nebraska Rural Life Commission, instituted by a joint resolution of the legislature of Nebraska. Mr. Lubin enumerates and describes these systems

in the order of their relative importance as follows:

First: the Raiffeisen system.  
 Second: the Schulze-Delitsche system.  
 Third: the Landschaften and Ritterschaften system.

The Raiffeisen is a system of personal credit. The farmers of a locality form a co-operative society, and on the strength of their collective assets, obtain a loan for which they become severally and jointly liable. This is the unlimited liability plan. This loan is then deposited in the co-operative bank of the association, which also acts as a deposit bank for the savings of members, and the money is loaned out to the members for specified purposes connected with the business of their farms. These little local banks in Germany have federated into central banks.

The Schulze-Delitsche is a somewhat similar system, but the capital is obtained by shares, subscribed by the members of the co-operative association, and by the members' deposits. In some countries this system works on the plan of unlimited liability, and in others on the plan of limited liability.

The Landschaften system is a system of land credit. The farmers form into co-operative societies, syndicating their individual assets, their farm-lands, into a negotiable bond which they offer as security for the credit they require. This plan has been in operation in Germany for 140 years, and has been able to secure for its members sufficient credit and at a rate of interest far lower than that paid in countries and districts where this system of co-operation does not yet exist.

When it is contemplated that through the means of these co-operative organizations, the farmers of Germany did a credit business on their own account aggregating over one billion, six hundred million dollars, and that without mortgages and at an interest rate averaging less than five per cent per annum, something of the importance of this system of farm financing will be grasped by the reader. If the farmers of the United States were thus organized to thus control and conduct their own finances, they would have a less immediate interest in the alleged machinations of the so-called money trust, so long as the country's currency remained sound. Would it not be time more profitably spent for the farmers' organizations of Michigan to spend their time and energy studying this question of coalescing their own finances, instead of discussing the hidden mysteries of high finance with which they have nothing in common? By such action they could materially hasten the day of the farmer's more complete economical independence.

Enabling legislation will be necessary before any such system can be inaugurated in either state or country, but such legislation will not come in advance of an intelligent public opinion, hence the wisdom of acting on the above suggestion.

**Co-operative Work for Prisoners.** The report of the superintendent of the Detroit House of Correction for

1911 shows that of the profit from the labor of prisoners aggregating \$34,000, \$15,000 was paid out to prisoners for their labor on the co-operative plan and \$5,000 was given to the needy families of the prisoners. In presenting his report, Supt. McDonnell stated that it was not unlikely that the compensations paid to inmates on the co-operative plan would be doubled during the coming year.

This prison has long been unique among institutions of this class in that it has afforded the city a profit during the last 33 years which is estimated to aggregate \$1,000,000, notwithstanding the fact that most of the prisoners were short term men. Fifty-nine per cent of the inmates during the past year were received for sentences of 30 days or less, and 16 per cent for ten days or less. The resources of the institution have, in the past, been augmented by pay for outside prisoners which have been accommodated at this institution. It is stated in the report, however, that the institution is so crowded that it will be impossible to receive county prisoners in the future.

This report is interesting on account of the working out of the co-operative earning plan for prisoners, which seems to have the unqualified approval of the superintendent of this institution.

**Lake Levels and Agriculture.** The diversion of water from Lake Michigan through the Chicago drainage canal has been

a matter of much discussion in marine engineering circles. The hearing in Washington, held for the purpose of receiving protests against the diversion of more water through the Chicago drainage canal has aroused anew this discussion of a purely technical nature between noted engineers, as to whether the water diverted through this canal or the deepening of the lake channels has caused the lowering of the water in the great lakes.



The contention of the fruit growers of Western Michigan is that the drawing of a large volume of water from the surface of Lake Michigan might tend to affect the industry through possible changes in climatic conditions which might result. Their interest in the matter is entirely foreign to that of marine interests and is one which should be very carefully investigated before the diversion of large volumes of water direct from Lake Michigan is permitted, regardless of the relation of this matter to marine interests.

Statistics show that the mean elevations of Lakes Michigan and Huron for the past twenty years are 1.43 feet lower in the entire year than the mean of the preceding thirty years. This is entirely a matter which affects navigation rather than agriculture, but if it should be ascertained that the drawing of large quantities of water directly from the surface of Lake Michigan via the Chicago drainage canal would have a deleterious effect upon the fruit industry of Michigan, the agricultural phase of this proposition should not be subordinated to other interests.

The State Round-Up Institute, held last week at the Michigan Agricultural College was one of the best meetings of the kind ever held in Michigan. The talent secured for the several programs included a number of the best known and most noted agricultural scientists in the country, each of whom had a message of great import for his hearers. Owing to the impossibility of giving our readers even the gist of these lectures in a cursory report of the meeting, no such report will be attempted in the Michigan Farmer, but a synopsis of a number of the leading talks on the more important topics will be presented in future issues. It is unfortunate that thousands of Michigan farmers could not have been present and profited by this exceptional opportunity, but they may profit to a large extent by carefully reading the reports of the best of these talks as the same appear in future issues of the Michigan Farmer.

#### HAPPENINGS OF THE WEEK.

##### National.

The postoffice committee of the lower house of congress has included in the appropriation bill reported to the house a provision for a general parcels post for the carrying of parcels through the mails at a flat rate of 12 cents a pound, with a limit of 11 pounds.

Five hundred employees of the Kalamazoo corset factory went out on strike on Monday. One hundred other employees remained at work.

Officials announce that 18,000 coal cars consigned to Michigan points are blocked in the train yards at Toledo.

Plans are being completed for the illumination of Niagara Falls at night. An appropriation of \$50,000 for the construction of a power plant will be provided in a bill to be submitted to the New York State Assembly. The measure will not become effective, however, until Ontario provides an equal appropriation for the project.

In the trial at St. Louis, where A. J. White, the ex-convict who claimed to be George A. Kimmel, the missing banker of Arkansas, Kansas, and formerly of Niles, Mich., the jury failed to agree on a verdict, but branded the claimant as an impostor.

Foresters are in session at Marquette this week considering plans for preventing the devastation of forests by fire. Men prominent in this work from different parts of the country are present to address the assembly.

A campaign is being waged against loan sharks in Detroit. A number of arrests have already been made.

The lower house of congress passed a bill granting citizenship to the people of Porto Rico. The measure now goes to the senate.

Five persons were injured in a collision between two street cars in Detroit Monday night.

Regulations by the war department provide for the training of aviators for military service by the several state militia organizations.

Elections in Maine cities failed to give any comfort to politicians with regard to changes in the political sentiment, the complexion of the results being identical with those at the previous elections.

A bill providing for the boundaries of federal district courts was amended so as to allow for the holding of federal court at the Soo twice each year.

At a session of the convention of the Navy League of the United States held at Washington last week, President Taft declared that the country needed two navies, one for each coast, and he believes it would be dangerous for congress to diminish the appropriations for this department of the government.

##### Foreign.

A new pretender to the throne of China has been reported in the person of Marquis Chu Cheng Yu, who is a lineal descendant of the old Ming dynasty. There is an old prophecy that the Mings would recover the throne in 1913.

The great coal strike in England is causing a very large number of manufacturing establishments to shut down for lack of fuel. It is estimated that in

South Wales alone 500,000 workers are now out of employment. Suffering among the poor is rapidly increasing and food prices continue to soar. It is officially announced that 2,500 trains have discontinued regular service on the several railway systems of the United Kingdom.

News comes to America that Queen Amelia is laying plans in England to affect the restoration of the throne of Portugal to former King Manuel.

The authorities in China are experiencing much difficulty with the mutinous soldiers who are ransacking and burning houses in Pekin and Tien Tsin. It is reported that 5,000 people have been killed by the soldiers, and that property estimated to be worth \$15,000,000 is destroyed. Foreign residents fear that an attack will be made on them, against which fate they are protecting themselves by barricading their homes and armed civilians are patrolling the streets of the foreign quarters of the city. A number of foreign regiments are on the way to protect the city against further looting.

Fighting between the federal forces and the rebels in the state of Chihuahua, Northern Mexico, resulted in a large number of soldiers being killed and many wounded. The rebels succeeded in taking the city of Chihuahua, but on Monday it was reported that the federal troops were successful in retaking a large number of the strong positions in the city, but failed to entirely rout the rebels.

London police find it difficult to control the suffragettes who are pursuing their window breaking campaign. The women believe that ultimately they will win by this method, because insurance companies who must stand the expense of replacing the broken windows, will bring force to bear upon Parliament that will give the right of suffrage to the fair sex.

French miners are considering the question of going on strike in sympathy with the British miners.

Because deductions had been made in the wages of miners employed in three different mines at Bochum, Germany, a strike which was totally unexpected occurred. It is feared that the incident will end in a general strike.

Right Hon. Edwin Blake, who was premier of Ontario in 1871, leader of the liberal party in parliament from 1878 to 1890, and home rule members of the British parliament from 1902 to 1907, died in Toronto last Friday evening. He was 79 years old.

A French aviator broke the world's aerodrome record last Friday by covering 141 miles, 640 yards in two hours.

#### CATALOG NOTICES.

"The International 1:55 Horse Farm, Home of the World Champions," is the title of a handsome booklet recently published by M. W. Savage, Proprietor, of Minneapolis, Minn. This booklet contains photographs, pedigrees and records of the large number of famous horses on this farm.

George W. Souers & Sons, importers of Percherons, Belgians and Coach horses, 601-949 West Matilda Street, Huntington, Ind., are sending out a handsome 1912 calendar. Write them for one of these calendars, mentioning the Michigan Farmer.

The Bowsher Combination Feed Mills, manufactured by the N. P. Bowsher Co., South Bend, Ind., are fully illustrated and described in a 40-page catalog sent by this company. Send for same, mentioning this paper, and learn the details about the many styles and sizes of feed mills manufactured by this well known company.

The 1912 catalog of the Peerless Wire Fence Co., 213 Michigan street, Adrian, Mich., describes and illustrates a new self-raising gate manufactured by this company, which, when unlatched lifts itself free of snowdrifts or other obstructions. It can also be so adjusted as to allow small animals to pass under, while large animals are turned. Write the above firm for a copy mentioning the Michigan Farmer.

A new almanac for 1912 has just been published by the Pittsburgh Steel Co., of Pittsburgh, Pa. This is unique in many features, one of which is a series of articles describing the aspect of the heavens during the several months of the year. Astronomical calculations are also given of five latitudes. This book is attractively printed in two colors, profusely illustrated and contains much useful information. It also tells how to test the wire for fencing and describes the material and methods used in the manufacture of Pittsburgh Perfect Fence. This almanac is free to Michigan Farmer readers who write the Pittsburgh Steel Co., mentioning this paper.

"Poultry Growers' Guide for 1912," is the title of a handsomely printed and profusely illustrated book published by the Cyphers Incubator Co., of Buffalo, N. Y. This book is being mailed free to thousands of men and women who are interested in poultry and egg production for profit. In addition to being a complete catalog of the big Cyphers line of incubators, brooders and poultry supplies, this book contains eight chapters of great value to poultry raisers. These are the titles: 1. How to get twice as many eggs from the same number of hens. 2. The 200-egg per year hen—how to produce her. 3. Large sized eggs in demand as well as lots of them. 4. Mating and feeding of fowls to get fertile eggs. 5. Selection and care of eggs for successful hatching. 6. Proper care of fowls and chicks with least amount of work. 7. How to brood chicks properly at the lowest cost. 8. Premium-price table poultry and how to produce it. This big book, weighing one pound, will be sent to interested readers of this paper free of charge. Simply write a postal card to the Cyphers Incubator Co., Dept. 35, Buffalo, N. Y.

# MONEY!

## Get More Of It—Read "A Streak of Gold"

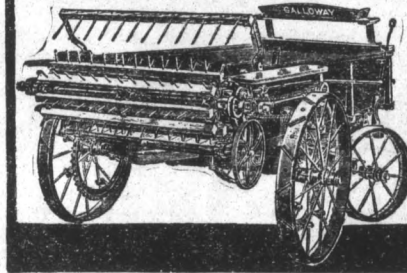
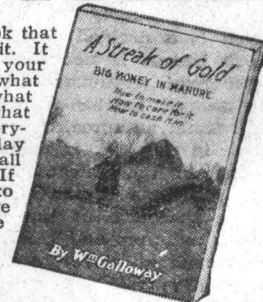
### Galloway's Latest and Greatest Book

# FREE



LET me send you "A Streak of Gold."

It's the greatest book ever written about Manure, its care, its value, how to get the most money out of it. It's a book that will put Golden dollars in your pocket if you'll let it. It will prove that you have a veritable gold mine on your farm—if you will only take advantage of it. It tells what our most eminent soil experts have found out—what our experiment stations have discovered and what thousands of farmers have proved on thousands of farms, everywhere. It gives you these facts and figures in simple, everyday language that you, your boy, your hired man, your wife—can all read, understand and appreciate and use to boost your profits. If after you get the book you don't find its teachings of real value to you, I will redeem the book and pay you one dollar for it if you are a farmer with manure to haul. Send me your name and let me send you your copy of "A Streak of Gold," absolutely free.



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With "A Streak of Gold," I'll mail you my 1912 Galloway Manure Spreader Book and my special offer to 10 or more men in every Township—an offer that is clinching the spreader business for Galloway wherever it becomes known. Send me your name right now, on a postal.

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FARMERS HANDY WAGON COMPANY  
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# PRACTICAL SCIENCE.

## MAINTENANCE OF FERTILITY.

BY FLOYD W. ROBISON.

(Continued from last week.)

### Barnyard Manure Has More Value than is Indicated by its Nitrogen, Phosphoric Acid and Potash.

It has long been known, however, that the value of animal or barnyard manures is out of all proportion to the value of the nitrogen, phosphoric acid and potash which they contain. In other words, a valuation of \$2.50 or \$5.50 per ton, respectively, as was the valuation of the manure in the steer feeding experiment and in the sheep feeding experiment just outlined does not represent the total value of the manures in question. The reason for this is that these ingredients are included in an exceedingly desirable form of organic matter which incorporated into the soil readily builds up the soil and creates a supply of desirable humus which is a decided asset in a soil, and which humus is not contemplated when commercial fertilizers are used. Again, the organic matter which is present in the animal manures, due to its decomposition in the soil, is valuable in the unlocking of the otherwise insoluble plant food nutrients in the soil. It has been shown that one of the great offices of animal manures and green manures, likewise, such as clover, etc., is in the decomposition within the soil, whereby the carbon dioxide gas is liberated, which, acting upon the insoluble phosphoric acid of the soil renders it available and hence of use to crops.

### Commercial Fertilizers Should be Used with Animal Manures.

It is with this point in mind that we have laid so much stress on the point that when commercial fertilizers are used they should, whenever possible, be associated with animal manures in the soil. If it is impossible to secure animal manures to apply with commercial fertilizers, it is not at all a bad idea to mix into that fertilizer such a product as cottonseed meal, linseed meal, tankage, or some such organic source of nitrogen which, while giving the desirable amount of nitrogen also adds to the soil the much desired organic matter. There is no real basis of comparison between the present commercial fertilizers and barnyard manures and the time will never come, in our estimation, when the farmer can afford to throw away or reject the animal manures and substitute therefor commercial fertilizers, because commercial fertilizers are not a substitute for barnyard manures. The question of the conservation of the animal manures is an individual problem for each farmer and if he is to get the best results and stop the unnecessary waste and losses which can be easily converted into money and which should be given a financial value, decided steps should be taken for the conservation of all of the animal manures upon the farm.

A great deal has been written and said in these latter days for and against the use of barnyard manure, likewise for and against the use of commercial fertilizers, and the question of the proper sphere of barnyard manures has been a question of some considerable importance to farmers for some time.

### Dairying Emphasizes Importance of Manures.

As the state of Michigan becomes more and more a dairy state the value and importance of the barnyard manures become more and more emphasized. At the same time the spirit of intensive agriculture is getting such a hold upon the farmers that the use of the so-called commercial fertilizers is becoming more and more general. Some advocates of the use of commercial fertilizers have gone to the extent of declaring that it is a waste of time and money to spend any time whatever with the distribution of the barnyard manures upon the farm. Other advocates have declared that the use of commercial fertilizers in any degree whatsoever when barnyard manure was at the disposal of the farmer was an absolute extravagance. It is well, in thinking this subject over, to bear in mind that both barnyard manures and commercial fertilizers may very properly be used for the building of the intrinsic value of the soil without either being considered as an interloper in this respect.

### The Origin of Manures and Fertilizers.

Barnyard manures have their origin in

the soil and so do commercial fertilizers. Undoubtedly barnyard manures may be considered a little more directly related to the soil than are commercial fertilizers but the ultimate source of both is the soil. Barnyard manures represent directly not only the unutilized portions of the food derived from the soil on the farm but also, insofar as it is conserved, the final products of the utilized portions of the food as well. Commercial fertilizers represent in part the final products of the utilized portions of food materials derived from the farm, these utilized portions being the bones, and tankage derived from the slaughter of animals, and other animal products, together with, possibly, ground rock which is simply soil which has not been disintegrated, and possibly potash and soda salts, which may represent the results of geological activity of centuries ago.

### Use of Fertilizers is Sanctioned by Reason.

What reason can be given that these commercial fertilizers which once were a part of the soil should not again be returned to the soil. Also, inasmuch as we have positive knowledge that an improvement in crop production is caused by the addition of commercial fertilizers, what better reason can be given for their use. Why should there exist any strong prejudice in the minds of farmers against the use of commercial fertilizers.

It is our duty, without doubt, to use every means at our command for bettering conditions of life, which include the securing of greater returns from the soil under our management. Barnyard manures have no greater right to use as soil fertilizers than have commercial fertilizers. Practically untold centuries have witnessed the use of barnyard manures, without question, but it is only within a short compass of years that commercial fertilizers have come into general use.

### Conservation of Manures is the Problem.

Many problems have presented themselves to the farmer in the handling of manures and not the least has been a safe and sane method of conserving the valuable ingredients of barnyard manures, thereby securing to the soil the highest percentage possible of the elements which they carry. The principal difficulty with the conservation of the soil excrement of animals is the condition familiar to all farmers, known as "Fire fanging." This condition is caused by throwing the manure generally into a heap in such quantities that chemical activity is set up, which causes a heating and a dispelling of the nitrogenous constituents and a loss of much of the fertility that is contributed ordinarily to the soil with the barnyard manures.

### Remedies.

Various methods have been proposed for the conservation of manures. To do away with this possibility of fire fanging it is generally advocated that the way to handle manures is to spread them as soon as possible upon the field so that, being spread out, little heating will take place and likewise the soluble constituents will find their way into the soil and be there fixed and made ready for crop production. Some difficulty has been experienced in living up to this apparently simple system but on the whole its advantages are sufficient to offset its disadvantages. On many farms a manure spreader is kept ready and each morning the manure, as it is removed from the stable, is loaded into the manure spreader, and when a sufficient load has accumulated, it is drawn onto the field and spread. With the exception of a very few days in the winter time when the ground is frozen very hard or when an ice sheet covers the field, this procedure is to be generally advised. It seems to us that it is scarcely advisable to suggest that manure should be spread upon a field when the field is in a condition such that it could not soak into the soil and soil and would be carried off on top of the ice sheet in the ravines, ditches and drains. With this exception the advice to remove manure to the field as soon as possible after it is removed from the stable is commendable.

### The Absorbent.

Having decided upon this system of handling the manures after they are produced, the next question of prime importance in the conservation of farm manure is to secure a proper absorbent in the stable. When an abundance of straw is obtainable it is the general practice

among farmers to mix this as thoroughly as possible with the manure, thereby accomplishing the double purpose of conservation of the manure, and at the same time working the straw with the manure into soil which, under decomposition in the soil, serves to unlock a considerable quantity of the fertilizing ingredients already possessed in the soil. In other words, it fulfills in the soil the office which organic matter should fulfill.

Sawdust and shavings are sometimes used as an absorbent and are admirably adapted for this purpose but are less desirable to put upon the soil because of the tendency which they promote to create acidity in the soil.

Gypsum, or land plaster, has been added in addition to the straw and bedding, one claim being made for it that it has the power of fixing the ammonia, or preventing the escape of the nitrogen in the liquid manure. It will be remembered that one of the great problems in the conservation of the stable manures is the exceeding proneness which it has to decompose, especially the liquid portion containing the urea, whereby the nitrogen in the form of ammonia is readily liberated. Nearly everyone can attest to this, from the strong odor of ammonia which is prevalent in many stables. Gypsum does absorb and in this respect assists in the conservation of the liquid portion of the manure. It has even been asserted that it acts as a fixer of the ammonia. It does not, however, seem to prevent the production of the odor of ammonia in the stable and it is very certain that it does not so fix the ammonia that it could not be leached out ordinarily by rain.

### Barnyard Manure Promotes Phosphorus Hunger in the Soil.

From the same point of view, only to our mind with much greater reason for its employment, finely ground phosphate rock is being used. The chief fault found in the use of barnyard manures, is that they tend to promote a phosphorus hunger in the soil. This is due to two reasons, chiefly, the first being that barnyard manure contains very little phosphorus and the second reason is that due to the organic matter which it contains, barnyard manure promotes the unlocking of the phosphoric acid already in the soil, and consequently in the employment of barnyard manure, from both of the reasons just cited, the soil soon begins to exhibit what may be aptly termed "Phosphorus Hunger," that is, the soil becomes readily depleted in the available phosphoric acid which it contains. The addition of finely ground phosphate rock may then be considered to be admirable, taking into consideration these two facts just cited. Finely ground phosphate rock is exceedingly slowly available, that is, under ordinary conditions it gives up its phosphoric acid to crop production very slowly indeed. The availability, however, is very markedly influenced when a considerable content of organic matter is present and intimately mixed with it. Therefore, the use of finely ground phosphate rock as an absorbent in the stable, while it possesses probably no power of fixing the ammonia, it does act as an absorbent and retains ammonia in this respect and, being thus intimately mixed with the manure, tends to satisfy the hunger of the soil for the element phosphorus.

### Acid Phosphate Best Absorbent.

When, however, it is desirable to prevent the escape of ammonia in the liquid manure, the use of acid phosphate seems admirably adapted for this purpose. Acid phosphate contains a considerable quantity of available phosphoric acid and because of its acid condition, it seems to possess the power of fixing and holding the nitrogen or the ammonia in the manure and this fact alone makes acid phosphate a very desirable absorbent. We understand, from those who have used acid phosphate in the stable, that it dispels entirely the odor of ammonia. This addition of a phosphate material to barnyard manure balanced the barnyard manure and makes it more generally adaptable as an all round farm fertilizer.

### LABORATORY REPORT.

#### The Plant Food Content of the Soil.

I am learning much from your valuable paper, but there is a subject I would like to see discussed in the Michigan Farmer. I read in the agricultural papers that there is enough potash and phosphorus in the soil to supply all plant needs for a long time, but that it is not in an available form for the plants to feed upon. Now what I wish to know is how can this plant food be made available? Would not deep tillage and plenty of humus added to the soil set up a chemical action in the soil which would release this plant

food, or rather, make it available for the use of plants? Then, by raising large crops of legumes and plowing them under to add humus and nitrogen to the soil, could we not supply all the fertility we need?

Mason Co.

B. F. W.

The question raised by Mr. Wheeler, as given above, is certainly a very live question and one which has been made the subject of many scientific discussions.

It has been asserted that practically all soils contain sufficient nourishment to produce a maximum crop. Some few years ago, in what became known as the famous "Bulletin No. 22, Bureau of Soils," the United States Department of Agriculture made practically the above statement. This bulletin was the cause of a wide discussion, scientifically, on this point, but indirectly probably has resulted in more real advance along this line than any other one thing.

It is true that an ultimate analysis of most soils shows an amount of phosphorus and potash and lime which, under our ordinary system of cropping, if it could be made available, would suffice to last for some centuries. In spite of this fact, however, it is common knowledge that the use of barnyard manures and commercial fertilizers has resulted in a marked increase in crop production and the inference now is drawn that because of this fact barnyard manures and commercial fertilizers are necessary and decidedly advantageous to use. Now, as we have suggested in this issue, barnyard manures and commercial fertilizers have their origin in the soil itself and by returning to the soil these materials, man is simply assisting nature in her attempt at the conservation of the soil, and this idea is an admirable idea to contemplate from the standpoint of conservation alone. If at the same time it results also in increased financial advantages to man, the matter becomes fascinating from the ordinary standpoint, we may say, as well.

Deep cultivation is conducive to the making available of the otherwise insoluble so-called plant food constituents in the soil. If, together with thorough cultivation, drainage, etc., which is implied in thorough cultivation, a desirable amount of humus, or organic matter is added to the soil, this unlocking of the insoluble nutrients which is promoted by cultivation is encouraged.

The growing of leguminous crops adds nothing to the soil except the nitrogen which these crops have the power of fixing and otherwise the same that any other crop puts into the soil, namely the organic matter which really adds nothing but does contribute to the unlocking of the soluble constituents of the soil just referred to.

Without doubt, by pursuing a constant and thorough system of cultivation by the addition of leguminous crops, etc., the soil may be kept in its most favorable condition for many, many years and will not under such a system of farming become run down or exhausted soil. If to this system we now add barnyard manures and commercial fertilizers as well, supplementing possibly, from time to time, with lime, the soil may be brought to a point of maximum efficiency which is a condition it is needless to say it is very desirable to promote.

Let us bear just one thing in mind, and that is, it is our duty to get just as much out of the soil as it is possible for us to do and still leave that soil in such a condition that it is as good, or even better, than when we took hold of it. The addition of manures, commercial fertilizers, the practice of systematic and thorough cultivation, scientific rotation of crops and all these things, and others, lead to the one end and prejudice should not prevent our making use of all to further the end in view.

### EXPERIMENTS WITH STEERS.

The results of seven years of experimental work by the Pennsylvania Agricultural Experiment Station indicate that an open shed, boarded up closely on three sides and kept well bedded at all times, is more efficient for fattening steers than the basement of a barn. During the winter of 1909-10, cattle fed in an open shed made more rapid gains, attained a higher finish, sold for 15 cents per hundred more, and returned 11.6 cents more for each bushel of corn consumed than similar steers fed in the barn. They also required less labor in feeding, and more straw was used in bedding. It was also found that cattle which are fed in groups of 10 or 12 each, with ample room at mangers and troughs, make more satisfactory gains than similar cattle tied in stanchions.



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When we had smaller factory capacity, these patented tires cost one-fifth

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Tires that can't rim-cut cost the same

Last year's sale exceeded the previous 12 years put together. This year's sale, up to this writing, is running three times last.

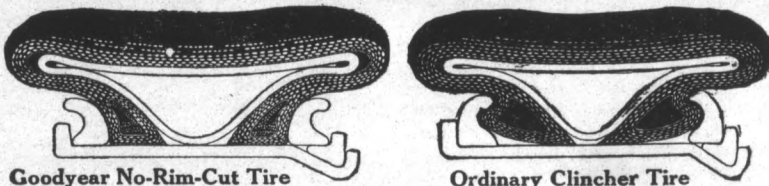
Over 900,000 have been used to date, on perhaps 200,000 cars.

And 127 leading motor car makers have this year contracted for Goodyear tires.

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(562)

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## POULTRY AND BEES

### ESSENTIALS TO SUCCESS WITH THE BROODER.

The rearing of chicks in brooders, like everything else, presents problems. One can expect good results, however, if intelligent attention to details is given. It is necessary that one be methodical and exact in attending to brooder chicks. Slipshod management is not conducive to success.

Cleanliness is one of the essential requisites. To facilitate cleaning, all parts and corners of the brooder should be easily accessible. There should be no dark or hard-to-clean corners. Keep the interior clean and well ventilated. Disinfect the brooder often, at least every time a new brood is to occupy it. Scrub it out thoroughly with hot water. A little carbolic acid dropped into the water will make it more effective. Then spray thoroughly with a good coal tar disinfectant. Expose the interior of brooder to the sun as often as possible, for disease germs cannot live where sunshine and fresh air abound. Keep the above statements in mind when selecting brooders, making sure that the construction is such as to offer no serious obstacles to thorough and easy cleaning.

Do not overcrowd the brooder with chicks. A brooder rated at fifty chicks may be large enough for this number the first week, but as they grow and develop they will be bothered for room, and consequently will not be able to obtain the exercise required. If fifty chicks are desired in one brood—there never should be more than this number—buy a brooder rated at one hundred chicks. Too much room is less dangerous than lack of room, and unless the chicks obtain exercise they cannot grow, and thrive, and develop into profit-producing fowls. It is advisable, when possible, to put not more than twenty-five chicks into one brooder. A larger number than this will cause them to crowd and the weaker ones will suffer. Chicks found dead under the hover in the morning are generally the result of crowding and huddling.

#### Preparing the Brooder.

Cover the floor of the brooder with black dirt. This will tend to absorb the droppings. Over this should be scattered chaff or sweepings from the haymow to the depth of half an inch. It is not advisable to make the chaff any deeper than this, else the chicks cannot get around very well, and scratching for the grain will be made difficult. In this chaff scatter the fine chick feed. Not too much should be given at a time; it is better to give it often.

Before transferring chicks from the incubator have the brooder well heated. The temperature for the first few days should be between 90 and 95 degs. F. One can best tell when the temperature is right by noting how the chicks behave. If they huddle in a corner they are not getting enough heat. If they spread out and try to get as far from the source of heat as possible the brooder is probably overheated. The temperature can be considered at the proper degree when the chicks stay around the edge of the hover and seem contented. Lower the heat gradually as the chicks get older.

Have the brooder well ventilated but do not create a draft. Do not allow the slits in the curtain that incloses the hover to remain open. They should so hang that they will close easily when the chicks pass through. In saying that the brooder should be well ventilated I do not mean that the cold, fresh air should pass directly into the brood chamber. On the contrary, the air coming from outside must first be warmed by coming in contact with the heater and then pass into the brood chamber.

#### Much Depends Upon Proper Feeding.

Overfeeding is apt to be indulged in by a great many poultry raisers, especially the beginners. They cannot bear to think of little chicks wanting for food, consequently supply it so liberally that it lies around uneaten, to become soiled and filthy and unfit for further feeding. Chicks fed in this manner will soon contract bowel trouble and often more serious ailments. It should be more generally realized that chicks require no feed for the first 36 to 48 hours after hatching. Nature has provided for them for this length of time, and to stuff them with feed before they are ready for it is to invite trouble. Water should be provided from the first day.

The first allowance of food should be a

light one. I consider stale bread crumbs soaked in milk and squeezed dry one of the best feeds to start them on. This is given five times a day for three or four days, beginning as early in the morning as possible and giving the last allowance for the day as late as possible. I aim to keep them a little hungry throughout the day and to give about all they will eat at night. I keep dry bran before them at all times and it is surprising the amount they will consume. Bran is excellent for keeping the bowels in good healthy condition. Fine sharp grit must also be kept before them.

After feeding for three or four days on the bread I start them on a chick feed ration. Any of the commercial chick feeds are good, providing they do not contain weed seeds and other "fillers." Insist on getting pure feed—the best is none too good. A good wholesome feed to start them on, and one that will be eaten without waste, is steel cut oats. This is pure and nourishing, and is a good muscle and frame builder. It is somewhat higher in price than the mixed grain feeds and some will not feed it on this account.

Give the chick feed sparingly. Scatter a little now and then in the chaff to make the chicks exercise. The grain should be fed twice a day at first and the soft feed three times a day. Gradually decrease the amount of soft feed and increase the amount of prepared chick feed. Infertile eggs that have been tested out may be boiled for half an hour and fed to good advantage. They are chopped up fine and mixed with rolled oats or bread crumbs. Feed on a clean board or shallow dish and remove any that is left. Soft feed, if allowed to lie around and be trampled upon and fouled, will sour and ferment, thus becoming a source of trouble.

As the chicks grow older they must have more room and exercise. If the brooder is placed in a brooder house they should have the run of the house during the day. If they occupy an outdoor brooder they should be allowed to run out whenever the weather is mild. Enclosing a small yard about the brooder with wire netting will prevent the chicks from straying. See that they all are in the brooder and under the hover when night comes.

Indiana.

O. E. HACHMAN.

### ANOTHER TREATMENT FOR SCALY LEG.

While the appearance of scaly leg in a flock of fowls is not really alarming, I notice that it reduces the vitality of fowls and, if neglected, will spread through the entire flock. I keep a close watch of the droppings board beneath the roosts and if I notice small white scales among the droppings I feel reasonably sure that some of my fowls are suffering from scaly leg. A close inspection of the fowls quickly brings to light the ones which are affected. These are caught and treated at once.

My treatment is to first wash the legs thoroughly, using castile soap and an old tooth brush to remove loose scales and the crusty exudations which have resulted from the work of the scale mite. In addition I pick off scales or scabs that come off readily. This sometimes causes the legs to bleed a little. The legs are then dried with a soft cloth and an ointment is applied. This latter I make as follows: To a tablespoonful each of melted lard and kerosene add six drops of carbolic acid and a teaspoonful of alcohol or whiskey. Of course, this can be made up in larger quantities, but the proportions should be the same. Rub legs and feet well with this and three days later repeat the washing and another application of the ointment, which should end the trouble. I have used this treatment for a number of years, always with perfect success, and therefore have no hesitancy in recommending it.

Wayne Co.

J. P.

### POULTRY DESTROYERS AND HOW TO CATCH THEM.—III.

It is generally unknown that the skunk and weasel belong to the same family, even though they are very different. The skunk is very easily trapped. Owing to the durability of the fur, the pelt of the animal is always in demand. The animal lives in some opening or hole, and sometimes as high as seventeen are found in one den.

The skunk is best trapped by setting at the entrance of dens. When you find a den, set three or four traps in a circle at the mouth of the hole. Cover traps with leaves and dirt. Meat and pieces of chick-

en make good bait. The decoy should be placed in the center of the circle of traps. All traps should be staked in such a manner that the animal cannot enter the den when caught.

Another good set is two logs, boards or rocks placed parallel a few inches apart. Set traps at both entrances, although one entrance only can be used if the trapper prefers. If two entrances are used a trap is necessary at each opening. The traps should be concealed. Bait, such as rabbit or bird, is placed in the enclosure. It is best to make a trail to the set by dragging a piece of bloody meat over the ground leading to the set.

Set traps near dead carcasses, hollow logs, under old buildings or barns where you find their runs. Success depends upon clever concealment of the trap. Use No. 1½ traps of the best make.

Skunks are very plentiful in hilly sections. Another means of catching is as follows: Find two flat rocks and support the top one with a figure four trigger. The trigger should be long and a rabbit's head, or a bird, should be tied on the end. Be sure that the upper rock is heavy enough to kill.

Minnesota.

V. P. GOKEY.

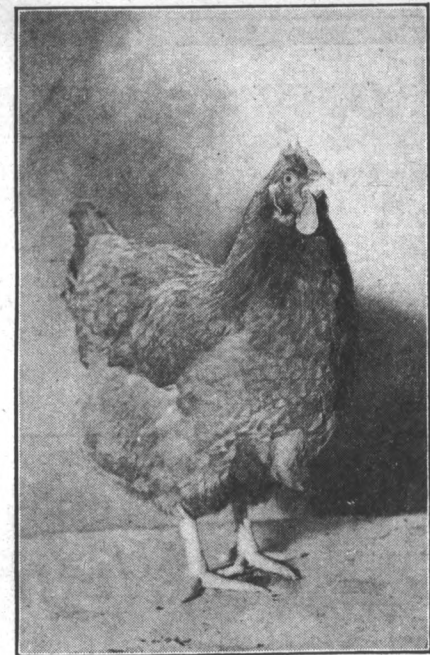
### IN ANSWER TO INQUIRIES.

#### Wyandottes and R. I. Reds.

Please tell me how a full-blood Wyandotte cockerel should be marked, and what sort of comb he should have. Would also like to know what colored feathers and what kind of comb pure-bred Rhode Island Red hens should have.

Livingston Co. Mrs. G. N. The markings, so far as plumage is concerned, would all depend upon which variety of Wyandottes you have. There are probably more different varieties of the Wyandotte breed than of any other breed of chickens, and it would take too much space to describe all. If you will designate the variety we shall undertake to give the plumage requirements. As to markings which are common to all varieties of the breed, we would say that the Wyandotte is a yellow-legged fowl, although even here the shade of yellow varies somewhat in the different varieties. Another distinguishing mark is the comb. Formerly a single comb variety of this breed was produced, but it has been discarded and none but rose combs are seen nowadays. The comb is low and spreading, the top somewhat oval in shape and corrugated, while at the rear it ends in a slender point or spike, the whole curving slightly in conformity with the shape of the head. To the well trained poultryman the conformation of this breed is also a distinguishing mark, since it is stockier and more closely built than its leading rivals among general-purpose fowls—the Rocks and Rhode Island Reds.

The Rhode Island Red is a comparatively young breed, having been admitted to the Standard of Perfection within the past ten years. Up to the time it was thus recognized as an established breed,



Single-combed Rhode Island Red Hen.

there was marked difference of opinion among its breeders as to color, the range being all the way from light buff to a chocolate brown. Gradually, however, its breeders fixed upon a rich, brilliant red with a little black in tail and wings. A somewhat lighter shade is generally seen in the female, with a little black ticking in the hackle feathers. In size and shape this breed does not vary much from the

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Mrs. J. B. Stevenson, of Lockney, Tex., with her 140 egg Ironclad won in Mo. Valley Farmer's Big Hatching Contest. Her records were 142 eggs set, 3 tested out, 137 chicks hatched; 143 eggs set, 6 tested out, 135 chicks hatched. Think of that! You can now get these famous winners—

**140 Egg Incubator BOTH \$10.00**

Freight Paid East of Rockies

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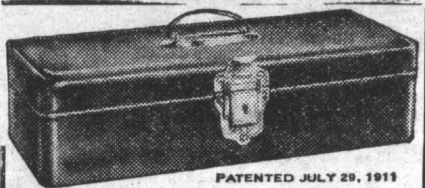
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**155** **CHICK**

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other breeds of the American class of fowls, the hens especially resembling the Rocks and Wyandottes in conformation. As to comb, these fowls were for a time bred with all three kinds of combs, the pea-combed variety, which originated in Ohio, being first known as the Buckeye Red. This name Buckeye was discarded until R. I. Red breeders, a few years ago, decided to no longer recognize the pea-combed variety. The breeders of Buckeye Reds thereupon again adopted the name and the Buckeyes are now recognized as a distinct breed, although differing little from the R. I. Reds except in comb. From this it is evident that your hens may have either single or rose combs and be pure-bred Rhode Island Reds.

### Raising Ducks and Geese.

As I am a beginner I wish you would publish an outline of how to raise ducks and geese, giving special attention to hatching, housing, feeding and brooding. I want to handle Toulouse geese and Indian Runner ducks. Please state the markings of these breeds as designated in the Standard of Perfection.

Livingston Co.

W. B. O.

So much is included in your query that it will hardly be possible to do it justice at this time. Taking the last part first, we would say that if you desire to grow these fowls for exhibition purposes and are therefore particular as to the qualifications enumerated in the Standard, you should secure a copy of the latest edition of the Standard of Perfection. The contents of that volume are copyrighted, thus making it impossible for us to reproduce the exact description of any breed.

In a general way, it may be said that the Indian Runner duck is the Leghorn of the duck family, being chiefly noted for its egg-producing quality. It is also distinguished by its very erect carriage, the body being long and narrow with breast well developed. The standard color is fawn and white in a peculiar pattern, the dark color occurring in patches on the crown of the head, the cheeks, and on the back, breast and forward part of body. The standard weights for the variety are 4½ lbs. for the drake and 4 lbs. for the duck.

The hatching of ducks is now largely done with incubators where these fowls are grown in numbers. Where only a few are raised, and an incubator is not at hand, the eggs are best hatched under chicken hens. Select about the same sort of hens as you would for hatching chicks. Rocks or Wyandottes are well adapted to the purpose. About nine eggs constitute a sitting in early spring, but later as many as a dozen may be given. Where an incubator is used the rules governing its operation are about the same as those governing the hatching of chicks, a temperature of 102 at first and increased to 103 degs. being about right. In the last stage a temperature of 104 will not do any harm.

The ducklings may be reared in brooders or under hens. Like chicks they must be protected from cold and wet. If reared late they may be grown satisfactorily in outdoor brooders. While crowding must be avoided, it is possible to keep more ducklings in a flock than is the case with chicks, the reason generally given being that they are less susceptible to the effects of filth. Notwithstanding this, great care must be observed in feeding and caring for the young. The newly-hatched duckling requires soft food even more than does the chick, and the feeding of soft foods means fermented and unfit food unless given in quantities that will be well cleaned up at each feeding. Many prefer to give boiled oatmeal for the first few weeks, or lacking this, a mixture of cornmeal and wheat middlings, which is boiled and allowed to cool. With this is given green stuff and table scraps, also fine grit and plenty of pure water. Big duck raisers who grow the ducklings very rapidly use a ration something like the following: Cornmeal 1 part, and bran, 2 parts, to which is added beef scrap equal to 5 per cent of the bulk of the mixture. This is given five times a day until the fowls are five weeks old, and then three times a day. An occasional feed of vegetables or green stuff, and proper caution against over-feeding, will keep them thriving.

The Toulouse is a gray goose and the breed is easily distinguished from other breeds of that color by the comparatively smooth head, this breed lacking the prominent knob at the upper base of the bill and the more or less heavy dewlap under the throat which are found in the African and also the Brown China goose. It is among the largest of the breeds, very compactly built with broad, deep body which carries well down to the ground. The standard weights for the breed are

20 lbs. for the gander and the same for the goose.

Wider range is required for the raising of geese than is the case with ducks, nor are they so successfully grown without water. The natural method of hatching is generally practiced since efforts to substitute the incubator have not proven very successful. It is best to set the eggs under hens, not allowing the goose to sit until she nears the end of her laying period. She should produce about 40 eggs during the period. The hatching requires 30 days and experienced raisers claim that success is made more certain by dipping the eggs into water at 104 degs. for the space of a minute on or about the 25th day.

The hen and goslings should remain in the nest until all are thoroughly dry, then removed to a roomy coop. When a week old the goslings can get along without the hen and should be given range but must be securely and snugly cooped up at night. For feed, grass alone is given the first day. After that they should have several feeds daily of mash or scalded corn. It is just as important though that they have the run of a pasture of fresh tender grass and, in the absence of this, must receive liberal allowances of succulent green food in some other form. With good pasture, especially along streams, ponds or marshes, where many forms of tender vegetable and animal life are available, geese can be grown with very little grain. Goslings grown in this way until three or four months old are fattened for the big markets by feeding heavily with a mixture of equal parts cornmeal and bran.

### TAKING BEES OUT OF CELLARS.

The winter now closing has been a long one, with great stretches of severe weather, and its effect upon bees is still to be determined. The condition of the bees and the state of the weather must govern as to time of removing from cellars, but they should be watched carefully from this time on. If the bees are clustered closely, and are quiet, there is no hurry whatever about taking them out. But, if they are found restless, and daubing their hives with excrement, it means that they have nearly reached the limit of their endurance and each day added aggravates the trouble. I prefer to watch the temperature and other conditions and take the bees out during the day when they can fly at once. After they have had a good cleansing flight I examine every comb to determine the strength of the colony, the amount of brood and stores, and whether it is queenless or not.

If I find the colony in satisfactory condition I close the hive and let them alone for ten days or more, according to their condition. If I find any colony short of stores but otherwise in good condition, I supply the lack by removing one or more combs which contain little honey and no brood and fill their places with combs more or less full of honey that have been saved for this purpose from the previous year. It often happens that some colonies are short of stores in the spring. Particularly is this true of colonies occupying small hives. However it does not require a great quantity of honey to carry a colony through the average winter, especially if wintered in a cellar.

New Jersey.

F. G. HERMAN.

### THE CLOVERS AND THEIR VALUE AS HONEY PRODUCERS.—III.

#### Red or June Clover.

Our common red clover, botanically known as Trifolium pratense, is very largely grown for forage and is not of much account in the average year as a honey plant. While it secretes a large amount of honey, the petals, in the average season, are so long that the honey bee cannot reach the nectar. For this reason this strain of clover is almost entirely dependent upon the bumble bee for pollenization. Sometimes, when the season has been dry, or from some other cause the petals are not so long, the honey bee can reach the nectar, and in such seasons a fine lot of honey will be secured from it. By watching the bees as they come in you can very easily tell when they are gathering from red clover, as the pollen they secure from it is of a peculiar dark green color, easily distinguished from the pollen of any other plant.

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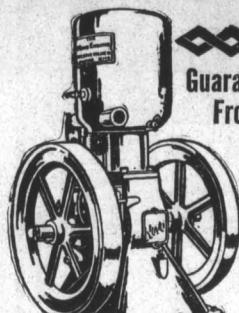
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the name indicates. It is grown mainly on light sandy soils for the reason that on heavy soils it grows so large and coarse as to be of very little value as a feed. It is perhaps the best of all the clovers for plowing under to increase soil fertility. As a honey plant it is very much like the June clover; only in occasional years are the petals short enough to allow the honey bee to get at the nectar. As it blossoms later than the other clovers, however, it becomes a very important honey plant when it does yield, furnishing a fine flow of honey at a time when there would otherwise be a dearth

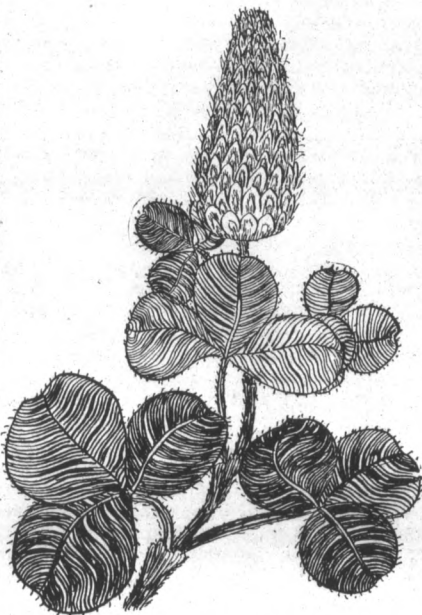


Peavine or Mammoth Clover.

of nectar. I believe that the honey bee finds it possible to work on this species more often than upon the common red clover, for, while the plant itself is very large, the petals are really shorter than those of the common red.

## Crimson Clover.

This species of clover (*Trifolium incarnatum*) is one of the most beautiful of the clover plants; in fact, I might say it is the most beautiful. A field of it in bloom must certainly present a gorgeous scene. I have never seen a large field in bloom, but am told that as far north as Ohio it is sown quite largely as a forage plant. The blossom is quite distinct from that of the common red clover. In fact, it has been likened in appearance to a great long luscious strawberry. The



Crimson Clover Leaves and Blossom.

leaves are of a bright clean green, making an exquisite combination of color. It is usually sown in the latter part of the summer, July or August, sometimes as late as September, and winters well. Sown in the spring it is usually caught by the drouth of summer just when it needs the moisture. This is well nigh fatal, as it will not stand a drouth until well advanced. It makes a lot of feed when sown at the right time, and as a crop to turn under it is hard to beat.

As it comes into blossom earlier than the other clovers it would make a very valuable addition to our bee pasturage, filling the gap between fruit bloom and the other clovers. The quality of the honey secured from this plant is fully equal to that obtained from white clover.

Mecosta Co. L. C. WHEELER.

One of the principal causes of poor hatches and poor results in raising chicks is the use of condiments, such as red pepper, etc., in the rations of the laying stock. Amateur growers, especially, are prone to resort to condiments for forcing egg production, and frequently are dismayed at the evil results that follow—a low per cent of fertility, chicks dead in the shell at hatching time, and chicks hatched that are too weak to live and thrive. If good feed and good care will not make your hens lay and keep them healthy, nothing else will.

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# GRANGE

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

## GRANGE EQUAL SUFFRAGE MOVEMENT.

Preliminary arrangements have been made looking toward one of the most far-reaching efforts that Michigan State Grange has ever undertaken. This is nothing less than a canvass of the state in behalf of equal suffrage.

It is a movement that will stir not alone the "woman question," but that of underlying principles and practices in public affairs generally. It has come about very naturally and gradually. The Grange has stood for equal suffrage within its order for forty-five years. It has been a recognized advocate of the principle, yet seldom has it stood for an aggressive champion for it.

At the annual session in December, at the request of many men and women long identified with our work, State Grange referred the matter of making a statewide equal suffrage canvass to the Executive Committee. At the first meeting of that committee it was unanimously decided to place the work of a constructive canvass of the state under the direction of the Legislative committee. This committee has already begun to formulate plans for a thorough study of the subject, to be followed by a carefully planned canvass in which the Grange assumes direction and responsibility.

The progress of this movement, its plans and details, will all be awaited with deep interest by all citizens without regard to anyone's present personal attitude toward equal suffrage. JENNIE BUELL.

## MEETING IN WHICH GRANGE AND SCHOOLS CO-OPERATE.

Grange members, teachers and school patrons of the vicinity of Shelby, Newaygo county, recently held their big meeting which has been patterned somewhat after the great Hesperia meeting with which Grange members of this state are more or less familiar. This meeting opened a day late owing to the fact that the worst storm of the winter held town and country alike in its relentless grasp. The management had provided for a genuine revival of the "good old days" and accordingly had secured, among numerous speakers, H. S. Earle, of Detroit, H. R. Pattengill, of Lansing, and W. N. Ferris, of Big Rapids. Mr. Earle was unable to reach Shelby, and Professors Taft, of Lansing, and McLaughlin, of the University of Chicago, and Master N. P. Hull, of the State Grange, were also detained because of the storm.

The first session was a brief one, but following the arrival of a belated train Mr. Pattengill entered the hall with his arms full of Knapsacks which were soon distributed. Then began one of the pleasantest exercises of the meeting. No one who has not seen Mr. Pattengill lead a chorus can form any idea of what it is like. The power to impart new life and interest to many an old song is his in marked degree, while the scraps of their history and lessons, given in a few pointed words, linger long in the minds of those who hear him.

Prof. Newcombe, of the U. of M., spoke on the teaching of agriculture in the rural schools. He said: "The school garden is not practical; the teacher may plant, the boys may water, but the birds will get the increase. Much that is valuable may be learned in the laboratory. Soil can be gathered in pots, plants planted therein and studied, and much may be gained in that way." In the writer's opinion he overlooked the most important opportunity, and that is for the teacher to urge the children to have gardens at home, she arranging to inspect them at regular intervals. This would bring teacher and parent together, to the lasting benefit of both.

Mr. Pattengill then gave his lecture, "Inspire and Expire." He said that the teacher who can not inspire her school had better expire from the business. Inspire the boys and girls with a love of study, with the spirit of work, with the desire to be true and honest and square.

Prof. Newcombe followed with a highly entertaining talk on "Sun and Soils." The evening opened with some very good music, after which Prof. Ferris gave his new lecture, "The Philosophy of Human Conduct." The great hall was packed, but everybody heard him and felt that he had a message. He said in part: "Man is ruled by instinct, plus reason; 98 per cent of all we do is done because of instinct and not from reason. All animals have the instinct of self-preservation. All animals have the belligerent instinct. Animals of a higher order feed on those beneath them in the scale of life. Man has the belligerent instinct which manifests itself in the joy of the chase, or the passion for war." The speaker then delivered one of the most telling arguments against war that we have ever heard.

Continuing, he said: "Man, in common with many of the lower animals, has the

hoarding instinct. Little reason and little real worth are required to make money. Then there are the prudential instincts by which we care for ourselves, the sex instincts, and others, all of which are necessary and right if properly controlled. We use our reason less than our instincts, because reason is only a few thousand years old, while instinct is, perhaps, millions of years old. We must use our reason in providing an environment that will tend to develop the good instincts and control those that might otherwise prove the ruin of our boys and girls. We must substitute the suggestive book with a good one. We must know where our young people are nights. We must banish the questionable dance, the low billiard hall, and the open saloon."

The second and last day brought a great crowd. Every seat was filled and hundreds could not get in. The morning session opened with an address by Mr. Pattengill, "America Spells Opportunity." Briefly, he said: "The level land along the eastern coast gave the settlers a chance to stop and rest and get breath before they climbed the mountains. The rivers furnished an easy way for the settler to reach the interior; the Great Lakes gave opportunity to push on farther west. We have, in America, the best blood of the best nations on earth. When our mines shall have been exhausted there still remains power enough in the streams of Michigan alone, to light every house and turn every machine in Michigan, Ohio, Indiana, and Illinois."

"When God wanted to give to the world a religion that was true and enduring, He raised up a people for the purpose, and when He wanted to give to the world the best form of government, He gave us America and raised up a people here to construct that government."

Prof. Van Tyne, of the U. of M., gave a very instructive address, showing how Europe gained our independence for us.

Hon. J. Adam Bede, of Minnesota, was to lecture in the evening, but he was detained by the storm and his place was ably filled by Prof. Van Tyne and Mr. Pattengill.

Thus ended another "Big Meeting." The weather was never more against us, preventing the appearance of a number of our principal speakers, yet the interest was never keener and, all in all, the meeting was a great success.

W. F. TAYLOR.

## ST. JOSEPH COUNTY POMONA.

The Pomona patrons of St. Joseph Co. held a very successful meeting with Burr Oak Grange on Saturday, Feb. 3. More than 250 were present, representing nine subordinate Granges of the county and several of the subordinates from the neighboring county of Branch. The state speaker was John C. Ketcham, member of the State Grange executive committee. State Master Hull dropped in for a brief call, and State Treasurer Coward also was present.

The forenoon was devoted to a business session. Among the things brought up was a roll call of Granges, statements of the strong and weak points of the subordinate Granges and reports of the Pomona delegates to State Grange by Mrs. Harry Kelley of Sturgis Grange and Monroe Anable of Fabius Grange. A noon dinner was served by the ladies of Burr Oak Grange to 230 patrons. It was the opinion of the visiting patrons that for hospitality Burr Oak Grange is easily first in the county.

An open session was held in the afternoon, Ralph Bordener, master of Burr Oak Grange welcoming both patrons and non-patrons to this meeting. An entertainment feature much enjoyed was "The Grange Yankee Doodle Housewives," by the sisters of Burr Oak Grange. It consisted of a number of the sisters doing ordinary housework—washing, churning, dusting, sweeping, etc.—to the tune of "Yankee Doodle." The relation of subordinate Granges to the Pomona was well presented by Glenn Fry of Burr Oak Grange, and Prof. L. E. Miller, of Sturgis, brought out "The Relation of Grange and School," in a very able manner, emphasizing the fact that the Grange and the school are both working for the education and advancement of country people.

"Some Problems of the Michigan Farmer" was the subject of Bro. Ketcham's able address which consumed a large part of this session. He talked for better schools, more country churches, co-operative buying and selling, and better cultivation of the soil. He pleaded with the farmers' and especially with the farmer's boys and girls, to be contented on the farm. He said that when you take into consideration the good living, healthfulness, independence and profit of farming, it is a mighty good business. He also urged the people not to be misled by the "Lure of the Faraway." His central thought in this was that, if the farm and environments are not quite satisfactory you should do all in your power to better the conditions rather than go off on a wild goose chase to California or some other part of the "Faraway."

In the evening the fifth degree was conferred upon a class of 12, bringing the Pomona membership up to 200. The degree work was followed by a roll call, responded to by each member stating, in not more than three words, a good point of the Grange. A question had been provided which was ably handled by George Hamilton, of Constantine Grange.

## COMING EVENTS.

### Pomona Meetings.

Genesee and Shiawassee Co.'s Joint meeting at Durand, Friday, March 15. Newaygo Co., with Enslay Grange, Wednesday and Thursday, March 27-28. Baraga Co., at Grange hall in Baraga township, Monday, April 8.

# FARMERS' CLUBS

## OFFICERS OF THE STATE ASSOCIATION OF FARMERS' CLUBS.

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

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

## SPECIAL FEATURE SONG.

Sang at Ingham Farmers' Club on Woman's Day.

(Tune—"Then Let Our Songs Abound.")

We women are in it today,  
We women will have our own way,  
We shall say what we please  
Though it raises a breeze  
Right over the Farmers' Club "nay."

Chorus—

Some day you'll have your own way,  
Some day you'll have your own say;  
You'll be in it then,  
You Farmers' Club men,  
You cannot be in it today.

We're glad it's sad for you men,  
We're glad it's bad for you men,  
You'll have to keep still,  
Though against your own will,  
Till you bar us women again.

'Tis said every dog has his day—  
All we ask of you men is fair play;  
But it seems mighty queer  
That one day in the year  
Looks fair to you farmers, we say.

It's few of you care much for books,  
And less of you care much for looks;  
But you'll get a square meal  
When you give a square deal  
To us bountiful Farmers' Club cooks.

## WHAT THE LOCAL CLUBS ARE DOING.

Orleans Club, of Ionia county, has been organized two years. The meetings are held in the hall owned by two local organizations. Nine meetings and a picnic are held during the year, the average attendance is between 70 and 80. Refreshments are served at each meeting. The president appoints a program committee and a committee of one lady for each meeting to superintend the menu. Each family is advised of the requirements in this line by telephone. The meat is purchased by the Club and the rest is brought in by the members.

Spring Arbor Club, of Jackson county, has been organized 19 years. The method of serving refreshments at this Club is unique, each family taking a folding table and everything required for serving. The hostess furnishes a dining table for guests not otherwise provided for. Each family furnishes what they choose and the hostess provides extras. At the Club fair each year a chicken-pie dinner is served without charge. This Club considers the social features and the associational meeting an influence of the greatest good derived from the Club.

Ingham County Farmers' Club was organized in 1872, being the oldest organization of the kind in the state. It has always stood for the social and educational advancement of the community. Eleven meetings are held during the year, a vacation being taken in July. Special features include a young people's meeting and a women's day in November, which is the big day of the year. This Club has printed yearly programs and its work is well systematized. No viewing committee is appointed but the tidiness of the farms of the members of this Club is a matter of remark.

The Arcadia Club, of Gratiot county, holds 12 meetings during the year. There are about 100 members enrolled and an average attendance at the meetings of 50. The dinner is furnished by contributions of the members, the hostess furnishing the meat and drink. An effort is made to interest the young people in the Club work. As an illustration of these plans, the delegate stated that a contest was inaugurated among the young men between the ages of 12 and 17 years of age for the growing of the best acre of corn, a pure-bred animal being given as the prize. The successful contestants were required to tell how the corn had been grown. As an example of the interest created by this special feature and the benefit derived from it, the delegate stated that one successful young man who won a pure-bred pig in this manner, was found two years later buying others of the breed at a Chicago sale at a good

price, the inspiration being received from the work done in the Club.

## CLUB DISCUSSIONS.

The Question Box an Important Feature.—The Indianfields Farmers' Club met February 15, at the beautiful farm home of Mr. and Mrs. W. L. Eldridge. The rooms were gaily decorated with hearts in honor of Saint Valentine. Sixty members were present at the noon hour when a most bountiful dinner was served under the direction of Mrs. Davis Van Buren. After a pleasant social hour President Park called the Club to order and the program for the afternoon as arranged by Mrs. J. L. Fournier was carried out. An excellent paper on strawberry culture was read by Mrs. J. M. Miller. The questions for discussion, "Which is more beautiful, natural or artificial beauty?" with Mrs. Ellen Purdy and Rev. Denman as leaders, proved very interesting. Musical numbers were given by Miss Lucy Andrews, Rev. Denman and the phonograph. Mrs. M. H. Oakley and C. W. Smith favored the Club with pleasing recitations. A full question box brought out many timely questions and was one of the most interesting features of the meeting. The Club will meet in March with Mr. and Mrs. Chas. Pierce in their new home.—M. R. P.

Two Good Meetings.—Clover Leaf Club was entertained February 13 at the pleasant home of Mr. and Mrs. John Bushroe. A large crowd was in attendance. Mr. Frank Ayers gave a talk on "Does the farmer get the full value of his dollar?" It was discussed by other members of the Club, and they decided in the negative, on the grounds that the "middle-man" received about half of his dollar. Mrs. Brigham was asked to give a talk on "Chickens." She said she found the Rhode Island Red to be the best farm chickens. She claims they are stronger than other chickens and the best layers. Worda Canfield and Mildred Roe favored with a recitation. We then all joined in singing Gospel Hymns. February 27 the Club met with Mr. and Mrs. O. S. Howe. This was the largest meeting we ever had. Mildred Roe gave a recitation about "Flowers." Mrs. Brigham gave a reading. Mrs. Tanner, from Otsego, favored with a few fine recitations and a song. An oyster supper was then served. We all had a delightful time, and left at a late hour. The next meeting will be with Mr. and Mrs. Brigham, March 12.—Mrs. Henry Wabeke, Cor. Sec.

Hold Successful Institute.—The Salem Farmers' Club held a very successful institute at the town hall, February 3. The morning session was devoted to the subject of "The Dairy Herd." State Speaker Taylor gave the address. Mr. Taylor unites with a thorough knowledge of his subject a pleasing delivery and a winning and sympathetic manner. Discussion led by Fred Bird. Excellent music was furnished by the Salem Male Quartette. The afternoon session opened with music by the Dixboro Orchestra, followed by a solo by Mr. Taylor, "The Ninety and Nine." The speaker then gave another equally good address on the subject of "Soil Fertility." Though these subjects are old, the speaker made them seem new by his presentation. A question box was conducted by Chas. Ross. Mr. Taylor answered the question, "When and how to spray our trees." Chas. Ross, "What is the cheapest way to harvest the corn crop?" John Smith answered the question, "What will be the effect of the new mortgage tax law?" Arthur Wheeler, "How to cool milk without ice." Mr. Wheeler said it could not be done except with quantities of cold water. Chas. Ross suggested a better and final way out—sending the milk to the Worden creamery. A most excellent paper was given by Robt. Ross, on "The New Education, or Learning by Doing," co-relating the work of the hand and the brain. He referred to the marked success the boys have obtained in the different corn contests and said the conservation of our boys and girls is the greatest question of the hour. "Farm Life" was the subject of the evening session and much appreciated by the large audience.

The Wise Farmers' Club met with Rev. and Mrs. L. Walker, February 7, in the city of Clare, with a full house. After a sumptuous dinner had been served, the Club was called to order by President A. J. Seeley. Following the opening exercises a talk on "Journalism," by Enoch Andrus, editor of the Clare Sentinel, was very interesting. John Harris, of Farwell, Mich., spoke on terms "Progressive" and "Stand-patter," as applied to the republican party. Mr. Harris is a miller and merchant, but gave the Club a very interesting talk and showed he was well versed in the political situation. Rev. Walker stood by the standpatters. Homer Loomis is thought that a man who took an occasional glass should not preach temperance. J. H. Seeley said that he had no use for anyone that went to Washington to help enact the reciprocity bill and thanked the Canadians for killing the bill. A vote of thanks was extended to the host and hostess. Everyone had a good time. The March meeting will be held at Dover with Mr. and Mrs. Philip Van Conant.

Men Serve Oyster Dinner.—About 100 members of the Rives and East Tompkins Farmers' Club met at the home of Mr. and Mrs. George Styles, to partake of the excellent oyster dinner the gentlemen had provided. The meeting was opened by singing America, followed by prayer by the chaplain. Rev. Mr. Rennells, in a few well chosen words thanked the Club for the donation that was given him at the December meeting. The program was replete with literary and musical numbers, which were well rendered and most entertaining.—Mrs. Ina Stringham, Cor. Sec.





# Woman and Her Needs

## At Home and Elsewhere



### THE DANGER OF FADS.

I wonder in how many breasts the verses, "What Shall we Eat?" published in this department a couple of weeks ago, struck a responsive chord? It pleased me mightily, for as I have made it a point ever since I kept house to read most religiously everything I could get hold of on foods and cooking, I have certainly come across some rather extreme ideas. Fortunately for the family, I have managed to keep my feet on earth while my head has been among the clouds of steam arising from lurid cookery books, and we have always had our three old-fashioned square meals, while the magazine heroines subsisted on no breakfasts, nut luncheons and vegetarian dinners. Perhaps the fact that I am extremely fond of thick juicy steaks banked with hot mashed potatoes, mushrooms, onions, yellow squash and other suitable vegetables, may have had a great deal to do with my rejection of the fads which many of my sisters followed, but I like to think that reason, common sense, and science, as well as appetite, are on my side.

Does not nature herself show unerringly that we need animal food? On what does the newborn infant live? Could we substitute bean soup or peanut broth for milk and bring up our children on that? How, then, can we say that men, whose nature does not change from infancy, can thrive on vegetable foods alone, "peanut butter," "bean croquettes," and "vegetable steaks"? The digestive tract is designed not alone to digest starches, but proteids and fats as well. Of course, our faddist friends contend that vegetable fats and proteids supply all those elements that the human frame needs, but as the principal vegetable protein is so much harder of digestion than animal protein it scarcely stands to reason that nature intended us to subsist on legumes instead of meat. Nature has a fashion of doing things the easiest way, which goes far in my mind towards controverting the vegetarianist's theory.

The agitation about foods of the past few years has done much good. It has called our attention to many existing evils and made of cookery an exact science. But there is much chaff with the real kernels of wisdom. Americans are nothing if not faddists, and there are

always some to be blown about by every wind. Every new idea can find followers and magazine publishers usually pay well for new ideas. It is well to bear this fact in mind when you read something lurid regarding the proper feeding of the human race. A little while ago we were told that too much sugar was extremely harmful, and most of us know from experience the truth of that statement. Now within the last year magazines with reputations for sanity have published articles which would lead you to think it is utterly impossible for one to eat too much sugar. So much stress is laid on its food value that if you didn't hold on tight you would be substituting the sugar bowl for the potato dish. Whether the sugar trust has had anything to do with the change of attitude might be a subject for congressional investigation.

A sane, temperate diet for all would include vegetables a-plenty, meat at least twice a day, fresh meat as often as possible, as it is more nutritious than salt, eggs, plenty of milk and cream and a simple sweet, as plain cakes, and puddings, syrup, honey and cookies. Pie, even, if properly made is all right for adults. Of course, fruits and nuts go without saying, but it is well to be sparing in the number of nuts eaten as they are highly concentrated and contain large quantities of vegetable oils.

People of mature years and good judgment should be guided by their common sense in deciding what they will eat. There are many persons with sound stomachs and perfect digestions who can eat almost anything. But because of this they should not throw discretion to the winds and eat anything and everything at all times of the day and night. Even the most patient and well-behaved stomach will rebel in time if it is misused. Others with weaker digestion find, by sad experience, that many things "disagree" with them. Leave that food alone forever after, as there is no trouble so hard to get around as a disordered stomach.

When we stop to consider how much our life and happiness depends on what we take into our bodies it is not strange we show so little judgment sometimes as regards what we eat?

DEBORAH.

### Rambler Rose Embroidery—No. 16.

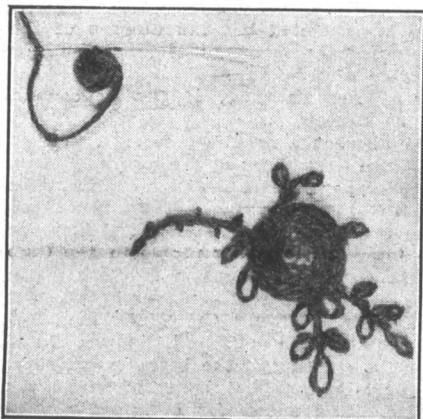
By Mae Y. Mahaffy.

ONE of the newest things in fancy stitchwork is very fittingly called Rambler Rose Embroidery, because of its resemblance to those dear little roses which charm and delight us through the summer. This embroidery does not require any expert knowledge which would place it out of reach of a majority of needleworkers; on the contrary, it is made up of stitches already familiar, only a little practice in their placing being necessary.

The designs for the most part are on the order of garlands, wreaths and festoons. The one shown is appropriate for a bag, but may be duplicated for use on larger articles, such as pillow tops, scarf ends, etc. The work is utilized for any decorative article upon which other fancy stitchwork may be placed appropriately. It is lovelier, however, when used on colored linens, rather than pure white. The colors of the natural roses, light pinks, shading into the deeper reds, with their green foliage, seem to appeal to one more from a creamy background than any other, though tans, grays and greens are attractive. Bows of ribbon are frequently included in the designs, this ribbon being carried out in genuine ribbon of a soft, pliable variety, caught into place with tiny, invisible stitches; or, more often, in solid embroidery in some contrasting color, blue being a favorite.

The work necessitates the use of a solid round center of light green floss. The

coarse silk floss for the richest effects, although the many stranded, or very heavy cotton may be substituted if expense is to be seriously considered. The silk is so much prettier that the small amount saved hardly reconciles one to



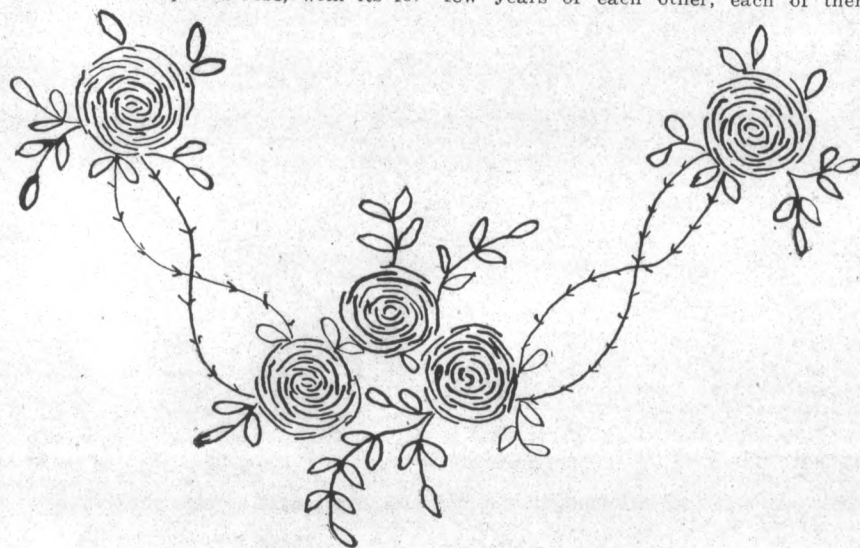
How the Work is Started.

the difference in results. If the stranded cotton is used it must not be separated, the entire strand being threaded into the needle.

Begin working the roses by placing a

usual outline stitch is then utilized to place the rose shades round and round in her habit of holding on to the old idea this center, heaping the stitches up to of heredity. In every community it is secure the button effect until scarcely a easy to find what seems to be proof to bit of center shows. This is where practice alone insures success. The roses must be made quite high, and round off at the edges. Several shades are used in each rose, the darker ones alone in some instances, lighter in others, and then a mixture of light and dark, so that scarcely two roses are alike. As a rule, the darkest shades used in any given rose should be placed nearest the center, but this is not obligatory.

The little sampler shows a rose started, the center of green being surrounded by a few rows of outline stitch. These first outline stitches must be taken almost on top of each other to throw the center up well. A completed rose, with its fol-



A Graceful Design for Ornamenting a Handbag.

lage, also appears. The leaves in this style of embroidery are not made as they are in most forms of embroidery. The individual leaves are made of one bird's-eye stitch, as in lazy-dazy work. The needle is brought up at the base of the leaf, and a stitch taken from that point to the tip, the thread being thrown under the point of the needle; a tiny stitch is then made at the tip to hold the oval in shape. All the stems are outlined, with occasional outbranching stitches to simulate them. The work is speedy when the shaping of the roses is once understood, and is extremely fascinating. Making use of as many needles as one has shades or colors of floss is a great saving in time in any work where so many changes are required, four or five shades entering into most of the roses and two or three shades of green being utilized for foliage.

### SOME PLAIN FACTS ABOUT THE TUBERCULOSIS PROBLEM.

BY CHARLOTTE A. AIKENS.

Recently I talked with a lady who wished me to write an article on her views that tuberculosis was not a communicable disease, or was not "catching," as she termed it. She based her arguments on the fact that her first husband had died of tuberculosis, and though she had nursed him for over two years, she had not contracted the disease. She declared it was hereditary but not contagious.

"How about your niece who contracted the disease?" I inquired. "Where did she get it? None of her family, as far back as we can trace on either side, ever had the disease?"

She began to see the weakness of her arguments, but persisted that her niece's illness had come from "catching cold," not catching consumption.

According to this lady's arguments, it might easily be proven that no disease was communicable, for people have nursed typhoid fever patients month in and month out without contracting the disease, and the same is true of small pox and other communicable diseases. Yet

this same lady is by no means peculiar in her habit of holding on to the old idea of heredity. In every community it is easy to find what seems to be proof to support this idea, in spite of all that science has unfolded and taught and proven by indisputable facts. Whole families have been carried off by the disease which, to all appearances, was transmitted from mother to children. Leaving out of the question the manner in which the mother contracted the disease, it would surely be easy for children, even of other parents, living with a consumptive who took no precautions to prevent giving the disease to others, to get it by contact. It would be a marvel if they did not.

I know of one family in which three members died in the same room within a few years of each other, each of them

sick with the disease for over a year. No such thing as disinfection of the room or disinfecting of anything was attended to. Even the most robust person would be liable to contract the disease under such circumstances.

We have, then, among us the people who lean to one extreme and refuse to believe that tuberculosis is communicable, and we have also the other extreme—those who shun a consumptive as they would a smallpox patient, fearing that even by casual contact they might contract the disease. Now this exaggerated fear of the disease is most unreasonable. Nature has her own protective forces always at work, and if our resistive power is kept up to the mark, we have little to fear. It is when we are run down, when we are weakened by some other disease, that the tuberculosis germs are able to obtain a foothold.

The disease is not communicated by the breath. All authorities agree that the consumptive himself is harmless, if the methods of caring for him are good and his habits are what they ought to be. The chief method of spreading the disease is by means of the dried sputum of consumptives. If the sputum is properly cared for and disposed of and not allowed ever to dry, the risk is reduced to the minimum. As a matter of fact, fewer of the nurses in tuberculosis sanatoria contract the disease than the nurses in hospitals that do not receive tuberculosis patients, for the simple reason that the science and art of prevention is emphasized in tuberculosis hospitals as it is nowhere else.

This brings me to another plain fact about tuberculosis—the fact that there are "unteachable consumptives"—men and women who refuse to take the precautions they should about scattering the germs. I call to mind the case of a child of six or seven who was admitted to the hospital, on application of two motherly neighbor women, who came by stealth and told of the conditions under which they were trying to care for the little fellow. The family lived in two rooms. The mother had died of tuberculosis about



a year before. One boy of twelve had a job as errand boy; the father had a position as "switch-tender," and the seven-year-old fared as best he could, alone all day long. At night the three occupied one bedroom which had never been cleaned, so the neighbors said, since the mother died in it. The father was far advanced in consumption, but still kept at his post tending the switch. The seven-year-old was in the very early stages of the disease.

After a couple of months on the porch and in the grounds of the hospital, the disease was apparently arrested. He seemed healthy and happy and well. He could not stay at the hospital always, and the father absolutely refused to let him go any place else but back "home," to the two filthy rooms which the neighbor women said were not fit for animals to live in. A doctor visited the father and tried to plead for the child to be given a chance in some home for children—told him of the risk of the disease the child incurred by sleeping with him, etc., but no argument availed. The father would neither mend his habits, try to prevent spreading the disease as far as possible, nor give up the child.

I remember another case of a young man, intelligent, well educated, obstinate in disposition, who till the last fought against fate, acted as though he hated everybody on earth, and absolutely refused to take any precautions about where he spit or how it was disposed of. These are only a few illustrations of the problems that present themselves to those who come in contact with tuberculosis very much.

In the public discussions regarding tuberculosis and in the general provision by means of sanatoria, for such cases, the public has seemed to base its efforts very largely on the education and treatment of the incipient curable case. Most of the hospitals refuse admittance to the consumptive who has passed the stage when the disease may be arrested, or a cure may be expected. Hence there has grown up a deplorable indifference to the advanced or hopeless cases, so far as public provision for their care is concerned. It is all very well to enthusiastically pursue the educational work, and to give the incipient patient the best chance possible, but the public neglect of the advanced cases is one of the crying evils of the present day.

We will say the consumptive is the mother of a family of little children. She perhaps has been in a sanitarium and been discharged as a hopeless case. There is no provision in the county or locality for the care of advanced cases, so she goes back home to her family—thus exposing four or five children to the risk of infection. Statistics go to show that each advanced case infects two others. Thus we have three cases to care for instead of one. We may get the two in the early stages and perhaps help them to overcome the disease, but if we had properly provided for the advanced case, we would have had but one case instead of three. If the advanced case could have gone to a home-like sanitarium and been properly cared for till death, no one would have been infected.

Thousands of these advanced cases are today at work in shop and factory and home, spreading infection all the time. There is no place for them to go, once they have passed the curable stage. So they work as long as they are able and pay little attention to their duty to others.

Education of well people, old and young, is a good thing. Proper examination and care of the suspected cases, especially in schools, is a good thing. To have every chance possible given them is a good thing. None of these ought to be neglected. But we shall never succeed in stamping out the disease till we take some interest in the hopeless cases, who keep up the chain of infection and each year recruit the ranks. We ought to look forward and try to hasten the time when every county, or at least every two or three counties, combine to provide a home-like place where advanced cases may have proper care.

When the chance comes to discuss tuberculosis, talk. Plead for the hopeless cases. Work for a sanitarium which will be open to every consumptive who has passed into the incurable stage. By taking the very best, most intelligent care possible of every such case we get to the bottom of the problem and check the spread of infection at its most fruitful source. Even if we are not willing to care for him for his own sake, let us care for him and provide for him for our own protection.

## HOUSEHOLD ACCIDENTS.

BY HILDA RICHMOND.

Nearly all of the distressing household accidents one hears of among friends and neighbors, or reads of in newspapers, are the direct results of carelessness, and yet human lives and property and happiness are sacrificed every year because many housekeepers have no system to their tasks, or else are lax in their government. In times of sickness when a stranger is in charge of the home it is impossible for the wife and mother to prevent accidents, but even then the firm rules and the system she has established in her own home when she had the reins in her hands will do much to safeguard the family and the house.

Take the number of fires resulting from the use of oil to hurry the fire, and from the handling of matches by children, for examples. The woman whose home is ruled by system and order has her fire kindled the night before and needs only to apply a match to the dry wood to start it off. I have seen women who called themselves good housekeepers run out at meal time and begin to look about for bits of wood in the snow and rain to kindle the fires, when just a little planning would have had the woodbox supplied with good, dry materials. There were children in the homes large enough to look after these chores, but they never were required to do them. In other houses the little folks had their regular hours for "filling mamma's woodbox," and she never had to nag at them to do the work. They knew it was their task and the sooner it was over the sooner they would get back to play, so they cheerfully did it.

And where a mother trusts her matches within reach of children she is criminally careless. I know there are mothers who boast that their children may be safely trusted anywhere and everywhere, but even if that is true there is the small visitor to reckon with who may in a moment destroy the work of years if the match box is handy.

Then there are the distressing accidents caused by upsetting water or hot lard or any liquid that results in days of agony for a child or an adult. The mother tears a hole in her apron and instead of taking it off immediately, as she knows she should do, she trusts to luck to keep her out of trouble. Not very long ago such a housekeeper caught the handle of a fryingpan with the hole in her apron, upsetting a pan of hot lard in her shoe and resulting in a most frightful sore. In the weeks that followed she had ample time to reflect on her carelessness, and also to patch every garment in the house. There are women who set down tubs of hot water or kettles of hot lard where the children can fall into them, and then go mourning to the end of their days because God took the little ones from them. One young mother who lost a child in this way made a resolve then and there that never again would she correct one of her children no matter what they did, much to the surprise of her friends who thought she would be doubly careful, and she now has several graves in the cemetery to mourn over instead of one. There were broken limbs, broken arms and minor accidents among the children who did survive, but she never could be brought to see her duty in regard to governing her flock.

Many women tie small bells to bottles containing poison to warn adults in the dark, while others lock up the dangerous drugs and hang the key where none of the children can touch it. If poisons must be kept in the house it is better to have them in a safe place where they will not attract the attention of children, and even medicines that are not harmful unless an overdose is taken should not be where children can handle them. And the discipline of the home should be such that articles that can not be conveniently placed on high shelves every time the mother must leave the room, are not touched by the children.

If oil lamps were always cleaned and filled in the morning there would be fewer accidents, and if a lantern were provided for the children to carry upstairs and down cellar the list would be decreased still more. The reckless way in which people shake lamps to wet the wick when the oil is low, and race over the house with a lighted one in their hands, is surely enough to make thoughtful people shudder.

A disfiguring scar, or a useless hand or limb is an affliction so dreadful that all mothers should be on the alert to guard against such things. If you can give your children nothing else in the way of a

legacy give them sound bodies, habits of obedience and carefulness and a wholesome horror of carelessness, and they will be rich and happy. Lack of time is usually pleaded when a distressing accident occurs, but when it is all sifted down the women who are "rushed to death" in their housework are the ones who lack system and management. Accidents will happen in the best managed homes, but when they do the mistress of the house can console herself with the thought that they are due to causes over which she has no control, and that is much better than to have a guilty conscience to carry the rest of life.

A LOOK INTO FOOD VALUES.  
No. 4.

BY CORAL R. HAVENS.

(Miss Havens is a domestic science teacher in Detroit public schools, and a graduate from a Boston cooking school).

## Carbohydrates.

Before taking up the study of the cookery of carbohydrates it may be well to recall to your minds that carbohydrates are foods that contain starch or sugar, and yield heat and energy.

They are very similar in their chemical composition, both being compounds of carbon, hydrogen and oxygen. Starchy foods comprise by far the larger part of our diet, and their cooking demands our careful consideration.

Starch is found in all cereals, and in roots, stems, seeds, and leaves of many vegetables. A form of animal starch known as glycogen, is found in some animal tissues and some forms of mushrooms.

Raw starch is indigestible and requires thorough cooking to make it digestible. It is a fine white powder composed of tiny grains, each one of which is covered with a thin skin. Cold water has no effect on starch except to separate these grains; boiling water causes the grains to swell and burst, thus forming a paste. This paste is easily converted into sugar by the action of the saliva; and all starch must be changed into sugar before it is digested.

The digestion of starch begins in the mouth, when the food is mixed with saliva. Saliva has the power of changing starch to sugar, a process which must be accomplished before starch is digested. For this reason all starchy foods should be thoroughly chewed. If any food is to be swallowed hastily let it be the proteins, for their digestion does not begin in the mouth.

## Cereals.

Cereals are the six grains, or cultivated grasses, so named in honor of Ceres, the goddess of the harvest. Nowadays we have come to apply the name to the various grits, flakes, etc., that are considered so essential for breakfast in most homes.

They consist largely of starch, also containing a small amount of mineral matter, fat, protein and water. Oats and corn are richer in fats than the other grains and should not be served frequently in warm weather.

Cereals require very thorough cooking to make them easily digested. When served in the form of mush they should be mixed with boiling water and salt and cooked in a double boiler or fireless cooker. Do not be afraid of over-cooking them. Naturally sweetened fruits, as dates, figs, and raisins, added just before taking from the fire, give variety to any of the cooked cereals.

Many preparations are manufactured from cereals, as macaroni, spaghetti, vermicelli, noodles, cracked wheat, wheatena, etc., from wheat; oatmeal and rolled oats from oats; corn meal, cornstarch, hominy, and samp from maize, or Indian corn; rye flour and flakes from rye; flour and pearl barley from barley; puffed rice and rice flour from rice.

Macaroni in its various forms is a valuable food, being cheap and nourishing. It is deficient in protein and should be served with meat or in combination with cream, cheese or eggs to supply the deficiency. In Italy it is boiled in beef broth but we generally boil it in a large quantity of salted water, and then season as desired.

For many years it was not considered possible to make good macaroni in this country, as it requires a very hard wheat for its manufacture. In recent years that difficulty has been overcome and we are now able to produce first-class macaroni in clean factories.

Rice forms the staple article of diet for nearly one-third of the human race. Most housewives realize its value for puddings, but few appreciate its usefulness as a vegetable. Boiled rice makes a very

## A WOMAN DOCTOR

Was Quick to See that Coffee Poison was Doing the Mischief.

A lady tells of a bad case of coffee poisoning and tells it in a way so simple and straightforward that literary skill could not improve it.

"I had neuralgic headaches for 12 years," she says, "and have suffered untold agony. When I first began to have them I weighed 140 pounds, but they brought me down to 110.

"I went to many doctors and they gave me only temporary relief. So I suffered on, till one day, a woman doctor advised me to drink Postum. She said I looked like I was coffee poisoned.

"So I began to drink Postum, and gained 15 pounds in the first few weeks and am still gaining, but not so fast as at first. My headaches began to leave me after I had used Postum about two weeks—long enough, I expect, to get the coffee poison out of my system.

"Now that a few months have passed since I began to use Postum, I can gladly say that I never know what a neuralgic headache is like any more, and it was nothing but Postum that relieved me.

"Before I used Postum I never went out alone; I would get bewildered and would not know which way to turn. Now I go alone and my head is as clear as a bell. My brain and nerves are stronger than they have been for years." Name given by Postum Co., Battle Creek, Mich.

"There's a reason," and it is explained in the little book, "The Road to Wellville," in pkgs.

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

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good substitute for the eternal potato, especially with chicken and bacon. Rice muffins and waffles are delicious and offer a solution of the "left over" problem. Boiled rice mixed with cheese, as you would macaroni, is little known but much enjoyed by those who have once eaten it. Turkish pilaf, or rice and tomatoes, is another acceptable form of rice as a vegetable.

#### Turkish Pilaf.

Wash carefully one cup of rice, cook until brown in two tablespoonfuls melted butter, then add two cups of boiling water and cook in double boiler until the water is absorbed. Add three cups of stewed tomatoes, season highly with salt and pepper and steam until rice is tender.

#### Rice with Cheese.

Wash one cup of rice, and boil rapidly in two quarts of boiling water, to which has been added one tablespoon of salt. When rice is tender drain in a coarse strainer, and pour over it about one quart of cold water; then put it back on the stove to dry. Then put a layer in a baking dish, sprinkle with grated cheese, salt, and a few grains of cayenne; repeat until you have used all of the rice and a quarter of a pound of cheese. Half fill the dish with milk, cover with buttered crumbs and bake until the cheese is melted. Do not bake too long or the cheese will be tough.

#### Rice Muffins.

Mix and sift two and one-fourth cups flour, five level teaspoonfuls baking powder, two level tablespoons sugar, one-half teaspoon salt, then add one-half cup milk, one well-beaten egg and mix thoroughly. Mix three-fourths cup hot cooked rice with one-half cup milk and add to the first mixture, then add two tablespoons melted butter and beat thoroughly. Bake in hot, greased gem pans.

#### "A KID PARTY."

BY PEARLE WHITE M'COWAN.

This is rather an unusual innovation in the line of an evening's entertainment. One given recently, and attended only by middle aged married couples, was a huge success.

The invitations read as follows:

"Come ye lets ga'n a lang

Back to the time when we wus kids.

At Mr. and Mrs. John Betts'

January 27, 7:30 P. M.

No grown-ups allowed."

The amusing results were enough in themselves to furnish entertainment during the early part of the evening. Huge bow ties, blouse waists and knee pants were the rule among the men. One had cut the tail off from a frock coat and utilized his wife's dressing sack for a blouse, another had trouble keeping his stockings up (and who hasn't seen small boys having the same difficulty?), while a third created much amusement by the veritable store of boys' treasures—strings, old knives, a rabbit's foot, marbles, stones, etc., which he was continually pulling from his pockets and trying to trade.

The ladies, with their short dresses and hair in curls or braided down their backs, also occasioned much mirth and comment, and some of them were voted even more attractive than when attired in the regulation "grown-up" garments. They entered with zest into the spirit of the thing and acted their parts amidst much gaiety. One was proud and very vain, because she "had on a new blue dress." Another's source of distinction, which she took care to call to the attention of all the feminine members of the company, was the fact that "her dress and petticoat were just alike." One was "snippy," another "bossy." One "got mad and wouldn't play" and had to be "coaxed up," and another pretended to feel very badly because she was a "poor little girl and didn't have anything but an old gingham dress to wear."

The daughter of the house, who was the only young person present, took charge of affairs, and began by making them all sit in rows and sing "Old John Brown, He Had a Little Indian." This was followed by "Twenty Froggies Went to School," and "Roll Your Hands," all of which were sung with much gusto and amusement.

Games were next in order, and for two hours everybody was kept most busily engaged in such highly exciting and vastly amusing occupations as playing "Button, Button, Who's Got the Button?" "Hide the Thimble," "Simon Says Thumbs Up," "Bean Porridge Hot, Bean Porridge Cold," "Blind Man's Buff," and "Pussy Wants a Corner." Marbles also formed a part of the evening's fun, cigar boxes

with holes cut in the covers through which the marbles were dropped, being the most popular form, at least with the ladies, most of whom objected to sitting upon the floor and rolling at each other.

Refreshments consisted of sandwiches, animal cookies, little cakes with raisin turtles as a part of their decoration, and cocoa, for, of course, children couldn't be allowed to drink coffee.

After this squares of colored paper were given out with instructions as to folding, cutting, etc., each person being required to finish the task assigned in a given time. Comparison of results called forth much good natured criticism and laughter.

Paper and pencils were passed around and each given five minutes in which to draw a picture of an elephant, a hen and a cat. These were gathered up and pinned upon the wall, where everybody had a chance to select the best.

Finally, after singing lustily, "Good-night Ladies," the party broke up amidst hilarious and hearty good-nights, and for weeks afterward any mention of the "Kid Party" afforded instantaneous bursts of amusement, while the general opinion often expressed was that busy people should "let loose" oftener and enjoy these refreshing returns to "calldom."

#### HUMAN WELFARE QUERIES.

Editor Household Department:—My baby is four months old and has been good until a little while ago. Now she is getting cross and frets a good deal. She has always been real well and we feed her everything. Do you think it is her teeth makes her so fretful?—Young Mother.

I should be more apt to think it is the fact that you "feed her everything." An infant four months old should have nothing but milk, either the breast or the bottle. Her digestive glands are not sufficiently matured to take care of anything else. Quit feeding her at once, and give her milk only every two hours during the day and once between 10 o'clock at night and 7 o'clock in the morning. You will probably have some trouble at first but if you stick to your colors for three or four weeks you will be more than repaid. No child should be fed until at least seven months old, and then only well-cooked rice, farina, barley and possibly oatmeal with a dry cracker or bit of toast to nibble.

Editor Household Department:—My baby will be 12 months old in May. Would you advise me to wean her before hot weather or nurse her through her second summer? The doctor says to wean, but one of my neighbors thinks I should not wean her.—Mrs. T.

I should advise you to wean her by all means. The strain of nursing her so long is too much for you, and the milk will not be good for the child. All doctors now advise weaning at least at 11 months, and some say nine months is the right time. If you use care in feeding her there is no reason why she should not be perfectly well. Give her sterilized milk in the hot months, no potatoes, and only well cooked rice and other cereals, with toast and crackers and a little orange juice. If you wish any further suggestions I would be very glad to answer any questions.

Editor Household Department:—Why do doctors say baked potatoes are better than boiled?—Curious.

Baked potatoes are considered better than boiled because none of the salts and protein are lost, while, if they are boiled with the jackets off a large per cent of valuable matter is extracted by the action of the water. Baked potatoes should be served at once though, as they become soggy through standing. If they must stand at all prick the skins to allow the steam to escape.

Editor Household Department:—Saw a request in your paper for a graham cracker recipe. Here is mine:

One-third cup of butter, one cup sugar, white of one egg, (I double recipe and use whole egg), one teaspoon cream of tartar. Beat together, then add half teaspoon of soda dissolved in half cup warm water and sifted graham flour to roll.—M. D.

Editor Household Department:—I would be much obliged to you if you could give me a remedy, or ask if someone could, for removing kerosene oil out of my new ingrain carpet. My hanging lamp came down and made an ugly spot. This was four months ago and it does not evaporate as people told me it would. Please reply through your paper. Thanking you for your trouble, I am yours.—Mrs. W. C. O., Hillsdale.

The spot is largely due to the dust which settled on the spot before evaporation began. Try scrubbing the spot with hot water and ammonia, using a good

If I could talk to you  
for an hour, I could show  
you why it is to your  
individual interest to get  
a home in the fertile

## Pecos Valley New Mexico-Texas.

I cannot talk to you—

Therefore—

I ask that you write to me.

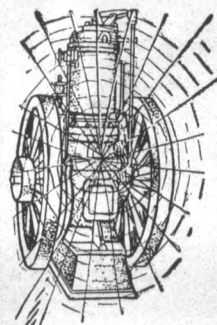
I will send by return mail our new book-folder describing the country in detail, and telling why 1500 farmers, now there, are prosperous and happy. It tells how you, too, may get a home there and win contentment.

This little book is not exhaustive, but it does contain the essential information that will allow you to intelligently estimate the opportunity for profit offered. It also tells you how to take advantage of the mass of information on file in this office.

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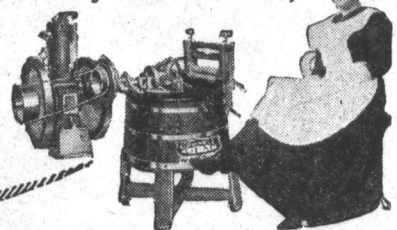
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wool soap. Rinse the soap out thoroughly with several waters and if, when dry, a grease spot still shows cover thickly with magnesia and leave on for 24 hours. Brush off and repeat if necessary. Some advise putting a blotter over grease spots and holding over it a hot iron. The grease is supposed to be drawn into the blotter by the heat of the iron. I have never had any luck with this method. If you do not succeed in removing the spot by scrubbing and the use of magnesia, write again.

(Note.—Any questions regarding food or the care of children will be answered through this column.—Ed.)

#### INDEPENDENT PARENTS BEST IN OLD AGE.

BY ELLA E. ROCKWOOD.

A mistaken kindness it is which prompts a man or woman to place their entire property in the hands of their children. It is all very well to assist them financially within reasonable limits but sufficient means should invariably be kept under the parents' control to assure provision for future years and a possible old age when independence may be of inestimable worth.

Nobody likes to be entirely dependent on his children for financial support. The time may arrive, and usually does, when a separate abode is not expedient, but a separate income is always desirable.

The scriptures tell us how an ungrateful child may cause sorrow in one's old age. This has many times been sadly demonstrated since the day it was written. There are broken hearts without number owing to this very cause. Gray hairs have repeatedly been bowed in the courts of justice to regain possession of property deeded to John, who was to take care of his parents as long as they lived.

John failed to do as he had agreed and in sorrow and shame the aged parents were compelled to ask the intervention of the law to restore to them what they should never have deeded away.

Such cases may not be common, let us admit that they are not. Still, a sufficient number of them are made public to prove that parents are wise in holding the power in their own hands. After they are gone is time enough to give the last dollars away.

Pressure is sometimes brought to bear which arouses the sympathy, causing an aged man or woman to consent to a transaction which, under other circumstances, would not be given. The thing looks specious. John needs the money or can look after the farm better if it is in his own hands. The parent trustingly yields, and deeds away his all. In nine cases out of ten this proves a mistake.

Filial affection is not on the decline. The world has very many who are in love and tenderness caring for aged parents. However, this does not alter the fact that it is best to preserve the independence of those fathers and mothers by allowing them to have something of their own to the very end of life. Would that this might always be the case.

#### FEEDING THE TWO-YEAR-OLD.

BY A. A. L.

The second year of a baby's life is usually most trying to mother and child. The last of the milk teeth are coming, with a train of bowel trouble, and baby is usually more troublesome and fretful than during the first year of his residence on earth. Much of the trouble could be obviated if mothers fed the baby correctly. One doctor goes so far as to say that the child need never have any disturbance while teething if the mother did her duty, but as I followed his directions most slavishly and still my babies' digestive apparatus was upset during the last teething period, I am inclined to think his doctrine is largely theory. However, care in the diet does help wonderfully.

In the first place, do not make the mistake of thinking a child can have a "taste" of everything. Its digestive organs are by no means ready for the "strong meat designed for men," and while many things besides milk may be given safely there are yet more which must be tabooed. Potatoes, for one thing, are often very harmful. Potato starch is the poorest sort of starch for infantile feeding, not equal in value to wheat, rice, barley, etc. When ripe and dry they may be given safely in cold weather, but during the summer it is better to leave them out of the dietary of a child under three years. Oatmeal, too, that popular food for infants, is hard to digest and fewer children can digest it properly than is supposed. Rice, farina and barley are the

best starches for children, barley being neither so loosening as oatmeal nor so constipating as rice.

The constipating properties of rice make it a good food to use in cases of "summer complaint." I have known obstinate cases to be checked by browning a handful of rice in a frying pan, then cooking it thoroughly and giving to the little sufferer.

Always remember that starch should be thoroughly cooked. The mother who puts a handful of oatmeal, farina or other cereal in a basin of water and cooks it three or four minutes before giving it to baby, is laying the train for future trouble. All starch should be boiled on the stove for at least 30 minutes or cooked in the double boiler for two hours, while rice and barley should be cooked even longer, some say at least two hours' boiling, with three in the double boiler.

Eggs may be fed during the second year, but when they are fed the child should not have quite so much milk that day. A half an egg is enough for the first feeding and the infant should be given egg only once a day. By the time the child is 15 months old its food should be half starch, and some egg or broth should be substituted for a part of the milk. Mutton broth, chicken broth and beef broth are all good, though they do not contain the nutrition that was formerly supposed. They are valuable more from the fact that their flavor imparts a zest to the appetite. The nourishment comes from the cereals, toast or cracker that is eaten with them.

Contrary to our usual idea about baked and boiled starches, boiled starches are better for infantile feeding than baked ones. They contain much more water and the child is not so liable to overload his stomach as he is with the baked starches which are more concentrated. That is, he can take a greater quantity of boiled starch with safety as the water is at once taken up by the system.

Extreme caution should be used in feeding fruit. Orange juice, baked or scraped apple and stewed prunes may be given, and are better as a laxative than medicines. Prunes are very good for this purpose. Do not give the child apples to eat out of hand as he is not old enough to chew them properly and the pieces he swallows irritate the digestive organs.

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|---------------|------|---------|--------------|-------------|---------|------------|----------|
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| N. Battleford |      | 21.55   | 25.10        | 26.00       | 22.25   | 21.10      | 16.05    |
| Regina        |      | 20.85   | 24.40        | 25.30       | 21.55   | 20.40      | 15.35    |
| Saskatoon     |      | 20.85   | 24.40        | 25.30       | 21.55   | 20.40      | 15.35    |
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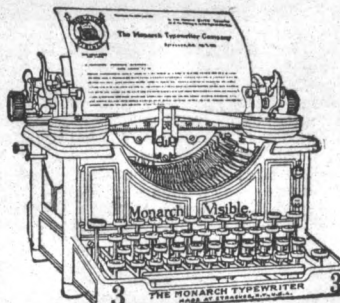
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# MARKETS

DETROIT WHOLESALE MARKETS.

March 6, 1912.  
Grains and Seeds.

**Wheat.**—Unusual strength was shown in the wheat market last Friday when the bears had sold themselves short only to find that conditions abroad were favorable for an advance. Liverpool showed uncommon strength due to the small shipments from Argentina and a general understanding that transportation in the South American country was still suffering from labor conditions. There was also a general belief among traders that farmers had fewer bushels in their possession than was formerly thought. On Saturday another quarter cent was added to the price, but this was lost Monday and Tuesday's market experienced another loss of one-half cent largely because of the liberal fall of moisture west of the Mississippi, and also from the fact that primary receipts were a little larger than dealers were looking for. The average values for the week, however, are above those of the previous period and from now on the bears will be put on the defense due to crop scares. Last fall wheat did not go under the snow in the best condition and it is more than likely that the growing season will open with the crop looking unfavorable for a large yield. One year ago the price for No. 2 red wheat was 90c per bu. Quotations for the past week are as follows:

|           | Red.    | White.  | May.     | July.   |
|-----------|---------|---------|----------|---------|
| Thursday  | 97 1/2  | 95 1/2  | 1.02 1/2 | .97     |
| Friday    | 1.00    | .98     | 1.04     | .98 1/2 |
| Saturday  | 1.00    | .98     | 1.03 1/2 | .98 1/2 |
| Monday    | 1.00    | .98     | 1.03 1/2 | .98 1/2 |
| Tuesday   | .99 1/2 | .97 1/2 | 1.03 1/2 | .98 1/2 |
| Wednesday | 1.00    | .98     | 1.03 1/2 | .98 1/2 |

**Corn.**—Corn prices show substantial advances over the prices of last week, 2 1/2c being added to the quotations. The wide demand for this cereal from rural districts to feed stock is giving good support to the market. The continued cold weather is demanding an extra amount for regular feeding purposes. It is also asserted that corn values in Argentine average above those in this country. The demand from abroad is likely, therefore, to improve. The bulge in the wheat market is another bullish factor. One year ago the price for No. 3 corn was 46c per bu. Quotations for the past week are as follows:

|           | No. 3 | No. 3   |
|-----------|-------|---------|
|           | Corn. | Yellow. |
| Thursday  | 66    | 67      |
| Friday    | 67    | 68      |
| Saturday  | 68    | 69      |
| Monday    | 68    | 69      |
| Tuesday   | 68    | 69      |
| Wednesday | 68    | 69      |

**Oats.**—On the local market oats are firm and in good demand with values ruling fully 2c above the average for the former week. The visible supply increased only a few thousand bushels. In Chicago on Tuesday the market was considered much stronger than that of corn and wheat. One year ago the local price for standard oats was 33c per bu. Quotations for the past week are as follows:

|           | Cash. | May. |
|-----------|-------|------|
| Thursday  | 2.25  | 2.42 |
| Friday    | 2.25  | 2.42 |
| Saturday  | 2.25  | 2.42 |
| Monday    | 2.25  | 2.42 |
| Tuesday   | 2.25  | 2.42 |
| Wednesday | 2.25  | 2.42 |

**Clover Seed.**—The prices ruling at the close of last week have been maintained throughout this week. There is considerable activity in this market at the present time. Following are the leading quotations for the week:

|           | Prime Spot. | March. | Alsike. |
|-----------|-------------|--------|---------|
| Thursday  | 13.25       | 13.25  | 13.00   |
| Friday    | 13.25       | 13.25  | 13.00   |
| Saturday  | 13.25       | 13.25  | 13.00   |
| Monday    | 13.25       | 13.25  | 13.00   |
| Tuesday   | 13.25       | 13.25  | 13.00   |
| Wednesday | 13.00       | 13.00  | 13.00   |

**Rye.**—While this market is dull, the price shows a 1c advance since last week, the quotation for cash No. 2 now being 95c per bu.

**Timothy Seed.**—During the past week the price for timothy seed has declined 15c, which puts prime spot at \$6.75 per bu. On Tuesday 100 bags were sold at this figure.

## Flour, Feed, Potatoes, Etc.

**Flour.**—Market rules about steady with trading dull.

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

**Feed.**—Prices are advanced. Carlot prices on track are: Bran, \$30 per ton; coarse middlings, \$30; fine middlings, \$30; cracked corn, \$30; coarse corn meal, \$30; corn and oat chop, \$28 per ton.

**Hay and Straw.**—Hay has advanced, while straw is steady. Quotations are: No. 1 timothy, \$22.50@23; No. 2 timothy, \$21.50@22; clover mixed, \$21.50@22.50; rye straw, \$11.50@12; wheat and oat straw, \$10.50@11 per ton.

**Potatoes.**—Demand is active and supply running low since the continued cold weather makes shipping risky. Prices

have gone up about 10c. Car lots on track are quoted at \$1.05@1.10 per bu.

**Provisions.**—Family pork, \$17@18.50; mess pork, \$16; medium clear, \$15.75@17; picnic hams, 9c; bacon, 11 1/2@13c; pure lard in tierces, 9 1/2c; kettle rendered lard, 10 1/2c per lb.

## Dairy and Poultry Products.

**Butter.**—Following the advance made in Elgin on Monday the local market is now handling creamery butter on a 2c higher basis. The market is firm at the new figure. Dairy butter is steady. Extra creamery is quoted at 30c; first creamery 29c; dairy, 21c; packing stock, 20c per lb.

**Eggs.**—The large increase in the output of eggs has pushed prices down several cents below the decreased quotations of last week. There is a very lively demand for the product due to the lower cost to consumers. Current receipts, cases included, are now being quoted at 22c per dozen. This is 7c below the quotations of last week.

**Poultry.**—There has been a few fluctuations in the poultry market with hens and chickens selling higher. The supply is not up to requirements. The market continues firm for other kinds. Quotations are as follows: Live turkeys, 16@17c; geese, 11@12c; ducks, 14c; young ducks, 15c; spring chickens, 15c; No. 2 chickens, 11@12c; hens, 16c; No. 2 hens, 11@12c. Dressed—Chickens, 15 1/2c; ducks, 16@17c; geese, 14@15c; turkeys, 18@19c per lb.

**Veal.**—Fancy veal is steady. Fancy, 10@13c; choice, 9@10c per lb.

**Dressed Hogs.**—Light, \$7.50; medium, \$6.75; heavy, \$6.50 per cwt.

**Cheese.**—All grades of cheese remain steady. Michigan, September, 18 1/2@19c; Michigan, late made, 17 1/2@18c; York state, 19@20c; limburger, 17@19c; domestic Swiss, 20@23c; brick cream, 20@22c per lb.

## Fruits and Vegetables.

**Cabbage.**—Higher; now selling at 3 1/2@4c per lb.

**Onions.**—Steady; \$2.25@2.50 per bu; Spanish, \$2 per crate.

**Apples.**—There is not a satisfactory movement of apples although a fair demand exists. Baldwins are selling at \$3@3.50; Greenings, \$3.25@3.50; Spies, \$3.50@4; Ben Davis, \$2@2.50 per barrel.

## OTHER MARKETS.

### Grand Rapids.

The egg market shows weakness, dealers quoting the country trade, 22c on Tuesday. Dairy butter is worth 24c. Live poultry is bringing the following prices: Fowls, 12c; chickens, 13c; ducks, 13c; geese, 10c; turkeys, 16c. Dressed hogs are worth around 7 1/2c. The bean market is very quiet, the price paid to farmers for both white pea and red kidneys being on \$2.10 basis. Grain prices at the mills are as follows: No. 2 red wheat, 92c; oats, 55c; corn, 69c; rye, 83c. Hay is worth \$20@22 per ton.

### New York.

**Butter.**—All grades 1/2c higher; market firm. Creamery specials are quoted at 31c per lb; extras, 30 1/2c; firsts, 29 1/2@30c; seconds, 28@29c.

**Eggs.**—Market reasonably steady under a decline of 5@6c for the past week. Fresh gathered extras, 25@26c; firsts, 24c; seconds, 23@23 1/2c; western gathered whites, 24@26c per dozen.

**Poultry.**—Live—Steady under generally higher range. Western chickens, 13c; fowls, 15 1/2@16c; turkeys, 18c. Dressed—Steady. Western chickens, 13@15c; fowls 14@16c; turkeys, 12@21c.

### Chicago.

**Wheat.**—No. 2 red, \$1.02 1/2@1.03 1/2; May \$1.03 1/2; July, 97 1/2c.

**Corn.**—No. 3, 66 1/2@67c; May, 70 1/2c; July, 71c per bu.

**Oats.**—No. 2 white, 53 1/2@54 1/2c; May, 52 1/2c; July, 49 1/2c.

**Barley.**—Mating grades, 95c@1.30 per bu; feeding, 75@80c.

**Butter.**—The week opened with a 1c advance followed by a like gain on Tuesday. Demand brisk, keeping offerings well cleaned up. Quotations: Creameries, 27@30c; dairies, 24@28c.

**Eggs.**—Receipts have increased very rapidly the past week and prices have declined just as rapidly, showing a drop of more than 7c. Demand showing improvement. Quotations: Firsts, grading 70 per cent fresh, 21 1/2c; ordinary firsts, 21c per dozen; at mark, cases included, 20 1/2@21c.

**Poultry.**—Market quiet to easier, the few price changes showing tendency toward lower values. Live are quoted as follows: Chickens, 14 1/2c; fowls, 14c; roosters, 10c; turkeys, 14c; ducks, 15c; geese, 10c. Dressed—Chickens, 15c; fowls, 15c; roosters, 10 1/2c; turkeys, 18c; ducks, 16c; geese, 13c.

**Potatoes.**—Despite a steady increase in shipments, prices are again higher. Market very firm. Michigan stock is now quoted at \$1.12@1.14 per bu. Wisconsin, \$1.08@1.13; Minnesota, \$1.12@1.14.

**Beans.**—This market continues to see-saw. Reported easier this week with all quotations slightly lower. Current quotations are: Pea beans—Choice hand-picked, \$2.55 per bu; prime, \$2.45 per bu; Red Kidneys, \$2.60.

**Hay and Straw.**—Steady; prices unchanged. Quotations: Timothy, choice, \$22.50@23.50 per ton; No. 1, \$20.50@21.50; No. 2 and No. 1 mixed, \$19@19.50; No. 3 and No. 2 mixed, \$14.50@18; clover, \$16.50@19; No. 2 and no grade, \$7.50@13.50; alfalfa, choice, \$20.50@21; No. 1, \$19@20; No. 2, \$18@19; straw, rye, \$9.50@10.50; oat, \$9@9.50; wheat, \$7.50@8.50.

### Boston.

**Wool.**—While the transactions in the wool market are limited, the trading is done on a firm basis. Fleeces are scarce and holders are not anxious to dispose of their stock. Dealers who have 1/4-blood

and 3/4-blood fleeces are asking 30c and do not appear inclined to shade this, although it is known that they have been offered within a fraction of this figure for the goods. Fine delaine is held at 32c for washed and 26c for unwashed. Ohio XX has been sold here at 29c, while fine unwashed clothing has changed hands at 22c per lb. Transactions are small due to the fact that none of the dealers have large quantities to sell, even should manufacturers offer the price asked. It is stated that a large part of the new clip of the western states has already been contracted at figures that look fairly attractive to the sheepmen. The latter are, however, advancing their prices up on the crop and it is probable that contracts will not be made so freely during coming weeks as they have been during the past few weeks. Dealers appear more anxious than usual to get hold of wool.

### Elgin.

**Butter.**—Market firm at 30c per lb., an advance of 2c from previous week. The output for the week was 700,000 lbs., compared with 725,000 lbs. a week ago.

## THE LIVE STOCK MARKETS.

### Buffalo.

March 4, 1912.

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

Receipts of stock here today as follows: Cattle, 170 cars; hogs, 75 double decks; sheep and lambs, 81 double decks; calves, 1,400 head.

With 170 cars of cattle on our market here today, market was slow and draggy at barely last week's prices.

We quote: Best 1,400 to 1,600-lb. steers \$7.50@8; good prime 1,300 to 1,400-lb. do. \$7@7.25; do. 1,200 to 1,300-lb. do., \$6.50@7; best 1,100 to 1,200-lb. shipping steers, \$6.25@6.50; medium butcher steers, 1,000 to 1,100, \$5.25@6; light butcher steers, \$4.50@5; best fat cows, \$5@5.60; fair to good do., \$4@4.50; common to medium do. \$3.25@3.75; trimmers, \$2.50@3; best fat heifers, \$6@6.50; good do., \$4.75@5.25; fair to good do., \$4.25@4.65; stock heifers, \$3.25@3.50; best feeding steers, dehorned, \$4.50@4.75; common feeding steers, \$3.50@4; stockers, all grades, \$3.50@4; prime export bulls, \$5.50@6; best butcher bulls, \$5@5.25; bologna bulls, \$4@4.50; stock bulls, \$3.25@4; best milkers and springers \$4.50@5; common to good do., \$2.50@3.50.

With eight double decks of hogs on sale here today, and moderate supplies west, our trade was active and generally 10@15c higher on all grades; bulk of the choice quality hogs selling at 7c; pigs and lighter weights at \$6.50@6.75; roughs, \$6@6.25; stags, \$4.75@5.50. Good weight hogs closed steady, but lights slow; some of the latter going over unsold.

The lamb market was active today; most of the choice lambs selling from \$7.35@7.40; few fancy at \$7.50. Look for little lower prices the last of the week unless the runs continue light. The sheep market was active today; market strong quarter higher. Look for about steady prices the balance of the week on sheep.

We quote: Best lambs, \$7.35@7.40; cull to common do., \$5.75@6.50; wethers, \$5@5.25; bucks, \$3@3.25; yearlings, \$5.75@6.25; handy ewes, \$5@5.25; heavy ewes, \$4.75@5; cull sheep, \$3@4; veals, choice to extra, \$10.25@10.50; fair to good do., \$8@10; heavy calves, \$4.50@6.

### Chicago.

March 4, 1912.

**Cattle.** Hogs. Sheep.  
Received today .....19,000 47,000 32,000  
Same day last year..21,537 35,802 18,765  
Received last week...46,781 181,932 112,166  
Same week last year..45,920 137,136 60,794

Here is another Monday, a day when ordinarily cattle are in big supply, with but a moderate number here, although the run is larger than last Monday. Buyers are hustling to secure at least fair quotas, and prices are 10@15c higher as a rule. Late snow storms in the Mississippi Valley are reported as responsible for light shipments from that region. Fat beefs of superior quality and weighing heavily are hard to find. Hogs are a good dime higher because of the lively local and shipping demand, selling at \$6.30@6.65, the best light-weights going at \$6.60, and stockmen feel greatly encouraged. The eastern demand for hogs here is a great factor, 62,663 hogs having been shipped from Chicago last week, compared with 33,204 a year ago. Hogs received last week averaged 217 pounds, compared with 229 pounds a year ago and 211 pounds two years ago. Lambs are active at last week's prices, and the choicer lots of sheep are about 10c higher, prime wethers averaging around 121 pounds fetching \$5.10. Colorado lambs form a much increased proportion of the offerings, but Wisconsin continues to furnish the choicest lambs.

Cattle had several good advances in prices last week because of unusually small receipts due to the big snow storms that blocked the railroad tracks rather than to any improvement in the general demand, and hogs and sheep sold higher for the same reason. The requirements of cattle buyers were only moderate, but the offerings on several days were so small that competition to secure desirable lots was keen, and even medium grades moved up with better lots. No improvement was seen in the average quality of the daily offerings, and prime heavy beefs were few and far between, sales of such cutting but little figure. Stockmen have not changed their views regarding feeding high-priced corn to their cattle, and receipts have consisted mainly of short-fed stock that should have been kept on feed several weeks longer to put them in a good class. Some of the most experienced stock feeders take quite a different view of the matter and are going to hold their cattle until they can put on sufficient flesh to make them accept-

able to killers, believing that it will pay them to do so. The packers are constantly complaining of the dearthness of the cheaper class of cattle on the hooks, stating that they make larger profits from good beefs. There is some quickening in the demand from some quarters for good feeders for the country around here, but storms have lessened this trade, and then killers are apt to outbid country buyers for the best grade with considerable weight. The general market for beef steers advanced 25@50c, with sales largely at \$5.90@8 by Wednesday and the best steers going at \$8.10@8.85, while the poorer light steers sold at \$5@6.25. Any weighty cattle that were good sold at \$7.50 and over, with a medium to good class offered at \$6.50@7.50, while butchering cows and heifers sold at \$3.65@7. Canners sold at \$2.10@3.10, cutters at \$3.15@3.60, bulls at \$3.50@6 and calves at \$3.25@8.50, calves being much scarcer and higher. Stockers sold at \$3.85@5.55 and feeders at \$5@6.40, these cattle reaching the highest prices of the year. Milch cows were up \$2@3 per head, being scarce and wanted at \$30@65.

Hogs were on the up-grade last week for the first three days because of greatly reduced receipts, selling off rather sharply by Thursday on much larger offerings. Eastern shippers were good purchasers, securing a much greater proportion of the hogs offered than usual, and local packers were forced to curtail their operations materially for lack of supplies. Most of the time the offerings barely sufficed to supply the fresh meat trade, and receipts at other western markets also fell much short of other weeks, but the reduced supplies were regarded as due mainly to merely temporary obstacles. Pork loins advanced with the raw material, and so did lard and cured meats. The spread in prices narrowed to a marked degree, and prime 195-lb. barrows sold almost as high as prime heavy lots. Hogs reached \$6.57 1/2 last week and closed at \$6.20@6.55, compared with \$5.85@6.35 a week earlier. Pigs closed at \$4.75@6.25 and stags at \$6.55@6.85.

Sheep and lambs joined the procession last week and brought higher prices for desirable offerings because of the moderate supplies, although receipts were larger than a week earlier most of the time. Colorado lambs showed up in increasing volume, and clipped lambs and sheep were rather numerous. Sheep and lambs in the territory around here are becoming scarcer, and prospects are brightening for sellers. Woolled flocks are selling as follows: Lambs, \$4.75@7.15; yearlings, \$5.25@5.85; wethers, \$4.40@5; ewes, \$3.25@4.75; bucks, \$2.50@3.50. There has been a narrowing in the spread between sheep and lamb prices, and many more prime lambs and yearlings could have been sold advantageously.

Horses were in larger supply last week than might have been expected for such stormy weather, and considerable numbers were carried over from the previous week. All good animals continued to sell well, but inferior horses were apt to move slowly at weak values, as usual. Light drafters sold at \$175 per head and upward, with heavier and better ones bringing \$225@325, while 1,250 to 1,450-lb. chunks went at \$150@200. Inferior animals sold at \$90@125.

## LIVE STOCK NOTES.

Rea Brothers, of Montana, who are wintering 355,000 head of sheep, say they will not sell a pound of wool for less than 20 cents, as stocks everywhere are depleted and none is obtainable abroad. They believe the tariff will have no effect on the wool clip of 1912 because of the existing shortage. Most of the southern wool has been contracted for at 16 cents, compared with 10 to 12 cents last year, and Montana wool is always rated at two to three cents above southern wool. The London wool sales closed a month ago, and American dealers secured scarcely any.

For the last two months the southern states have been extremely small buyers of provisions in western markets, while in former years February has been a month in which they loaded up extensively. This change is understood to be due largely to increased activity in raising hogs down south.

Stocks of lard are accumulating at all points in this country, as well as abroad, much of the supplies in European markets having been consigned by American packers.

In parts of Colorado the winter has been extremely severe, with as much as 20 inches of snow, and many flocks of sheep to be driven in from the open range and fed. One ranchman brought in 10,000 sheep, which are now being fed. Despite the care given, many sheep died on the range, and feeding on the range was unusually expensive.

Some of the Montana flockmasters have refused bids of 16 cents per pound for their spring clip of wool, demanding 20 cents at least, and a number believe that prices will rise to 22 or 23 cents. The clip is reported to be longer and better than usual, due to the fact that most of the sheep have been hay fed all winter. Everywhere the sheep are described as rolling in fat.

Colorado lambs will be marketed earlier than usual this spring because of the high cost of feeding. Some flocks will be held in large feed lots near Chicago for 30 to 40 days and shorn before being put on the market, but with hay costing \$20 per ton, and \$17.50 the lowest price for which wheat screenings can be purchased, most of the flocks will be marketed before long.

For several weeks there have been many complaints from killers regarding the poor dressing qualities of cattle on the hooks resulting from short feeding on high-priced corn. They complain that the medium and plain grades of lightweight and warmed-up steers are relatively high costing on the hooks.



THIS IS THE LAST EDITION.

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

DETROIT LIVE STOCK MARKETS.

Thursday's Market.  
March 7, 1912.

Cattle.  
Receipts, 1,318. All grades 10@15c lower than last week.

We quote: Extra dry-fed steers and heifers, \$6.50@6.75; steers and heifers, 1,000 to 1,200, \$5.75@6.25; do. 800 to 1,000, \$5@5.75; do. that are fat, 500 to 700, \$4.25@4.85; choice fat cows, \$4.75@5; good fat cows, \$4@4.50; common cows, \$3.25@3.65; canners, \$2.75@3; choice heavy bulls, \$5@5.25; fair to good bolognas, bulls, \$4.50@4.65; stock bulls, \$4@4.25; milkers, large, young, medium age, \$4@5; common milkers, \$2.50@3.50.

Bishop, B. & H. sold Kamman B. Co. 6 cows av 1,000 at \$4.50, 11 butchers av 830 at \$5.25, 1 heifer weighing 690 at \$4.50, 9 steers av 911 at \$5.75, 1 cow weighing 840 at \$3.50, 3 steers av 733 at \$5; to Hammond, S. & Co. 2 do av 1,080 at \$6.90, 8 cows av 946 at \$3.55; to Mich. B. Co. 3 do av 910 at \$3, 1 do weighing 1,050 at \$4.75, 1 do weighing 1,230 at \$5; to Nagle P. Co. 10 steers av 894 at \$5.75, 1 cow weighing 920 at \$4, 2 do av 1,000 at \$4.50; to Parker, W. & Co. 4 cows av 860 at \$3.25, 15 do av 1,025 at \$4.40, 2 steers av 770 at \$5.25, 1 do weighing 1,000 at \$6, 4 bulls av 1,112 at \$4.75, 1 do weighing 720 at \$4.25, 3 do av 1,033 at \$4.75, 1 cow weighing 1,240 at \$4.50, 3 do av 793 at \$2.75, 1 bull weighing 1,340 at \$4.75, 4 cows av 880 at \$3, 1 bull weighing 930 at \$4.50, 2 steers av 935 at \$5.25; to Sullivan P. Co. 11 do av 1,057 at \$6.30; to Newton B. Co. 2 do av 1,005 at \$6.10, 16 do av 1,020 at \$6.10, 1 cow weighing 1,060 at \$3.50; to Thompson Bros. 5 heifers av 716 at \$4.75, 1 cow weighing 1,050 at \$3.75; to Kamman 8 steers av 764 at \$5.50, 7 cows av 981 at \$4, 1 steer weighing 1,190 at \$5.25, 5 cows av 1,012 at \$4.50.

Haley & M. sold Schlischer 3 butchers av 870 at \$4.50, 27 do av 800 at \$5.70; to Hammond, S. & Co. 3 bulls av 1,213 at \$4.75, 2 do av 1,115 at \$4.65, 3 cows av 1,113 at \$3.25, 1 do weighing 870 at \$3.25, 1 steer weighing 620 at \$4.75; to Nagle P. Co. 5 do av 996 at \$6.20; to Goose 1 cow weighing 950 at \$4, 3 do av 980 at \$3.50, 1 do weighing 1,160 at \$5; to Sullivan P. Co. 1 heifer weighing 930 at \$5.50; to Regan 6 do av 573 at \$4.60, 1 do weighing 560 at \$4.50; to Applebaum 6 butchers av 583 at \$4.50, 8 do av 1,081 at \$4.50, 1 bull weighing 570 at \$4; to Bresnahan 6 cows av 900 at \$3.50, 1 do weighing 900 at \$2.50, 3 do av 980 at \$3.50, 2 do av 900 at \$2.75.

Roe Com. Co. sold Sullivan P. Co. 54 steers av 983 at \$6.10; to Thompson Bros. 7 do av 1,036 at \$5.75, 5 butchers av 986 at \$5, 2 do av 620 at \$4.50; to Lachait 7 do av 771 at \$5.40; to Mich. B. Co. 6 do av 683 at \$4.25.

Spicer & R. sold Newton B. Co. 9 steers av 900 at \$6.10, 1 do weighing 1,140 at \$6.50, 1 cow weighing 850 at \$4.50; to Parker, W. & Co. 25 steers av 854 at \$6.15; to Mich. B. Co. 1 bull weighing 1,390 at \$5, 10 cows av 922 at \$4.35; to Sullivan P. Co. 1 bull weighing 1,460 at \$5; to Hammond, S. & Co. 1 cow weighing 670 at \$2.50, 1 do weighing 970 at \$3; to Kamman B. Co. 3 steers av 883 at \$6, 1 do weighing 660 at \$5; to Breitenbeck 5 butchers av 720 at \$4.50, 12 steers av 987 at \$5.85, 7 do av 918 at \$5.85; to Fry 8 do av 781 at \$5.50, 1 heifer weighing 780 at \$4; to Bresnahan 7 butchers av 670 at \$4.50, 2 do av 593 at \$4.65; to Goose 5 cows av 890 at \$3.75; to Goodwin 6 do av 1,021 at \$3.85.

Haddrell sold Bresnahan 1 bull weighing 1,210 at \$4.75, 3 heifers av 813 at \$5.25.

Weeks sold Parker, W. & Co. 2 bulls av 1,075 at \$4.50, 6 cows av 925 at \$4.

Weeks sold Sullivan P. Co. 12 steers av 1,008 at \$6.10.

Stephens sold same 5 cows av 1,020 at \$3.50.

Veal Calves.

Receipts, 986. Market very dull; \$1@1.50 lower than last week. Few choice, \$3.50@9; others, \$4@8. Milch cows and springers steady.

Haley & M. sold Goose 1 weighing 210 at \$7, 3 av 130 at \$9; to Parker, W. & Co. 9 av 135 at \$8, 2 av 150 at \$7, 9 av 150 at \$8.75; to Goose 4 av 200 at \$5; to Newton B. Co. 18 av 155 at \$8.50; to Prabowsky 11 av 125 at \$7, 1 weighing 140 at \$4.

Spicer & R. sold Newton B. Co. 5 av 140 at \$8.50, 3 av 110 at \$7, 1 weighing 170 at \$7, 3 av 160 at \$9; to Applebaum 3 av 140 at \$8.25; to Parker, W. & Co. 1 weighing 100 at \$6.50; to Breitenbeck 11 av 175 at \$8.50, 11 av 150 at \$8, 2 av 125 at \$8, 2 av 145 at \$8.50, 1 weighing 180 at \$8.50.

Bishop, B. & H. sold Parker, W. & Co. 7 av 148 at \$8.75, 96 av 140 at \$7.85; to Polzowsky 18 av 110 at \$5.50; to Hammond, S. & Co. 1 weighing 140 at \$6.50, 2 av 180 at \$8.50, 8 av 150 at \$7.95, 13 av 140 at \$7.50, 1 weighing 150 at \$8, 5 av 150 at \$7.50, 2 av 150 at \$7.50; to Hammond, S. & Co. 11 av 145 at \$7.25; to Goose 18 av 115 at \$4.50, 4 av 200 at \$4.25.

Sheep and Lambs.

Receipts, 6,845. Market opens 25c higher than Wednesday or last week. Best lambs, \$6.50@6.80; fair to good lambs, \$5.75@6.25; light to common lambs, \$4@4.50; fair to good sheep, \$4@4.50; culls and common, \$2.50@3.75.

Roe Com. Co. sold Hammond, S. & Co. 103 lambs av 80 at \$6.50; to Nagle P. Co. 116 do av 65 at \$5.60, 96 do av 75 at \$5.35, 4 sheep av 95 at \$4.

Stephens sold Bray 11 sheep av 110 at \$4, 60 lambs av 85 at \$6.40.

Taggart sold Nagle P. Co. 15 sheep av 90 at \$1.50, 5 lambs av 70 at \$6.25, 66 clip lambs av 60 at \$4.75.

Bishop, B. & H. sold Hayes 26 lambs av 55 at \$4.75, 47 yearlings av 70 at \$5.50; to Nagle P. Co. 190 sheep av 87 at \$4.50, 191 lambs av 70 at \$6.35, 179 do av 80 at \$6.30, 87 do av 73 at \$6.25; to Mich. B. Co. 4 sheep av 78 at \$4, 19 lambs av 50 at \$5.50, 53 do av 55 at \$5, 36 do av 58 at \$4.65, 9 sheep av 90 at \$3.25, 13 do av 110 at \$3.75; to Parker, W. & Co. 53 lambs av 79 at \$6.50, 8 do av 75 at \$5.60, 19 sheep av 100 at \$2.50; to Barber 45 lambs av 80 at \$6.50, 55 do av 85 at \$6.80, 22 do av 70 at \$6.60; to Fitzpatrick Bros. 11 do av 60 at \$5.50, 9 do av 65 at \$5, 6 sheep av 90 at \$4, 11 do av 105 at \$4.25; to Sullivan P. Co. 8 do av 70 at \$2.50, 38 do av 70 at \$4.25, 23 lambs av 60 at \$4.25; to Parker, W. & Co. 24 do av 85 at \$5.75, 73 do av 68 at \$6.25; to Nagle P. Co. 52 do av 80 at \$6.40, 9 do av 60 at \$5, 68 do av 85 at \$6.35.

Spicer & R. sold Mich. B. Co. 1 buck weighing 170 at \$3.50, 3 sheep av 90 at \$2, 7 lambs av 75 at \$6, 22 do av 50 at \$5.25, 10 sheep av 122 at \$3.15, 5 do av 60 at \$2, 26 do av 85 at \$3.75; to Parker, W. & Co. 6 do av 95 at \$3, 38 lambs av 65 at \$5.60; to Mich. B. Co. 10 sheep av 122 at \$3.75; to Barlage 33 lambs av 60 at \$5, 2 sheep av 85 at \$2, 9 do av 150 at \$3.50, 4 lambs av 50 at \$6.25, 26 do av 65 at \$5; to Thompson Bros. 10 do av 53 at \$5, 54 do av 85 at \$6.40; to Bray 77 do av 85 at \$6.40, 1 sheep weighing 110 at \$4, 115 lambs av 87 at \$6.60, 125 do av 79 at \$6.60, 92 do av 85 at \$6.60, 51 do av 77 at \$6.50, 16 sheep av 90 at \$2.50, 116 lambs av 83 at \$6.40.

Haley & M. sold Breitenbeck 15 lambs av 75 at \$5.65, 46 do av 83 at \$6.25.

Hogs.

Receipts, 4,568. None sold up to noon; looks 10c lower than Wednesday and last week. Pigs 25c lower than last week.

Range of prices: Light to good butchers, \$6.30; pigs, \$5.75@5.90; light yorkers, \$6.15@6.25; stags one-third off.

Bishop, B. & H. sold Parker, W. & Co. 815 av 180 at \$6.40, 825 av 160 at \$6.35, 450 av 150 at \$6.30, 225 av 140 at \$6.25, 123 av 125 at \$6.15.

Roe Com. Co. sold Sullivan P. Co. 240 av 210 at \$6.40, 125 av 180 at \$6.35, 180 av 160 at \$6.30.

Spicer & R. sold Hammond, S. & Co. 580 av 229 at \$6.40, 50 av 150 at \$6.25, 86 av 210 at \$6.50.

Haley & M. sold same 247 av 190 at \$6.40, 124 av 185 at \$6.35.

Good hogs closed steady with last week with pigs selling 25c lower than last week's close.

Friday's Market.

March 1, 1912.

Cattle.

Receipts this week, 1,070; last week, 1,267. Market steady at Thursday's prices.

We quote: Extra dry-fed steers and heifers, \$6.50; steers and heifers, 1,000 to 1,200, \$5.75@6.25; do. 800 to 1,000, \$5@5.75; do. that are fat, 500 to 700, \$4.50@5; choice fat cows, \$5; good fat cows, \$4@4.50; common cows, \$3.50@3.75; canners, \$2.50@3; choice heavy bulls, \$5@5.50; fair to good bologna bulls, \$4@4.25; stock bulls, \$4@4.50; milkers, large, young, medium age, \$4@6; common milkers, \$2.50@3.50.

Veal Calves.

Receipts this week, 745; last week, 673. Market steady at Thursday's prices. Best \$9@10; others, \$4@8.50. Milch cows and springers steady.

Sheep and Lambs.

Receipts this week, 7,417; last week 5,903. Market steady at Thursday's close. Best lambs, \$6.50; fair to good lambs, \$5.75@6.25; light to common lambs, \$4@4.50; fair to good sheep, \$3@4; culls and common, \$2.50@3.

Hogs.

Receipts this week, 4,292; last week, 3,604. Market steady at Thursday's prices. Range of prices: Light to good butchers, \$6.40; pigs, \$6.15@6.25; light yorkers, \$6.25@6.35; stags one-third off.

LIVE STOCK NOTES.

It does not appear advisable for farmers to market their hogs weighing much less than 225 lbs., but when they attain that weight it is probably well to ship them. This has been a great winter for liberal marketings of hogs, and it seems really surprising that prices have not gone off more than they have. However, the packers are credited with the ownership of the great bulk of the enormous stocks of provisions stored away in packing places, and they are interested in maintaining prices for product, so that they are interested also in not forcing too much of a break in prices for live hogs. Many people look for much smaller marketings of hogs before very long and a rise in prices.

Lee Serven & Son, of Illinois, marketed recently at Chicago four car loads of prime hogs that averaged in weight 371 pounds and topped the market at \$6.42½ per 100 lbs. They were got by Berkshire boars from sows largely of Poland-China blood. During last summer they raised 800 hogs, and they own around 80 horses, 65 of which are pure-bred Percherons. Serven & Son are operating about 600 acres of the best black soil in Illinois and are great users of fertilizers. They have found that a combination of rock phosphate and clover adds materially to the fertility of the soil. Their corn has been running 65 bushels to the acre and their oats 50 to 57½ bushels.

The failure of hogs to sell at much lower prices this season under the enormous marketings at leading receiving points has furnished one of the surprises of the market, but much credit must be given to the liberal purchases in the Chicago market by representatives of eastern packing plants.

CROP AND MARKET NOTES.

Washtenaw Co., Feb. 21.—A raging blizzard has succeeded the few warm days which we have been enjoying. The mail carrier is unable to get through and it will be some time before the roads are opened again. Under the old road system the pathmaster was always out with his men and the roads were at once opened—under this new system it seems to be a case of "what's everybody's business is nobody's business." The demand for hay and roughage is very great. Hay bringing \$18@19 in the barn. Clover mixed brings as much as timothy. A large number of farm sales. Horses and cattle finding rather a dull market from the fact that farmers dislike to take on more stock with the grain and other feeds so very high. Fat stock bringing the usual good prices and farmers generally cheerful and happy.

Isabella and Southern Clare Co.'s, Feb. 16.—Mild winter weather after six weeks of steady cold weather, the longest and most severe spell of weather ever known in this part of Michigan. Lots of potatoes frozen in the cellars. About 12 inches of snow on the ground. Most of the hay has been marketed and many farmers have sold themselves short. But little farming being done, more than the chores and getting up the year's supply of wood; auction sales quite numerous. Horse buyers plentiful. Wheat, 87@89c; beans, \$2.10; hay, \$18; straw, \$8; cream, 28c; butter, 27c; eggs, 25c; potatoes, 85c.

Sanilac Co., March 1.—The coal famine and cold weather are rather interesting; makes the farmer hunt up the old cross-cut saw and get busy as coal is mostly used for fuel. Our January thaw came in February this winter. With the exception of two blizzards we have had a fine but cold winter. At present the fields are well protected with snow, although the ground is frozen very deep. The average farmer is drawing out all the manure he can from the fact there was no plowing done last fall. In fact, all field work was prohibitive except on very high land. There will be no spare moments this spring. The farmers are getting rebellious about the price they are getting for beans. Seven cents per pound is what the elevator man charges for picking out the bad beans. Farmer elevators are being talked of strongly. Ice cutters have harvested their crop this winter with clear sailing, the clearest, cleanest and thickest crop for years. Hay has reached the \$18 mark. Oats up to 50c; beans, \$2.15; creamery butter, 26c; eggs, 25c.

Emmet Co., Feb. 29.—This section of the state has not been visited by the severe storms that have prevailed over the more southern portion of this state and other sections of the country. The snow-fall has been moderate and has drifted comparatively little. There were several zero snaps but the average temperature was higher for the month than for January, and two warm spells settled the snow perceptibly. Prices on farm produce remain as for a month ago, with but little being marketed.

Lapeer Co., Feb. 26.—Farmers are now busy laying plans for coming season as they sit by a hot stove and look through windows at the great banks of snow as far as the eye can reach, as the county shared the great blizzard of the 21st and 22nd, which followed the coldest weather in the memory of the oldest inhabitant. Zero weather nearly the time from January 10 to February 12, with 30 below on the 10th. Many cellars frosted. No work on farms except chores. Feed of all kinds scarce. Not enough in county to last. Corn is now sold at 75c at dealers. Live stock not looking the best, owing to short rations. Cream down to 28c and eggs 27c.

Livingston Co., Feb. 26.—We have been having one of the most severe winters in years, having had nearly two months of extremely cold weather, with the worst blizzard on the 21st, in the past 26 years. The roads were impassable for a few days until opened up. Many farmers have experienced considerable difficulty with their water supply as their pipes are frozen. Feed of all kinds is scarce and bringing almost prohibitive prices. Hay selling at sales as high as \$21 per ton not delivered. It has been a good winter for feeding though it has taken considerable feed on account of the extreme weather. Farmers beginning to get ready for spring work.

Indiana.

Laporte Co., March 4.—March is here, cold, vigorous, with zero temperature. The longest, coldest winter in years. Some weeks in February averaged good weather most of the week, 24 and 29 degrees below zero the coldest and February 21 a howling blizzard for 24 hours. Children at school were sent to nearest house by telephone for safety. Roads blocked full. Railroad trains stalled for two days in drifts. Nothing certain yet as to outcome of fruit and grain, but injured to a large extent is expected. Stock all protected in this section and are O. K. Snow this morning but warmer.

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## HOME AND YOUTH

## COMMON THINGS.

BY ARTHUR W. PEACH.

Little songs with common themes,  
Unworthy though they seem,  
May hold a bit of wonder  
Of a greater poet's dream.

Blossoms of a lowly kind,  
That bloom beside the way,  
May comfort more than roses  
In gardens dim and gray.

Life's greatest riches lie in these—  
The plain and common things;  
Contentment is their message  
And peace about them clings.

## THE GREATNESS OF LITTLE THINGS.

BY R. BRAUNSTEIN.

The man spoke truly who said that he liked to go to a big city because everything was so jolly and convivial. He observed that in a city like New York, for instance, "even the cars were elevated." There is much in this thought. What a man can't find in a large city to fill his soul with content, rasp down his angles, round off his sharp points, and give him the polish of attrition so that he may roll easily in that variegated compound, called modern society, can't be found anywhere.

I often fancy that what pleases the stranger most is the sense of bigness that is apparent everywhere—the big houses, big parks, big charities, big jobs, big crimes, and well—big bugs. Perhaps it is a vein of human nature that is common to us all. Talk vulgar fractions to a man whom you wish to put up money on some scheme that promises millions, and he will give you a cold shoulder, but fire off a row of figures deftly arranged, and eloquently demonstrate how they may vitalize a pile of tin shavings, and he will listen to you as if you were a potentate and "come down with the dust."

The big things of life, however are not more attractive than the little ones. "Little martin-boxes of homes" are generally the most happy, while cozy little villages are nearer to being atoms of shattered paradise than anything I know of. Little fortunes bring the most content, and little hopes the least disappointments.

Little words are the sweetest to hear; little charities fly farthest and stay longest on the wing; little lakes are the stillest; little hearts the fullest, and little farms the best tilled. Little books are most read, and little songs the most loved. When nature would make anything rare and beautiful, she makes it little—little pearls, little diamonds, little dews. Everybody calls little that which they love best on earth. I once heard a man speak of his "little wife," and I fancied she must be a perfect bijou of a helpmeet. I saw her; she weighed not quite two hundred pounds; I was surprised. But then it was no joke; the man meant it. He could put his wife in his heart and have room for other things besides. And what was she but precious, and what was she but little?

Multum in parvo—much in little—is the great beauty of all we love best, hope for most and remember the longest.

But enough on this theme. The best part of a discourse is often the doxology, and mine shall be the narration of an incident that is vouched for by a friend. He says that in one of his visits to a lady he found her petting a bird. The little creature reciprocated her affection in such a remarkable manner that at his request she told him the story.

A year ago, when the streets were covered with snow, she noticed a tiny snow-bird, apparently weak and hungry, sitting on a sprig of grape vine near the window. Raising the sash softly she brushed the snow from the top of a flower-pot and sprinkled some crumbs for his breakfast there. The bird ate and the next day came again. On the third day the lady sat at the window, and, after waiting awhile, the bird ventured nearer. A week later he picked his food from her hand. Before the end of the winter the bird would hop into the room and nestle on the shoulder of his benefactress.

One day, when spring was approaching, the lady tied a silken thread around one of the little fellow's legs; soon afterward he disappeared, taking flight northward, perhaps, with a flock of other snowbirds. The lady had almost forgotten the strange acquaintance until, on one of the cold days of the present winter, while sitting at her window, she heard a pecking on the glass. Looking up she saw a snow-bird. Remembering her little arctic pet

of last winter, she opened the window. The bird at once flew into the room and perched upon the back of her chair. Upon its leg, almost as bright as when it was first tied there, was the tiny thread of silk which her hand had placed there nearly a year before. Who says that birds and beasts have no memory. This is simply one of the little commonplaces of life that make living so interesting when we look for the little details.

"Who taught the parrot to say 'Wel-

come?'" asks Bacon. Who taught the raven, in time of drouth, to throw pebbles into a hollow tree where she espied water, that the water might rise so that she could reach it? Who taught the bee to sail through a vast sea of air and to find the way from a flower in the field to its hive? Who taught the ant to bite every grain of corn that she burieth in a hill, lest it shall take root and grow? Even a goose flies by a chart which the Royal Geographical Society could not amend.

collapsed into the chair and stared around the room.

"No," I said, looking sternly at Teddy and Ellen, "I want to know exactly how all this happened."

Teddy's lips quivered, but he bravely kept back the sobs. Ellen looked into my face, her eyes swimming in tears. "You didn't kiss me, Uncle John," she said. "When I'm naughty and cry and hurt myself papa always kisses me."

But I was obdurate, and again demanded: "Teddy, tell me exactly how all this happened."

"We were playing circus, and Bruno got mad at the cat, and knocked everything down, and scared Mary Jane into fits, and—Oh, Uncle John, I didn't mean to do it! I—"

"Teddy," I interrupted, for the first time beginning to get an inkling of what had caused all the turmoil, "start at the beginning. I must know exactly how all this happened."

"When you had gone," Teddy began, standing directly in front of me, and fumbling nervously with his fingers the end of the scarf tied around his waist, "and left us to amuse ourselves, Mary Jane told us to go up to the garret to play; and the garret is so big that I thought it would be great fun to play circus in it, and so we went down stairs and got Bruno to be a tiger and the cat to be a leopard. Bruno is all black, and a tiger is striped, so, of course, I had to paint him. I got some paint, and while I was putting a lot of white stripes on Bruno, and a lot of white spots on the cat to make him look like a leopard, Ellen found a lot of funny old clothes in some big boxes, and dressed up in them, and after I'd made a tiger of Bruno and a leopard of the cat, I dressed up, too; and we began playing circus, and we had just lots of fun. Then we thought we'd play we were lion tamers; and Bruno was a man lion, and the cat was a woman lion, and we dressed the cat up; and I got the buggy whip, because a lion tamer always has a whip; and we made a ring out of a lot of chairs and boxes, and we put Bruno and the cat in the ring, and I stood on a high box in the center of the ring, and Ellen stood by me. Bruno and the cat sat still and looked at each other for a minute. Then I hit Bruno a crack with the whip and yelled, and he growled and jumped at the cat, and the cat scratched him on the nose; and then Bruno got terrible mad and went for the cat and the cat ran, and they knocked the box out from under Ellen and me, and we tumbled on the floor. Oh, Uncle John, I just couldn't stop them! They tore around in the garret terrible, and scratched, and bit, and barked, and squealed, and knocked everything galley-west; and Ellen screamed and ran to the door and opened it; and the cat jumped out and leaped down stairs, and Bruno jumped after him and—"

"And I tumbled down stairs," broke in Ellen, "and bumped my head awful hard."

"And I heard Mary Jane screaming," continued Teddy, fidgeting up and down in his excitement, "and the most terrible racket, the breaking of dishes and a great bang, almost as loud as thunder. I guess that was when the stove-pipe fell. And when I got down into the kitchen Mary Jane was standing on a chair yelling, and Bruno was tearing around after the cat, knocking over chairs and tables and smashing dishes and things. Oh, it was terrible, Uncle John! And then the cat jumped through the window, and the door opened, and Bruno jumped out, and you came in. Oh, Uncle John, I couldn't help it! Now whip me," and his eyes turned bravely to where my razor strop hung on the wall beside the looking glass.

Before I could answer Jake gave a yell, leaped into the kitchen, and whirling around, faced the door, holding the pitchfork at guard. "Hit's comin'! Th' bloomin' google-eyed' monster's comin'! Look out! Mother of men, hit's th' old dog!" and the pitchfork dropped from his hands. For a moment Bruno paused in the doorway, and then, catching sight of me, made a rush for my side.

I could not wonder much at the fright of Mary Jane and Jake when I looked at Bruno. Two large white rings encircled his eyes, giving him a wild hobgoblin-like appearance, a wide streak of white ran from his nose along the top of his back to the end of his tail, and a dozen or more stripes of white encircled his body, like ghostly ribs.

Mary Jane stared at Bruno for a minute or two, then she gasped: "Bless my soul, it's the dog!" and straightway all

(Continued on page 310).

## THE BACHELOR UNCLE

BY EVERITT McNEIL.

I knew that there must be a sufficient and perfectly innocent explanation of the presence of the locket in Belle Murdock's hand and of the purchasing of the opium; but I could not find it. Reason as I might, I could neither excuse nor explain away the damaging facts that had come to Doctor Goldthorp's knowledge. Was it possible that my love for Elsie had blinded me to her true character? She had been cruel and unjust to me. Might she not be even more cruel to another? But, Harry Rodney's greatest fear evidently was that she would discover this secret—that she would find out that Belle Murdock had a secret concerning him. How, then, had Elsie discovered that there was a secret? And why, having made such a discovery, was she so desperately anxious to keep Belle Murdock from telling what was apparently so greatly to her interest to know—?"

I almost leaped from the buggy with the shock of the thought that even for a moment I had been fancying it possible for Elsie Lamont to attempt murder! She was innocent! Evidence piled high as the dome of the state capitol would not make me believe her guilty of so vile a crime!

Service is love's fuel. At any rate the thought that I might be of help to Elsie in shielding her good name was like wood to the fire of my love, and kindled it into a warmer and deeper glow than it had ever known before. Never had I longed as I did at this moment to take her in my arms and tell her of my love and how willingly I would protect her from all harm; and never before had I felt to the full the bitterness of the thought that she was even to wed another—and that other Harry Rodney! And over and over, as I had done many times before, I vowed that this unholy marriage should never take place; and yet, if Belle Murdock failed me, how could I stop it? It was maddening to feel myself so helpless when I would be doing so much; to have to await the slow and uncertain results of an operation on, probably, a dying woman, when all the manhood in me was calling out for sudden and immediate action. I could go to Elsie, and, if there was need, force her to hear me; but the thought of doing this was repugnant to my pride and to my manhood; and, after all, what proof had I to offer her? Nothing but my own word; and would she, who had refused to hear me in my own defense, believe my condemnation of her sweetheart?

With such thoughts as these troubling me it is no wonder that Jed Bingham had to call twice before I pulled up my horses. He was on horseback and had a look of mild excitement on his face.

"I reckon from the racket I heard as I passed that somethin' is doin' at your place, John," he said, eyeing me curiously. "Sounded as if a herd of elephants was playing football in your parlor, and—"

But I waited to hear no more. What devilment were those two children up to now? I lashed my horses into a gallop; and in three minutes I was driving into my yard. Wild yells and screams were coming from the house, intermingled with the banging of falling furniture; and the hired man, with hat off and shirt sleeves rolled up, a pitchfork in one hand and an ax in the other, was running madly from the barn toward the house. As I stopped the horses there was a great crash of glass, and a wild-eyed animal, that I would never have recognized as our dignified old tom-cat, with the tattered remains of various garments clinging to different parts of his anatomy, leaped through the kitchen window, and darted like mad under the long corn crib near the barn. At this moment Jake burst open the kitchen door, and was about to enter, when a big black and white monster sprang out, knocking him sprawling on his back, and with a howl vanished around the corner of the house.

Jake bounded to his feet; and, in his fear and excitement, began whirling around, swinging his ax and yelling like a madman. "Where—where is he? Hi'll kill th' bloomin' white devil! Hi'll—" His ax came in contact with a tub of water that Mary Jane had placed on a chair on the kitchen stoop, with such force that the tub and its contents were hurled violently over the excited Englishman; and down he went, the tub on top of him. When he got on his feet again, he was a cooler and a wetter, if not a wiser man.

By this time I had reached the kitchen door and entered. Mary Jane stood on a chair in a corner of the room, flourishing a potato masher and yelling hysterically. Her hair had fallen down, her upper teeth had fallen out, and she was jumping up and down on top of the chair. At sight of me she exclaimed: "Heavens an' earth, John Delvin!" and collapsed on the chair. The kitchen table was overturned, the stovepipe knocked down, the stove nearly upset, and broken dishes littered the floor.

I at once hurried to the side of Mary Jane. "What has happened? Tell me, quick!" I said, catching hold of her shoulders and shaking her.

"Bears! tigers! wolves! lions! murder!" gasped Mary Jane, her eyes rolling.

At this moment I felt a timid pull on my right sleeve, and a more timid pull on my left sleeve; and a very humble voice at my right elbow said, "Uncle John," and a still humbler voice at my left elbow murmured, "Uncle John;" and, looking down, I saw Teddy and Ellen standing one on each side of me. Both had very white and thoroughly frightened and penitent faces. A red silk scarf was wound picturesquely around Teddy's waist, a red bandana handkerchief circled his neck, and an old wide-brimmed felt hat covered his head, while a discarded white ostrich plume drooped dejectedly over the crown of the hat, and my best buggy whip was in his right hand.

Ellen was even more elaborately and picturesquely dressed. Over her shoulders she had thrown a small red-figured shawl, and her head was crowned with a white bridal wreath of wax flowers, from which floated a long white veil. On one side of her head she had pinned a red rosette, and a number of pink ribbons hung from the rosette and mingled with her long dark hair. A skirt made by winding around her waist several yards of bright-figured cloth, evidently purchased for upholstery purposes, completed her odd and startling costume. The clothing of both children was torn and dirty and disarranged, and there was a long red scratch on Teddy's face, and a large blue bump was beginning to show on Ellen's forehead. They looked as if they had been in a scrap with each other, and each had got the worst of it.

"Uncle John, I—I'm responsible," and Teddy's voice trembled. "I—I—I deserve a terrible whipping. Pa uses a strap. Please don't whip Ellen. She—she just did what I told her, and she is a girl. Please don't whip her. I'm responsible. It's awful," and his eyes glanced around the wrecked kitchen.

"Kiss me, Uncle John! Kiss me!" sobbed Ellen, clinging to my hand and lifting up her face to mine. "I—I tumbled down stairs and hurt my head. Kiss me, Uncle John. I'll never, never, never do—"

At this moment Mary Jane caught sight of the veil and wreath hanging from Ellen's head. "Heaven's eternal!" she exclaimed, starting from her chair. "That's Lucinda's bridal wreath an' veil! I can remember just how she looked when these very hands took it off of her pretty head, and laid it away, an' she but a week from her death-bed, poor girl! An' now it's all torn an' dirty! Where's my top jaw? Oh, I never had such a fright in all my born days!" and, clapping one hand to her mouth, she again



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**ONLY A BROKEN HEART.**

BY CLARICE DE VERE.

A carriage drew up to the yard of a humble country house. A young girl stood in the midst of a flock of pure white chickens, scattering handfuls of grain at her feet. A smile of content and amusement was on her pretty face, and her large gray eyes sparkled merrily as she gave vent to a silvery laugh at the expense of a large fat duck, that was uttering remonstrating quacks as it vainly tried to get a share of the food.

A young man stepped out of the carriage and, lifting his hat, asked, "Is this where Mrs. Tyrell lives?"

The girl started, looked around, and replied, "Yes, sir. Do you wish to speak to her?"

"If you please," said the stranger, his admiring eyes still on her rosy face.

"Then follow me," throwing down the last handful of grain and walking swiftly to the house.

The stranger followed as if in a dream, and only when he found himself confronting a motherly, middle-aged lady, did he recover his senses. Rallying himself, he bowed and explained: "Mrs. Tyrell, I presume? My name is Dexter Lovington. I was told, by a person of the village below, that probably you would take me as a summer boarder, so straightway I came to see." And he smiled as he awaited her reply.

"I will see what John says. Dolores," to the girl standing in the doorway, "Where is Willis?"

"Out in the garden, weeding. Do you want him?"

"Tell him to ask his father about a boarder."

"Very well," and Dolores darted away, followed by the flock of chickens, three geese, some turkeys, and Nannie, her pet lamb.

Willis was very tired, and his face fairly dripped with perspiration. Dolores offered to go in his place. Willis demurred at first, but finally consented, so Dolores bridled her pony, Satan, and galloped to the back part of the farm in search of her father who was hoeing potatoes.

She asked him about the boarder and he replied that it didn't matter to him. So Dolores cantered back to the house where she was met at the door by her mother and the prospective boarder.

"Why did you go, Dolores? I told Willis to go," reprovingly.

"Yes, but mother, Willis was warm and tired, and I wasn't, so I went."

"You act more like a ten-year-old child than a girl of sixteen."

Dolores laughed gaily and flew to the pump to get a cool drink for "poor tired Willis."

So Dexter Lovington made his home with the Tyrell family, for the summer at least. Before he had lived with them a month, Dolores made a startling discovery. Dexter Lovington was making love to her, and she, who had before always scoffed at her village lovers, instead of resenting it, reciprocated. His honeyed words and phrases were a new delight to the unsophisticated country girl who took everything in earnest.

"One of my worst grievances is that my parents want me to become a nun," laughingly complained Dolores at twilight one sultry evening in July.

"What!" exclaimed Dexter. "I knew you were a devout member of your church but I did not know your parents wanted you to become a nun! You, with health and beauty, many happy years of life and enjoyment before you, give up all pleasure to become a nun! Never!" vehemently. "Before I would let you become a nun I would carry you off by main force and make you princess of my woodland castle where you would find it trouble enough to express all your wishes. And we would live happy ever after, wouldn't we, dear?"

And Dolores blushed assent with downcast eyes.

One all-important day he gave her a ring, set with a glowing ruby.

"When this ruby is pale, then my love for you has died, and not before," he said as he put it on her finger.

He lingered until October, then went to the city to attend to his business, after reiterating his vows of faithfulness and exacting similar vows from her.

After a week she heard from him, eight pages of impassioned lover's phrases. She answered it, but did not hear from him again for nearly two months; then his

\*The author of this well-written little story is a thirteen-year-old Michigan schoolgirl.

letter was very brief and cold. She felt very much disappointed and wept over the letter. And the ruby began to pale, but she did not notice it, although Willis did.

She grew paler, and meeker, and more sorrowful, but the climax came when she received a bulky envelope, perfumed oppressively.

She opened it, drew out the folded paper it contained and opened it, very slowly. The oppressive perfume overpowered her, and she fell back half fainting. On the spur of the moment she glanced at the ring. Then, apprehensively, she read the folded paper, re-reading it several times to get its purport.

"Mr. and Mrs. J. Henri Kingdene announce the betrothal of their daughter, Loraine Kingdene, to Mr. W. Dexter Lovington."

With a faint cry she fell back as one dead. After many hours she became dimly conscious of the hum of excited voices. Opening her eyes she saw her mother and Willis bending over her.

"Oh, Dolly, Dolly!" sobbed Willis, "Are you really alive?"

"I am a pretty live corpse, am I not?" asked Dolores, with a pitiful attempt at gaiety.

"My own Dolores," whispered her mother, sometime later. "Will you not tell me all about your trouble? Perhaps I can help you."

"No, mother," denied Dolores, bursting into tears. "No one can help me."

But she told her mother the whole story, not passing over her own part of it lightly. Then she showed her the lifeless ruby.

"The man is a double-dyed villain, in truth," said her mother solemnly. "All this woe in your life already, and you only seventeen. Oh, Dolores, you were rightly named!"

"Oh, mother, may I go to the convent right away? I cannot face the world with the knowledge that I've been jilted. I want to live in seclusion where I can spend the remainder of my sojourn on earth in peace and quiet."

"Oh, my child, you need not go to a convent to find peace. But go if you wish."

"I will go right away. But promise me that no one but papa, Willis, and you shall know the cause for my going."

"I promise," said her mother. And the next day she departed for a distant convent.

Once, and only once, did her faithless lover see her again. While his wife was shopping, he took a walk over a path which passed the convent of the Sacred Heart. In one of the windows he saw a slim figure in black, standing by the cage of a canary, talking to it. He seemed to remember the face dimly, and at last he knew. It was the little country girl who had loved him so well. To make sure, however, he asked an attendant.

"Sister Mary," was the laconic answer. "But her real name? Her 'name of the world'?"

"Dolores Marcia Tyrell," still more laconically. So he went on his way, but he could not help thinking of her. Every day he grew more remorseful and penitent, more pining for the country girl he so cruelly deserted—and his wife not true to him, as he firmly believed. Often the thought came: "My little country dove loved me best, after all."

One day, some months later, Dolores glanced at the ruby ring which she always wore, and was somewhat startled to find it glowing ruddily, looking ready to spurt blood. She smiled sadly as she thought, "One more life wasted; another 'it might have been.'"

It did not surprise Dexter when, a year later, her death was announced. But the priests and sisters were surprised when he was found dead upon her grave.

Thus another tragedy had been enacted in real life and two hearts broken—a young girl's, faithful and loving, and a man's, fickle at first but true at the last, turning to her grave for consolation.

**INTO THE LIGHT.**

BY EUGENE C. DOLSON.

From gain to gain, out of the night,  
Out of the wrecks of ages gone,  
The march is ever on and on  
The world moves forward into light.

Even as a seed, once hid in gloom,  
Cleaves through the earthy mold its way,  
And in the fostering smile of day  
Is changed at last to bud and bloom

Deep in the mellow loam, its root  
Draws nurture still from sun and shower,  
Till all the one-time wealth of flower  
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### THE BACHELOR UNCLE.

(Continued from page 308).

her fears gave way to righteous indignation. "John Delvin," she cried, wrathfully, "If you don't trounce them children good for this, I will! Look at that set of blue china that I've washed and dried for nigh onto forty years! Look at that table! an' th' chairs! an' that stove-pipe on my clean kitchen floor that I've nearly worn out my knee bones on! Oh, I could—" here her wrath choked her, and seizing a broom, she made a rush toward where I stood.

Ellen screamed with fright and clung tightly to me. Teddy glanced up apprehensively, but instinctively placed himself in front of Ellen. For a moment I fancied sober Mary Jane had lost her wits, and that the whirling broom was destined to descend on our heads. But, no; with a resounding whack the broom came down on Bruno's back; and the dog, with a howl of pain and fright, slunk out of the kitchen, followed by the broom and Mary Jane.

"Come," I said, quickly seizing Teddy and Ellen by the hands, "we'll escape while there is yet time," and I fled with the children to the library, knowing well that dear old Mary Jane's wrath would evaporate as quickly as it came, and that she would be the first one to plead for the forgiveness of the children.

Teddy and Ellen regarded me doubtfully as I seated myself in the library. My wrath was an unknown quantity. They did not know what I would do, and I could see by their faces that they were fearful of the kind of punishment I might mete out to them.

I glanced at my watch. "It is now five o'clock," I said, "and I am sure you are very, very tired, after all this excitement and would like to go to bed, would you not, Teddy?"

"Yes, sir," Teddy answered, his face plainly showing the relief he felt at the unexpected form his punishment was taking.

"And you, Ellen?"

"Yes, sir," she responded, a little doubtfully. "But papa always spans me when I've been real naughty," she added, evidently fancying I needed the information.

"Very well, then, you may both go to bed at once; and remember you are not to get up until morning. Another thing, you have had such a fine circus today that I am quite sure it would not do for you to go to another tomorrow. But Joey and I will go, because we did not see your circus. Now, I'll excuse you, and you can go directly to bed," and I arose and opened the door for them.

"Oh, Uncle John—" began Teddy and Ellen simultaneously, their faces quivering and their eyes filling with tears.

"Not another word," I interrupted, so sternly that both children hurried from the room in silence; but as they slowly bore their weight of unutterable woe up the stairs, Ellen sobbed: "Oh, dear me, how I do wish Uncle John knew how to spank! I did so want to go to the circus! O, dear me! Teddy, do comfort me!" and the two mourners vanished, arms around each other and tears intermingling.

Some two hours later, as I sat in my library thinking bitterly over the events of the day, Mary Jane entered. There was a look of stern reproach on her face as she walked up and stopped in front of me. "John Delvin," she said, coming to the point at once, as was her wont, "how can you, her own brother, be so cruel to Esther's babies? 'Twant them that knocked th' stovepipe down, an' smashed th' dishes, an' overturned th' table, an' made such a mess on my clean kitchen floor. 'Twas that great black brute of a dog; but, of course, man like, you put all th' blame an' th' punishment on them two dear little babies; an' they feelin' so bad that a sight of their heart-broken faces is enough to melt stone. Here, take that an' read it, it's all wet with their tears; an' if you've got any heart in that big body of yours, do somethin' to comfort Esther's babies, th' poor little dears!" and she stiffly handed me a piece of writing paper carefully folded and tear-stained.

I unfolded the paper and read:

Dearest uncle John:— please whip us good and hard and not keep us away from the sirkus bekaus if you dont take us to the sirkus you will break your promis and it is awful wiked to brak your promis and we will let you whip terrible hard bkaus we dont want you to be wiked and we do want to go to the sirkus. dear dearest uncle john I no our own papa would tel us how nauty we had ben and then he would whip us and then he would take us to the sirkus please be like papa. you can come right up now and whip us and have it over with only whip us on our backs bkaus we have

to set down lots at the sirkus. We will be awfull good if you wil and we will love you next to our own dearest papa as long as we live.

your loving and sorrowful neice and nephew  
Teddy  
Ellen.

For a moment, after reading this note, I sat thinking. Yes, Mary Jane was right. I had been needlessly harsh and cruel. The children had no thought of doing wrong. They did not dream that the cat and the dog would go on such a rampage. Why should I, because I was older and stronger and, possibly, wiser, punish them? A man is a brute who brings a needless tear to the eyes of childhood. I arose and went to the door.

"Hello, upstairs!" I called.

"Hello!" "Hello!" came back from Teddy and Ellen. There was doubt buoyed up by hope in their voices.

"You can both go to the circus with me tomorrow. Now, go to sleep and get a good rest." I heard a glad cry and the rush of feet.

"Oh, Uncle John, I want to kiss you!" and Ellen, followed more slowly by Teddy, came flying down stairs, and, with her arms around my neck, gave me not one but many kisses, while she told me how much she loved me.

"Uncle John," and Teddy stood in front of me, "I am terrible glad we can go to the circus. Now you can whip me. Thank you," and he smiled up into my face.

"I—I wouldn't whip you for a farm! Go to bed, you little rascals, so you can be up bright and early in the morning," and I hurried the children upstairs, and returned to the library, and to my troubled thoughts.

What would Harry Rodney's next move be? He must know by now that we were in control at Red Murdock's; and that could mean but one thing to him—danger. His act in striking me with his riding whip told how desperately wrathful the sight of the doctors' buggies at Murdock's had made him, and how quickly he had jumped to the conclusion that I was at the bottom of the matter. I could fancy how fearfully anxious he must be to know what was going on in the sick room, and what it was that had caused Red Murdock to leave; and it pleased me not a little to think that he was as ignorant of what our plans were, as we were of his, and that now we held the vantage-point of Belle's bedside. But, alas, on what small and uncertain points human destinies sometimes turn! My whole future appeared to hang on the flickering point of life trembling in Belle Murdock's worn and bruised body; and death might yet hold the winning hand.

### Chapter XX.—Circus Day.

The next morning I was awakened about four o'clock by Teddy. He had hold of my ears, and was pulling vigorously. "Uncle John! Uncle John!" he yelled. "Wake up! It's circus day! I've been awake for hours! If you don't hurry we'll be too late for the big parade," and he gave a jerk that threatened to pull my ears out by the roots; and then, before I could catch him, he leaped back, caught up his pillow and threw it at me. "Score one!" he shouted, as the pillow struck plump against my face. "Now, catch me," and he ran out of the room, shouting: "Circus Day! Circus Day! Hurrah! Get up, Ellen! Get up! It's circus day!" and he began pounding on Ellen's door. In a moment more Ellen's voice joined his, and I heard the two of them rush down stairs, followed by Mary Jane, expostulating garrulously.

My anxiety to learn what had happened at Red Murdock's during the night made me a willing victim to the children's importunities for an early start to Plumville. The parade would not take place until one o'clock; but as Teddy said: "Better two hours early than two minutes late, when going to a circus;" and then, there was little Joey to get ready, and the doctors to interview; so I told Jake to have the carriage at the door by eleven o'clock. But so strenuously did Teddy hasten matters that it was but little after ten o'clock when Jake drove up, with Teddy in the carriage shouting: "All aboard for the circus! The greatest show on earth! Come and see the elephants, cowboys, tigers, lions and the gorgeous street parade! All aboard for the circus! Oh, do hurry up, Uncle John!" and, jumping from the carriage, he rushed into the house to hustle things; and, even when we were driving out of the yard he wanted me to make the horses gallop, so that we would be sure to be on time for the big parade.

I wonder if there is anything else in the world that can fill a boy's mind with as many delightful anticipations as can



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a circus? How he feasts his eyes on the bill-boards for days and days, before the coming of the great event, and wonders if he will really see all those delightful, marvelous, and mysterious beings and things so vividly and gorgeously pictured! And, at last, when the great day comes, and he sees from afar the enormous weather-stained tents, with the flags of all nations gaily floating from their poles, his heart is almost ready to burst with excitement and the mystery and the wonder of it all increases with every step he takes, until he stands in its very midst, eyes and ears and every pore of his alert little body open to the amazing sights and sounds around him. And the best of it all is that his anticipations seldom equal the marvelous aggregations of the realities, as seen through his delighted eyes. And then, for days and weeks afterwards, he dreams and talks of that circus, and springs the clown's funny jokes on every one he meets, and hangs a trapeze up in the barn on which he practices sedulously to the great danger of his arms and neck, and learns to turn somersets and hand-springs and cart-wheels; while visions of fame and wealth won on the sawdust of the circus ring continually fill his waking and sleeping fancies. Oh, the marvelous alchemy of youth! Alas, alas, that its wonderful buoyancy can not stay with us always!

Even my despondency was not altogether proof against the joyous liveliness and enthusiasm of Teddy and Ellen, as they pictured out the wonderful sights they were soon to see. Indeed, the enthusiasm of the children was catching. Under its spell Mary Jane grew animated and told of her first experience at a circus, when she was a little girl, "nigh onto fifty years ago." Then Jake had to tell what a circus was like in "Hold Hengland." And by the time we reached Red Murdock's we were all little children alike, going to see the greatest "show on earth."

I found Doctor Anderson and Doctor Goldthorp both with Belle Murdock. There had been no change. She was holding her own bravely, but that was all; and I could see that neither doctor had any hopes for her ultimate recovery.

"If the operation restores her to consciousness and she lives long enough to tell all she knows about this terrible affair, it's the best we can hope for, Delvin," Doctor Goldthorp whispered, drawing me into a corner of the room. "And—and—" he hesitated, "the one who gave her the opium will be responsible for her death. Delvin, that locket hangs like a millstone around my heart. I—what shall we do?"

"Drop it, doctor," and I gripped him hard by the shoulders. "Not another hint to me, nor to anybody else, about your suspicions until the mystery of that locket and the purchasing of the opium is cleared up. I'll stake my soul on the innocence of Miss Lamont. But, if it can be proven that she is guilty, I'll— Good heavens, Doctor Goldthorp, how can you give credence to such vile suspicions, you who have known her all her life?"

"That's it, Delvin, that's it, I can't," broke in the doctor. "And yet, if it were anybody but Elsie Lamont I'd be so sure of her guilt that I'd feel it my duty to put my knowledge in the hands of the proper authorities. And—and it may be that I am blinded by my regard for her, and shielding the guilty. God knows I want to do what is right."

"Then keep still. Do nothing, as you promised, until after you hear Belle's story. It is not the guilty, but the innocent, that you are shielding."

"I hope so, I hope so. Anyway I'll do as you say, Delvin," and shaking his head doubtfully, as if he yet questioned the wisdom of the course, Doctor Goldthorp returned to the bedside.

The moment we had stopped at Red Murdock's Teddy and Ellen had leaped from the carriage, and made a rush for little Joey to get him ready to go to the show; and it was good to see the delight of the child when at last he was made to understand that he was going to a "really truly" circus. His wan face flushed and his eyes brightened until they shone. Poor child, he had been to Plumville but twice in all the ten years of his unfortunate life; and now he was not only going to Plumville, a wonderful place in his eyes, but he was going to see "the very greatest show on earth, and lions, and tigers, and cowboys, and elephants, and things," as Teddy enthusiastically assured him while helping him get ready. Truly it was a dazzling prospect for Joey, and the little fellow's happiness fairly radiated from his face and eyes.

"Land sakes!" Mary Jane exclaimed, as

Joey took his seat in the buggy between her and Ellen. "You do look glad! An' I guess th' gladness is as catchin' as th' measles. Anyway I haven't felt as young an' chipper for twenty years," and she bent and gave him a motherly hug and kiss.

"I do wish Belle could go with us," and a shadow passed over the boy's happy face. "Belle's awful good. She never hit me a lick. She'd be just delighted to go." He hesitated and the tears came into his eyes. "I—I'm afraid God'll take Belle, too; an' God's got my mother, an' everythin', an' I've only got Belle. Why can't God let me keep Belle?"

"You poor lone chicken!" and Mary Jane hugged Joey close to her side. "God will let you keep Belle, if He thinks it's for th' best. You know there's a great doctor comin' from New York tonight on purpose to cure Belle; an' he'll cure her, too, just wait an' see if he don't."

"Oh, if he only will!" and little Joey's face shone with the joy of the thought. "God don't need Belle, an' I do. Belle's been awful good to me since ma died, an'—"

"I can see the tents! Look Ellen, Joey, the circus tents! Oh, Uncle John, aren't they big? See!" and Teddy jumped to his feet and pointed eagerly in the direction where the circus tents might be seen from the top of the hill which we had now reached. And a pretty sight they made, with their hundreds of flags bravely floating in the breeze, and their great tops and sides bulging out suggestively of the wonders within. "Oh, there's an elephant, and he's pushing a wagon with his head! Do hurry up, Uncle John! Oh, do hurry up!" and the excited boy caught hold of my arm.

In five minutes more we were driving into Plumville, and in another ten minutes we were among those wonderful tents; and Teddy and Ellen and Joey were in Marvelland. There was the elephant that was pushing the heavy animal-wagons into their places with his huge head and trunk. I could not get the children away from him, until his work was finished and he had vanished into the big tent. Then Teddy caught sight of a number of cowboys, and, with a yell of delight, started for them. To his supreme joy one of the men showed him how to hold and throw a rope, and even condescended to put him on the back of one of their horses and to let him feel of their rifles and revolvers, while Ellen and Joey watched him in awed silence.

"I'm going to try my rope, Uncle John, when we get home," he said, as we turned from the cowboys. "Bronco Bill showed me just how to hold and throw it. I'll bet I could catch a cow, Uncle John—Oh, they are getting ready for the parade! Come on!" and off he started on the run to where the line of the parade was forming in front of the big menageries tent.

And little Joey and Ellen! Their eyes looked as if they were about to pop out of their heads, and their tongues were silent only when they saw something so stupendous and wonderful that they were too greatly awed to speak. And Mary Jane and Jake were almost as much excited and as full of wonder as were the children. Altogether that preliminary wandering around among the tents, with now and then a glimpse of the mysteries within the great canvas walls, was, for the children, like a trip to another world, and big with the promises of wonders yet to come.

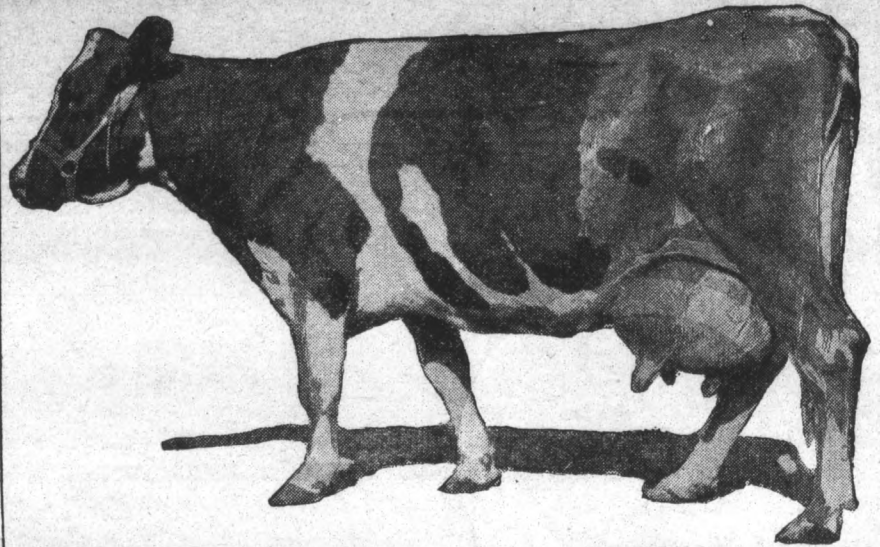
The parade was all that the heart of boy could wish, with its gorgeous band wagon shining like gold, its beautiful men and women, dressed in gleaming armor and many-colored garments and riding gaily-caparisoned steeds; its queer-looking camels and huge elephants, its gallant band of cowboys, and its animal-wagons with a man actually riding in a cage of lions. And then there was the clown, in a funny little cart drawn by a funnier little donkey; and a pretty gold-enhaired little girl, driving a beautiful span of snow-white ponies.

(Continued next week.)

Bill Nye when a young man once made an engagement with a lady friend of his to take her driving of a Sunday afternoon. The appointed day came, but at the livery stable all the horses were taken out save one old, shaky, exceedingly bony horse.

Mr. Nye hired the nag and drove to his friend's residence. The lady let him wait nearly an hour before she was ready, and then on viewing the disreputable outfit flatly refused to accompany Mr. Nye.

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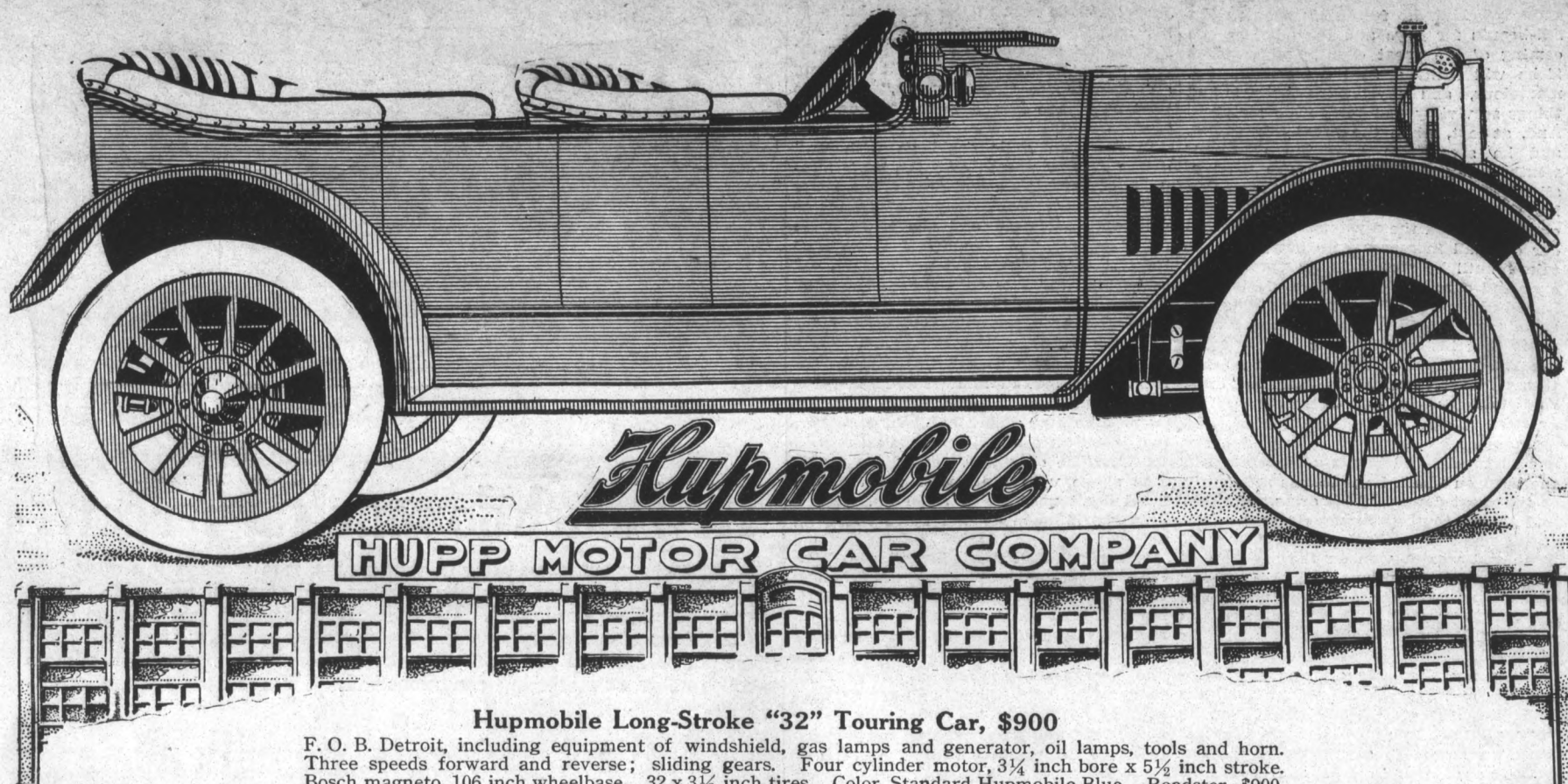
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You will also note the advance in construction that we have made by casting together, from the highest grade of aluminum the alloy, upper part of the crank case and the entire transmission case.

This construction is completed by making the lower part of the crank case from pressed steel.

You will see in this engine and transmission unit a triumph of mechanical adaptation, which makes for increased efficiency and space economy.

The full-floating rear axle of the Long-Stroke "32" is, in itself, a work of high degree, which places the Hupmobile in an exclusive class.

The rear axle connection is by means of a single universal joint, enclosed in a taper tubular housing which is jointed to the transmission case.

By this means we avoid the use of truss rods, yet have produced the strongest and stiffest axle possible. Each rear wheel runs on two roller bearings mounted on the axle tube, while the axle shafts are bolted to the hub flanges.

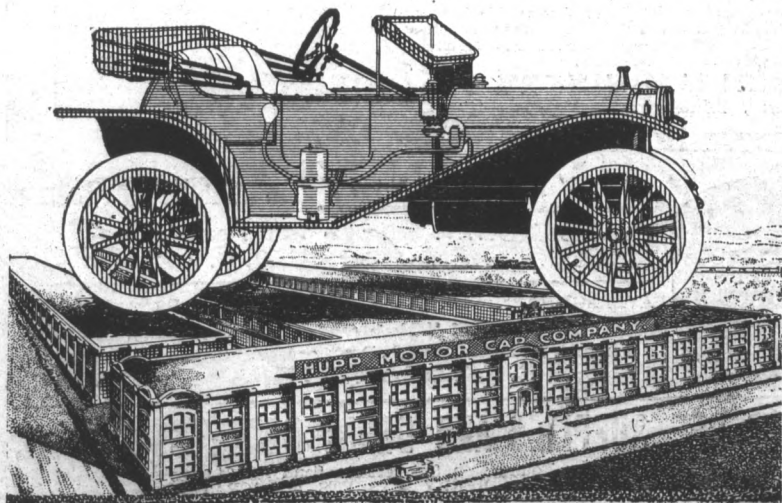
You can ascribe all these constructive advantages to the fact that the Hupmobile organization has always been held practically intact.

In every essential it is the same as it was when the first Hupmobile was built.

The chief engineer, E. A. Nelson, is the same man who designed the original Hupmobile runabout—whose priority in its own class has never been seriously disputed.

The department heads who have been associated with Mr. Nelson and the skillful workmen who have executed his designs, have remained with us in our progressive development.

We should be glad to send to your address  $4\frac{1}{2} \times 8\frac{1}{2}$  photogravures and full description of this handsome car.



**Hupp Motor Car Co. 1258 Jefferson Ave. Detroit, Mich.**

**Standard 20 h. p. \$750  
Runabout**

F. O. B. Detroit, with same power plant that took the world touring car around the world—4 cylinders, 20 H. P., sliding gears, Bosch magneto. Equipped with top, wind shield, gas lamps and generator, oil lamps, tools and horn. Roadster, with rear deck and steel box for tools and accessories, \$850.

A recent exhaustive report of the efficiency of the Hupmobile runabout in nearly a year of army service is contained in a booklet entitled "A Test of Service," which we will gladly send on request.

The new Hupmobile plant, now nearing completion and illustrated at the left, will have a capacity of 15,000 to 20,000 cars a year; and the Runabout—always a car of unprecedented popularity—will continue to occupy the same large part in our manufacturing plans that it does at present.