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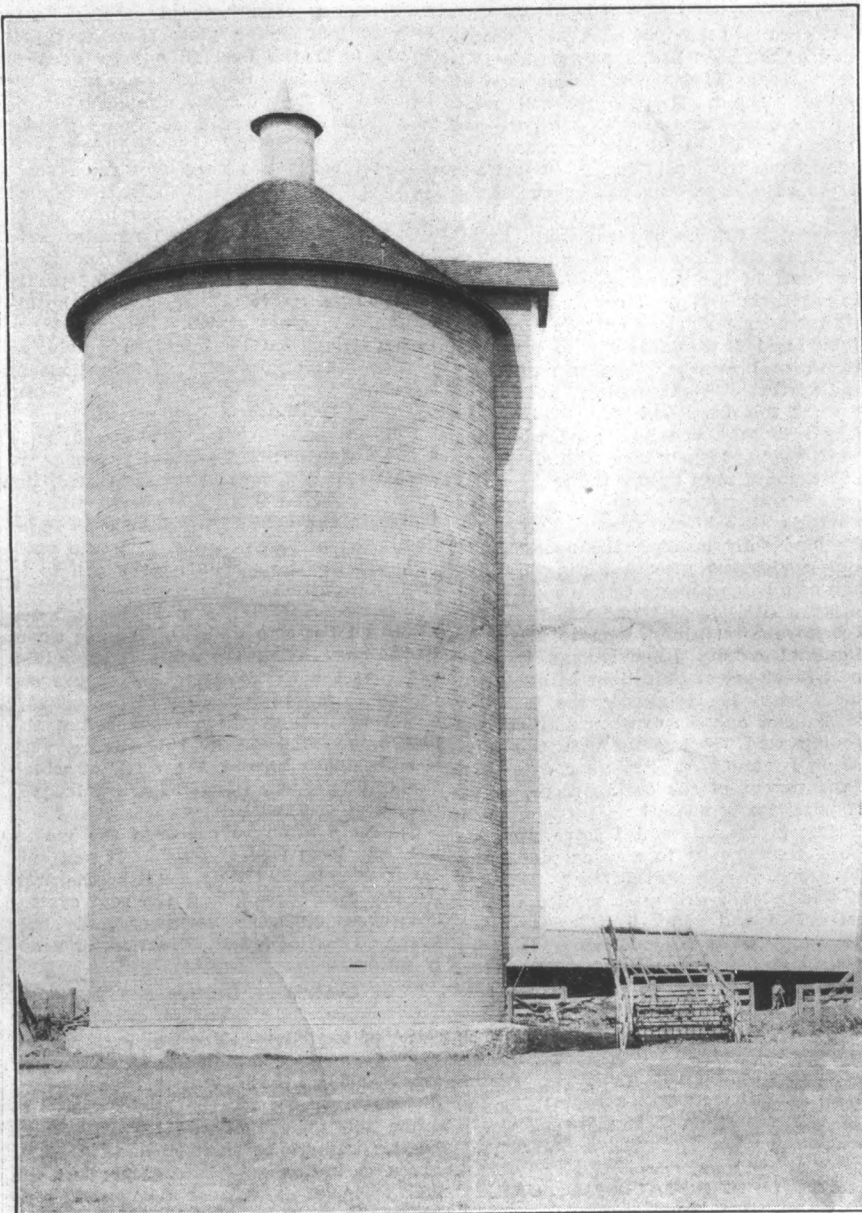
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THOSE who were present at the Live Stock Meeting held at the Michigan Agricultural College last January will readily recall the address of Prof. J. H. Skinner, of Indiana, dean of the agricultural department of Purdue University, on "The Farmer and the Cattle Feeder." In this address Prof. Skinner emphasized the value of ensilage as a feed for fattening cattle and illustrated his talk by means of charts showing the result of the cattle feeding experiments which have been conducted at the Indiana station for a series of years. Those who were not so fortunate as to hear this address may not have carefully noted the facts brought out in same regarding the economical value of ensilage as a feed for fattening cattle as given in the summary of the report published in the Michigan Farmer, and for their benefit, as well as to afford valuable opportunities for comparison with more recently available data, we will again briefly summarize the results of the feeding trials in Indiana as illustrating the value of silage as a feed for fattening cattle.

These results, as brought out by Prof. Skinner, emphasized the fact that silage should be used as a roughage ration, rather than for its grain content, and that while some less grain would be required to fatten cattle where silage is fed, yet silage alone will not fatten cattle and it should be used to displace other roughage in the ration rather than grain to any great extent. In the Indiana experiments referred to in this talk, the roughage used in connection with corn silage and with which it was compared, was clover hay. In the experiments reported at that time it was found that the rate of gain was greater where silage was fed in connection with clover hay as roughage than where either was fed alone. It was also noted that while gains might be made more cheaply on corn silage as the exclusive roughage, the profit was greater where clover hay was fed with the silage, since the cattle reached a better finish and brought a better price on the market than where silage was fed as the exclusive roughage ration. This deduction, however, was not corroborated by later trials at the Indiana station, as will be hereinafter noted. But in the experiments, for which figures were given by Prof. Skinner, the relative cost of gains and profits were as follows: Where clover hay was fed as an exclusive roughage ration, the cost of gain was \$10.35 per cwt. and the profit per steer \$2.78. With one feed of ensilage per day and clover hay, the cost of gain was \$9.29 per cwt. and the profit per steer was \$6.26. With two feeds of silage per day and clover hay, the cost of gain was \$9.14 per cwt. and the profit per steer was \$8.62. Where silage was fed as the exclusive roughage ration, the cost of gain was \$8.96 per cwt. and the profit per steer was \$6.65, the profits noted not including the profit from the hogs following the steers in any case.

But the results from a single trial are never so conclusive as to be absolutely dependable. Often the conditions under which a feeding trial is made, such as the cost of grains and the market price of the feeders and the finished beeves, will vary so materially as to make results radically different. Hence the average results from a number of trials constitute more satisfactory evidence than can possibly be obtained from the results of a single trial. For this reason it will be of particular advantage at this time to follow up the work done during the present year at the Indiana station in the matter of determining the relative value of silage as a roughage ration for fattening cattle. This work has just been completed with seven lots of steers of ten head each and the results were determined at the annual spring meeting of the Indiana Cattle

SILAGE AS A FEED FOR FATTENING CATTLE



A Good Silo and Cheap Feeding Sheds Are Better Equipment for Profitable Beef Production than Costly Barns and Stables without a Silo.

Feeders' Association, held April 27, a report of which appears in another column of this issue, together with a table which presents all of the details of the experiment as well as the results attained. A careful analysis of the figures given in this table will be time profitably spent by every cattle feeder who is a reader of these columns.

At the outset it will be noted that the feeders were all of approximately the same weight and cost the same per pound at the beginning of the test and that the feeding period was of about the same length as that usually required for the finishing of good feeder steers on Michigan farms. The gains were also quite uniform, ranging from an average of 2.16 lbs. per day to 2.52 lbs. per day, which may be considered as a narrow margin between the minimum and maximum average gain, and is a certain indication that the steers were all fed to the approximate limit of their capacity. But when cost of gains and profit are considered, the significance of the lesson taught by this trial becomes readily apparent.

In this trial the steers fed exclusively

on silage as a roughage ration made the largest and cheapest gain and at the same time reached a finish which commanded a better price on the market than any of the other lots which were fed a mixed roughage, thus returning a larger profit than any of the other lots. The average daily gain of this lot of steers was 2.52 lbs., the cost of gain per cwt. \$9.88 and the profit per steer, not including pork made from hogs following the steers, \$20.96, as compared with an average daily gain of 2.375 lbs., an average cost per cwt. of gain of \$14.23 and an average profit per steer of \$3.37 for the lot fed on clover hay as an exclusive roughage. This is a difference of \$17.59 per steer in favor of the use of silage as compared with clover hay as an exclusive roughage ration, with clover hay valued at \$20 per ton and corn silage at \$4 per ton.

This may be said to be an extreme comparison on account of the high price of clover hay this year, but it will be noted that corn silage is also given a high value in the comparison, being valued at \$4 per ton, whereas in the Michigan cow testing work it is given a valuation of

\$3.50 per ton, and, as will be noted by the table above referred to, if corn silage were figured worth \$3.50 per ton the cost of the gain on the silage fed lot would be \$9.61 per cwt., as compared with a cost, where clover hay was fed as the exclusive roughage ration, of \$13.05 per cwt. of gain with the clover hay valued at \$15 per ton, and a cost of \$11.88 per cwt. of gain with the clover hay valued at \$10 per ton, the per ton cost of grain feeds being the same in both cases.

No better evidence as to the comparative value of silage as a roughage ration for fattening cattle could be produced, than is shown by the above and other possible comparisons afforded by this table giving data of the present year's experimental work with silage for fattening steers at the Indiana station. But there is plenty of other corroborative evidence of an equally reliable and convincing nature. For instance, at the Illinois station a bunch of 50 eight-months-old Herefords was divided into two lots of 25 each. Lot 1 was fed on a ration of 26.1 lbs. of silage, 4.6 lbs. of mixed hay, and 2 lbs. of oats daily. Lot 2 was fed 13.2 lbs. of shock corn, 4 lbs. of mixed hay, and 2 lbs. of oats. The corn silage and the corn fodder were from the same field. Ten shoats, averaging 65 lbs. each, were placed with each lot. The feeding period covered 88 days. The silage fed steers gained 560 lbs. more than those fed shock corn. Lot 1 used the forage from 3.7 acres of corn, while lot 2 required the forage from 5.3 acres. The silage fed steers made an average daily gain of 1.7 lbs., while the fodder fed steers gained 1.4 lbs.

The results of recent trials at the Virginia station and also at the Iowa station show that when results are considered from the standpoint of the quality, as well as quantity, of beef produced, the silage fed cattle finished out better than those fed on a dry ration, which is a corroboration of the results secured in this year's work at the Indiana station.

When this fact is considered in connection with the other significant facts that the average gain is much greater and the cost of the gain much less where silage is used as the principal roughage ration for fattening cattle, the economy in erecting silos should no longer be a question with the cattle feeder, whether he feeds on a large or a small scale. For too long the silo has been considered only as a necessary adjunct to profitable dairying, while as a matter of fact, recent investigations seem to show conclusively that it is just as necessary to profitable beef production. Also it may be made the means of saving about one-third of the feeding value of the corn crop upon the average farm, and at the same time will prove an added economy in supplying the cheapest possible storage for the corn crop and at a much lower cost for handling and storing the crop. With such evidence at hand at the season of the year when the corn crop is about to be planted, and when there is plenty of time ahead to erect silos in which the crop may be stored, the economic course for the farmer to pursue who feeds even a few head of cattle, to say nothing of the farmer who makes cattle feeding a considerable factor in his business, is most obvious. The smallest feeder would make big interest on the investment required to erect a silo of adequate capacity for his needs, while the man who feeds a car load of steers would save much more than the cost of his silo in added profits, if prices for cattle and hay should compare with those which have prevailed during the present year, as is clearly indicated by present conditions.

In fact, the silo would seem to be easily the most important factor in profitable cattle feeding. Both carefully conducted

(Continued on page 548).

FARM NOTES.

Buckwheat for Hay and Green Manure.

I saw in an article in a recent Michigan Farmer that a farmer cut buckwheat for hay. At what stage of maturity did he cut it, and what was his method of curing it? Is buckwheat a good crop for green manure to plow under? Does buckwheat gather nitrogen from the air as the clovers do?

Hillsdale Co.

O. C. W.

The gentleman who was mentioned as having sent a sample of buckwheat hay for analysis stated that it was cut when in bloom and cured in the same manner that would be employed with heavy clover. He stated that he cut something like two tons per acre and as noted the analysis showed it to be about equal to timothy hay in its content of digestible nutrients. In his letter this farmer stated that his stock ate it with avidity, and that if the analysis was favorable he would grow more this year. This is the only experiment we know of having been made with buckwheat as a crop for hay, but the results secured in this instance, and the apparent feeding value of the hay as shown by the analysis would seem to make it worth while to experiment with it as a catch crop for this purpose when it is too late in the season to sow some more valuable substitute hay crop, such as oats and peas.

Buckwheat is not a legume and does not gather nitrogen from the air like clover and other leguminous plants which have this power through the action of the bacteria which find a home in the root system of this class of plants. While buckwheat can add nothing to the soil in the way of fertility which it does not take from it, it may serve a valuable purpose as a cover crop and be made the means to the end of adding needed vegetable matter to the soil when it is so depleted in fertility or mechanical condition that clover or other legumes cannot be successfully grown upon it.

Seeding Worn Land to Alfalfa.

I have five acres of clay land that I sowed to clover after oats a year ago. It failed to make a seeding. Disked it up last fall and sowed to alsike and timothy; failed again. Now would like to sow to alfalfa. Will you please advise me as to the best way to fit ground, amount of seed per acre and best time to sow? Also would you sow fertilizer; if so what analysis?

Hillsdale Co.

W. L. H.

From the repeated failures to get a seeding of clover, it would appear that this land is somewhat worn, in poor mechanical condition or acid in its reaction. If the failure is due to the last mentioned cause it would pay to apply lime before attempting to seed to alfalfa, using from one to three tons of finely ground limestone or from one-half to one ton of hydrated or ground stone lime, preferably the ground limestone if it is available. Then if the land is low in its content of plant food it would pay to apply a liberal dressing of commercial fertilizer, using from 200 to 400 lbs. per acre of a good grain fertilizer. The ground should be plowed as early as possible and then worked and packed down well to insure a good seed bed. The seed should be inoculated with a pure culture of the bacteria peculiar to the alfalfa plant or some soil from a successful alfalfa field should be sown on the land and worked into the surface soil at once. The seed may be sown at any time the soil and climatic conditions are right, using from 10 to 15 lbs. per acre. Get northern grown seed if possible and be sure that it is pure and of good quality. Alfalfa, like every other crop, does much better on soil that is in a high state of fertility and good mechanical condition, but under favorable conditions you might get a good stand on this land where clover has failed, if the above suggestions are carried out.

The Brick Silo.

I would like to know about the efficiency of a brick silo, whether hoops would be required. I never saw or heard of one and would like to know all about their good or bad points.

Clinton Co.

O. E. N.

The writer has seen a number of brick silos which had apparently given satisfaction in use. These were all hooped with ordinary iron hoops, such as are used in the erection of a stave silo. There is no doubt about the necessity of hooping a brick silo in some manner, either with hoops as described above or with wire laid in the mortar between the courses of brick. It would also be necessary to plaster a brick silo on the inside with rich cement mortar to make it airtight. As a matter of fact, it makes little difference what material a silo is made of, so long as it is constructed in an airtight manner. There is no doubt that a brick silo would cost more than one constructed of wood in whole or in part, and would probably be less durable than one

constructed entirely of cement. The type of silo selected should properly depend upon the cost of materials and labor and secondly upon the preferences of the user. No matter what the material or type of the silo erected, if properly erected it will give satisfaction in use.

IS FARMING A LOTTERY?

I notice in the issue of April 27, an article by John Jackson in which he is fearful his oats may rot.

As I remember, the date of seeding was not given but as it calls for several days to prepare an article before it appears in The Farmer I conclude that the oats were seeded quite close to the middle of the month, if not before.

I remember reading in Colon C. Lillie's notes of one year ago, about April 15, that it was high time the oats were in the ground. Judging from the "crying spells" of Mr. Lillie later on because of rotten oats necessitating the re-seeding to other crops, I arise to question the practice.

I readily and candidly admit that in this section, as a rule, early sowed oats are the best, compared with late seeding. But why?

1. Early seeding compels early plowing.
2. The man who is late in seeding almost always seeds without the proper fitting of the seed bed, therefore his failure. I would advise plowing as soon as possible without injury to the soil, work it down at once and leave it until the soil is warm enough to quickly germinate the seed. Many have said to me, "I want to get the oats in so they will be out of my way." I demand a better reason than this for any branch of farm work.

What is the difference when you hitch your team in the morning whether it be to your drag and drill or your plow to plow for corn. You can only do a certain amount and I would prefer to plow for corn in cool weather than run my oats into a veritable "slot machine," not knowing what the draw will be.

Any rule that will hold good with one kind of seed is largely true with all. Every well informed man knows the great influence of soil temperature on seed corn during its stay below ground.

He also fully realizes the necessity of a quick vigorous growth during the infancy of all live stock. Can it be the oat in nature (life) is just opposite the rest?

I believe any injury done to any crop or animal cannot be overcome by any condition or set of conditions in one year. That injury, if it affects the vigor or vitality, can only be overcome by careful breeding and feeding through the succeeding generations. Are your oats used as the parent of succeeding crops, or do you purchase annually?

Today is May 1, and I have seen no time I consider fit to sow or plant any field crop. When will I sow? When I feel comfortable without a woolen undershirt on. I will admit that farming is a lottery only when no good reason is given for each and every act performed.

This article is written to point the way to a game in which the "chance" is reduced to a minimum and in which it is perfectly safe to invest in a ticket. Although this appears as a criticism, I hope the two gentlemen will accept it in the same friendly spirit it is given.

Kalamazoo Co.

L. J. BRADLEY.

SCIENTIFIC POTATO CULTURE.

It is a deplorable fact that the average yield of potatoes per acre in New York and Michigan, as well as in adjoining states, is entirely too low. Maine, as a potato growing state, has steadily pushed to the front. She has no better soil, and perhaps not as favorable climatic conditions; and yet she is far in advance of us, and therefore "maximum yields" should be the motto of every progressive farmer.

Soil and Preparation.

The best soil for potatoes is a rich sandy or clay loam, which has an abundance of humus. Generally the largest crops of potatoes are grown on soils well treated with manure some years previous and have not been planted to very exhausting crops. If possible, plan a rotation of crops, and manure well the crop which precedes potatoes.

If a clover sod is to be used, it should have been manured the summer or fall previous. Any vegetable matter which has not decomposed encourages scab fungus. Lime and wood ashes, if used at all, should be used sparingly because the scab fungus appears to thrive in a neutral or alkaline soil, while an acid soil seems to be favorable to the potato, but unfavorable to the scab.

Plow quite deep, depending, of course,

on the soil and sub-soil. It should be done rather early in the spring that moisture may be conserved. Do not use the roller very much. What you want is a fine, compact, deep seed bed, but it must not be hard. In plowing, do not throw a flat furrow, but have it rest at an angle, in this way the capillary connection remains somewhat unbroken.

After the land has been rolled and harrowed apply broadcast 1,000 to 1,500 lbs. of high-grade commercial fertilizer, high-grade is the cheapest, everything considered. Have it contain plenty of phosphorus and potash that the plants may use all the available nitrogen that there may be no waste. Apply early and work into the soil well. Harrow at least after each rain to prevent a crust forming, and to keep down all weeds.

The Seed and Its Treatment.

While it is considered a good practice, by many, to select seed from among the small potatoes, yet it can not be denied that to a certain extent it is guess work. To select the seed from the most productive hills, at the time of digging, gives splendid results; but the most economical way, to my mind, is to have a seed plot. Take from the most productive hills enough smooth potatoes of suitable size to plant your plot; from this plot select from the best hills your seed to plant your plot the following year, the balance of the potatoes produced on the plot furnish you seed for your regular crop.

In all cases use seed free from scab. The only safe method is to treat the seed for scab, because the spores may be in the soil, in partly decayed manure from stock which has been fed scabby potatoes. Besides, the soil may be full of partly decayed vegetable matter, or may be alkaline, as before stated. Soak seed before cutting, for 1½ hours in a solution of one pint of formalin to 30 gallons of water.

Planting and Cultivation.

Plant four to five inches deep. If with a hand planter plant 34 to 36 inches apart each way. If a horse planter is used, the rows should be three feet apart, the potatoes in the drill 17 to 18 inches. Plant about the middle of June, if a late variety, the early, as soon as the soil is in proper condition in the spring.

The number of eyes to be planted depends on the soil, and the distance apart in the row. When the soil is light or hills are rowed both ways more eyes are required to the hill.

Harrow two or three times before the plants are large enough to cultivate, with a spike-tooth harrow the teeth of which should be set at an angle. Harrow lengthwise and crosswise.

Cultivate often to conserve the moisture, and keep free of weeds. If you cultivate deep at any time, let it be the first. As the tops spread, and the root system develops, cultivate narrower and shallower. Practice level cultivation, or nearly so.

The Control of Beetles and Blight.

Of course, the Colorado beetles can and must be controlled. The flea beetles were very destructive last summer. They eat small holes in the leaves; this makes conditions favorable for the blight spores to enter the tissues of the leaves. These beetles cannot be controlled with Paris green or arsenate of lead alone; but can be if either of the poisons are used in connection with Bordeaux mixture.

At Geneva spraying experiments to control the blight have been made for ten consecutive years; in each case check rows were used, and it has been proven beyond a shadow of doubt that spraying pays in increased yields during a normal season; and in wet seasons, which makes conditions favorable for the spores, the blight has been prevented. The increased yields over and above the yields of the check rows, have shown that it pays big to control the blight.

The expense is not so great as it would appear to some, because the beetles are controlled and the blight prevented by the same operation.

Begin to spray when the vines are six inches high, spray thoroughly with a Bordeaux mixture of 6:6:50 strength, to which has been added about six ounces of Paris green, at intervals of from one to two weeks, depending on the season, of course, and you will prevent the blight, control all leaf-eating insects and greatly increase the yield and consequently your profits. A good crop can be produced nearly as cheap as a half crop.

To grow potatoes in this way may seem too much trouble and expense; but, try it for a few years, and you will be agreeably surprised at your bank account.

New York.

W. D. KORB.



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LOUIS GACONET.

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THE PROFIT FROM THAT WOODLOT.

It is interesting to note how some men figure. In the Michigan Farmer of March 16, Wm. Walbridge, of Branch county, takes issue with an article by me respecting the profits in a woodlot. He gives some data concerning such a piece of property and I have taken interest enough in the matter to figure out about how much he is realizing out of his investment.

Mr. Walbridge started in with a four-acre woodlot in 1884, the sawing timber having all been previously cut out. In 1887 a barn was built and everything was cut from this lot that would go into the frame. Mr. Walbridge does not state the size of the barn nor give any intimation as to how much of his building came from this woodlot. Not a large quantity could have been taken, however, as the growth in three years would not have been much.

In 1897 a 14x20 addition to a house was built and the frame came from this woodlot. The height of this addition is not stated, but I am assuming that it is nine feet. If 2x4 is used for studs and rafters and 2x8 for joists, the studs being set 16 inches apart, this would require about 1,200 feet of lumber, board measure. In 1909 an addition to a barn 20x30x18 was built and all except siding and shingles came from this piece of timber. If such a barn were built, using 2x8 for studs, set two feet apart, 2x12 for joists and 2x6 for rafters, the lower floor made of two-inch planks and the upper floor and roof of one-inch boards, one end jutting against an adjoining building, such a barn would require not far from 7,000 feet of lumber. Again in 1910 Mr. Walbridge built a 10x14 room on his house, which would take 800 to 900 feet more lumber. In the buildings of which Mr. Walbridge has stated the size he has taken not far from 9,000 feet of lumber from his woodlot. If we add 1,000 feet for the first barn frame this makes 10,000 feet.

With us such lumber costs from \$22 to \$28 per thousand, or an average of \$25, and no doubt Mr. Walbridge can get it at about the same prices. From 1884 till 1897, when he was putting up his earlier buildings it cost not much more than half that amount. The value of the lumber taken from this woodlot, then, may be placed at \$250. But the expense of cutting the logs, hauling them to the mill and paying saw bill would amount to probably \$6 per thousand, or \$60 for the whole, so that the actual value must be placed at about \$190. The value of the wood from the tree tops above the cost of cutting is not enough to signify much. This return for four acres of ground for 27 years amounts to not far from \$1.75 per acre as annual rental.

Now, I have no quarrel with Mr. Walbridge on this woodlot proposition. He evidently finds a good deal of satisfaction in this piece of timber, and so should I; this is what we live for—to get satisfaction out of our possessions. There is an aesthetic value, too, to a fine piece of forest that should not be lost sight of, for such a patch of woods adds immensely to the landscape. But here is a statement of just what such a piece of woods has produced in a period of 27 years, and my object in writing this up is to show its productive capacity in money value.

On one of our farms we have probably eight acres of just about such timber as Mr. Walbridge started in with and we are clearing this up with the intention of planting it to apple trees. It is fine soil for the purpose, and well located, and I believe that in 27 years it will represent a property possessing much of the scenic value of the forest, and from present indications should produce an hundred fold more than it would if left in forest trees.

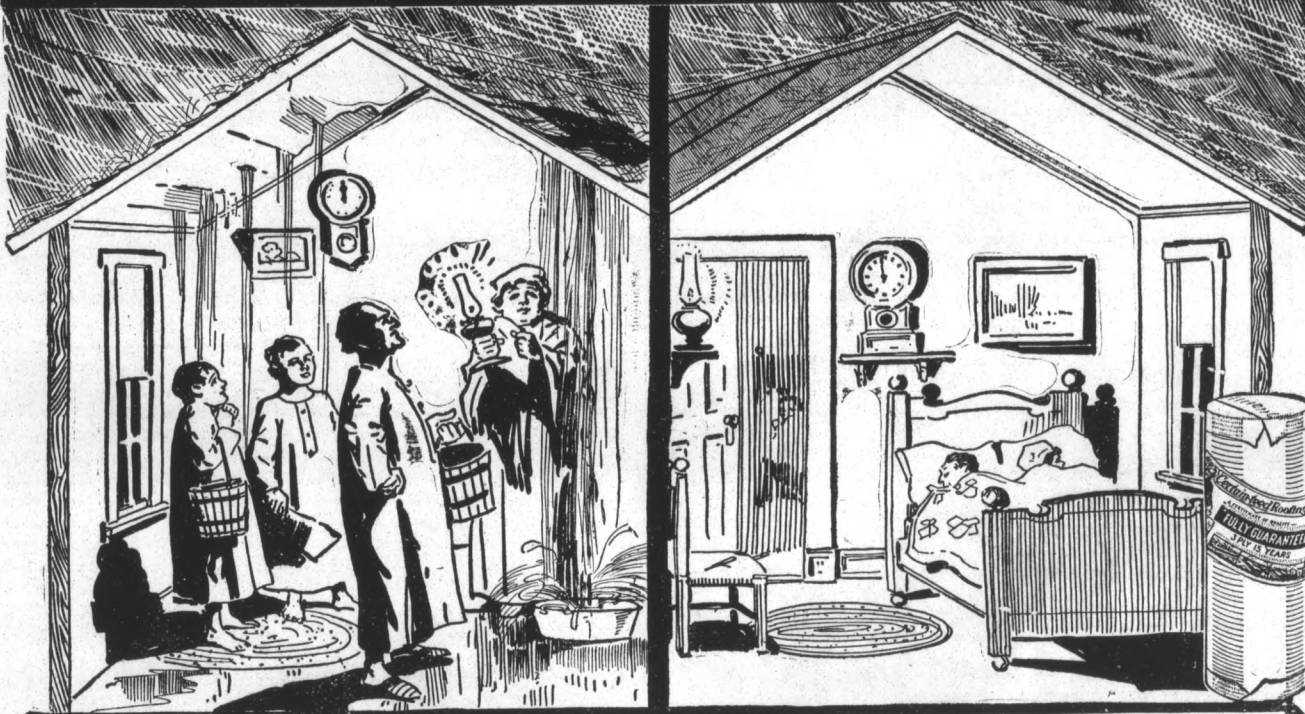
Allegan Co. EDWARD HUTCHINS.

The Cornell Experiment Station (New York), in the course of some investigations found that timothy grown with alfalfa or red clover had a higher protein content than that grown without these legumes. Oats grown with peas also showed an increased protein content and the hay yield of mixed oats and peas was 4,375 lbs., as compared with 3,325 lbs. of oats grown alone.

Soil that had produced alfalfa for five years was higher in nitrate content than soil which had grown timothy during that period, and portions of the same plots kept bare of vegetation during the summer showed similar results. Ammonium sulphate was more rapidly nitrified in alfalfa soil than in timothy soil, indicating an influence of the plant on conditions favoring nitrification. The increased protein content of non-legumes when grown with legumes is also attributed to this cause.

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Beware of long guarantees made by irresponsible parties. When you put on a roof you don't expect to replace it every year or two. So the material you select to cover your roof is important and you should by all means investigate carefully before buying. There is one and *only one* safe way to follow in selecting roofing—and that is to be sure it is fully guaranteed by a responsible manufacturer. And above all, beware of long "guarantees" made by irresponsible parties. By following this plan you will save money, time and inconvenience in the years to come.

At Least Investigate

Your local dealer will sell you **Certain-teed Roofing**, which is *responsibly guaranteed for 15 years*—at reasonably low prices. Be sure that the **Certain-teed Label** is on each roll. And be sure to write us today for our free book.

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GOOD YEAR Rubber Carriage Tires—3,724,000 Sold

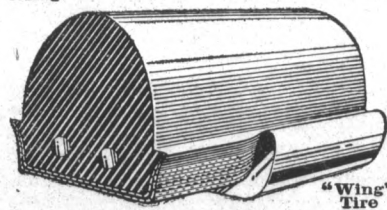
Goodyear Carriage Tire Sales have now touched the 3½-million mark. Three out of every four carriage makers have adopted them. More retail dealers sell them than any other kind. Last season 24% more "Goodyears" were called for than the year before. The present season's sales promise to almost double last season's.

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Our "Wing" Tire

Note the patented "Wing." How it presses against the channel, thus preventing mud, grit or water from getting in and quickly destroying

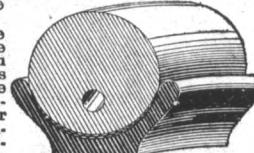
the tire base. This tire remains sound. It won't creep or get loose. Gives utmost wear. Will protect your carriage and greatly lengthen its life. Being of tough, springy rubber, it is exceptionally easy-riding.



Our "Eccentric" Cushion Tire

is especially designed for lighter vehicles—runabouts, etc. Note the wire hole is below the center.

This increases the wearing depth of the tire one-half. Saves you that much money. This tire stays firm in the channel. The high-grade, resilient rubber used in the "Eccentric" makes it remarkably easy-riding. Always gives satisfaction.



Write us a postal today for circular, prices and name of our agent in your locality.

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Branches and Agencies in 103 Principal Cities (609)



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Bee hives, Sections, Foundation, Smokers etc. Send for 64-page catalog of bee supplies, BERRY BASKETS and CRATES. Send for special Berry Basket catalog.

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meets the government requirements as an official dip for sheep scab and is always uniform in strength. One gallon dip makes from 50 to 100 gallons effective solution. It is also a powerful deodorizer and germicide and should be used liberally for purifying stables, henneries, sinks, troughs, etc., and preventing and curing mange on dogs.

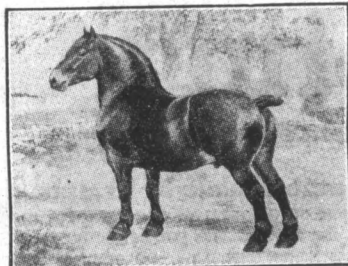


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We want to state here, and to state most emphatically, that our twenty-five years' buying experience in Belgium, and our selling system (all stock sold at the farm), places us in a position to sell a good stallion or a good mare at prices beyond competition.

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

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

"Remember, Nothing but Belgians."

Don't wait to write, visit.

H. & H. WOLF, Wabash, Indiana

CASH or CREDIT Will Buy Them.

The Real VALUE of our

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Buy Now and Secure a Bargain!
Souer's Stallions Make Good.

GEO. W. SOUERS & SONS,
HUNTINGTON, IND.
(Stallion Service book 10c.)

FOR SALE OR TRADE!

A 4-YEAR-OLD BELGIAN STALLION, Weight 1980 lbs, right in every way! Also two young JACKS, one coming two years old and the other coming three. Right in every way. Address W. G. HIMMELWRIGHT, Frankfort, Indiana.

LIVE STOCK

SILAGE AS A FEED FOR FATTENING CATTLE.

(Continued from first page.)

experiments and the practical experience of up-to-date cattle feeders show that cattle can be most profitably fed from a common manger, with liberty of movement and access to water at all times and with a sufficient number of hogs following them to utilize the corn in the droppings where whole grain is fed, as is now the common practice where extensive feeding operations are carried on. Where the feeders are so handled expensive buildings are not required to house them. In fact, the capacious silo and a roomy, open shed to house them, with the necessary storage for grain feeds would be a preferable equipment for cattle feeding than costly buildings and elaborate equipment without the silo.

Cattle feeding is not followed on Michigan farms to the extent which it should be, from either the standpoint of present profit from the farm or the maintenance of the soil at its maximum of fertility. This is due largely to the fact that Michigan feeders, or too many of them, have employed expensive methods in beef production and, unless the feeder was a skillful buyer as well as a skillful feeder and possessed of good judgment in the matter of finishing and selling the product, the margin of profit has been too small to make the business attractive under the conditions which have prevailed. But the proper use of corn silage in combination with judiciously selected grain feeds will remedy this to a large extent, and will prove a profitable innovation for the cattle feeder, whether he makes feeding a specialty or whether, as a general farmer, he makes beef production only a small side line in his general scheme of production.

THE INDIANA CATTLE FEEDERS' MEETING.

The great interest in cattle feeding and especially in the experimental work at Purdue is attested to by the presence of more than 350 enthusiastic feeders at the Fifth Annual Spring Meeting of the Indiana Cattle Feeders' Association.

The meeting was called to order at 10:30 a. m., by President J. P. Prigg, of Daleville, Ind., who in his preliminary remarks stated that the principal object of the spring meeting was to allow the visiting feeders to inspect the experimental cattle at Purdue after they had been fattened for the market.

The results of the feeding trial which has been completed were discussed by Mr. F. G. King, associate in Animal Husbandry. The cattle used in the trial were choice feeders, purchased on the market and cost in the feed lot \$5.55 per cwt. They had been fed for 160 days on grain rations of shelled corn and cottonseed meal. The roughage of the different lots consisted of clover hay and oat straw in connection with corn silage. During the feeding trial the value of the cattle as a whole increased \$3.20 per cwt., and returned profits varying from \$8.24 to \$26.21 per head. The selling value of these cat-

tle is the highest ever received at Purdue for an entire drove of experimental cattle. The lot of cattle producing the greatest profit were fed shelled corn, cottonseed meal and corn silage. These cattle gained 2.52 lbs. daily per head at a cost of \$9.88 per cwt. According to Messrs J. T. Alexander and Allen Beeler, who placed values on all lots of cattle, these steers were worth on the Chicago market \$8.75 per cwt. After deducting 40 cents per hundred pounds for shipping, the cattle returned a profit of \$26.21 per head.

The second lot in point of profit was fed shelled corn, cottonseed meal, silage twice daily and oat straw. The rate of gain was 2.40 lbs. daily per head, and cost of gain was \$10.16. Selling value was \$8.65 per cwt. in Chicago and the profit was \$24.54.

The lot of cattle ranking third in profit received silage, oat straw and cottonseed meal for 60 days, and from that time forward received a full feed of corn in addition. Their rate of gain was 2.20 lbs. daily per head at a cost of \$9.50 per cwt. With a value of \$8.50 per cwt. in Chicago or \$8.10 in the lots, their returns as profit were \$24.16 per head.

The lot of cattle ranking fourth was fed shelled corn, cottonseed meal, oat straw once daily, and corn silage once daily. With a rate of gain of 2.16 lbs. daily per head and a cost of gain of \$11.27 per cwt. and a selling value of \$8.10 per cwt. in the lot, this lot of cattle returned a profit of \$19.86 per head. A lot of cattle fed shelled corn, cottonseed meal, silage twice daily and clover hay ranked fifth with a daily gain of 2.32 lbs. per head and a cost of gain of \$11.06 per cwt. The profit in this lot was \$19.43 per head. A lot of cattle fed shelled corn, cottonseed meal, corn silage once daily and clover hay once daily, returned a profit of \$17.07 per head, while the lot fed shelled corn, cottonseed meal and clover hay returned a profit of \$8.24.

The most important matter brought out by the trial was the remarkable efficiency of the corn silage as compared to the clover hay for fattening cattle. The exceedingly large difference between profits of the lots was due largely to the value of clover hay, which was valued at \$20 per ton.

After inspection of the feeding cattle conducted by Dean J. H. Skinner, and lunch in the pavilion, a business session was held in which a resolution in favor of conducting a cattle and hog train in Indiana, and another enlarging the policy of the Association was adopted. Favorable action on a resolution asking railroads for better rates on limestone was taken.

The principal feature of the session was an address by Mr. John Clay, of Chicago, on "The passing of the range and our supply of young cattle." In his characteristic and pleasing style Mr. Clay presented very forcibly to his audience the situation on the range and conditions leading up to it. His anecdotes and stories, of his experience in the west served to keep up a lively interest, while he pointed out that the movement of feeder cattle in 1912 had decreased 18 per cent from the five-year average.

Mr. Clay said: "Never before has it been so difficult to pick up in the corn belt states young cattle for either grazing or feed lot use. Prospective buyers are forced to buy them at the larger markets.

Summary of Cattle Feeding at Purdue University Experiment Station, Winter of 1911-12. (160 days).

	Lot 1.	Lot 2.	Lot 3.	Lot 4.	Lot 5.	Lot 6.	Lot 7.
Initial val. Nov. 17, '11...	\$5.55	\$5.55	\$5.55	\$5.55	\$5.55	\$5.55	\$5.55
Initial wt. Nov. 17, '11...	9,687	9,637	9,687	9,687	9,687	9,687	9,642
Final wt. April 25, '12...	13,398	13,460	13,720	13,353	13,135	13,530	13,160
Total gain	3,745	3,800	4,033	3,716	3,455	3,843	3,518
Average daily gain	2.34	2.375	2.52	2.32	2.16	2.40	2.20
Total feed consumed:							
Shelled corn	24,645	28,605	23,570	21,885	23,900	22,200	14,255
Cottonseed meal	4,401	4,437	4,562.5	4,452.5	4,331	4,467.5	4,060
Clover hay	9,298	17,848	.....	4,071	.....	.....	.....
Oat straw .....	.....	.....	43,810	39,664	25,550	40,410	47,750
Corn silage	25,650	.....	.....	.....	.....	.....	.....
Daily feed per steer:							
Shelled corn	15.40	17.88	14.73	13.68	14.94	13.88	8.91
Cottonseed meal	2.75	2.77	2.85	2.78	2.71	2.79	2.54
Clover hay	5.81	11.16	.....	2.54	.....	.....	3.47
Oat straw .....	.....	.....	27.38	24.79	15.97	25.26	29.34
Corn silage	16.03	.....	.....	.....	4.21	2.31	.....
Cost of gain per cwt. *1...	\$12.40	\$14.23	\$9.88	\$11.06	\$11.27	\$10.16	\$9.50
Cost of gain per cwt. *2...	11.61	13.05	9.61	10.52	10.89	9.80	9.00
Cost of gain per cwt. *3...	10.99	11.88	.....	10.24	10.70	9.70	8.85
Necessary sell'g price *1...	7.47	8.00	6.82	7.08	7.05	6.86	6.61
Necessary sell'g price *2...	7.24	7.67	6.74	6.93	6.96	6.76	6.47
Necessary sell'g price *3...	7.07	7.34	.....	6.86	6.90	6.73	6.43
Actual selling price	8.25	8.25	8.36	8.10	8.10	8.25	8.10
(Chicago prices less 40c).							
Profit per steer:							
Including pork	\$17.07	\$ 8.24	26.21	19.43	19.86	24.54	24.16
Not including pork	10.49	3.37	20.96	13.59	13.73	18.84	19.66
Pork produced from droppings, lbs.	1,128	907	957	1,033	1,070	1,015	880
Corn fed to hogs in lots lbs.	2,096	2,096	2,096	2,096	2,096	2,096	2,244

These figures are based upon the following prices for feeds:

Shelled corn, 1st mo., 51.7c; 2nd mo., 51.7c; 3rd mo., 51.1c; 4th mo., 58.5c; 5th mo., 64.2c; last 10 days, 71.2c; cottonseed meal, \$29 per ton.
*1. Clover hay, \$20 per ton; oat straw, \$8 per ton; corn silage, \$3.50 per ton.
*2. Clover hay, \$15 per ton; oat straw, \$6 per ton; corn silage, \$3.50 per ton.
*3. Clover hay, \$10 per ton; oat straw, \$4 per ton; corn silage, \$3.50 per ton.

Keep Hogs Healthy



A DIPPING TANK OR A HOG WALLOW WITH KRESO DIP NO. 1 WILL DO THE WORK

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\$2.00 Per Bottle Prepaid and Guaranteed.

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GUARANTEED PER AND INDIGESTION CURE. Cures Heaves by correcting Indigestion. Book explains, sent free. Cures Coughs, Colds, Distempers. Prevents Colic, Staggers, &c. Blood Purifier. Expels Worms. A Grand Conditioner. A Veterinary remedy, 20 years' sale. 50c and \$1.00 per can. Use large size for Heaves. At dealers or direct prepaid. THE NEWTON REMEDY COMPANY, Toledo, Ohio.

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Raise mules and get rich. 18 jack and mule farms under one management, where can be seen 160 head fine large jacks, jennets and mules, 14 to 17 hands high. Good ones. Stock guaranteed. Write for prices today. Address Krekler's Jack Farm West Elkton, Ohio Branch Barn—Clinton, Indiana

FOR SALE—Recorded Morgan Stallion No. 6447. 5 years old. Coal black, good disposition, weight 1100. Also wild and improved Maple land. J. I. ROYCE, Wolverine, Mich.

This brings them in direct competition with the packers who need such kinds for cheap beef. For five years there has been a tremendous demand for cheap beef. This in no small measure has contributed to depleting the stock of cows and heifers available for beef in most parts of the middle west and east to such an extent that packers have been forced to draw heavily upon the young steers that normally and properly belong in the feed lots."

This shortage is shown by the fact that pastures in the southwest have been receiving cattle from markets as far east as Chicago at a time when "the average price of stocker and feeder cattle at Chicago the first four months of 1912 was around \$5.35, the highest ever known, and was 60 cents per cwt. higher than the five-year average."

The long-looked-for shortage of beef which has now arrived must be met, according to Mr. Clay, by better methods of government supervision of public lands in the range country. Under a sane administration of the public lands whereby settlers may secure long time leases upon these lands, the production of feeder cattle would be stimulated so that in a few years our supply would reach normal again. In absence of such beneficial public land legislation, however, the burden of supply falls upon the men in the feeding land of the country, the corn belt, who will, under the stimulation of high prices establish breeding herds and raise their own calves for the feed lot. This method of production is inevitable under existing conditions.

F. G. KING, Secretary.

LIVE STOCK NOTES.

The demand for fresh pork products throughout most parts of the country has fallen off a good deal of late, as is apt to be the case at this season of the year, when an abundance of reasonably cheap eggs and southern vegetables tends to lessen the consumption of all kinds of meats. Fresh pork has advanced in price along with the rise in prices for the raw material, but it is still selling lower than other meats.

The marketing of Texas fed cattle at Kansas City has been going forward for a fortnight or more, but there are not enough of these to cause much lowering of prices in the southwestern or western markets. Quarantine cattle have been sold in the southwestern markets around \$7.50 per 100 lbs. No real weakening of cattle prices is generally expected until the southwestern grass cattle are marketed in earnest, and even then prices for the better class of heavy cattle will not be affected.

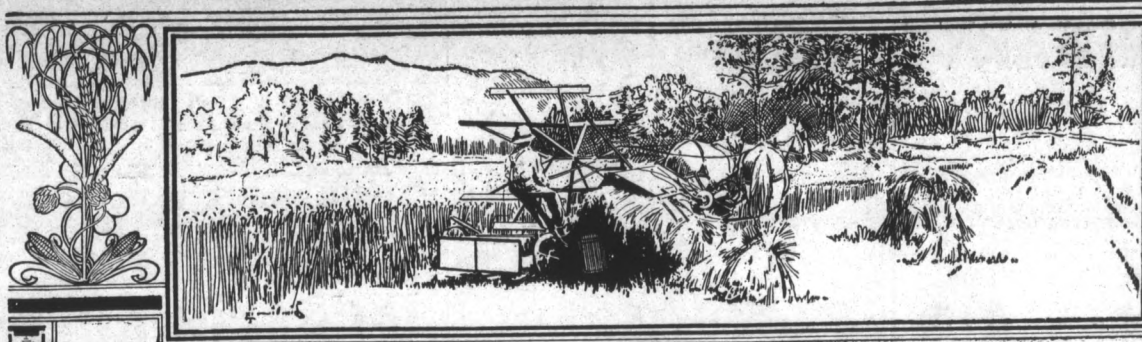
Officials of the Chicago & Northwestern Railroad report a remarkable scarcity of cattle in states east of the Missouri river, and farmers are in many instances sending in orders to live stock commission firms in western markets to buy some cattle to place on grass, which promises to be abundant and rich. The lack of roughness and great dearthness of corn and hay have caused farmers generally to ship their holdings of young cattle to market prematurely, and this has been going on for several months, leaving feed lots largely empty. Unfortunately, good stock steers and feeders are held at such high prices as to discourage many intending purchasers, and there will be, in all probability, much grass that will go to waste.

A dozen head of Shorthorn and Angus cattle fed in Greenville, Ohio, were marketed in Chicago recently at \$8.75 per 100 lbs., averaging in weight 1,744 lbs. Most of these cattle were bought as feeders on the Chicago market last October at \$6, and they gained nearly 500 lbs. per head on a six-months' feed of broken ear corn, cottonseed meal and alfalfa hay, a self-feeder being used. Feed, fresh water and salt were kept before them all the time, and they had access to a big warm barn and good bedding in bad weather.

The scarcity of prime feeder cattle weighing 900 to 1,100 lbs. in the Chicago stock yards causes them to bring fancy prices, and recently fancy Hereford yearling steers were sold to a Wisconsin stock feeder at \$6.75 per 100 lbs. Most of the fairly good to choice 650 to 750-lb. stockers shaped up for careful buyers have been selling from \$5.50@6.25, while plain to fair light stockers sold at \$5@5.35. No stock steers of decent breeding have been selling for less than \$5, but a common kind has sold much lower, with mixed calves and stock heifers of inferior to a pretty good class selling at \$3.85@4.50. Of late country buyers have taken a good many stock steers of the better class, and these have advanced sharply, bringing them closer in value to choice weighty feeders than usual.

The southern lamb "crop" will be considerably later in coming to market than last year, according to all accounts. The first consignment arrived on the Chicago market last year the tenth day of May, and by May 25 the packers of that city were getting a good many lambs consigned to them direct from Louisville. Few are expected this year before the middle of June, according to Kentucky reports.

Choice milch cows are meeting with a good demand in the Chicago market, near-by and eastern dairying districts being free buyers whenever any considerable numbers are offered. Unfortunately, most of the offerings fail to come up to the proper grade.



A Glance Backward

OUR experience with harvesting machines began eighty-one years ago, away back in 1831. In that year the first practical reaper was invented. Probably not one thousand of the millions of farmers who read this have any distinct recollection of agricultural conditions in this country at that time. Wheat fields were small, because there was no way of harvesting large crops. Ninety-seven men out of every hundred worked in the fields and tilled the soil to secure a scanty subsistence. They could raise just about enough wheat to feed the workers. There was none to export; there was none to store.

Into the midst of these conditions came the inventor of the reaper. He was a farmer who had worked through the sixteen-hour-a-day harvest time, swinging a cradle, gathering sheaves, and building shocks. He knew farm work. He knew its cost in time and labor. He figured out a way to save that time and labor. He built a practical reaper, which made it possible to grow more wheat and harvest it in season; a machine which would increase the value of farm lands, release an army of men from drudgery and put them to work in other gainful occupations. This machine, the same in principle but vastly improved in form and capacity, is marketed today under the following names:

**Champion
Deering**

**McCormick
Milwaukee**

**Osborne
Plano**

The inventor had supreme faith in the future of farming in this country. The strength of his belief is shown by the record of the ten years following the invention of his reaper—ten years devoted to a desperate struggle with custom, habit, and prejudice, before he found a farmer who would buy one of his machines; ten years of discouraging, disheartening effort that would have broken the spirit of a man with less faith in himself and his machine. That his faith was well based and his foresight clear was quickly proved

when the first strenuous fight was over. He lived to see his dreams come true in great seas of billowy grain that demanded machines for their harvesting, in the enrichment of the tillers of the soil, in the passing of harvest drudgery.

The harvesting machine has become the farmers' standby at the critical time when the reward of his season's work is in sight. It has made good in every way.

I H C binders, improved by every device that the ingenuity of practical farmers and trained mechanics could suggest, meet successfully every harvest-time condition. They reap and bind all the grain; short and tall, long, tangled, and down, yet they are so simple that they may be placed safely in the hands of unskilled help. In case of accident, duplicate repair parts that will fit, can always be obtained quickly. The organization behind I H C machines lets nothing stand in the way of service to farmers who use our line of machines. The harvest must be garnered without interruption or delay.

We have been in this business since the first practical reaper was built. The standard of the past is our standard of the present—only the best machines, durable, dependable, meeting every harvest or hay field condition. You take no risk when you buy harvesting and haying machines and tools bearing the I H C trade-mark.

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The purpose of this Bureau is to furnish, free of charge to all, the best information obtainable on better farming. If you have any worthy questions concerning soils, crops, land drainage, irrigation, fertilizer, etc., make your inquiries specific and send them to I H C Service Bureau, Harvester Building, Chicago, U S A



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500 lbs. \$21.12. No orders
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VETERINARY

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

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

Indigestion.—My seven-year-old cow is not in as good condition this spring as she has been in former years and I imagine her milk is not normal. H. S., Sigsbee, Mich.—Give her 1 oz. ground gentian, 1 oz. bicarbonate soda and 1 oz. powdered charcoal at a dose in feed night and morning. You should increase her food supply.

Irritation of Kidneys.—I have a nine-year-old horse that must have kidney trouble for he changes feet, shifting from one hind foot to the other frequently, jerking up his leg as if in pain. He acts as if he wanted to urinate often, when standing in barn and his urine is clear as well water. S. M. V. N., Grand Rapids, Mich.—Give your horse 2 drs. iodide potassium at a dose in feed or water three times a day for ten days, then give 1 dr. urotropin and ½ oz. fluid extract buchu at a dose two or three times a day for two weeks.

Partial Paralysis.—About three weeks after coming fresh one of our cows suffered paralysis, particularly in hind quarters, but she did not go down. This trouble came on the early part of March and she is now pretty much over it. Would you advise me to fatten her for beef or keep her for dairy purposes? M. E. J., Wyandotte, Mich.—Give your cow 1 dr. ground nuxvomica at a dose in feed twice a day; this drug will act as a spinal stimulant and assist nature in bringing about a recovery. If she is a profitable dairy cow, keep her for this purpose, but if she is milked at a loss fatten her next fall or winter.

Infectious Ophthalmia.—There seems to be a disease affecting my cows which affects their eyes. The first symptom is loss of appetite, a watery discharge from eyes, followed by a blood-shot condition of the eyes, and in about 12 hours the eye covers over with a sort of film, producing blindness and the eyelids are also very much inflamed and the animal keeps the eye closed. For the past two weeks we have been blowing burnt alum into eyes every other day, but in no case has this treatment seemed to clear the eyes. A. K., Belding, Mich.—You made a mistake in blowing burnt alum into eyes for it is a caustic and does more harm than good. Blow some calomel into eyes once a day and some finely powdered boracic acid into eyes once a day. For the eyes that are very much inflamed apply one part adrenalin and 1,000 parts water once or twice a day. Keep your cattle in a shaded place as a bright light always irritates sore eyes. Give them enough Epsom salts to loosen their bowels and be sure to feed them food that has a laxative tendency. You should separate healthy from diseased.

Chronic Hip Lameness.—I have a mare that has been lame in one hind leg for the past three years. Before I purchased her I learn she slipped on railroad, which caused stiffness and lameness in both hind quarters, but after a while she seemed to get over it in one leg, but has remained lame ever since; however, she is worse some days than others. When going straight she shows it much less than when moving in a circle. Can find no spot where there is soreness, but have noticed that moisture dries on this hoof quickly and the muscles of hip are very much wasted away. E. D., Marion, Mich.—A chronic lameness of this kind is usually incurable. When the accident occurred a bone was perhaps fractured and instead of a bony reunion taking place a fibrous union occurred which leaves a weakness for life. There may be some choking of circulation in foot that causes inflammation or it is possible that bone of foot is fractured. Good care and careful driving is what must be done, but drugs will not help you out in this case.

Chronic Heaves.—For past two years my 14-year-old horse has been troubled with heaves. When driven fast and far he is inclined to stagger and fall. J. F. B., Flat Rock, Mich.—Besides having stomach and lung trouble, I am inclined to believe he must have a chronic throat ailment that interferes with the free passage of air to and from lungs. Use an overcheck and independent bit in order to straighten air passage, then he will not choke so readily. Feed no clover or musty, dusty badly cured fodder, and give him 1 dr. powdered lobelia, ½ dr. powdered opium and ½ oz. Fowler's solution at a dose in feed three times a day. Grain and grass is the best food you can feed him. Kindly understand he is perhaps incurable.

Indigestion.—Our cow seems to have spells of gnawing on manger, as if she was in distress. She showed similar symptoms last spring soon after calving. F. H., Marcellus, Mich.—Give her 1 oz. ground ginger, ½ oz. gentian and 1 oz. bicarbonate soda at a dose in feed three times a day.

Malignant Wart.—My horse has a small bunch about the size of a 25 cent piece and projecting about three-fourths of an inch on the inside of his right hind leg, just a little above hock joint. It seems to heal over and then break open again, bleeding slightly and discharging a thin, watery fluid. He shows no lameness.

(Continued on page 567).



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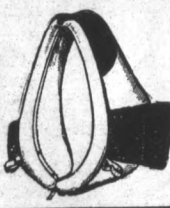
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13 cows from four to nine years old; 3 two-year-old heifers, one with heifer calf by side; 6 yearling heifers; 4 heifer calves; 4 bull calves; 2 bulls. These cows are all first class in every respect, several of them have milked over fifty pounds per day, and all are consistent milkers. Our herd has been tried out and those that did not come up to our standard have been sold, have been several years collecting the best blood that we could buy. This list includes every head on the farm, the owner wishing to quit the dairy business. Quick sale. **CHEAP PRICE.** **COLD SPRING FARM, R. M. OLIN, Prop., Caro, Mich.**

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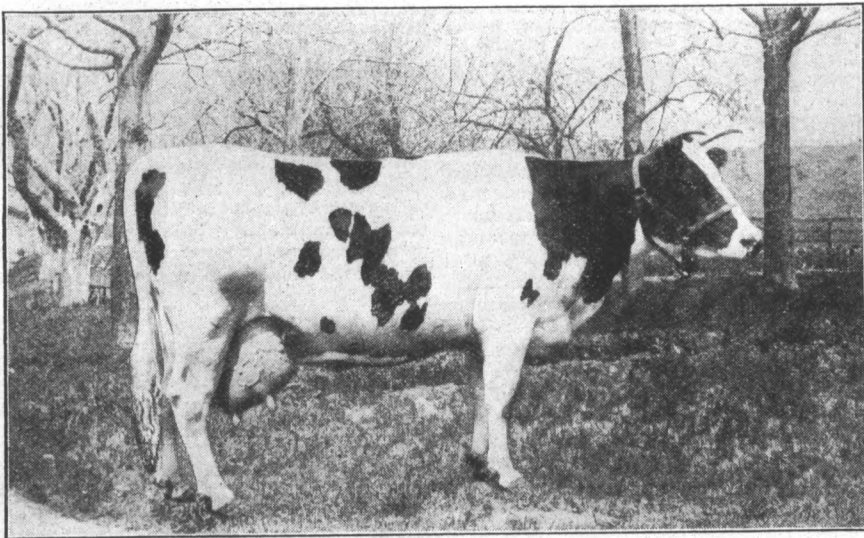
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PREVENTIVE TREATMENT FOR MILK FEVER.

One of the most serious ailments with which the dairyman has to deal is parturient paresis, commonly known as "milk fever." Within the last few years the varied and drastic treatments formerly practiced by veterinarians have been supplanted by the use of oxygen or sterilized air. In the hands of a skilled practitioner this has in the majority of cases, proven very effectual. True, the layman may have equally successful results, and frequently does; but there is always a danger of complications arising, which the professional will understand and be able to combat as they appear. At all times prevention is the best remedy. It is here that the owner can get in his best work. Of course, the most precautional measure will not invariably ward off an attack. They will, however, afford the means of decreasing its severity, and in a large percentage of cases totally prevent it.

As a rule, it is the best cow in the herd that is liable to affection. It is more com-

ble. It should be remembered that in milk fever, so-called, there is no fever whatever, the whole system being cold and partially paralyzed. It is essentially a disease of domestication. In her wild state or on the range the cow is surrounded by natural conditions; the modern, heavy-milking bovine has been evolved from these and maintained in her present state by artificial methods. As the act of parturition approaches it is well to go back to nature for the time being. Here there is present no ambitious owner with a sixteen-quart pail to see if she will fill it, that he may tell his neighbors what a wonderful cow he has. This early milk, called colostrum, is quite unlike the normal new milk a few days later, and is provided by nature for the calf, which obtains it without completely emptying the udder. If it is thought best to remove the calf directly after birth, imitate it when drawing off the milk by leaving some in the udder. A certain amount of pressure is a good stimulant. By milking out thoroughly, pressure is removed, and the udder reduced to a state of collapse. Inactivity thus produced is good ground for the development of chemical, or bacterial changes, which may rapidly take place and cause the disease. If conditions similar to those given when the calf is left with the cow were provided, the udder would not be emptied for 48 hours. Statistics in hundreds of such cases show



Daisy Grace De Kol. Holds World's Jun for Four-year-old Record of 962.795 lbs. of Fat and 21,718.3 lbs. of Milk in 365 Days.

mon after the third, fourth or fifth calving, very rarely after the second, and quite unknown after the first. The most generally accepted theory as to the causal factors may be briefly stated: During the later stages of pregnancy the udder is thrown into a state of inactivity. Owing to the development of the calf, the blood of the cow becomes loaded with a large amount of nutritive as well as waste material, and the red blood corpuscles become diminished in size and number. When parturition takes place a large amount of the blood is suddenly conveyed to the udder. This sudden change may cause congestion of that organ, and consequent derangement of the secretory cells. This, combined with the effete fluid, always to be found in the udder of mature cows, gives rise to the formation of a poisonous product, which produces the characteristic symptoms.

The fallacious methods that are held and religiously practiced by some, farmers with a view to preventing milk fever are almost entirely contrary to natural laws. The idea of putting a cow on short rations and dosing her with purgatives is generally attended with more damage to the animal than any benefit she is likely to derive. By drenching in the ordinary way the medicines are more or less likely to get into the bronchial tubes and lungs, setting up inflammation and causing death. Moreover, the weakness generally following such an operation results in a loss of vitality at a critical period, when the demands of maternity require the conservation of strength. Of course, it is desirable that the bowels be relaxed, but there are safer and saner methods by which this condition may be secured. If she is on grass, the necessary laxative is thereby furnished, and there will be no further need for attention in that respect; otherwise, give plenty of succulent or juicy feeds, such as silage, roots or an occasional bran mash. Also drop out the concentrates for a week or ten days before and after calving.

Another fallacy rigidly adhered to by many is to milk the cow out dry immediately or as soon as practicable, in order to relieve pressure in the udder, which they suppose to be favorable to the trou-

ble. It should be remembered that in milk fever, so-called, there is no fever whatever, the whole system being cold and partially paralyzed. It is essentially a disease of domestication. In her wild state or on the range the cow is surrounded by natural conditions; the modern, heavy-milking bovine has been evolved from these and maintained in her present state by artificial methods. As the act of parturition approaches it is well to go back to nature for the time being. Here there is present no ambitious owner with a sixteen-quart pail to see if she will fill it, that he may tell his neighbors what a wonderful cow he has. This early milk, called colostrum, is quite unlike the normal new milk a few days later, and is provided by nature for the calf, which obtains it without completely emptying the udder. If it is thought best to remove the calf directly after birth, imitate it when drawing off the milk by leaving some in the udder. A certain amount of pressure is a good stimulant. By milking out thoroughly, pressure is removed, and the udder reduced to a state of collapse. Inactivity thus produced is good ground for the development of chemical, or bacterial changes, which may rapidly take place and cause the disease. If conditions similar to those given when the calf is left with the cow were provided, the udder would not be emptied for 48 hours. Statistics in hundreds of such cases show

that milk fever is practically unknown, or at most is of a very light type. If an animal shows symptoms of this disease delays are particularly dangerous. Where a veterinarian cannot be summoned immediately, a common bicycle pump may be pressed into service. Have attached to this some rubber hose and a teat tube which has been thoroughly disinfected. The udder should be pumped full of air through all the teats, and each tied with a tape, to prevent its escape. The results realized are: First, arrest of the changes that are going on in the udder; second, the red blood corpuscles are compelled to take more oxygen than they voluntarily do in the lungs, thereby increasing the alternative power of the blood; and, third, by pressure on the secreting cells of the udder they are brought to a healthy and vigorous condition.

Canada.

J. HUGH MCKENNEY.

WILL SILAGE KEEP IN A PIT?

I am thinking of building a stave silo this summer 10x26 ft. and dig a pit in the ground four feet deep and curb it with stone and cement and build the silo on top of the wall, making a 30-ft. silo in all. The place I want to build it is on a high sand ridge well drained, no water to bother. Have no basement barn. Silo agents have told me that the silage will not keep in a pit. Please advise me whether my plan would be practical.

Bay Co.

H. M. R.

If the pit is constructed as you suggest, by walling it up with stone and then plastering it with good cement mortar, there is no question about the ensilage keeping. The first silos were all pits. People dug trenches and pits in the ground and cemented them up and put the ensilage in. They thought that it must be done in this way in order to keep it. Later on we found that you could have the silo above the ground and the ensilage would keep. All that was necessary was to keep the air away from it. I have seen silos that were pits in the ground 15 and 16 feet deep. They were well cemented and kept the silage perfectly. The only objection to having a pit silo is when you come to take the silage out you have got to pitch it up. If

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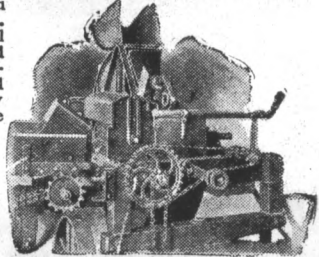
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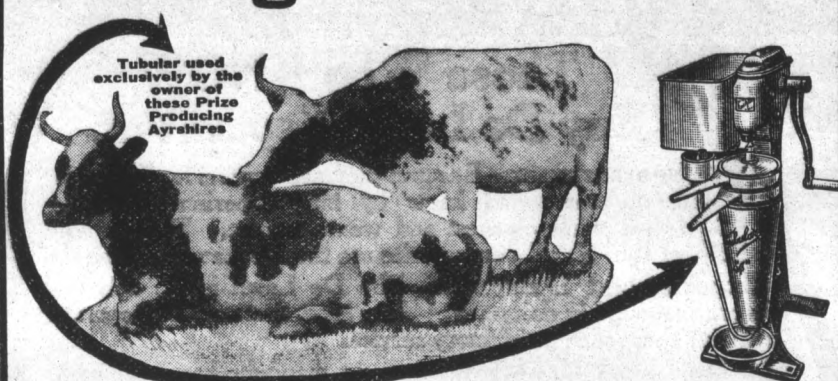
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SHARPLES Tubular Cream Separators

exclusively, because Tubulars have twice the skimming force of other separators, skim twice as clean, and make an extra profit no other separator can make. These men should be your guide in buying a separator because they are successful and are making profits which less shrewd men are losing.

Mr. John A. Ness, of Maple Grove Farm, Auburn, Maine, is a veterinary surgeon, breeder and importer of fine stock, and owner of the high-producing Ayrshires shown above. He is but one of many who shrewdly pocket Tubular "velvet"—the extra profit only Tubulars can make. He says:

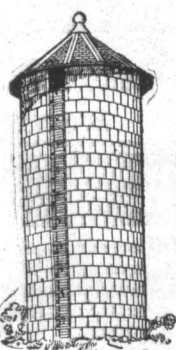
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STORM-PROOF—DECAY-PROOF

This silo is guaranteed. Modern principles of economy demand that you feed ensilage and that your silo be imperishable. The Imperishable Silo is made from Patented Hollow Vitified Clay Blocks. Moisture-proof, cannot swell, shrink, decay or blow over. Keeps the silage clear up to the wall. None of the old hoop-tightening, painting and repairing. The first cost of The Imperishable is the last. Not one complaint from hundreds of users. Write for descriptive catalog.

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Makes tile 3 to 8 inches in diam., 12 1/4 inches long. One man or boy operates it by hand or power. 500 tile per day by hand, 1,200 by power. Tile thoroughly cured by patent process. No tamping or use of pallets. This machine and tile used by Experiment Stations of Agricultural Colleges and the U. S. Dept. of Agriculture. 5,000 farmers have doubled the yield of land by underdrainage, and saved 75% of cost by using our Machine. You can do the same. Save cost of hauling and breaking. Make perfect tile \$3 to \$5 per thousand. MACHINE SOLD DIRECT FROM FACTORY TO YOU **TEN DAYS' FREE TRIAL.** SEND NOW for 96-page illustrated Catalogue. Tells you about great benefits of underdrainage, how to take levels and get grades, make and lay your tile at low cost.

FARMERS' CEMENT TILE MACHINE CO.,

Box 307, ST. JOHNS, MICH.

you make the excavation only four feet deep this will not be very bad because it can be easily thrown out with a fork, but if you would go deeper into the ground then it is difficult to get it out. In the silos above referred to the owner had to have a bucket and windlass. A man would go down into the silo and fill the bucket full of ensilage and then it had to be windlassed out of the silo. Now this is expensive, and personally I would prefer to have the silo entirely above the ground and not go down the four feet. You can build a silo cheaper entirely above the ground than you can to make the excavation. With a modern ensilage cutter having a blower attachment there is no trouble in blowing it up as high as you want it and this can be done by power, but the ensilage must be taken out of the pit by hand so there is nothing gained by going into the ground because it is expensive to make this excavation.

HOW TO TEST COWS.

I have been milking five cows, one of them is just two years old. During March I made 157 lbs. of butter after using considerable milk in the family. Now these cows can't be all alike, some must be better than others. I want to know if I could weigh their milk for a week, get a Babcock testing machine and get some kind of guess at which is the best. I know it would be only a guess, but I should have to watch them to the end of milking period. Where can you get a good testing outfit, and which is best way to go about it.

Van Buren Co.

D. O.

There are three things that are necessary to be known in order to determine the value of a dairy cow. First, we must know the amount of milk which she produces in a year. Second, we must know the per cent of butter-fat which she puts into this milk. And third, we must know the cost of maintaining her, or the cost of her food for a year. When we keep these records of each cow in the herd, at the end of the year we can compare them and find out which are our best cows, and not only that, but which are the profitable cows and which are the unprofitable ones. Testing cows in any other way is more or less guesswork. We can get a notion of what they are doing and how profitable they are but we do not know until we have ascertained these things; the amount of milk produced in a year, the amount of butter-fat, and the cost of the feed.

It is necessary to know how many pounds of milk a cow gives in a year because you have to feed her a year. Determining how much she gives in a week or how much she gives in a month tells us very little of her real value. We have got to have a record for a year. For a comparative value of cows and for a close approximation to the amount of milk which they yield it is not absolutely necessary to weigh the milk every night and morning, although this is the best way and it don't take so much time as the ordinary man would think; but for all practical purposes it is sufficient to weigh the milk one day in each week, and more than that, it is practical to weigh the milk one day in each month, and then estimate the balance of the month from this weight. On first thought one would say that this is not weighing often enough in order to get anywhere near an approximation of the amount of milk which a cow gives in a year, but careful investigation comparing monthly weighings with daily weighings for year after year prove that you can get a very close approximation to the amount of milk a cow will produce by weighing the milk one day in each month.

Then the cow should be tested at least once each month. Individual cows vary in the per cent of butter-fat which they produce from one milking to another. Therefore it is not safe to rely upon a single test from a single milking. We ought to take a composite sample from two or three milkings, four would be better, and do this once each month, and then get the average for the whole 12 months and that will give you a correct average test of the cow for the year.

Now, estimating the feed: It is not practical, of course, to weigh every pound of food which the cow consumes. This would only be necessary and practical in a very careful experiment, but the farmer can weigh his feed once a month. He, of course, wants to feed all the roughage that his cows will eat up clean. He wants to feed the roughage which he produces on his farm. He wants to turn this into money. Then he figures on feeding a grain ration which will make approximately a balanced ration with the roughage which he has at hand. Sometimes, of course, it is necessary to change

the grain ration. It is not a difficult matter when one is feeding a herd of cows, giving them all the roughage that they will eat up clean, to weigh the amount of hay which he gives to the cow. Take the usual forkfull and put it into a sack if you will and then weigh it. Now you will know how many times you feed a day, and consequently multiplying this by the number of days in the month it will give the amount of hay that you feed in a month. You can do the same way with the corn fodder, with the oat straw, and whatever other roughage you are feeding, or with the corn silage. It is a simple matter to keep track of the grain. Then charge the cow with all the feed consumed at the market price, and give her credit for the butter-fat which she produces at the market price. Keep this test up, not only for one year, but every year.

GRAIN TO FEED A CALF WITH SKIM-MILK.

At what age should a calf be fed separator milk and what supplementary feed should be added to the ration to take the place of skim-milk separated by the gravity system? Would it be as good to warm the separator milk after it has cooled as to feed it warm from the separator?

Genesee Co.

J. D. S.

New milk, of course, is a balanced ration for a calf. It contains the protein and the carbohydrates in the right proportion. If you skim this milk you take out the fat and then you have an unbalanced ration, one that is richer in protein than it ought to be for the young calf. There is nothing better than flaxseed meal. Get the raw flaxseed ground. It contains 30 per cent of fat. It is better to cook this into a jelly and then feed a calf a small amount of this at first with the skim-milk after which it can be gradually increased. I know of nothing equal to flaxseed meal to take the place of the butter-fat removed from milk for young calves.

DAIRY PRODUCTS ARE IMPROVED THROUGH CONTESTS.

Exhibitions of dairy products for prizes have proved to be of great value to dairymen wherever tried. That much interest is being manifested is shown by the large number of entries from many states at recent exhibitions. At the International Dairy Show at Milwaukee, there were entered 115 samples of milk and cream from all sections of the country.

In commenting upon the educational value of these exhibitions, A. C. Baer, of the Wisconsin Experiment Station, says: "These contests have proved that milk and cream produced and handled under sanitary conditions and kept at a low temperature can be shipped thousands of miles and remain sweet for weeks. The contests have also helped to point out to dairymen the common defects in milk and cream, and have suggested remedies to overcome the difficulties."

"A friendly, neighborly milk and cream contest can be held annually in every city of the country. A contest of this kind brings the milkmen and dairymen together with common interests, and the educational value resulting will be no small gain to a community. The experience of men who have conducted these milk and cream contests has demonstrated the fact that milk or cream can be scored with reasonable accuracy for flavor and odor, bacteria, chemical composition, and keeping quality."

Recently the Pennsylvania and California stations have conducted butter-scoring contests. The winner in the California contest scored 96 per cent and the lowest butter scored was 89 per cent. The winning butter was made as follows:

A fair grade of gathered cream testing 30 per cent was pasteurized at 180 degrees, cooled to 48 degrees, and 14 per cent good commercial starter added. The cream was not ripened, as it contained 0.52 per cent acidity. It was held two hours at 48 degrees, and churned. Time of churning was 40 minutes, and the granules were the size of wheat. The buttermilk had a temperature of 53 degrees, and tested 0.02 per cent. The manner of washing was spraying at 50 degrees until the water ran clear from the churn, then adding as much water at 50 degrees as there was buttermilk. There was one working.

There is loss from cutting off the grain ration as soon as the cattle can be gotten to a little grass. The early grass is a good stimulant and cleans out the systems of the cows but does not provide a large amount of milk-making and body-building nutrients.

My Greatest Success

By R. E. Olds, Designer

Trainloads of Reo the Fifth

In the past 25 years, a dozen models of mine have become the season's sensation.

Again and again I have seen the factory swamped, and men paying a bonus to get my latest creation.

But Reo the Fifth has broken all records. I never saw a demand which compares with this.

Five cities at this writing have trainload orders with us—orders for forty carloads each—to go in a single shipment.

But the demand is just beginning. Very few men have yet discovered this car.

Soon there will be 10,000 cars in the hands of 10,000 owners. Ten thousand men will be telling others how Reo the Fifth performs.

Then will develop the real demand for this final car of mine.

Not a Passing Sensation

Other season sensations have come and gone. New cars and better came out to displace them.

Those days are over now. Reo the Fifth comes close to

the limit in motor car engineering. It embodies the final results of my 25 years of experience. In every detail it marks the best I know.

There is no probability that we shall ever see a materially better car. The years can bring only minor changes.

It Deserves It

This car deserves popularity. That is my satisfaction.

The men who buy it get the utmost of which I am capable. There will be no regrets—none to say I misled him. And none will ever see a car which gives more for the money.

The steel in this car is all analyzed. Every vital part is put to radical test.

Parts are ground over and over, to get utter exactness. Inspection is carried to extremes.

There are big margins of safety. The bearings are Timken and Hyatt—roller bearings, in place of the usual ball bearings.

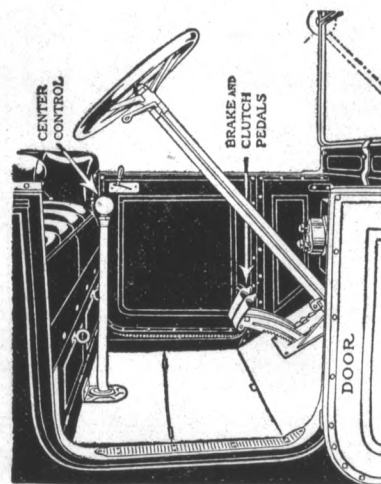
The tonneau is roomy, the wheels are large, the car is over-tired. The carburetor is doubly heated.

The body is finished in 17 coats. The upholstery is deep,

the lamps are enameled. Even the engine is nickel trimmed.

Every part of the car shows the final touch—the avoidance of petty economies. I am proud of it. Not an iota has been omitted which could add to the worth of this car.

Center Control—No Side Levers



Then here, for the first time, we get rid of all side levers. All the gear shifting is done with this center cane handle—done by the right hand. It is done by moving this lever less than three inches in each of four directions.

Both brakes are operated by

foot pedals, one of which also operates the clutch. So the entrance in front, on either side, is clear.

This arrangement permits of the left side drive. The driver sits, as he should sit, close to the passing cars—on the up side of the road. Heretofore this was possible in electric cars only.

Thus we have solved the last important problems in designing.

Price Still \$1,055

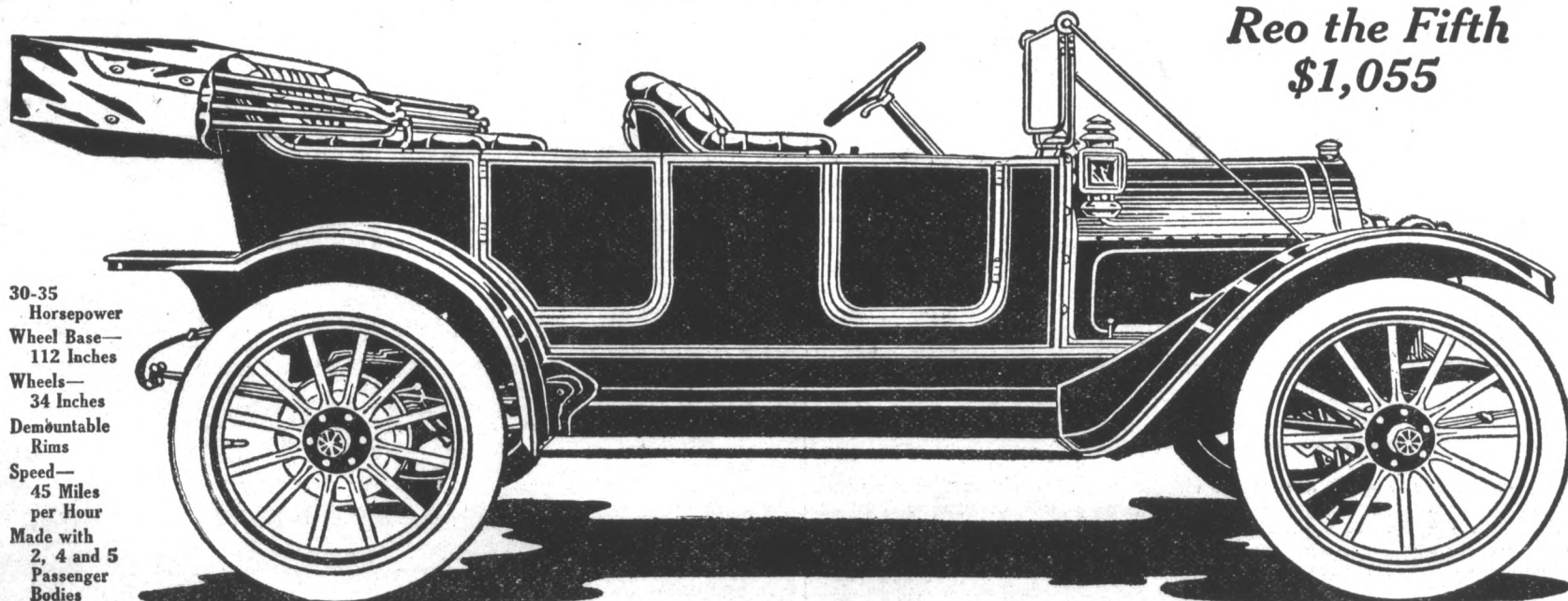
The price of this car remains at \$1,055, though subject to instant advance. This price is too low for a car like this. It leaves no adequate margin.

But we shall continue this price, in all probability, until materials on hand are exhausted.

1,000 Dealers

Reo the Fifth is shown by dealers in a thousand towns. We will direct you to the nearest when you send for our catalog. Please write for it now. It shows the various bodies. Address

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Reo the Fifth
\$1,055

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Horsepower
Wheel Base—
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Wheels—
34 Inches
Dismountable
Rims
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45 Miles
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Made with
2, 4 and 5
Passenger
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Top and windshield not included in price. We equip this car with mohair top, side curtains and slip cover, windshield, gas tank and speedometer—all for \$100 extra. Self-starter, if wanted, \$20 extra.

POULTRY

IN ANSWER TO INQUIRIES.

Feeding Corn Silage to Hens.

Is common corn silage injurious to poultry? About the last of February my supply of green food ran out and since then I have been feeding silage—two bushels each day to 800 hens. During this month (April) I have lost over 20 hens. Their condition seemed to indicate congestion of the liver.

Calhoun Co.

R. D.

If, as your query would seem to indicate, you used the silage merely to take the place of green stuff which you had been feeding, and you continued feeding the same grain ration as before, it is clear that your hens received too much grain. This is assuming that by corn silage you mean corn taken right from the field and placed in the silo without removing any of the grain. Another interpretation of your query, it seems to us, would be that when the supply of green food had been exhausted you dropped the grain ration which had been used in connection with it and depended upon corn silage alone to furnish both green food and grain. Either way, the effect would be about the same as from feeding ground or shelled corn alone.

Poultrymen generally understand that the reason laying hens can not safely be fed on corn alone is that the grain contains too great a preponderance of starch. The nutritive ratio of ground corn is about 1:10, which means that it contains one part of protein to ten parts of starch and fat. Feed experts speak of this as a wide ration. When we come to corn silage, the nutritive ratio is more variable, depending, of course, upon the yield of grain or the proportion of grain to stalks. An average of numerous analyses of corn silage places the nutritive ratio at about 1:12, so that in the silage we have a somewhat wider ration—a greater preponderance of starch and fat—than in the grain alone.

Of course, the quality of succulence possessed by silage has a value which cannot be overlooked and, while ensilage in any form has not been extensively used in feeding poultry, there is no question that it can be used to advantage when succulent food in other forms is not at hand. But it must be remembered that the fibrous or succulent portion of corn silage contains nothing to offset or balance the excess of starch and fat in the grain. Combined with grains or grain products of a lower nutritive ratio, such as wheat middlings or bran, oats or oat meal, barley and buckwheat middlings, or balanced through feeding beef scrap and skim-milk with it, corn silage can be fed to advantage and without harmful effect, but, fed alone, and for a considerable period, it is bound to bring about the condition which reduces many good laying flocks each year.

Broodiness in Orpingtons.

I have a fine flock of Buff Orpingtons but they are constantly becoming broody; have hens that want to set from the middle of February until the last of November. Is there anything that I can give them in their food or drinking water that will lessen this inclination and not injure them?

Newaygo Co.

SUBSCRIBER.

There is no sure cure for broodiness. Some poultrymen claim to be able to "break up" the sitting inclination in hens, but we know of no infallible method. Certain it is that it cannot be done by medication, since it is impossible to alter or eradicate a perfectly natural tendency by such means. Frequent change of surroundings, with abundant range and every possible inducement for working and exercising may help. The only sure way of lessening this tendency, however, is that of breeding it out.

It is generally understood that the sitting propensity is strongest in heavy, inactive fowls and is least pronounced in very light active fowls. Thus some of the light, active, egg-producing breeds are claimed to be non-sitters and it is a fact that broody hens are exceedingly rare in some strains of Leghorns and other light breeds. On the other hand, the heavy meat-producing breeds are frequently discriminated against because of their clumsiness, inactivity and marked inclination to broodiness. The Orpington is regarded as belonging between these two extremes, being classed a member of the American group of breeds, composed as follows: Plymouth Rocks, Wyandottes, R. I. Reds and Orpingtons. Of the four, the Orpington leads in size and probably carries a greater proportion of the blood of the meat-producing breeds than any of the other three. The original

Orpington, which was of the black variety, was produced through a combination of the blood of the Plymouth Rock, the Minorca and the Langshan in a series of crosses. Apparently authentic accounts give the Buff Cochins as figuring prominently in the production of the Buff Orpington, other blood used being that of the Hamburg and the Dorking. It seems only natural, therefore, that the strong sitting tendency of the Cochins should show itself in the Orpington. The explanation of the fact that heavy-laying, active strains of Orpingtons have been developed would seem to be that through careful and rigid selection those fowls showing marked reversion to the Cochins type and habits have been eliminated, or the tendency to broodiness, to a certain extent, has been bred out.

Hens Don't Lay—Scaly Leg.

I would like to know why my hens do not lay. Some of them are getting bad legs; legs seem to be covered with a thick scale and they pick at them until they bleed.

Monroe Co.

D. S.

Your hens undoubtedly have scaly leg, a trouble which was described and prescribed for in our issue of February 17 of this year. Briefly, the treatment is to dip the fowls' legs into a mixture of one part kerosene and two parts raw linseed oil. The trouble is caused by a mite which lodges beneath the scales on the legs and feet, and while the irritation and inflammation thus set up naturally tends to reduce the vitality of the fowl it is not likely that the failure of your hens to produce eggs is entirely due to this condition. It is hard to explain the lack of eggs without knowing more about the hens' condition. If they have been closely confined and liberally fed on grain, especially corn, throughout the winter it is likely that they are overfat. It is a rather common thing for farm flocks to come out of winter in this condition. If this seems the trouble in your case, cut off their grain supply for a time and allow them an abundance of animal food and green stuff. The season is at hand when they can get the animal food they need if given range, and they will work off their surplus fat in securing it. A patch of freshly spaded or plowed ground for them to work over, plenty of raw or cooked vegetables or "greens," a good supply of fresh water and sharp grit should bring about rapid improvement in their condition.

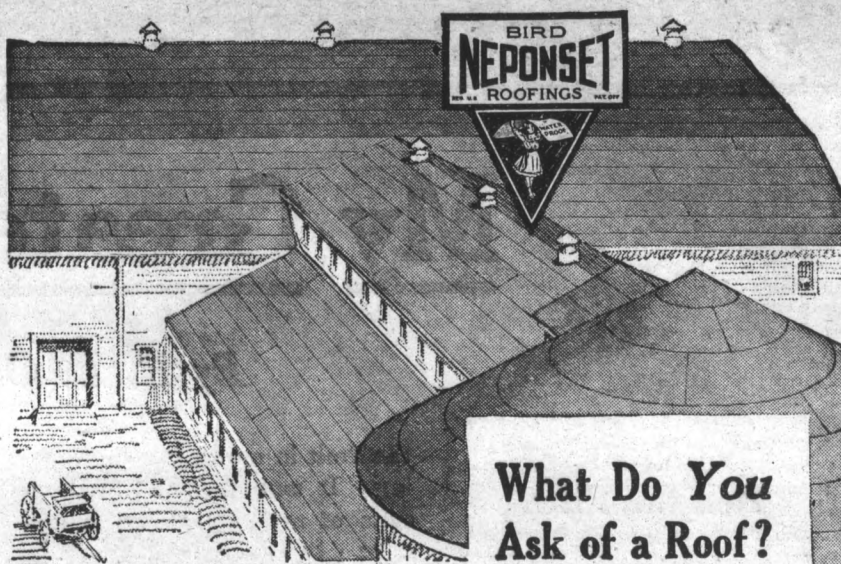
HELPS FOR TURKEY RAISERS.

The brooding turkey requires exercise and a dust bath, for which she needs freedom to come and go. Also, she should be allowed, in making her nesting places, to follow her own sweet will whenever possible. A customer writes me of losing an entire early hatch because she moved the nest "to make the turkey hen more comfortable."

When a turkey hen begins laying it is safer, if possible, to leave the eggs in the nest for her to care for. There they will have what they need, air, usually moisture from the damp earth, and they will surely be turned every day. They are safer there than upon the average pantry shelf where two-thirds of the eggs cared for "by hand" may be found. Then, as the turkey begins to sit the older eggs are gradually subjected to more and more of the heat from her body. It is a well known fact that the eggs last laid require a shorter period of incubation, so it would seem that by leaving the eggs for the hen to care for we further nature's plan and are more likely to have all eggs hatching at once. Of all of nature's wonders in the feathered world, I know of no sight so wonderful as a whole nestful of twenty or more turkey eggs hatching at once. You may look tonight, and see not an egg cracked. When you go again tomorrow, the whole twenty may be hatched and gone. Instead of the inert, motionless eggs, you find the turkey hen accompanied by twenty sturdy, active, self-reliant, self-effacing and self-protecting wild creatures. E. H. McDONAGH.

SEED CORN.

Secure your seed corn while you have an opportunity. The government as well as the Agricultural College at Lansing, find that good seed corn is very scarce. Out of 80 tests very few were up to the standard and most of the tests were below 50 per cent germination, some as low as three per cent. It is only such corn that has been fire dried or properly housed that will grow satisfactorily. Ask us for samples and prices of good Northern Grown Seed Corn, which has been tested and is sure to grow. Alfred J. Brown Seed Co., Grand Rapids, Mich.



What Do You Ask of a Roof?

WHEN you were a boy there was one universal test for a roof:—"will it keep out the weather?" Shingles gave that protection, they were cheap—good shingle timber was plentiful and every one was satisfied.

Roofing today must not only keep off the rain and snow, but should offer protection against fire as well. Farmers everywhere are now turning naturally to

NEPONSET PAROID ROOFING

In 1898 the United States Government put NEPONSET Paroid on a storehouse—in 1911 (thirteen years later) the building was torn down but the roof was still in good condition. NEPONSET Paroid is used by the great railways because of the protection it gives against fire. Put it on all your farm buildings if you want to be free from worry over roof-leaks and repair bills as well as from risk of fire from sparks.

Write for Our Free Booklet on Roofing

It gives many interesting roofing facts and tells how many farmers are saving money by using NEPONSET Paroid and laying it themselves. We will also give you the name of the NEPONSET dealer near you.

NEPONSET
Prostate Roofing
makes a handsome red or
green roof for houses.

F. W. BIRD & SON, (Est. 1875) 173 Neponset St., E. Walpole, Mass.
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Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing. No waste, no evaporation, no explosion from coal oil.

Gasoline Going Up! Gasoline is 9c to 15c higher than coal oil. Still going up. Two pints of coal oil do work of three pints gasoline.

Amazing "DETROIT" —only engine running on coal oil successfully; uses alcohol, gasoline and benzine, too. Starts without cranking. Only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h. p., in stock ready to ship. Engine tested before crating. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric lighting plant. Prices (stripped), \$29.50 up. Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate money-saving, power-saving "DETROIT." Thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, you get Special Extra-Low Introductory price. Write! (138)

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PRACTICAL SCIENCE.

CARBOHYDRATE DIGESTION.

BY FLOYD W. ROBISON.

In ruminants the most important digestive function is the digestion of carbohydrates. We do not make this statement with an idea of belittling the importance of the digestion of either proteins or fats but viewing it from the standpoint of the preparedness of the digestive mechanism of a ruminating animal, we would be obliged to say that the most important function is the digestion of the carbohydrate foods. This is because without doubt the domestic animals, such as the horse, cow and sheep must obtain their food material most largely from the carbohydrate foods. Being required, therefore, naturally to work over within the animal system a great quantity of bulky carbohydrate material, the animal system has become adjusted to this particular form of diet. Of a consequence we find that at frequent intervals from the inception of the food into the mouth to the final rejection of the undigested residue in the feces, there are various opportunities for the digestion of the carbohydrate material.

Starch the Principal Carbohydrate.

The principal carbohydrate structure in the plant is starch. So complete is the digestion of starch in the animal body that excepting in those portions of food which are absolutely unattacked in the digestive tract no starch escapes digestion. Of course, in horses fed on whole grain and in steers and other cattle fed on whole grain, varying quantities of the grain pass completely through the intestinal canal without yielding to the attack of the digestive juices. This material is digestible but has escaped digestion. The fact that there is valuable food material which escapes digestion is recognized generally in stock feeding where it is quite customary to permit swine to run the feed lot together with the cattle or other stock which are being fed, and in this way permitting of the utilization of all such particles of food which have escaped digestion in the original animal.

Just How Completely Cereal Foods Are Capable of Digestion is Not Known.

So far as the writer is aware, no experiments have ever been made to determine how completely such a food material as corn may be digested. Corn ordinarily falls considerably below 100 per cent in digestibility and this may be attributed to various reasons, but much of this lowering of digestibility is no doubt caused by the fact that whole kernels of corn do at times escape digestion and consequently would thus be deducted from the amount of food consumed.

Carbohydrates Constitute the Bulk of the Food of Domestic Animals.

Carbohydrate material with its major portion consisting of starch represents the bulk of the food material consumed by the domestic animals. Hay, straw, corn fodder, corn grain and wheat, oats, etc., have for their major portion, starch, a typical carbohydrate. Were this starch presented to the animal as free, pure starch, it would not be necessary for the elaborate processes to be installed that are now in operation in the digestive system. Most of the starch, however, is firmly encased and protected by a cellulose wall which in most plants is of a very highly resistant material. It must be borne in mind that except through the intervention of human agencies domestic animals or wild animals of similar physiological structure, do not have access to cooked food, as is the case with the food of man.

What Cooking Does to Food.

The cooking of food disrupts the cellulose wall and thus permits the digestive juices of the body to come in contact with the starch granules within the cellulose wall. This result which in man is accomplished by cooking is, however, in the alimentary canal of the animal, produced by prolonged treatment with the digestive juices, at the temperature of the animal body. This will explain the importance of the soaking and prolonged action of the digestive juices on food material, opportunities for which are so plentiful in the alimentary canal of the animal.

Where Digestion Begins.

We have stated that the first act of digestion begins in the mouth. This act includes the grinding by the teeth, the mastication of the food material and mixing it with the saliva. The temperature

of the food material is very quickly raised to the temperature of the animal body, which is approximately 100 degrees F. In the saliva is an active ferment called diastase, sometime ptyalin, the office of which is to convert the starch of the food into a soluble carbohydrate which may be further acted upon in the body and serve as food material. Very little starch is converted at once in the mouth but when it has become finely ground and thoroughly masticated, which action causes the thorough incorporation of the saliva with the food, it is then swallowed and in the case of the ruminating animals it is deposited in one of the enlargements of the esophagus, sometimes called the first stomach. In this enlargement, or pouch, the action begun in the mouth is continued and when a certain length of time has elapsed, or perhaps more properly speaking, when the food material in this pouch has reached a certain condition, it is then returned again to the mouth and the peculiar and interesting phenomenon known as the cow "finding her cud" again is manifested. Here the food material is again masticated and the portions which have escaped maceration are finely ground and the intimately mixed and treated food is then swallowed again and passed on to one of the enlargements further down the canal.

The Second Opportunity for Starch Digestion.

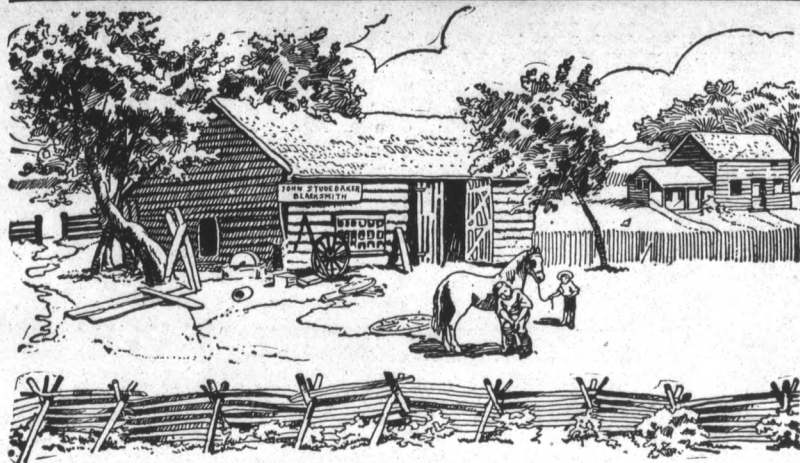
After passing through the true stomach where the starch action is inhibited, starch digestion is again taken up in the duodenum in the intestine. And so along the intestinal canal under the vigorous treatment of the pancreatic fluid containing the diastase ferment, starch digestion proceeds with energy. As a result of this prolonged, vigorous treatment, in health no starch escapes digestion except it escapes as we have described above in the form of kernels of corn, kernels of wheat, kernels of oats that have not been crushed in the mouth and in this way have escaped any digestion whatsoever.

Among horses particularly the habit of crowding food into the mouth so that they are unable to thoroughly masticate it and grind it permits of the passage of much material in this way, unattacked.

How Sugar is Digested.

There is a second ferment present in the mouth and in the other fluids which digest starch, which acts on some of the carbohydrates which are soluble but which although soluble are not in condition to be absorbed into the body. This ferment is called invertin, named because of the function which it fulfills. Ordinary cane sugar, more properly termed sucrose, is very highly soluble in water and in the various digestive juices of the body. Cane sugar, however, does not exist as such in the body and consequently without its being changed in some way it would not be a true food material. Nature has beautifully provided the body of the animal with ferments which can act upon these compounds and it is in changing such compounds as cane sugar that invertin fulfills its office. Cane sugar is represented by the following formula: $C_{12}H_{22}O_{11}$. It is therefore a compound consisting of twelve parts of carbon, united with eleven parts of water, and according to the definition of a carbohydrate, it will be seen that cane sugar is a true and typical carbohydrate. The action of the invertin permits of the adding of one part of water to that combination, thus making $C_{12}H_{24}O_{12}$, which instead of remaining as $C_{12}H_{24}O_{12}$, splits at once and forms two compounds each represented by the formula $C_6H_{12}O_6$. $C_6H_{12}O_6$ is the formula represented by grape sugar, chemically called dextrose, and it is in this form that the sugar may be absorbed into the body.

The Colorado station found that of 1,716 farm machines in service, 60.6 per cent needed no repairs. Although but 27.15 per cent were reported on the farms as in need of repair, casual examination showed that 12.25 per cent in addition that were not reported needed repairs, and careful inspection showed that 6.35 per cent needed repairs in addition to those reported on the farm. Implements were found too dull for good service in 77 per cent of the cases investigated, with seven per cent too nearly new to be very dull. All farm machinery was housed on 22.15 per cent of the farms investigated, part on 39.6, and none except vehicles on 38.25 per cent of the farms.



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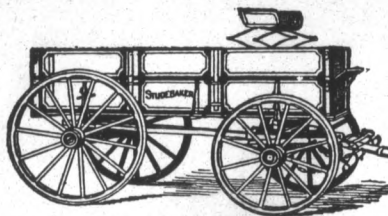
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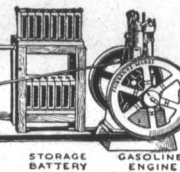
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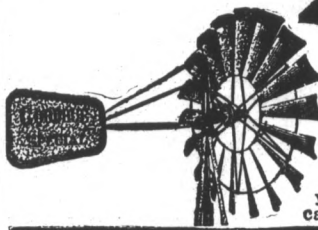


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The Lawrence Publishing Co.,
Detroit, Mich.

DETROIT, MAY 11, 1912.

CURRENT COMMENT.

The Farmer's Greatest Need.

Not long ago the Missouri Board of Agriculture submitted a number of questions for reply to about 600 representative farmers of that state. Among the questions submitted was "What, in your opinion, is the farmer's greatest need?" Of the 440 who replied 40 per cent answered, "Hired help," 14 per cent "The maintenance and improvement of soil fertility," and 16 per cent "Good roads." Seventeen corresponding representatives thought that the farmer's greatest problem is how to combat combinations that are believed to fix prices for what he sells or buys; 13 believed too much extravagance exists on the farm; 10 mentioned the elimination or curtailment of the powers of the middleman, and nine thought co-operation in buying and selling the greatest need.

Doubtless if every reader of the Michigan Farmer were called upon to express his opinion upon this subject, the replies would be so varied as to show that there is no very general unanimity of opinion on this important subject. Yet, as a matter of fact, this could not be expected, for what would be of the greatest need of farmers in one section of the state under their conditions and environments might not be the greatest need under other conditions, and what is true of different sections of the state might be equally true of different individuals in the same community.

But a study of this question of our greatest need is an equally important consideration everywhere, since if we can determine to our own satisfaction what that need may be we can do much to supply it, both in an individual and a collective way. A careful analysis of the limited number of replies given above will show this to be true, as almost any one of these needs could, by the taking of proper steps individually and collectively, be supplied in the cases of individuals who express them as their greatest need.

For instance, the hired help situation could be improved upon the average farm by readjusting the scheme of farming in such a manner as to enable the employment of needed help throughout the year and by providing a tenant house to accommodate the helper and his family. In many cases, also, this could be made the solution of the problem of help in the house as well as upon the farm.

Likewise the maintenance and improvement of soil fertility, if made a special study, can be accomplished in an individual way by every farmer who gives it the proper thought and applies himself diligently to the solution of the problem. Also good roads can be promoted in any community, township or county by concerted action among the residents of such municipal division. In like manner the problems confronting the farmers which are mentioned in the above noted replies are equally simple of solution, either by individual or by concerted action, which might easily be promoted by a few progressive leaders in any community.

But the first essential in the answering of this question, "What is our greatest need?" and in determining upon and solving the problems which confront us, is a careful analysis of the situation, and intelligent and well planned action on our own part when we have determined just what the situation is. A little time devoted to careful thought and study of this kind will be well invested by every Michigan Farmer reader.

Agricultural Extension Work.

A number of bills have been presented in congress during the present session providing for liberal appropriations of funds to be applied to agricultural extension work in the various states. Among these is one introduced by Congressman Lever, of South Carolina, which has the endorsement of the executive committee of the Association of American Agricultural Colleges and Experiment Stations, the Soil Fertility League and other organizations interested in the extension of agricultural education. This bill, which was recently reported from the committee on agriculture, proposes to bring to the farmers upon the farms the information and scientific truths regarding better methods of agriculture which the agricultural colleges and experiment stations have been and are gathering. As stated by Congressman Lever, "Past legislation has resulted in the accumulation of valuable information which this bill proposes to disseminate in the most practical and far reaching manner." Briefly summarized the provisions of this bill are as follows:

Section 1 authorizes that agricultural extension departments may be established in each state in connection with its land-grant college or colleges.

Section 2 defines the object and duty of these agricultural extension departments to be to give instructions and practical demonstrations in agriculture and home economics through field demonstrations, publications, and otherwise.

Section 3 makes frankable printed matter and correspondence for the furtherance of the purposes of the act, issued from the agricultural colleges or by agents of the extension departments thereof.

Section 4 is the appropriating section of the bill and provides that a sum of \$10,000 shall be appropriated annually to each state which shall assent to the provisions of the act. This annual appropriation is a straight, unconditional appropriation to the several states, and amounts each year to a charge upon the treasury of \$480,000. The additional sum of \$300,000 is appropriated for the fiscal year 1914 and an annual increase of this appropriation of \$300,000 a year, over the preceding year, for a period of nine years is provided until the total amount of additional appropriations will be the sum of \$3,000,000 annually. But these additional appropriations, or this sum of \$3,000,000 annually, is to be allotted among the several states in the proportion which their rural population bears to the total rural population of the United States, as determined by the next preceding federal census. The bill provides that no state is to be entitled to any part of its allotment of the additional sums until its legislature has provided for the establishment of agricultural extension departments, as provided in section 1 of this bill, and it requires further that no state shall receive of these additional appropriations a sum exceeding the sum appropriated by its legislature for that year for this purpose.

In connection with this report the committee submitted a table showing the population of the United States by states and the total rural population by states, together with the amounts of these additional sums to which each state would be entitled under the basis of allotment, as provided in the bill, when the act shall mature at the end of ten years, to which must be added in each state the sum of \$10,000 unconditionally appropriated. For Michigan this contingent sum would be

\$90,300. The beneficial results which would follow the administration of such a plan along right lines are almost incalculable, for which reason a bill of this kind should receive the unconditional support of every farming interest.

There is, fortunately, at this time a very general realization among members of congress that appropriations wisely made for the benefit of agriculture will be a good investment for the country and popular among the people, for which reason it is comparatively certain that some measure providing for a degree of federal support of agricultural extension work in the various states will be passed by the present congress. As above noted, a number of bills have been introduced for this purpose, but this bill which proposes to work through the colleges and experiment stations direct would seem to be best suited to the needs of the country and likely to result in most economic and effective administration in case it should be enacted into law.

Business Men and Agriculture.

Business men of all classes are at the present time more appreciative than ever before of their dependence upon a prosperous agriculture. This fact is constantly being illustrated in new and unexpected ways, and without question the efforts being made through business channels will be productive of good results in the betterment of agriculture the present season. This year the quality of the seed corn throughout the country is much below normal. This fact became known early in the season and instances have come to our attention in which different business interests have sought to impress this fact upon the farmers, in both a local and general way in such a manner as should materially benefit the corn crop this year. At least one railroad of the middle west has issued circulars and posters calling attention to this general deficiency in the germinating quality of seed corn, and urging farmers to make ear tests of their corn, giving plain directions how to make the tests. In another case a large vehicle manufacturing concern issued similar circulars and posters for a like purpose, while in one corn belt state the bankers have asked farmers to bring samples of their seed corn to them and people have been employed to make ear tests of same to determine the germinating quality of the seed.

Unquestionably this agitation and publicity of an unfavorable situation has done much to inspire farmers to test their own seed corn, where they might not have done so had the matter been less persistently called to their attention, or had the warnings published in the agricultural press escaped them. This general appreciation of the importance of a prosperous agriculture by business men, should lead to a greater degree of confidence and co-operation between the various interests represented and has much of promise for the future prosperity of both agriculture and other business interests.

A Good Business Asset.

As farmers, we would do well to observe more closely the methods employed by our contemporaries who are engaged in other lines of business, and make use of such as reason would show to be good business assets. Among these is one which is universally employed in every business except agriculture. This is the printed stationery. Printed letter heads and envelopes are traveling advertisers and are so universal among business men that when a letter is received written on anything other than a printed letter head and enclosed in a printed envelope it is an indication that the writer has no very high business standards.

The farmer needs printed letter heads as well as any other business man. Every farmer has, or should have, some special line of production and the letter heads can be made to advertise it cheaply, and at the same time to give the producer a standing through correspondence which he would not otherwise have.

But it is perhaps in another direction that the printed stationery will have the greatest influence, and that is upon the farmer himself. Having printed letter heads he will take more pride in the neatness and appearance of his correspondence and will also make a greater effort to keep up the quality of the particular product which he may make a specialty on his farm. The fact that business men in all lines of endeavor use printed stationery is not accidental. They have simply found it a good business proposition, as have the increasing number of farmers who use printed stationery

from year to year. The cost is not great and the benefits derived are clearly out of all proportion to the cost, for which reason every farmer should avail himself of this undoubted business asset.

Good Roads Demonstration at State Fair.

An interesting feature of the Michigan State Fair which will be continued during the fair of the present year from September 10 to 21, inclusive, is the demonstration of road construction work. During the past two years this feature of the State Fair has been watched with much interest by visitors from all sections of the state, particularly the highway commissioners who have attended the fair at special invitations of the management in order that the greatest possible good might result from this demonstration exhibit. During the first year 500 feet of roadway was constructed and last year 1,000 feet was added, the agricultural society devoting \$1,500 to the purchase of road material for this purpose. This year it is planned to construct a still larger amount of road during the fair and the management expect to have a larger exhibit of road building machinery so as to make this demonstration work of greater value than in previous years. There is also a possibility that national good roads congress will be secured for this city, the exhibit to be staged at the fair grounds following the State Fair proper, in which case this department of the State Fair exhibit will be greatly augmented and possible benefits thus greatly enhanced.

Another feature of this year's fair which will be an innovation is practically assured by the action of the Detroit Board of Commerce in deciding to take an active interest in the fair, particularly in the matter of providing exhibits of Detroit made goods in the actual course of manufacture. Such an exhibit would undoubtedly be of great interest and educational value to fair patrons.

Other new features are being planned and will be announced shortly, which will be of even greater interest to the large proportion of fair patrons as they have to do with the agricultural phase of the fair, and should materially enhance its educational value in this direction.

Study Factors in Farm Years there has Economy.

There has been a great innovation in the management of large manufacturing enterprises. This has been brought about through the introduction of so-called cost systems. Until comparatively recent years the average manufacturer had little more accurate information regarding the cost in the various departments of his business than has the average farmer of today. But gradually, as competition became more keen, a few of the most progressive manufacturers made a careful study of this proposition of cost and were thus enabled to distance their competitors in the race for business success. So imperative has this problem become that today there are specialists who make a business of studying it for manufacturing plants and introducing cost systems by which the cost of each and every item of material or operation in manufacture is accurately determined, thus affording a basis for comparison which makes improvement in methods more easily accomplished, and which in the aggregate effects an enormous saving in production.

There is, perhaps, a better opportunity for work along this line upon the average farm than in the average factory since farming is a more complicated business than most manufacturing enterprises. In another department of this paper appears one illustration of this fact in which the cost of beef production, with and without corn silage, is compared in a manner which would be impossible without an accurate record of the cost of production by both systems extending over a series of years.

These comparisons are greatly in favor of the use of corn silage as a feed for fattening cattle, and show conclusively that economy in beef production makes the silo an essential part of the farm equipment where beef cattle are to be fattened. This will be a revelation to many, and should be an inspiration to get in line with good farm economy and add a silo to the farm equipment in every case where cattle feeding is followed to any extent.

This is but one of the many illustrations which might be presented. There are very, very many factors of farm economy which have passed unnoticed by very, very many farmers. To the end that agriculture should become generally more profitable it is essential that every

farmer study for himself these factors in farm economy and when he shall have reached the truth regarding them, act upon that knowledge to his own financial advantage. A careful study of costs and comparative results is one of the present needs upon the farms of Michigan and the country.

HAPPENINGS OF THE WEEK.

National.

Newspaper pressmen and stereotypers of Chicago are out on strike for better wages. Their quitting has made it difficult for some of the publications to continue business without interruption. Importation of strike breakers is being indulged in by the publishing houses, which is likely to result in rioting.

Of the 275 applicants for admission to the naval academy at Annapolis only 113 succeeded in passing the very rigid examinations, and of these but 81 hold appointments as principals, the other successful men being alternates.

The wife of Wm. K. Vanderbilt, who recently underwent an operation for appendicitis, is reported in critical condition as she failed to rally from the operation.

Much preparation is being made in Philadelphia for the memorial to be held in honor of the late Clara Barton, on the evening of May 14.

Rains in the vicinity of the lower Mississippi river and along her tributaries have increased the danger to inhabitants and property from Vicksburg, Miss., south to the Gulf. From that city south to New Orleans, the water Sunday was from one-half to two and one-half feet higher than it has ever been known to be. Even the strongest levees are being tested to their utmost and there are many places, where engineers question the ability of the structures to hold, that if they should break, would mean a heavy loss of life and the destruction of millions of dollars worth of property. Soundings show that the waters of the great river are flowing a mile an hour faster than they have ever been known to travel. New Orleans and Baton Rouge are not immune from danger and thousands of workmen are busy strengthening old and building new levees for protection. The hopeless part of the situation is that the water will go still higher should the observations of the army of engineers prove correct. The sugar country of Louisiana is suffering much from the high waters. Many lives have been lost. Relief boats are kept busy rescuing people from dangerous situations.

Memorial services in honor of Major Archibald Butt, aide to both Presidents Taft and Roosevelt, who went down with the Titanic, were held in Washington, Sunday, where President Taft spoke.

Amni Willard Wright, one of the wealthiest men of Michigan, a pioneer in the lumber business, and one of the state's greatest benefactors, died at his home in Alma last Sunday morning at the age of 50 years. He came to Michigan from Vermont when nearly 30 years old and soon became interested in the lumber business in the Saginaw valley, in which he prospered, laying the foundation to the large fortune which he accumulated. He did much for Alma, building for her a college, a sugar plant, rolling mills, a manufacturing plant, a sanitarium which was recently presented to the Masonic grand lodge of Michigan for a state home, and many business blocks, as well as encouraged many other businesses and enterprises. Outside of his home town his financial investments were heavy. He was reputed to be worth, at the time of his death, about \$40,000,000. He leaves a widow and daughter. The body will be taken to Chester, Vt., for burial.

A wreck on the New Orleans & North-eastern railroad south of Eastabuchie, Miss., resulted in the death of nine persons and in injuring 55. The train was carrying confederate veterans from Texas to Georgia where a re-union is to be held. None of the old soldiers were among the killed.

The early reports of the Maryland primaries indicate a preference of Colonel Roosevelt for the republican candidate and Champ Clark as democratic candidate in the coming presidential campaign.

A number of large lumber concerns of Michigan are to be prosecuted for receiving rebates from railroads, by the federal government. The plan of the prosecution is being kept secret.

Testimony is now being taken in New York by the government in the suit to dissolve the United States Steel Corporation.

The latest returns indicate that Colonel Roosevelt won over President Taft in the primaries of Texas, getting a solid delegation of 40 votes.

Angora goats are being utilized with profit by farmers of the southwest in clearing rough lands.

Foreign.

In an engagement between the towns of Cautro Cienegas and Monclova, Mexico, the forces of Madero defeated the rebels, killing 600 and forcing the remainder of 1,500 troops to retreat rapidly toward the first named city above. American troops at a number of the army posts are being gotten ready for quick shipment to the Mexican border line. A number of incidents have occurred contrary to the rules of war which make it imperative for the presence of foreign troops to see that foreign property, as well as foreigners, is not misused.

The Japanese training ship with 150 cadets aboard went aground of Tateyama and the vessel is reported in bad condition and will possibly go to pieces unless quickly relieved.

A Norwegian steamer reports having seen an unknown steamer in an ice field at latitude 45 degs. 50 min., and longitude

54 degs., 10 min., signalling distress. The ice barriers prevented giving immediate assistance and before it could be reached the ill-fated ship had gone down.

A third steamship is now in the vicinity of the Titanic disaster searching for bodies. Twenty bodies were found by the Minia.

The federal campaign in Panama has engendered much ill-feeling and five men are reported to have been killed during recent political riots.

An engagement on the Island of Rhodes between Italian and Turkish troops, resulted in the defeat of the latter and the capture of the city of Rhodes by the Italians. The loss of the Turkish troops is reported heavy.

CROP AND MARKET NOTES.

Washtenaw Co., April 29.—Farmers in this section are beginning to think if the law relative to games of chance were put into effect they might all be put out of business, for farming at present is a good deal of a gamble. It is one big bet with the weather and so far this year the weather has the odds. Wheat and clover seedings are especially poor and with hay selling at \$25 in the barn there will be no reserve left over to help on another year and yet we have to take the big bet and throw out more \$14 clover seed. Apparently farmers should rejoice at the price of hay and grain, but really it means in many cases a loss, few, if not actually in the market, buying, have any to sell. One farmer told me recently that if he had given his cattle away in the fall he would have been money ahead. The silo has been the salvation of the dairyman this season. Very little oats sown at this writing on clay lands. Pastures two weeks late at least. Many farmers forced to turn out while a positive damage to both cattle and pasture.

Eaton Co., May 3.—Work is rather backward, many oats not drilled yet. Some wheat fields so badly winter-killed they are being plowed up for other crops. Wheat not killed is growing nicely. Pastures begin to relieve those who are short on hay. Wheat has advanced to \$1.07@1.10; beans to \$2.25; corn, 82c; oats, 58c; and potatoes \$1.25. Rye is down to 85c; butter, 23c; eggs, 17@20c; wool, 18@22c; hogs, \$7@7.50; calves, \$5@6.50; hay, \$18@21 per ton. Most people seem to think the fruit buds are not damaged to any great extent. Help is difficult to obtain, and the farmer has to depend mostly on his own ability to hustle.

Livingston Co., April 29.—Oat sowing is well under way, but a heavy rain last night put a stop to working the ground for a day or two. Wheat is looking very bad this spring, will probably yield not more than 60 per cent of a normal crop. The dry summer of 1911 was too much for the new seeding and as a result many pieces will be plowed up. More corn will be planted than usual to make up for the shortage of hay. There will be a number of silos erected this summer, as farmers are just beginning to realize their value. Hay and grain are higher in price than in years. Hay bringing over \$20 per ton loose.

Mecosta Co., May 1.—Wheat looks poor and there is little of it. Damage appears to be due to last winter's ice as well as the snow leaving the ground bare in ridges and high spots. Stock not looking as well as common; hay scarce, some of it selling as high as \$27 per ton. Cows and sheep as well as hogs are sold down close. Butter scarce and worth from 22@25c; eggs, 17@18c. Potatoes jumping up and down from 70c@1.25 per bu; grain about \$30 per ton. Spring cold and backward. Peaches and other tender fruit stock badly hurt. Spring plowing behind as ground is wet and heavy yet.

BOOK NOTICES.

"The Building of a Silo," is the title of a handsomely illustrated book containing the story of a trip through a plant of the world's greatest silo manufacturer, complete information on the Saginaw silo and a thorough treatise on silage, published by the Farmers' Handy Wagon Co., of Saginaw. This book contains an illustrated description of the methods employed in building this well known silo, together with all details of its construction. It also contains valuable information with regard to the capacity of silos, the size of silo needed for different kinds and amounts of stock, practical articles on the making and feeding of ensilage to dairy and beef cattle and all kinds of live stock, by well known authorities, as well as articles on the culture of crops for silage, filling the silo, feeding the product, etc. This valuable book is free to interested readers who will write the Saginaw Handy Wagon Co., Saginaw, Mich., mentioning the Michigan Farmer.

CATALOG NOTICES.

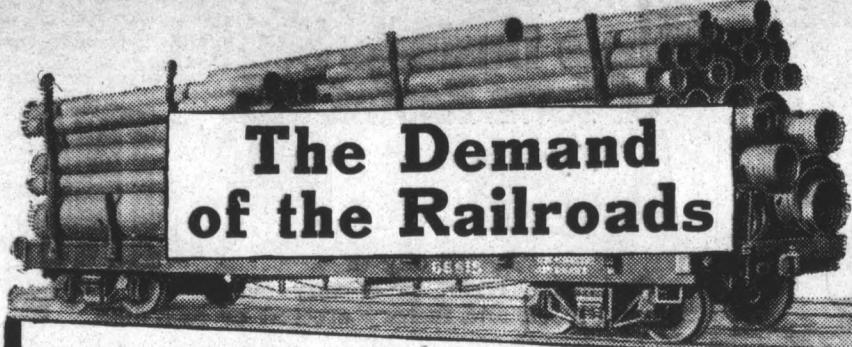
"Drainage with Dynamite," is the title of a 24-page illustrated booklet published by the E. I. du Pont de Nemours Powder Co., of Wilmington, Delaware. This book contains directions, illustrations and testimonials of the efficiency of ditching and drainage work with dynamite. Write the Manager Agricultural Division of above company for a copy of the booklet, mentioning the Michigan Farmer.

Testimonial.

Enclosed find \$1.00 for which renew my subscription to the Michigan Farmer for one year. We have taken seven different farm papers but find none equal to the Michigan Farmer.—Ed. H. Manning, Route 3, Saginaw, Mich.

Receiving Paying Results.

A well-known breeder of Barred Rocks, after a trial advertisement in the Michigan Farmer, writes as follows: "I will try some space for one year, as it is paying me very nicely."



If the biggest and most careful purchasers in the country all buy an article of the same make—it's pretty strong evidence of that article's superiority, isn't it? Therefore, when we tell you that nearly all the important railroads are displacing concrete, stone, cast iron and tile culverts with American Ingot Iron Corrugated Culverts you can bank on this culvert's superiority over other makes.

Culverts That Last

These culverts are not made of steel, but American Ingot Iron—guaranteed 99.84% pure. Steel, owing to its impurities, rusts and corrodes quickly. American Ingot Iron, due to its purity, resists rust for many years. This is why American Ingot Iron Culverts will outlast steel culverts many times over.

Actual tests prove them 29 times stronger than ordinary smooth metal pipe of the same thickness.

AMERICAN INGOT IRON
Guaranteed CULVERTS 99.84% Pure Iron

Frost won't crack or break these culverts, like concrete, brick, stone or tile. Neither will they wash out without warning in freshest time, as bridges and other culverts do, because the earth packs firmly in the

deep corrugations. First cost is lower than other makes. Upkeep nothing. Easily handled and placed. Look for the triangle trademark—it denotes the genuine American Ingot Iron Culvert.

Write to Nearest Manufacturer

Tell us your road troubles and plans—we will gladly send you expert advice. Road builders, county officials, taxpayers, etc., will

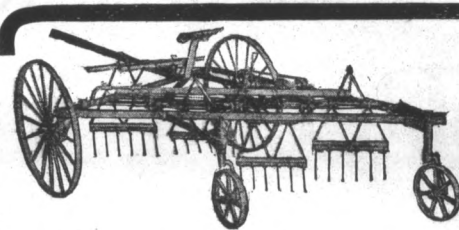
save time, money and labor by addressing nearest manufacturer for full particulars. Ask for book, "Culverts." Write right now.

Dixie Culvert & Metal Co., Little Rock, Ark.; Atlanta, Ga. California Corrugated Culvert Co., Los Angeles, Cal.; West Berkeley, Cal.; Reno, Nev. Colorado Ingot Iron Pipe & Flume Co., Colorado Springs, Colo. Delaware Metal Culvert Co., Clayton, Del. Illinois Corrugated Metal Co., Bloomington, Ill. W. Q. O'Neill Company, Crawfordsville, Ind. Princeton Sheet Metal Company, Princeton, Ind. Fort Dodge Culvert Company, Fort Dodge, Iowa. Independence Corrugated Culvert Co., Independence, Ia. The Road Supply & Metal Co., Topeka, Kan. Kentucky Culvert Company, Buchoel, Ky. New England Metal Culvert Co., Palmer, Mass. J. N. Spencer, Haver de Grace, Md. Michigan Bridge & Pipe Company, Lansing, Mich. Bark River Bridge & Culvert Co., Bark River, Mich.; Eau Claire, Wis. Lyle Corrugated Culvert Company, Lyle, Minn.; Minneapolis, Minn. Corrugated Culvert Co., Moberly, Mo.

Montana Culvert Company, Missoula, Mont. North Carolina Metal Culvert Co., Greensboro, N. C. Northwestern Sheet & Iron Works, Wahpeton, N. D. North-East Metal Culvert Co., Nashua, N. H. Pennsylvania Metal Culvert Co., Flemington, N. J.; Warren, Pa. Economy Culvert Company, Auburn, N. Y. Nebraska Culvert & Mfg. Co., Lincoln, Neb.; Wahoe, Neb. Ohio Corrugated Culvert Co., Middletown, Ohio. The American Rolling Mill Co., Middletown, Ohio. Oklahoma Corrugated Culvert Company, Shawnee, Okla. Security Vault & Metal Works, Portland, Oregon. Sioux Falls Metal Culvert Co., Sioux Falls, S. Dak. Atlas Metal Works, Dallas, Texas. Lone Star Culvert Company, Houston, Texas. Western Metal Manufacturing Company, El Paso, Texas. Tennessee Metal Culvert Company, Nashville, Tenn. Utah Culvert Company, Woods Cross, Utah. Virginia Metal Culvert Company, Roanoke, Va. Spokane Corrugated Culvert & Tank Co., Spokane, Wash. Wisconsin Culvert Company, Madison, Wis.

American Ingot Iron May Be Had in
Sheets, Plates, Roofing and Fence WireFinish Curing
Your Hay in the
Windrow

Save time and get better colored, sweeter hay. Your hay will dry quickly, thoroughly and will not bleach out if you use a



Walter A. Wood Side-Delivery Rake

It does not roll nor twist the hay tightly hence air can get all thru it and cure it evenly.

The thorough work of this rake is due to the four forks, no two of which work together.

It has a great advantage over a revolving side-delivery rake in that you can go over the windrow and turn it over or roll one windrow into another when you want to make it heavier for loading purposes.

The Walter A. Wood Side-Delivery Rake is made of angle steel and the frame and fork arms are triangular. This gives great strength, durability and lightness.

Two castor wheels provide ample support. All working parts are precisely machined and fitted. The forks are made of oil-tempered steel springs which give great flexibility and prevent breakage. These forks can be raised or lowered by and adjustable washer on the castor wheel shaft. One lever operates everything.

You cannot afford to be without a Walter A. Wood Side-Delivery Rake.

Send for Our Catalog

and let us show you how you can save money with this rake. Write us today and tell us the extent of your hay land and what kinds you raise.

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606 Michigan Ave., Detroit, Mich.

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606 Woodward Ave., Detroit, Mich.

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hay and raise _____
Name _____
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In the city of
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good business block and factory erected or re-roofed
within the last 15 years is covered with J-M Asbestos Roofing.

The Meek Co.—with about 4 acres of roof space—has covered all its buildings with J-M Asbestos Roofing. So has the James B. Clow & Sons Co., with nearly 3 acres of roof, and the H. D. Beach Co., with nearly 2 acres of roof. Likewise, the Pope-Gosser China Co., Coshocton Brick Co., Coshocton Glove & Garment Co., Hunt-Crawford Corrugated Paper Co., Hay Huston Axle Co., Coshocton Ice & Cold Storage Co., Novelty Advertising Co., and others too numerous to mention.

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The business men of Coshocton, as well as in all parts of the country, have been so unanimous in adopting this ready-to-lay stone (asbestos) roofing, because we have proved to them, *as we can also prove to you*, that it is absolutely fire-proof; that it contains nothing that can rot, melt, crack or deteriorate with age; and that, because of its long life and the fact that it never needs coating or repairs, *it costs less per year of service than any other roofing.*

J-M Asbestos Roofing is suitable for all types of buildings. Our nearest Branch will fill your order if your dealer does not sell it. Write today for Booklet No. 1640 which tells all about the advantages of this roofing over other kinds.

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for an hour, I could show
you why it is to your
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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.

In transmitting, the folder I will write you giving the prices now asked for land and putting you in touch with responsible people having land for sale. The Santa Fe has no land of its own to dispose of.

Just drop me a post card. **Do it today.**

C. L. Seagraves, Gen. Colonization Agent,
2293 Railway Exchange, Chicago.

HORTICULTURE

THE PROPER TIME TO SPRAY.

ASIDE from thoroughness there is no one thing that will help to make spraying a success more than to apply it at the proper time. Within the last few years there has been some improvement in determining the proper time for spraying, especially for the codlin moth. The usual spray calendars that have been sent out by the experiment stations do not allow for variations in seasons which sometimes are very great.

While the general directions for the spraying for the scale is "any time while the trees are dormant," there are times when the spray is more efficient than others. For instance, experiment station tests show that when the spraying is done in freezing weather the efficiency of the spray is greatly lessened. There are advocates of fall spraying who contend that it is best because the scale is more tender and can be killed easier. Advocates of spring spraying contend that the winter kills many scales (which it does) and therefore scales overlapped by others would be killed that would not have been killed by fall spraying. The fungicidal value of lime-sulphur is also considered by spring spraying supporters. For efficiency it is best to spray just as the scales are going into the dormant state or just as they are about to come out. Generally, spring spraying is the best on account of the fungicidal effect of the spray. In some cases the ground may be wet in spring or other work urgent so that fall spraying would be preferable. Where the scale is very bad both fall and spring sprayings are advisable.

To get the best fungicidal value out of the spraying for scale it should not be done until the buds begin to open. While it is not absolutely necessary to make use of the fungicidal value of the scale spray when another spraying is going to be made before blossoming, it is best policy to take advantage of it, as something may go amiss in getting that spray on.

To get the best effect of the spray put on just before blossoming, it should be applied within ten days of the blossoming time. Some of our best extensive growers of fruit start this spray sufficiently early to get everything covered and if they get through before blossoming, start again where they first started and in that way get everything covered within the ten days. The reason for this time limit is that the individual blossom stems are not exposed so they can be covered by spray before the ten days preceding blossoming.

The spraying immediately after the blossoming time is the most important one for the control of the codlin moth. Experiments have shown that this spraying properly applied will control nearly 75 per cent of the worms. Theoretically, the best time to apply this spray is after all of the petals have dropped and the stamens wither. Then the spray can be put into the calyx cup of the apple most easily. In practice, however, it is not advisable to wait until all of the petals are off as very often weather and other things will cause a delay in the spraying and then it will be too late. It is generally advisable to start spraying when about three-quarters of the petals have dropped.

Most all good orchardists agree as to the necessity of applying the sprays before and just after the blossoming period. There is a difference of opinion, however, as to the number of sprayings after that and the time for applying. Some make only one application while others will spray three or four times after the above sprayings. Those who make the minimum amount of sprayings do not get the maximum results, and those who use the maximum number of sprayings get maximum results but with a maximum amount of work. The latter get good results because of the short intervals between sprayings they happen to get one or two sprayings on at the right time while the other applications are not of very great value. It is a hit and miss method but, naturally, it generally brings results but at a considerable expense. Fewer sprayings at proper times will be just as efficient and more economical.

Three sprayings after the blossoms, including the one immediately after the blossoms, is generally sufficient. The proper time for applying the last two sprayings depends upon the habits of the codlin moth. While these sprays are also used for their fungicidal value we have

no way of determining the best time for spraying for best fungicidal effect and most generally the fungicidal effect will be sufficient when the applications are applied with relation to the codlin moth.

The common directions for applying the two last sprays, are two weeks following the spray given immediately after the blossoms, and the first of August, because it is about these times that the first and second broods of the codlin moth appear. There are, however, often variations of a week or two either way and sprays put on according to the above directions would not give the best results.

These variations of the appearance of the codlin moth are mainly due to weather. Great variations are also due to location. For instance, it was found that there was a difference of a week between the appearance of the moth at Lake Michigan and 15 miles inland.

How to Determine the Date of the Codlin Moth's Appearance.

The method of determining the appearance of the moth is very simple. Several trees in the orchard are banded with bands of burlap. An old burlap sack folded lengthways, making three thicknesses of the sack, or so that the band will be about six inches wide, will do for this work. Scrape the loose bark from the trunk of the tree about two feet from the ground. Then cut the burlap band long enough to go around the tree and lap an inch or two. Fasten to the tree by one headless nail at the upper edge of the band and where it laps. The larvae of the moth will use these bands as good hiding places to spin the cocoons. The cocoons can then be gathered by carefully taking the band off of the tree and cutting them from the burlap or the bark to which they may be attached. They can then be placed in an old pan or anything in which several inches of soil can be put. The soil should be kept moderately moist. A lantern globe may be put over this and the upper end covered with a piece of mosquito netting or a piece of mosquito netting can be tied over the pan without using the lantern globe. Any method of confining the moths and still allowing a free circulation of air will do. The pan should be placed in as near natural outdoor conditions as possible.

Ten days after the moths emerge for the second brood, which appears late in July or early in August, and about 14 days for the first, which comes about the middle of June, is the proper time to start spraying. About two days after they emerge from the cocoons they lay their eggs and the eggs hatch in eight to ten days and shortly after that the little worms seek the apple.

This banding method should be used for both the first and the second broods, although for the first year only the second brood can be watched, as the bands have to be put on in the early fall of the preceding year to get cocoons for the first brood.

For the second brood the bands should be put on early in June that they may become weathered before spinning time. Bands for the first brood the following year should be put on early in September.

The cocoons are about a half inch long and are a dirty gray color. If found under a loose piece of bark often sawdust will be found clinging to them. Inside will be found a pinkish worm or a brownish chrysalis; the latter indicating a more advanced stage.

The moth is small and of a dark brownish color. It flies only at night except when disturbed and during the day is very inconspicuous on account of the similarity of its color to that of the bark and the ground. A careless investigation of the cage may not reveal the moth when it is really out.

This method of watching the moth not only gives as near as possible, the right time for spraying, but it gives a ten days to two weeks' notice so all necessary preparations can be made for spraying. It also gets the fruit grower better acquainted with the habits of the insect. Those who spray best and most intelligently are those who know something of the habits of the insects they are spraying for.

It is not necessary for every fruit grower to watch the moth if the most capable fruit grower in the vicinity will do it and let the others know the results.

Van Buren Co. F. A. WILKEN.

At Glassboro, N. J., Repp Bros., have 20 acres in grapes yielding an average of about 7 tons to the acre. They spray with Pyrox. Wise growers are ordering early. Ask the Bowker Insecticide Co., of Boston, for book.



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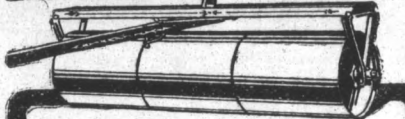
Mineral or smooth surface. Comes ready and easy for you to lay. Ask your dealer for Genasco. Write us for samples and the Good Roof Guide Book—free.

The Kant-leak Kleet, for smooth-surface roofings, makes seams tight without cement, and prevents nail-leaks.



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Largest producers of asphalt, and largest manufacturers of ready roofing in the world.
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Use the sprayer that does the most work most thoroughly at the lowest cost.

Brown's Auto Spray

No. 1 fitted with up to Pop Nozzle—most powerful and efficient hand outfit. Capacity 4 gallons. For large sprayers—Brown's Non-clog Atomic Spray. Write for low prices and Free Spraying Guide.

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

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Works on any wagon with any make loader. Let your brains do your work. Make more hay with half the help. Also **WIRE REELERS** and **ROLLER HARROWS.** Write

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A WHITE package which insures highest prices for your fruit. Write for 1912 catalog showing our complete line, and secure your **BASKETS, CRATES, etc.** at **WINTER DISCOUNTS.**

The BERLIN FRUIT BOX CO.,
Berlin Heights, Ohio

CATALPA spec. (guaranteed true). Choice 1 yr. trees 90c per 100, \$3.50 per 500, \$7.10 per 1,000. Cat. Forest Fruit, Shade trees, etc. Brosius Nurseries, Tiffin, O.

CUCUMBER GROWING.

Cucumbers or pickles are quite profitable to grow, provided you are so situated that you can dispose of the crop. To do so requires a location somewhere near either a good-sized town or a salting station.

They are a crop that will do well on a variety of soils if weather conditions are favorable. If planted on sand that is inclined to be light and also deficient in humus the yield will be shortened if the rainfall is below normal during August and September. If planted on heavy clay they are apt to suffer in a wet year from the ground becoming hard and baked, caused by tramping it while picking the pickles. A clay loam that is well supplied with humus provides the proper conditions. If it is tile-drained so much the better for, at picking time you must get on the ground to pick, no matter how wet the soil is.

Cucumbers are not "hard" on the ground, yet for them to do well the soil should be quite rich. On the average land they should not follow sugar beets, cabbages, potatoes or oats unless such land has in the meantime received an application of stable manure or commercial fertilizer. Clover sod plowed early, worked down and dragged occasionally before planting, makes a good seed bed. Timothy sod handled in the same way is also suitable, provided that it is not too badly infested with cutworms. In fact, any ground intended for cucumbers should be plowed early and kept well worked till planting time. Such handling destroys weed seedlings and conserves moisture which enables the seed to germinate, no matter how dry the weather may be when the seed is planted.

For fertilizer I prefer partially rotted stable manure that contains but little litter. If planted it should be spread broadcast and plowed under, or if scarce, it may be used in the hill. If I had to depend upon commercial fertilizers I should drill broadcast muriate of potash and acid phosphate as soon as possible after plowing. At planting time I would drop a single handful of nitrate of soda in each hill. This should be covered about an inch deep and the seed planted on top of it.

Unless manure is to be used in the hill a corn marker with teeth six feet apart is all that is necessary to make the rows. Mark one way and plant four feet apart in the row estimating the distance. When manure is used in the hill mark in the same way but the rows will have to be furrowed out with a walking plow. Throw a forkful of manure in the furrow about every four feet, cover with a hoe after you have packed the manure with your feet or the hoe. The hills may be made as early as convenient but in working the ground after they are made the furrow should not be filled, as that would obliterate them.

When a large acreage is grown the practice is to double furrow the row, that is, plow a "dead" furrow every six feet. In this furrow distribute the manure with a manure spreader, using the attachment to narrow up the discharge. Cover the manure by plowing a back furrow on to it. Roll down this ridge and drag it and plant the seed in hills every four feet, or use a garden drill and sow a continuous row. There should be a plant every two or three inches which should be thinned to a foot or 18 inches when all danger from the striped beetle is over. When planted in hills they should be thinned to three or four plants per hill.

Ordinarily cucumbers are planted late enough to avoid the ravages of the striped beetle but if they do bother, air-slaked lime dusted on the plants will act more or less as a repellent. Last year I sprayed with arsenate of lead, six pounds to 50 gallons of water. I do not know whether it poisoned any of the beetles, as I could not find any dead ones, but it did act as a repellent.

Cucumbers should be cultivated to keep the weeds down and to maintain a dust mulch. It is not best to work too close to the hills with the cultivator so they will require one or two hand hoeings to break the crust and kill any weeds that may be in the hill.

Picking will begin the latter part of July or the first of August, depending upon the time of planting and also upon the thriftiness of the vines. The first two or three pickings will hardly pay for the trouble of gathering but it is necessary for the good of the vines to remove them. The fewer the pickles that are allowed to become full grown, the better will the vines bear. In ordinary growing weather the vines should be gone over every other day. If the weather is cool three days may intervene between pickings.

er day. If the weather is cool three days may intervene between pickings.

From the time the blossom withers till the pickle becomes "dill" size requires from a week to ten days, so if none of the half-grown pickles were over-looked it would be necessary to pick only about once a week. It is impossible, however, at any one time to get all of the pickles that are large enough. This necessitates picking more often than once a week. One man should be able to do the picking on one acre of vines.

It is not necessary, as some will tell you, to cut the pickles from the vines with part of the stem left on. Nor is it necessary to dispose of them the same day as picked. If put in a cool place shortly after gathering and not allowed to heat they will keep fresh for two or three days and even longer, so that it is feasible to market two pickings at one time.

If you sell direct to the consumer the pickles should be sorted into four or five sizes. When the crop is contracted to be delivered at a salting station it is customary to sort into three sizes, known as "cukes," "dills," and "mediums." The mediums bring the best price per hundred weight while the "cukes" are not accepted at the station, so the grower feeds them or disposes of them as he is able.

The White Spine is a good variety to grow when the crop is to be retailed. When the crop is contracted the pickling company usually reserves the right to name the variety.

Some growers will tell you that cucumbers should be planted a certain "time of the moon," but they are not all agreed as to when that time is. I think the time is from May 20 to June 20, provided you have your ground in the best possible condition. If you haven't, wait a few days longer and get it in such shape.

Wayne Co. W. POSTIFF.

BREAKING SOD IN OLD ORCHARDS.

We all recognize the fact that where the ground is packed the loss of moisture is very great. The fact that to mature a crop of apples requires a great amount of moisture is also plain. Now, with these two facts before us it is up to us to change conditions to meet the needs of an orchard in maturing a crop if we wish to grow apples at a profit.

In the two orchards of our own the soil is almost two extremes, light sand and heavy clay. In the first named orchard the roots did not appear on the surface at all and it was evident to me that they were deep enough to be below the plow so this orchard was plowed to break up the sod. In the other orchard the problem was difficult. The roots appeared on the surface under every tree. These roots were too large to break through with a plow so I concluded to try mulching to destroy the sod. At the particular time I concluded to try mulching I was feeding ear corn to the cattle and there was a great deal of corn in the manure which I hated to see lost so I piled a good big load around each tree trunk and then let my half dozen brood sows work it down which they did very readily while hunting corn. When they had finished the corn hunting, the manure was pretty evenly distributed and the trees were so thoroughly mulched that the sod was killed out completely. Some people thought so much nitrogen would influence a heavy growth of wood and leaves and not much fruit. I did not find it so. Last year's crop of fruit on these trees was very profitable indeed.

In plowing an old orchard to break up the sod I believe it best to throw the furrow to the tree instead of away, as the former named operation is better in covering all the grass and smothering it out. Subsequent harrowings will tend to level the ground away from the tree trunks.

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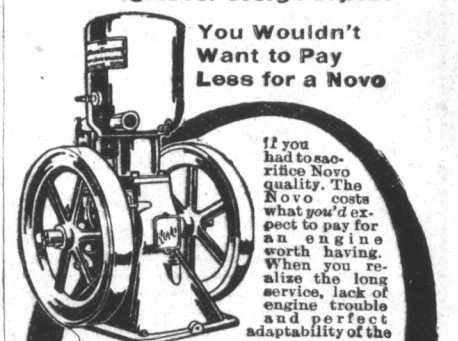
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HOME AND YOUTH

THE PETTIBONE WEBSTER PRIZE.

BY JANET THOMAS.

Had anyone suggested to the Gage girls that they were neglectful of their mother, two pair of blue eyes would have opened wide with indignation and two silvery voices would have denied, with emphasis, such an accusation. Very likely the girls would have reminded you that each week they paid their mother five dollars apiece, and that they remembered her on her birthday and on Christmas, and—and— But here the inventory of their thoughtful acts must have ended, unless they had cared to state that they also allowed her to do their washing and ironing and many times asked her to do easy sewing and mending for them; that they never forgot to inform her when they were bringing home some of their numerous friends to dine, also suggesting some particular dish that she might prepare for the guest; they also thought enough of her to suggest that she wear more stylish clothes and do her hair in a less old-fashioned way, that she leave off her little white, frilled apron when she entered the parlor where they were entertaining company and that she change her manner of table service to one more up to date.

Oh, yes, there were endless ways in which Jane and Margaret remembered their mother. And the mother, being a mother, only smiled and tried to do things in a way to please her pretty, exacting daughters and never thought to say that five dollars a week barely paid for their board and room without washing included, to say nothing of entertaining those never-ending guests. Nor did she remind them that the father's income was a small one, and so it was often necessary for her to look old-fashioned, as the clothes she wore had been bought several years before and many of them were "hand-me-downs" from the girls themselves. No, Mrs. Gage only wished, for the sake of her two clever girls, that she were less old-fashioned in speech and dress, and that she had a brighter mind that could meet them on their own level. But still she was not unhappy, for she was too busy to let the evil of unhappiness get a hold on her life. And then there was always a book to read if she could find a spare moment in which to indulge herself. For School Teacher Margaret tolerated on her bookshelves only such reading matter which she designated as deep, though Mrs. Gage often thought that some of them led her into very shallow water, indeed; and Private Secretary Jane would read nothing but fiction, and fiction galore she had. So the little mother could feed her mind on what she would.

It was Margaret's innocent-enough announcement one autumn evening at the supper table that created a stir in the little household which did not die out in a day. In fact, it was the incipience of a revolution, though none dreamed it at the time. In her characteristic manner she made it.

"Mother, why in the world do you put on the butter chips instead of the bread and butter plates. I bought them on purpose so that we should not appear so everlastingly and hopelessly old-fashioned. But never mind changing them now, since we are alone. I want to tell you now that I believe I have the opportunity of my life before me. Did you ever know Pettibone Webster, who years ago lived in this city, father or mother?"

"Yes," replied Mrs. Gage.

"Slightly," said Mr. Gage. Then he added, "In fact, we knew him very well for he went with the same crowd we did. He did his level best to cut me out with your mother."

"O, father, those times are past and gone," murmured Mrs. Gage.

"How romantic! And we might have been the children of a millionaire!" cried Margaret. "For he's a very wealthy man now and also a crank on literature and on this, his native town. He insists that there ought to be more literary talent in this city and has declared it is here if it can only be unearthed. With this in view he has offered a prize of one thousand dollars for the best story—Oh, by the way, here's the whole announcement in detail in this paper. Read it for yourselves. The important summary of the whole matter is that I, Margaret Gage, having good reason to believe that I have a very fair share of literary ability, intend to carry off that prize, and with it I am going to Europe. Six months abroad

is what it means to me, Mr. Pettibone Webster!"

"You certainly have some confidence," remarked her father, dryly.

"That is one thing that is going to make me winner," replied Margaret. "And then you must also consider that this competition is not open to all the world; if so, I might feel a bit shaky, but with our little burg of less than two hundred thousand in the run, I am not much worried about coming out winner."

"Well, here's good luck to you," said Jane, lifting her glass of water and touching it to her lips. "And now, mother, excuse us please, for we have only time to dress for the musicale."

Mrs. Gage had wanted to go to that musicale, but the girls had not asked her and her husband had to be at the store that evening, so there was nothing for her except to clear off the table and wash the dishes. And then it must have been the mention of Pettibone Webster's name that led her to go up to the attic and unlock her little leather-bound trunk which had been unopened for twenty-five years. It was filled to the cover with papers, most of them closely written in a neat, old-fashioned hand. If Mrs. Gage's eyes had not been unusually keen she could not have read by the light of the little kerosene lamp which she had placed upon a box handily near. But there was nothing weak about those bright eyes, and for two hours she pored over the closely written sheets. At last she came to one that made her laugh until the tears rolled down her cheeks and, before she had wiped them away, tears which had their source in real pathos came to her eyes, only to be soon chased away by the humor which caused more merry peals of laughter. As she turned down the last page she heard the front door slam as the girls, with some of their companions, entered the house and passed into the parlor. She would not be needed there, she knew, but it must be time for David, and he would miss her if she were not there to greet him when he came in. So she hurriedly threw the manuscripts into the trunk, all except the last. That she carried with her to her room, where she thrust it into her dresser. Then she smoothed her hair and straightened the apron which David did not regard as old-fashioned. It was worth while to look well for David, because he always noticed, whether or not he commented upon it.

"What have you been doing to yourself, woman?" he cried tonight, as she reached up and eagerly seized his coat lapels. "Your eyes are dancing like fireflies and your cheeks are as rosy as snow apples."

"David, come up to our room right away. Will you? I am going to take up a plate of cookies and a pitcher of milk for you and you can eat and rest while I read something to you."

David complied with alacrity. He would not have thought of this program himself, but now that it had been planned for him he could conceive of nothing else that could hold a candle to it.

It was perhaps half an hour later that the girls and their guests, in the room just below Mr. and Mrs. Gage's, heard the man's hearty laugh, peal upon peal, with their mother's merry little trill as a light accompaniment.

"It must be something worth hearing to make father laugh like that," commented Margaret. "He hardly ever does anything more than smile, and even his smiles are rare."

"Where did you get that?" asked David Gage when his wife's voice ceased with the last word. "It's the best thing I've heard in a long time. Talk of humor and pathos! You've got it there. One minute holding your sides, and the next hunting for your handkerchief."

"It's mine, David," replied his wife. "I once had ambitions, just as Jane and Margaret have them now, and sometimes I used to write things just for fun. I wouldn't have dared send a thing to an editor, of course, but I loved to do it just as lots of the girls did fancy work for a pastime. I did think that perhaps some day, in the far-away future, I might write something worth while, and then you came. And—well, David, you are the kind of a man that makes a woman glad she has you instead of ambitions. So when you came into my life to stay I packed all of these things into my little leather trunk and locked it. I think it must have been Margaret's mention of Pettibone that made me go up and look at those things. I'd forgotten this one myself, so that it was like reading someone else's work, and it did sound interesting to me, so I thought I'd like to try it on you. David, would I dare?"

"I was just thinking that if Pettibone Webster's offer brings out anything bet-

ter than that there certainly is some literary talent lying dormant in this city. Why, Mattie, you're only forty-eight and you can still do wonders with such a talent. That is, if you care to, but it would be only for your own pleasure that I would want you to go into it."

"If I could," she said in so low a tone that it was almost a whisper. "But, David, would it be fair to compete with Margaret. She said tonight that she was surely going to win. Of course, I don't suppose this would really have a show beside anything a girl like Margaret could write."

"Surely, it's fair," replied Mr. Gage. "It's simply a case of the best man wins. If Margaret's work is better than yours, you lose; if yours is better than hers, she loses; if someone else outdoes you both, then you both lose."

"Could you get the typewriter girl in your store to write it out for me, David? And let's not say anything to the girls about it, for I feel just a little ashamed of myself, but I do feel delightfully thrilled."

Mrs. Gage's story, with Margaret's and hundreds of others, found their way to the specified address. But of the hundreds of people who awaited with varying emotions the final decision, there were probably none calmer than the two competitors in the Gage household. Mrs. Gage was so, because, once her story was off, she set herself down as an exceedingly foolish woman to be thus carried away by impulse in a moment of elation over something written a generation ago. Her imagination went no further than to see the story cast aside with many other unavailables and finally find a last resting place in the waste basket. Margaret, on the other hand, was calm because she knew she had written a good story. She also knew that there were no literary people in the city, or thought she knew. She further knew that she was going to Europe the coming spring and had already asked the school board for two months' leave of absence in the spring. Additions were being made to her wardrobe, just the things one would need for an ocean trip and a short stay abroad.

The day the announcement of the result came out, Margaret was the first to get a paper. She was with some of her friends, so merely took a peep to make sure. Yes, there it was. Gage—Martha Gage. How stupid! She hated the name Martha and never admitted to anyone that it had been bestowed upon her by her parents in honor of her mother. She had changed it to Margaret some years ago, and now to have it come out in this public way as Martha! But then, considering the prize that went with it, she could afford to let her wrath cool down.

She was late getting home as there had been a teacher's meeting to keep her, and the family were ready to sit down to supper when she arrived.

"Well, greet the victor!" she cried. "My, but that was an easy thousand! It was like starting out a straight, long-limbed creature to run a race with a lot of cripples."

"O, Margaret, I am so glad!" cried her mother, and for the moment the older woman really forgot that she had ever entered the race.

"Hurrah for Margie!" cried Jane. "Though I must confess I did think you were a bit over-confident, I guess you knew what you were talking about all right."

"They've made a little mistake in the name," said Margaret, as she seated herself at the table. "They've got it Martha instead of Margaret. I was provoked at first, but then I suppose I can afford to overlook it under the circumstances. I haven't read all of the details yet myself, for a crowd was with me and just left at the corner."

"Let me see the paper, Margaret," said her father.

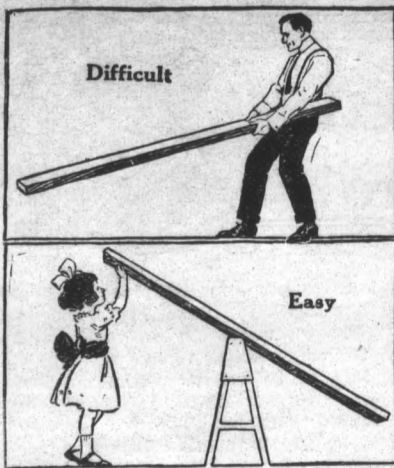
"It's on the hall stand," replied the girl.

Mr. Gage went for the paper and turned to the announcement page as he re-seated himself at the table. "And what was the title of your story, Margaret?" he questioned.

"Eleanor Norfolk's Awakening," responded Margaret.

"Then I think there must be some mistake on your part. This announcement states that the thousand-dollar prize goes to Martha E. Gage for 'The Right of Way.' That was the title of your story, was it not, Mattie?" he asked, turning to his wife.

Both girls turned to their mother and stared at her in speechless amazement. The little woman stared at her husband in much the same manner. At last she gasped, "Yes, of course, David. But,



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really I don't want it; I am sure it goes by right to Margaret."

"Mother, you sent in a story and won the prize! Why, mother, you must have faked something and sent it in, and that is a criminal offense. Of course, in your innocence, you wouldn't understand. Surely you couldn't win a prize like that on your own merits!" cried Margaret.

"Enough, Margaret!" commanded her father, sternly. "I am not surprised that your mother won the prize, for she read to me the story, and it was by far the best and most original thing I have heard in years. Undoubtedly your mother has talent which has been buried in many household tasks and cares for her family. You girls may well be proud to be her daughters. She has always longed to go abroad but never even for a moment dreamed that she might ever really go. For years I have been putting a little by, hoping some day to give her this treat. I have now nine hundred dollars in this travel fund, but I can now see where mother can use her prize money for her long-desired trip and I can go with her on the strength of these savings which were still too small to take us both. Then when we return she is to have a chance. For twenty-five years she has given herself wholly to us; now her day has come."

"O, but Margaret!" cried Mrs. Gage. "Really, it was not fair that I should go against my own daughter. The prize should surely be hers."

"No, I think not, mother," responded her husband. "There were 1,753 contributions. Fifty of these are given honorable mention, and Margaret's is not among them, so I am sure you may rest assured that it is not Margaret whom you have cut out."

"But the girls! How I'd love to go, dear David, just you and me to enjoy ourselves in our own fashion. But how would they ever get along without me?"

"That is exactly what I want them to find out," said David with a quizzical smile.

CATS AND BIRDS.

BY HATTIE WASHBURN.

Since earliest time the cat has been cherished as a petted creature of the household and about that usually unresponsive animal cluster many fond associations. It has been celebrated in song and story to a greater extent than any other household pet save the dog. By such tales as "Puss in Boots" and many other wonderful feline exploits, the cat was enshrined in our childish minds as a being as romantic as the fairies. And, instead of being a thing remote and unperceived, Puss was ever at our own fireside to be caressed or tormented as our childish moods might dictate. She often shared in childish play, was an unwilling victim in the frolic, or a resentful wearer of doll's clothes. Thus, with little or no inclination on her part, Puss endeared herself to our childish minds.

Something of this fondness for the childhood pet seems to linger in human character through life, for it is not uncommon to see the hoary locks of age bent fondly above the cat that so often receives the caresses with indifference and rarely shows a sign of reciprocating.

Much can be said in justice in favor of the cat, but it cannot be denied that it is a member of a ferocious race which is naturally the enemy of man and whose savage nature has not been entirely quelled by thousands of years of domestication. However fondly petted and cherished, upon provocation a cat will fiercely scratch the hand that feeds and fondles it. However well fed, it will eat the pet canary if opportunity offers, and many a caged songster's melody has been lost that a cat might enjoy the natural lust for killing and food which it did not need.

This propensity for the destruction of bird life the cat carries on in the open to an alarming extent and our domestic feline, as the enemy to birds, stands second only to man. Like the fated canary whose cage is accessible to the house cat, the birds that frequent the vicinity of human habitations hold their lives in jeopardy because of cats. Of course, "the naughty kitty does not know any better," as we often hear asserted by their friends, but those who own cats ought to know better than to willfully allow them to destroy our valuable bird life.

Some hold that it is wrong to take one life to save another and that humanity should allow the kindred of the wild to solve their own problems. Even granting that these assertions be not too broad, they can not rightly be applied to the cat and bird question, for man long since introduced the cat into the wild bird's realm and, however innocent the act on his

part, however unforeseen the result, the blood of our feathered benefactors, shed by cats, is upon his head.

Some suggest fastening a bell on the cat as a timely warning to birds; others confining the cat during the nesting season. While these and other makeshifts help, they do not solve the problem which is growing more momentous as our bird life decreases and our needs in that direction correspondingly increase.

The writer offers no solution of the cat and bird problem but merely suggests that her readers decide it for themselves by earnest thought, as all momentous problems touching our welfare or that of those near to us should be solved.

LITTLE FARM FABLES.

BY AUNT QUILLIA.

A Departure and a Return.

A company of goslings had met at Grass Plains pond. They had formed a club and, at frequent intervals, they assembled from neighboring farmsteads for a quiet sail or a friendly contest of speed or grace.

So brightly did the summer sun gild the yellow down on their bodies that one might have taken them for a squadron of young argonauts just home from a successful quest of the golden fleece.

As they sat among the rushes awaiting a belated companion, chatting in a desultory way, first of this and then of that, Paddles, all of a sudden, astonished them by declaring that he considered Grass Plains the tamest, most forlorn spot on the face of the earth. "You will not see anything of me for weeks," he added, "as I leave tomorrow for an extended visit to the city."

"Have you relatives there?" inquired Longstrokes. "I should say that, without relatives or intimate friends, life in the city would be more intolerable than here."

"Well, o," replied Paddles carelessly. "I have neither relatives nor friends there, simply acquaintances. You probably remember the Misses Grace and Serena Swan who visited Grass Plains in the spring. You will recall that they came down the river on the swimming contest which, you will allow, was the one and only event of our lives. I found them irresistible and, for some reason, they appeared to regard me the same and insisted that I visit them at their home in Looking-glass Park, so-called on account of its many lovely little lakes. There we can sail without interruption of frogs or snakes, and can eat from the white hands of beautiful children."

Billy, whose name came from his immense red beak, now put in a word: "I wouldn't think of visiting those people," said he. "They saw that you were quite overwhelmed with their grace and beauty and were simply making game of you. Indeed, I wouldn't visit old friends for weeks at a time. I used to hear my grandmother say that short visits made long friendships, and she often repeated an old rhyme that ran like this:

"The first day a man is a guest;
The second a burden, the third a pest."

"Oh, well," rejoined Paddles, "with all deference to your grandmother—peace to her feathers—I will say that times have greatly changed since her day. If living now she would be decidedly a back number. Conveniences and means of diversion have so multiplied that the problem of entertaining, in the city at least, has been perfectly solved."

And so the next morning found Paddles sailing away to the world of his dreams. The sun, shining on his yellow down, brought out all of its lovely golden tints. In the clear waters his rose-colored oars could be seen as, with high hopes, he airily nodded good-bye to his comrades on the banks of the river.

At the very next meet, however, the gay visitor suddenly appeared. A confusion of voices arose. "Why, Paddles, you are astonishing!" "Didn't expect to see you before fall." "Say, Pad, did you find the Misses Swan as bewitching as ever?"

Crestfallen and sore of heart he was casting about for a way of escape from the avalanche of questions when from the other side of the pond came another voice. It was Billy's. "Say, chummies," he called out, "give Paddie a chance for his life. I'll venture, however, that he has found my grandmother quite up to date. She wasn't much in literature, and the only poetry she knew was the old jingle: "The first day a man is a guest;
The second a burden, the third a pest," but she had considerable practical wisdom—for a goose—and always contended that the saying would hold good as long as human or any other kind of nature existed."

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Woman and Her Needs

At Home and Elsewhere



THE OUNCE OF PREVENTION.

How much of your trouble is self-made? If you are honest you will say nine-tenths of it, that is, if you are an average person. For, while there are some rare souls who live so well that "only the sorrow of others casts a shadow over them," most of us do such an amateurish job of living that we usually deserve all we get in the way of trouble. How often you've said, "I don't know what I wanted to do such a thing for. I might have known how it would turn out if I had stopped to think," which is only another way of admitting that the particular trouble which this particular act caused was self-made.

Self-made troubles are usually due to one of two things; lack of judgment or downright wilfulness. Some of us never seem able to see an inch ahead of our noses, as the saying goes. We don't seem to be able to foresee results from causes, and we do not learn, no matter what our experiences.

Financial difficulties are often caused by this lack of foresight. Someone with a glib tongue comes along and tells you how you can make 50 per cent on an investment in 30 days. It looks easy and you forget all the stories you have ever heard or read of other men who thought to get rich quick and then spent the rest of their lives laboring to get a mere living. You invest your money in this scheme and get back nothing but a few worthless certificates for souvenirs and the knowledge that you have joined the company of shorn lambs. Or perhaps you don't invest your money. You just back a few notes for a friend. Of course, the friend meant to pay, but somehow or other when the time comes to settle up you are the one who pays and you are left to reflect on what might have been if you had kept your name off a bit of paper.

Perhaps you do not lose your money by unwise adventures. You may belong to the multitude that believes in spending as you go. For there are more who take for their motto, "What's the use of having money if you don't spend it," than there are who believe in saving that little for the rainy day. It is so easy to spend money when you have no real object in saving, no home to pay for or other goal to work towards. You break a bill and before you know it every cent is gone, a dress or a ribbon or candy or cigars or shows or excursions. You deserve some recreation, you work so hard. But the trouble is you want too much recreation, and when sickness or hard luck comes you have no bank account to fall back upon. Then you look to your friends and think them hard hearted if they don't want to spend on you the money they denied themselves pleasure to save while you were having a good time.

There's sickness, too. How often it is self-made. No matter what we think of our friends, the Christian Scientists, there is a lot in their idea that sickness is simply an "error." For while many an illness is unavoidable there are just as many that we could prevent if we used a little common sense. The trouble is we abuse our bodies. We work beyond our strength, sometimes because we think we have to and sometimes just because we are grasping and want to save the money that help would cost us. The result is a complete breakdown and months of enforced idleness where a little sane judgment in the first place would have shown us the mistake of overtaxing our strength.

We abuse our stomachs, overload them with food, or go to the other extreme and refuse them plenty of nourishing food. We eat between meals, nibble candy just before a meal and destroy our appetite for the right foods when we get to the table. We wash our meals down with cup after cup of strong tea and coffee, do not chew our food sufficiently, and otherwise insult our most useful organ, the stomach. Along in middle life when we should be in our prime the outraged stomach asserts itself and we groan and

lament over indigestion which we have brought on ourselves.

We wear thin and insufficient clothing, wet our feet, sleep in rooms that are unventilated, stick closely indoors day after day without outdoor exercise and fresh air, and then lament the judgment of God when we find ourselves victims of tuberculosis.

We neglect our teeth or crack nuts with them and then whine when they decay and we have toothache. In dozens of ways we lay up for ourselves a train of future troubles and then rail against fate when we reap what we have sown.

"I've done it before and it never hurt me any," is our excuse when wiser ones remonstrate. That is because mother nature is so kind to us that she lets us make a few mistakes and repairs them for us without punishing us, in which she is often kinder than our real mother. She may send us a slight twinge as a warning but she doesn't put us on our backs and force us to be good until we have repeated our mistakes again and again and so injured her that she is forced in self-defense to make us stop and be good.

Most of us are started out with sound healthy bodies, and it is our own fault if we reach middle life with our health gone. The sad thing about it is that we aren't given the judgment of old age with the physique of youth. Youth never wants to listen to the experience of age. If it did how different the history of many lives.

DEBORAH.

A COUNTRY MOTHER'S DISCOVERY.

BY HILDA RICHMOND.

Not very long ago a country mother made a discovery that distressed her very much, yet if she had stopped to think of the matter at all she might have known it years ago, for it is an evil that is not of recent origin. In spite of all efforts to keep her at home this woman's cherished daughter went to town to work, and took a position in a dry goods store as clerk. The family had always dealt with this merchant, and knowing him to be a kind hearted, honorable store keeper, they concluded if the girl would go to town she was in a good place. They also saw to it that she had a comfortable boarding house with friends, and made every provision for her safety and happiness, as all good parents should.

The work soon told on the girl and she grew pale and listless. Her mother thought it was the confinement after years of fresh air and freedom, but the daughter assured her it was the night work.

"Mamma," she burst out one Sunday when she was at home, "it isn't the hard work but the long hours that ruin the health of clerks. Farmers and their families come in late at night to do their shopping, and they leave their bundles in the store so we can't close up. Then they stand about visiting with their friends while we have to wait and wait, but we don't dare say a word. I have done it many a time myself, but now that I'm on the other side of the counter I know how it goes."

And the mother found out that most of the store keepers of the country town had the same story to tell. The country people kept the stores open until midnight and sometimes later, and after that the timid girl clerks had to go home, often all alone. The mail order business had so cut into the home trade that merchants had to do everything to hold the patronage, and they dared not say a word. Three and often six evenings in the week the stores must be kept open to supply the country patrons and wait upon their convenience, and the clerks had to do the best they could. The mother who had never thought anything about driving to town after supper to do her shopping, except that it saved the daylight hours and was a mild pleasure trip, suddenly discovered that some other mother's daughter had been worn out serving her and others like her all the past years. She could not persuade her

daughter to give up the place, and she was powerless to make life easier for her. From seven-thirty in the morning until ten or eleven or twelve at night the girls had to be on duty, and no young girl can keep her health and beauty under such conditions.

It is largely habit that brings farmers to town late at night, and a habit that should be broken up at once. There is some excuse for driving in late in summer when work is pressing and every daylight hour worth double what it is in winter, but when the custom is kept up the year round something ought to be done. It isn't enough to lightly dismiss the subject with the statement, "That's what they're paid for," and go on in the same old way, for nobody can repay young girls for the loss of health and happiness. Neither will it do to say the girls should remain on the farm, for they will not do that in many instances. The man who lightly excuses himself for late shopping may some day find his own daughter in such a position, and then he will think it cruel and unjust to compel her to stay up so late. Where it is mere thoughtlessness, calling attention to the error may remind many farmers and their wives that Saturday afternoon is a better time to buy than Saturday night, and conditions in some country stores will be much better. No matter whose daughter she is, the clerk is entitled to your help and kindly consideration, and even where men are employed as clerks there is no excuse for keeping them up till midnight several nights in the week. The Golden Rule applied in this case will work wonders, and it is encouraging to note that in some localities fathers and mothers are beginning to apply it in reference to the family shopping.

GROWING SWEET PEAS.

BY MRS. F. NISEWANGER.

It would be difficult to find anything in the flower line more satisfactory than a nice row of sweet peas. Given ordinary conditions, they grow and thrive very easily, too, if one knows just a little about the best way of planting and caring for them.

There are some who think they must be planted very early, in March if the ground gets so that they can be put in at all, even if a snow later covers them. I consider this unnecessary, and frequently unwise haste, although a good crop of blossoms may result.

Light colored seeds could not possibly survive such treatment and grow; but the dark seeds, which are much more hardy, might. Even with those, though, very little if any time is gained over a rather late April planting of seeds that have been soaked in water 12 hours or so to quicken their germination. The ground is so much warmer and everything much more conducive to quick, healthy growth.

The seeds should either be planted in a deep trench and the dirt gradually filled in as the plants grow, or planted in a shallow trench and, later, dirt unfailingly heaped up around them. I have recently learned a new "why" for this from a reliable and experienced florist. It is this: Flowers cut from vines having their roots thus deeply covered keep fresh much longer than those cut from plants having shallow rooting. There is evidently more moisture and vitality in the stems of the former.

At time of planting, a little wood ashes should be mixed with the soil in the bottom of the trench, and their wires, or whatever they are to climb on (a strip of woven wire is excellent), must early be in place as they grow so much faster when supported.

Sweet peas like a good deal of sunshine but they prefer it "broadside," so let your trench run north and south. They must have water; not just a cupful or a sprinkling now and then that leaves the surface ready to crack, but a thorough drenching every few days, that reaches down to every root fiber. A light dressing of lawn cuttings helps conserve moisture and keep roots cool.

It is always my aim to have at least a few sweet peas on Memorial Day and after that they come fast, and must be

cut every other day. If you do not need so many blossoms so often in your own home, surely you can find someone who can help you out. Every seed pod that appears seems to shorten the blooming season of the plants in a sort of floral geometrical progression.

LETTER BOX.

A Matter of Choice.

Deborah's "Know Thyself" brings to my mind a parallel instance. A girl entering college was already engaged to marry a prosperous young farmer. She became a conscientious student and was soon very popular among the so-called "smart set." She did not tell her new friends of her engagement for well she knew that they would consider ridiculous the idea of her marrying a farmer.

Fortunately this young lady was possessed of good common sense, also good sound judgment, keen to read character. She knew in her own heart that her betrothed was "good as gold" and compared favorably with many of her new acquaintances, although he never had been inside a college door. They might surpass him in easy manner and smoothness of tongue; but in point of true character and in the things that really count in making life worth living, he would far eclipse them.

On her return home after completing her college course, she was married to the man of her choice and, although this happened a number of years ago, she has never had occasion to regret her choice. —Mrs. W. B. S.

Teaching Baby to Walk.

Household Editor:—Am I allowed to say a few words in regard to urging a baby to walk?

This is my first venture of expressing my thought in your paper, although I have desired to have a talk with some of your writers, but as I read a "Young Mother's" inquiry I thought I would tell her my experience. With my first baby, a strong boy that looked as though he ought to walk at nine months, I have heard of them walking at eight months, I let him have his own way. The only encouraging he got was when we had company, and not much then. Many people would say, "I would teach him to walk," but I let him walk around by chairs and tables and walls, etc., until one day he started to walk to his father. From then on he walked all over and he was fifteen months past.

Young Mother, let your baby take his time and he will walk when he has strength enough to bear his weight on his little ankles. Lots better than having a bow-legged baby.

My baby girl is past thirteen months and no signs of walking, only that she walks around by chairs, etc., and will pull herself up. If ever a family urged a child to walk it was this one. During the winter time the men folks would walk with her every night. They were going to have her walk before she was a year old, but I do think she would have walked quicker if they had let her alone. She was afraid, and it naturally frightened her, hindering rather than encouraging her. She did not attempt to walk by chairs until just lately.

Do not get discouraged, "Young Mother." I know one baby that did not walk until it was 22 months old.—A Busy Housewife.

The Hired Man Question.

In reading the article headed "The Hired Help on the Farm," I concluded to give a short answer, as I'm sure X. Y. Z. is one of the many who find it hard to secure good help on the farm.

Too many farmers look forward to the Almighty Dollar with a hired man. They arise at from four to five o'clock in the morning and work until anywhere from six until sunset and then until eight or nine p. m. The hired man can enjoy himself doing chores, milking cows, etc.

Mr. X. Y. Z., put yourself in the hired man's place one summer and then you won't wonder why so many men would rather work in factories and then don good clothes in the evening and spend their money. They'd rather do it than lead a dog's life on a farm, for some of the so-called farmers, who are looking for a man to work from 15 to 17 hours every day. Give the hired man what is coming to him. He's a man, so are you. I know, I worked out seven years and had but one employer in the whole time that I would not work for the second time, and his own "dog" wouldn't obey him the second time.

Pay the hired man good wages and be the boss from the start, yourself. If you

have plenty of chores have him stop work in the fields at a proper time to do his chores without a light, and you will have better success.

Of course, there are men who are a nuisance on a farm if they can hear a "whistle" blow. Don't waste your time with them.

Good help soon goes for themselves and in order to keep them we must not try to get too many hours for the same money. Livingston Co. H. A. W.

HUMAN WELFARE QUERIES.

The poem entitled, "The Price of a Social Glass," by Mildred M. North, asked for by a Subscriber, was originally published in the October 23, 1909, issue of the Michigan Farmer. Another poem entitled "The Price of a Drink," is published in book form. Send stamp and self-addressed envelope for further information.

Household Editor:—Will you please tell me through the Michigan Farmer the meter in which Longfellow's poem, entitled, "The Courtship of Miles Standish," is written?—Eighth Grader.

"The Courtship of Miles Standish" is written in dactylic hexameter.

Household Editor:—What is wrong with this sentence? "I went in the house?" —School Girl.

It should read, "I went into the house," "into" meaning the place to which you went. "I was in the house" is correct, as "in" shows the place where you were.

Household Editor:—My baby has hiccoughs a great deal. What is good for them?—Young Mother.

Hiccoughs usually mean that the baby has been overfed, its stomach is too full and the pressure causes the diaphragm to contract spasmodically. Do not feed baby so much and I think you will see the trouble disappears.

Household Editor:—Is it better to clean English currants in flour or in water?—Cook.

I have found the easiest way is to clean them in water. If you put them in a colander, set that in a dish of water and rub between your hands the stems and dirt will pass through the holes into the dish while the currants remain in the colander. Of course, you will need several waters.

Household Editor:—How long should lamb chops be cooked?—Miss Sixteen.

From six to ten minutes, depending on the thickness.

Household Editor:—When a recipe says "one cup" does that mean a tea cup or a coffee cup?—Beginner.

Neither. It means eight ounces or one-half pint. You can buy a measuring cup which holds exactly this amount for a nickel and nothing is more useful when baking.

Household Editor:—How shall I cook a piece of beef from the neck?—Inexperienced.

The meat will need long slow cooking. Cook in a closely covered kettle on the back of the range or in a fireless cooker if you have one. Add a little chopped onion, a clove or two and a bay leaf to the meat while cooking, as well as salt and pepper.

Household Editor:—Will some reader please send through your columns, a recipe for sweet corn salad?—A Busy Housewife.

UNCLE SAM'S COOK BOOK ON CHEESE.

Secretary Wilson has recently added another bulletin to the list of nutrition publications, or so-called "cook books," issued by the agricultural department and widely distributed. The latest one is on "Cheese and Its Economical Uses in the Diet." (Farmers' Bulletin No. 487). Since cheese is one of the important agricultural products of the United States and a food-stuff used in larger or smaller quantities in nearly every American home, Secretary Wilson caused to be made and has published the results of the relative nutritive value of cheese and the ways in which it may be prepared for the table. Although cheese is so greatly liked, there has been a wide-spread belief that it is not easily digested and that it is the cause of physiological disturbances. Neither of these popular beliefs is substantiated by the results of the extended series of digestion experiments undertaken and just completed by the department. Indeed, cheese was found to be very thoroughly digested and as easy of digestion as a comparable amount of meat. Supplementing the experiments as to the nutritive value of cheese, many tests have been made in preparing cheese for the table, the purpose being to suggest dishes and combinations of such a character that cheese might replace other nitrogenous material and fat when desirable. The bulletin discusses cheese making, enumerates the more common kinds of cheese



Anty Drudge to Mrs. Farmer

Mrs. Farmer—"Well, you still do it, even after I have told you how hard it is to rub those stains out. And how I have to boil and boil it before it is anywhere near clean. And on washday you men complain of the sickening steam from the wash boiler."

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My daughter has a Michigan Farmer machine—got it about 17 years ago, and she is a dress maker and it has been in use, you might say, constantly and is in good working order at this time and does good work.—Wm. S. Pinney, Durand, Mich.

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used in American homes, gives a few sample bills of fare in which cheese dishes are substituted for meat, tells how to make home-made cheeses, and gives 41 receipts for cheese dishes and cheese sauces, which are certain to prove very attractive to American housewives.

Meat is a wholesome staple food which we all like, yet most housekeepers at one time or another are interested to know about foods which will take the place of meat. Cheese naturally suggests itself for such uses since it resembles meat in food value and is a savory food. Experiment and experience have shown that it can be thus used and that the daily fare may meet all demands as regards the nourishment it supplies and at the same time be economical. This matter is taken up in the bulletin and suggestions made which should help the housewife in planning her meals.

The bulletin may be obtained upon application to the Secretary of Agriculture.

SOME HELPS FOR PRESENT AND FUTURE HOME-MAKERS.

BY MRS. SELMA NEW.

When I was buying sheeting, gingham, etc., this winter, the idea came to me, what a good plan it would be for mothers to take the daughter (if as old as fourteen or fifteen), with her and teach her at an early age the way of buying economically and practically. There is so much to learn about buying, viz.: to distinguish whether it is best to buy, for instance, a ten or twelve cent quality of outing flannel or gingham or any goods. Then, too, in comparing the different pieces of the same price one often finds a piece firmer, or finer, or better in some way. As you are looking the goods over and deciding for yourself, you can tell the daughter why you choose a certain piece. The same caution must be exercised in buying all things. Many of us have had to learn by experience, some by expensive experience, either of time or money, and so I believe we, as parents, can assist the home-makers of the future very much if we are careful and make use of all opportunities of training the girls and boys in this line while at home, and always explain why, for it is much satisfaction to children to know "why" instead of just saying, take this or do this, etc.

I seldom buy calico now for I think gingham is cheaper in the end. It takes no longer to make a garment of gingham and it lasts so very much longer and has so much body to it as long as it lasts, while calico gets so limp after a while.

I find it very much better to buy a very heavy sheeting and pillow case cloth for whenever made they last for years and stay in place on the bed, even to the last, instead of being in a string in the morning, as a light-weight sheet is when old.

It is a very nice plan to shrink gingham before making.

I would also say, when buying, exercise the habit of deciding quickly and do not detain a clerk unnecessarily. They soon learn those who are always going to all the stores for a "sample" before buying any goods. If you are a pleasant customer you will find that any of the clerks are always glad to wait on you if they are not busy.

HARMONY IN THE HOME.

BY ELLA E. ROCKWOOD.

Nothing gives a clearer index to the spirit of the home than the degree of courtesy observed by the different members of the family toward each other. Even the tone of voice employed in ordinary conversation tells whether harmony prevails or whether more or less of discord exists.

I believe it is customary to look to the mistress of the home as the person upon whom devolves the duty of setting an example for the others to follow. Yet, is it not in the same degree incumbent upon the husband and father, and should it not be his duty as well as hers to do this?

In some families the mother is possessed of one of those unfortunate dispositions which find relief in a constant stream of fault finding. Nothing which is said or done quite suits her. Try as they may, husband and children cannot win a word of approval. Frowns and not smiles are seen upon her face until the poor creature would actually be frightened at the sound of her own voice in a whole-some, hearty laugh.

That providence which can usually be depended upon to balance up extremes in either direction may fortunately have given this woman a husband who is good-natured and jolly, a saving grace more

blessed in any home than a mint of money.

Many a mother acts as a buffer between husband and children. More rarely it is father to whom the little ones go with their complaints, mother seeming the natural source of comfort and consolation for all. There is in some homes an element of a not serious character which may be classed as teasing or banter. Good-natured joking is all well enough but this is very easily overdone and carried to extremes. Grown people are sometimes guilty of this and it is a habit which children especially are quite apt to indulge in.

What is more beautiful than the home where an elderly couple are happily treading the down-hill path of life together, peaceful and content. Mother looks out so carefully for the welfare of her mate, while he is equally solicitous, gentle and courteous in the little attentions which mean so much to a woman. Children have grown up and have gone into homes of their own but father and mother, happily spared to each other, abide, sufficient unto themselves for companionship which none other can quite so acceptably render.

Such couples mean everything to the world at the present time. Such homes stand for all that is purest and truest since time began. A happy home is a stepping stone to heaven. Blessed, indeed, the child born to such an one.

The observance of the little courtesies, the "turning of a window blind that all may feel the air," as the old poem has it, or "the offered easy chair," cheers the heart as nothing else in life can when these attentions come from one we love. Poverty or wealth do not really count. They really amount to very little. It is harmony that can make of the humblest home a paradise below.

SHORT CUTS TO HOUSEKEEPING.

When bread is once worked hard dampen a cloth in warm water and lay over the top to keep it from having a crust while rising.—A Friend.

A handy tool for your sewing table, is a little toy carpenter's square. Always ready when you want to measure hems, bias strips, tucks and spaces. Saves cutting a piece of paper. Mine measures three inches by two. Came in a ten cent box of tools, bought for the small boy, who has outgrown them long ago.—J. E. H.

MICHIGAN FARMER PATTERNS.

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



No. 5531, Boy's Suit, Blouse and Trousers Finished with Leg-bands or Elastics. Cut in sizes 2, 4 and 6 years. Four-year size requires 2 3/4 yards of 36-inch material. Price, 10 cents.

No. 5446, Ladies' Dress with Guimpe and Five-gored Skirt having Inverted Plait or Habit Back. Cut in 6 sizes, 32 to 42 inches bust measure. Medium size requires for dress 5 1/4 yards of 36-inch material and for guimpe 1 1/2 yards of the same width. Price, 10 cents.

No. 5418, Ladies' Waist with Body and Upper Part of Sleeves in One. Cut in 6 sizes, 32 to 42 inches bust measure. Size 36 requires 1 1/4 yards of 36-inch material with 1/4 yard of 18-inch all-over. Price, 10 cents.

No. 5541, Girls Sailor Dress. Cut in sizes 6, 8, 10 and 12 years. Age 8 requires 3 3/4 yards of 36-inch material with 1/4 yard of 27-inch contrasting goods, 2 3/4 yards of braid. Price, 10 cents.

No. 5529, Ladies' Dressing Sack having Under Arm Gores. Cut in 7 sizes, 32 to 44 inches bust measure. Size 36 requires 2 1/2 yards of 36-inch material, 3/4 yard of 27-inch contrasting goods. Price, 10 cents.

GRANGE

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

THE MAY PROGRAMS.

Suggestions for Second Meeting.

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

THE GRANGE AS PROMOTER OF CROP CONTESTS.

The plans for a county corn contest, announced in another column of this department, bring to mind the adaptability of the Grange organization to the promotion of such contests. Nor have Granges generally been slow to recognize the worth of crop contests as a means of securing and holding the interest of the younger members, although in many cases these projects have been confined to the jurisdiction of a single subordinate. That the subordinates of a county can co-operate in the holding of successful and highly beneficial crop-growing contests has been repeatedly demonstrated, and the Grange must be accorded a good share of credit for the success which has attended the movements for the improvement of Michigan corn, for the spread of alfalfa growing, and for a closer study of various other crops which mean much to Michigan agriculture. The roll of subordinate Granges which have undertaken work of this nature since the inauguration of the corn improvement movement seven or eight years ago is too lengthy to give here, while in a number of counties successful contests on a larger scale have become annual events. As in Livingston county, Granges generally have wisely enlisted the co-operation and assistance of other farmers' organizations, the Agzations having for their aim the general advancement of agriculture through concentrating attention upon certain crops. Granges everywhere are feeling the necessity of finding work for their younger members—work which will develop a real and absorbing interest—and the conducting of crop contests offers one solution of the problem. Grange interest in Livingston county will unquestionably receive a gratifying impetus from the work that has been planned and it is hoped that other Granges may profit from this county's example.

THE "HOME PROGRAM."

In accordance with my suggestion, the State Lecturer has arranged for a "Home Program" for the second meeting in May. Just a few words to assist the lecturers in their effort to get the greatest good out of that meeting.

The greatest possible work of the Grange is in home building, and it is hoped that this program will help just a little in that way. I am going to state how I would arrange for this meeting if I were the lecturer of a Grange, trusting that the lecturers who may read this will use their own good sense in applying what I may suggest.

First, I would sing "The Dear Old Farm," from Grange Melodies. If possible, have a quartet on the verses and let everybody join in the chorus. Next, roll-call, answering with "Some recollection of my old home." There are many pioneers in the Granges of Michigan, and, wherever possible, it would be well to follow the roll-call with a pioneer story by a brother or sister. Two or three of these stories will prove very interesting at this time. Then let two of the sisters sing "My Childhood's Home," page 195, Grange Melodies.

Follow the duet with a paper or talk on "The Value of the Vegetable Garden;" another, "Relation of the Flower Garden to the Home;" another on influence of rural environment in the development of the child. Let someone recite the beautiful poem named in the Lecturer's Bulletin, "Backward, Turn Backward." Do not forget to bring your School Knapsacks to the Grange that night, and, just at this time, have two sisters sing, soprano and alto duet, the verses of "Old Black Joe," and let everyone in the Grange join softly

in the chorus. Follow this grand old song by Foster, with "Shall we Gather at the River," or, if the Grange has a choir, let it close the hour with "Lead Kindly Light."

The subject of "home sanitation" can be substituted for a part of the foregoing if desired, or the theme of rural community building may be considered. In the judgment of the writer, however, it would be better to take up the latter subject in another meeting.

But, worthy lecturer, do not forget to arrange for the songs from the knapsack. The words of "Old Black Joe" spring from instincts that are common to the whole human race. The aged everywhere are sighing for friends that come not again, and grieving for forms departed long ago, and sad and wretched indeed is that heart in which the flowers of hope bloom not, and faith has ceased to whisper of the breaking of an eternal morning.

W. F. TAYLOR.

CORN CONTEST FOR LIVINGSTON COUNTY GRANGE BOYS.

Howell Grange has inaugurated a campaign to encourage the farmer boys and at the same time to improve Livingston county corn. It takes the form of a county corn contest, or practically three corn contests in one.

Division No. 1 is in charge of Mrs. Wm. Hosley, Mrs. R. Bramer and A. R. Eastman, and is for boys under fifteen years of age. Any boy in Livingston county who will take the entire charge of raising a crop of corn on his allotment this season, doing all the work of the crop except plowing, may enter this contest by sending his name to Mrs. Hosley, at Howell, on or before June 15. At some time in the fall, date to be announced later, he shall send ten ears of his crop and a full report of the work he has done, to a meeting called for that purpose. Each exhibit shall be scored by a properly qualified judge who is a member of the Michigan Corn Improvement Association. The boy raising the corn which receives the highest score shall be paid \$3; the second highest \$2, and the third highest \$1.

Division No. 2 is in charge of A. Riley Crittenden, Ernest Lawson and Mrs. Geo. Sexton, and is for boys not less than 15 nor more than 20 years of age. It will be governed by the same rules as Division No. 1, except that each boy must do all the work in raising his crop and his allotment must not be less than four square rods. Any Livingston county boy between the ages mentioned, who will comply with these conditions, can send his name to Mr. Crittenden at Howell, on or before June 15, and thereby enters this contest.

Division No. 3 is a free-for-all and requires no entry. The Grange offers \$5 for the ten ears of corn raised in the county which score the highest on the day of judging. All the boys' entries will compete in this contest and it is also open to anyone who desires to bring corn at that time.

All exhibits winning prizes will become the property of the Grange and it is expected to sell them to assist in paying the expenses of the contest. All contestants are warned that the prizes are not offered for the largest ears but for the most perfect. Copies of the score card which will be used in judging may be obtained by writing the Agricultural College or the secretary of the Michigan Corn Improvement Association. Already considerable interest is being displayed in some neighborhoods and at least one Farmers' Club proposes to offer additional premiums to be awarded to winning contestants in its jurisdiction. The Grange committee having the contest in charge welcomes the co-operation of all farmers' organizations.

AMONG THE LIVE GRANGES.

Southern Michigan Grange Rally.—Lenawee Pomona will meet with Madison Grange in a grand Grange rally on Thursday, June 6. State Master Hull will make the principal address and invitations have been extended to all State Grange officers and many others prominent in Grange work to offer a few words of counsel and cheer. Lenawee patrons invite all who are interested in the welfare of the order to meet with them and help in a social way to make this meeting a success.

Coopersville's Contest is nearing the end with interest unabated. At the last meeting in April 98 patrons responded to roll call and 23 candidates were given the first and second degrees. After the meeting refreshments were served to 125. At the meeting of May 11 the third and fourth degrees will be conferred on a class of 35. A committee was appointed to make arrangements for giving a Grange dance, May 17 being the date fixed. Only 24 points separate the contesting sides, which insures some strenuous work during the remaining weeks of the contest. The Grange is planning to hold a big meeting June 8.

COMING EVENTS.

Pomona Meetings.

Ingham Co., with White Oak Grange, Friday, May 24.
Kent Co., with Evans Grange, Wednesday, June 5.
Lenawee Co., with Madison Grange, Thursday, June 6. Grand rally of southern Michigan Granges.

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.

Associational Motto.—

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

Associational Sentiment.—

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

FARMERS' CLUBS IN WISCONSIN.

The Skillet Creek Farmers' Club.

The Skillet Creek Farmers' Club is now in the sixth year of its existence and each year has increased its members in our organization and increased the community regard for the various members.

As told in our constitution, the object of our Club is to promote sociability and general prosperity among its members. Any person is eligible to membership who is old enough to be interested in or young enough to enjoy the meetings.

I will endeavor to describe one of our meetings, which are intended to and generally do commence at eight p. m. at the home of some member of the Club. By that time most of the members have arrived, having come afoot or with teams or automobiles, as convenience or the weather may have determined. The ladies group themselves together while waiting, and the men like to gossip at the same time.

At the call of the president, the very orderly meeting is still more quiet, and reading minutes of the previous meeting, with roll call, follows. Next we have music, either vocal or instrumental, and sometimes both. Then follows a talk or an essay on some subject, generally by some member of the Club, and sometimes by someone from outside. Following this is a general discussion of the subject, then music and visiting intermission follows. Sociability made manifest is then the order, and never have neighbors more plainly shown the gladness of meeting and association than is shown during this social period of any one of our Farmers' Club meetings.

Following the call to order after visiting, there is a readjustment of seating, for visiting has brought the sexes into closer intimacy and often the most convenient place to be seated is beside the last person conversed with.

There is music again after visiting intermission, followed by reading or recitation by some of the young people, or perhaps another important subject is brought up for discussion. Next in order is announcements and occasionally attention is given to Club business. Then comes a closing song and adjournment.

Our meetings are varied very much in character and our speakers are chosen according to the subjects to be considered. We need not go outside of the Club for talent, but we do go outside for information that is beyond our Club experience. For instance, last week we had with us Professor C. A. Ocock, of our Wisconsin College of Agriculture, who spoke about ventilating, heating and lighting our farm homes. Following this meeting in two weeks a program will be carried out which has been prepared by some of the lady members of the Club. The subjects are to be: "How to Train a Husband;" "Woman's Interest in Farming;" "How and Why I Learned Photography;" "Worries;" "Pickles;" "Music by Ladies Only." The gentlemen will be allowed to join in the discussion.

At the first meeting in April we are to have County Superintendent of Schools, G. W. Davies, and City School Superintendent A. C. Kingsford, talk on educational subjects.

In addition to Professor Ocock, we have had from the university at other times, Professor R. A. Moore to talk of corn breeding and corn judging; Professor J. G. Milward to talk about spraying, and F. C. Hutchins to tell about extension work. At various times we have had with us school superintendents, business men from the city, editors, the mayor, doctors, preachers, and others.

Very rarely are refreshments served, except home-grown apples, but we have our picnics, summer and winter, and each year at least one ice cream social. Our visiting intermission proves that refreshments are not necessary to promote sociability.

In addition to our picnics, there are other meetings which we look to as annual events, as our corn and bread show, also our patriotic meeting. At the corn show trophy ribbons are awarded and addresses and discussions in keeping with the main purpose of the meeting are included. At the patriotic meeting the program is prepared by the teachers of the three districts in which the territory of the Club lies. The scholars take part in recitation, music, dialogues, drills, etc. Occasionally prizes are offered for essays from the young people of the three schools. At the meeting just held, essays were read just before Professor Ocock's lecture. The subject assigned was, "The Products of the Skillet Creek Neighborhood." Scholars from each school competed among themselves and the best from each of the three schools was read by the one who had written it. After the reading, the prizes were awarded by State School Inspector W. E. Larsen, Editor S. Hood, of Baraboo, and George Hackett, Clerk of the North Freedom Board of Education.

With meetings two weeks apart in the winter and once a month in the summer, we find more things that we wish to do than we find time for. A glance over the records of the past meetings shows that we have considered a wide range of subjects, yet old as the farmer's calling is, there is always something new to be thought of.

Our activities are not confined to the social and intellectual. We take an active interest in different movements that are of general benefit beyond our Club membership. We are satisfied that our county fair has gained from our help, along with others, in raising the standard of excellence in management and attractions, and we claim that Sauk county has one of the very best fairs in the state. For two years our Club has maintained a rest and reception tent at the fair. This year we are planning to have a Farmers' Club exhibit at the fair such as we had last year, but more extensive. We secured from our town the use of the Baraboo City Library. Baraboo town has now between 12 and 15 miles of macadam roads, and our Club has had a full share in promoting the construction.

There are many useful activities in which we have taken a part, but I will close the list by mentioning the latest of a week ago, when we had a very profitable farmers' convention and organized a county order of the Wisconsin Experimental Association.

The appointment of committees at various times for these useful activities has kept the different members busy and no one has failed to take part in some useful way. I think that being helpful keeps up the continued interest and life of our Club. We hope to see more Clubs in the communities about us, believing that Farmers' Clubs, if rightly conducted, are capable of bringing out the best qualities of the members and will strengthen feelings of neighborly good will to a degree which would not exist without their influence.—From an address by Mr. Wm. Toole at the Wisconsin Round-up Institute.

CLUB DISCUSSIONS.

Hold Two April Meetings.—Clover Leaf Farmers' Club met April 9 with Mr. and Mrs. Boaz Canfield. The meeting was called to order by the president. The first thing on the program was a duet by Mr. Fred and Miss Hattie Shafer, which was followed by a recitation by Miss Edna Wheeler. A duet was then sung by Mr. Mrs. Guy Howe, Mrs. Terry read an interesting story. A song in the Holland tongue was sung by Mrs. John Mungs, from Vriesland, and Mrs. Dick Langejans, Miss Mildred Gilbert, from Otsego, gave us two fine recitations. After the program, hot biscuits and maple syrup were served to a crowd of about 40. Mr. and Mrs. John Bushroe entertained the Clover Leaf Club at their beautiful home, April 26. The meeting was called to order by the vice-president, and Mrs. Oscar Howe opened with prayer. Mrs. George Bushroe sang a pretty solo, "Roses." We again had the pleasure that night of having Mrs. Tanner, from Otsego, in our midst. She sang a few solos and gave us some select readings, which even the children seemed to enjoy. Earl Granger, from Plainwell, was our pianist. Lunch was served to 51. This has been our largest meeting. The next meeting will be with Mr. and Mrs. S. Shafer.—Mrs. H. Wabeke, Cor. Sec.

MARKETS

DETROIT WHOLESALE MARKETS.

May 8, 1912.
Grains and Seeds.

Wheat.—After the reaction setting in a week ago Monday, wheat prices again started on the upward course with a half cent advance Friday, followed by another jump of one and one-half cents Saturday and still a third jump of a cent on Monday, carrying the trade to a new high level for the season. Tuesday cash grain remained steady, while futures continued to advance. The cause for the upward change in quotations was due almost entirely to adverse crop conditions. Farmers in Kansas, Missouri and Oklahoma, who until lately were more or less confident of a fairly good crop, are now complaining that the wheat plant is very seriously damaged. Ohio is also finding the crop outlook to be steadily growing more hopeless. The demand for cash wheat from millers has suddenly developed a large volume of business. The heavy holdings in Chicago which acted as a bearish factor in the market all through the past winter are now being absorbed by sales to millers in Michigan and in southern and eastern states. Liverpool does not appear to be taking the American crop situation seriously as prices there have not responded to the advance on this side. Large cargoes that will soon be en route from Canada will aid the English trade to deal on a slightly lower basis than the American markets. One year ago the price for No. 2 red wheat was 90¢ per bu. Quotations for the week are:

	No. 2	No. 1	Red	White	July	Sept.
Thursday	1.17	1.15	1.15	1.15	1.15	1.15
Friday	1.17	1.15	1.15	1.15	1.15	1.15
Saturday	1.19	1.17	1.18	1.18	1.18	1.18
Monday	1.20	1.18	1.19	1.19	1.19	1.19
Tuesday	1.20	1.18	1.20	1.20	1.20	1.20
Wednesday	1.19	1.17	1.19	1.19	1.19	1.19

Corn.—Corn figures have held fairly steady near the top price reached last week, a variation of ½¢ being the widest. The more favorable weather lent a little bearish feeling to the corn situation. However, the demand is wide and supplies comparatively small. The high price now being paid for finished beef is encouraging feeders to put their animals in the pink of condition, thus continuing the demand for corn longer than original plans intended. There is also complaint regarding the condition of seed corn, much of it failing to germinate, thus making the crop outlook less favorable. The visible supply of corn has decreased about one-half million bushels for the week. The price for No. 3 corn a year ago was 54¢ per bu. Quotations:

	Corn	Yellow	White
Thursday	82	84½	84½
Friday	81½	84	84½
Saturday	82	84½	84½
Monday	81½	84	84
Tuesday	81½	84	84
Wednesday	81½	84	84

Oats.—There has been a slight increase in the amount of oats coming to the market. Prices, however, have held steady with the close of last week which was slightly below the high figure reached during the season. The favorable weather is a factor in improving the bearish situation. However, the trade is still firm and the consumption of oats is very much restricted by the high prevailing prices. The visible supply decreased over two million bushels for the week. The price for standard oats a year ago was 36½¢ per bu. Quotations are as follows:

	Standard	No. 3	White
Thursday	63	62½	62½
Friday	63	62½	62½
Saturday	63	62½	62½
Monday	63	62½	62½
Tuesday	63	62½	62½
Wednesday	62	61½	61½

Beans.—Fully 10¢ has been added to the price of cash beans with very little activity at the new high figures. October beans showed a few fluctuations in price. Following are the nominal quotations published by the local board of trade:

	Cash	Oct.
Thursday	2.50	2.25
Friday	2.55	2.25
Saturday	2.57	2.28
Monday	2.60	2.30
Tuesday	2.60	2.25
Wednesday	2.60	2.25

Clover Seed.—The price for cash seed reached \$13 on Saturday, but the advance was lost on Tuesday of this week. The outlook for new seedling has been a little discouraging, and October seed shows an advance of over 50¢ per bu. Alsike prices average fairly well with a week ago. Quotations are as follows:

	Cash	Oct.	Alsike
Thursday	12.50	10.10	11.50
Friday	12.50	10.10	11.50
Saturday	13.00	10.40	11.25
Monday	13.00	10.40	11.25
Tuesday	12.50	10.75	11.50
Wednesday	12.50	10.50	11.50

Rye.—This grain shows a one-half cent advance in quotations, cash No. 2 rye now being quoted at 96¢ per bu.

Timothy Seed.—Contracts for this seed are being closed at \$6 per bu., which is last week's prices.

Flour, Feed, Potatoes, Etc.

Flour.—Prices are steady with last week.
Straight \$4.40
Patent Michigan 5.00
Second Patent 4.75
Rye 5.20

Feed.—All grades are steady. The carlot prices on track are: Bran, \$30 per ton; coarse middlings, \$30; fine middlings, \$32; cracked corn and coarse corn meal, \$33; corn and oat chop, \$32 per ton.

Hay and Straw.—Both hay and straw

are steady. Quotations: No. 1 timothy, \$27@27.50; No. 2 timothy, \$25@25.50; clover, mixed, \$24@25.50; rye straw, \$12.50@13; wheat and oat straw, \$11@11.50 per ton.

Potatoes.—During the past week the price for potatoes slipped down about 10¢ below the figures reported in our last week's issue, but during the first two trading days of this week there appeared a shortage in stocks, which, with a nominal demand, caused a reaction in price and recovered the loss so that present figures correspond with those published a week ago. Quotations for car lots on track are \$1.10 per bu. in bulk and \$1.15 in sacks.

Provisions.—Family pork, \$20@21; mess pork, \$19.50; clear, backs, \$19.50@20.50; picnic hams, 10¢; bacon, 14¢@16¢; pure lard in tierces, 11¢; kettle rendered lard 12½¢ per lb.

Dairy and Poultry Products.

Butter.—Butter prices sagged 1¢ during the past week, thereby following the trend at Elgin and elsewhere. In some of the dairy sections cattle are now being put on grass, thus increasing the output. Quotations are: Extra creamery, 30¢; first creamery, 29¢; dairy, 22¢; packing stock, 21¢ per lb.

Eggs.—Egg supplies continue to arrive in increased quantities and local wholesale prices show a decline of ½¢, current receipts, case counted, cases included, now being quoted at 18¢ per dozen.

Poultry.—The trade in chickens shows a little firmer tone, the bottom quotations being slightly higher than a week ago. Other grades of poultry are steady and slow. Quotations are as follows: Live—Spring chickens, 15½¢@16¢; hens, 15½¢@16¢; turkeys, 16¢@18¢; geese, 11¢@12¢; ducks, 14¢; young ducks, 15¢@16¢ per lb.

Veal.—Veal is steady. Fancy, 10¢@11¢; choice, 8¢@9¢ per lb.

Cheese.—Steady. Michigan, old, 22¢; Michigan, late made, 20½¢@21¢; York state, old, 22¢@23¢; do. new, 20½¢@21¢; limburger, 21¢@22¢; domestic Swiss, 22¢@24¢; brick cream, 20¢@21¢ per lb.

Fruits and Vegetables.

Hickory Nuts.—Shellbark, 2¢ per lb.

Onions.—Unchanged; \$2.40 per bu.

Honey.—Choice to fancy comb, 15¢@16¢ per lb; amber, 12¢@13¢.

Apples.—Trade continues firm with values running about steady. Baldwins are selling at \$3.50@4; Steele Red, \$6@6.50; Ben Davis, \$2@2.50.

OTHER MARKETS.

Grand Rapids.

Good timothy hay is bringing \$20@23, with clover only a dollar or so cheaper. Beans are on a \$2.15 basis to farmers. Fresh eggs are worth 17½¢, jobbers to country trade. Live poultry, delivered, is quoted as follows: Fowls and chickens, 13¢; geese, 10¢; ducks, 14¢; turkeys, 16¢@18¢. Prices paid Tuesday on the city market were: Apples, 1.65¢; potatoes, \$1.25; spinach, \$1; lettuce, 10¢; pieplant, 65¢; parsnips, \$1.25; onions, three bunches for 25¢; asparagus, \$1.10 per dozen; carrots, 75¢.

Chicago.

Wheat.—No. 2 red, 1.17¢@1.19; May, 1.18; July, 1.14¢.

Corn.—No. 3, 78¢@78½¢; May, 79¢; July, 76¢ per bu.

Oats.—No. 2 white, 57¢@58½¢; May, 57¢; July, 52½¢ per bu.

Barley.—Malting grades, \$1.00@1.32 per bu; feeding, 75¢@80¢.

Butter.—Last week's close saw a decline of 2¢, with receipts fully up to requirements. Offerings continue liberal but the freight handlers' strike is causing anxiety and temporarily strengthening the market. Quotations: Creameries, 26¢@29¢; dairies, 23¢@27¢.

Eggs.—Reduced receipts, due no doubt to difficulty in moving freight, have developed activity and firmness though prices show little or no change. Quotations: Firsts, grading 70 per cent fresh, 18¢; ordinary firsts, 16½¢ per dozen; at mark, cases included, 17½¢.

Potatoes.—To what extent the sharp falling off in receipts is due to the freight handlers' strike is not known and the uncertainty has created new interest. Demand active; prices about 10¢ in advance of last week and firmly held. Michigan and Minnesota stock now quoted at \$1.20@1.25 per bu; Wisconsin, \$1.10@1.20.

Beans.—A general advance which occurred on Monday is not very well sustained. The new quotations are: Pea beans, choice hand-picked, \$2.70 per bu; prime, \$2.65; red kidneys, \$2.65.

Hay and Straw.—Alfalfa hay quoted \$1 lower. All grades timothy and all kinds of straw show \$1 advance. Timothy, choice, \$28@28.50; No. 1, \$26.50@27.50; No. 2 and No. 1 mixed, \$25@26; No. 3 and No. 2 mixed, \$19.50@23; clover, \$20@22; No. 2 and no grade, \$13@18; alfalfa, choice, \$24.50@25; No. 1, \$23@24; No. 2, \$21@22.50. Straw—Rye, \$12@13; wheat, \$9@10; oat, \$10.50@11.

New York.

Butter.—The local shortage in the supplies of last week which caused the 4¢ advance is now reduced so that sales are made on the same basis as in other trade centers. Creamery special, 32¢; extras, 31½¢; firsts, 30½¢@31¢ per lb.

Eggs.—Top grades of nearby origin are steady. Packing stock and western offerings a shade higher. Quotations: Fresh gathered extras, 21½¢@22¢; firsts, storage packed, 20½¢@21½¢; do. regularly packed, 20¢@20½¢; western gathered whites, 21¢@22¢ per dozen.

Poultry.—Alive—Steady. Western fowls 14½¢; turkeys, 12¢. Dressed—Steady. Western fowls, 14¢@16½¢; turkeys, 13¢@22¢ per lb.

Boston.

Wool.—Western growers are feeling encouraged by the better prices which dealers are offering them for the new clip. The wide demand for wool is causing the dealers to be anxious for new raw material. Manufacturers are not well stock-

ed, which, with the good demand for clothing is placing them in a position which compels them to replenish their supply of wools. Contracts made in Ohio for fine wools and medium clip on a basis of 18¢ for the former and 20¢ for the latter seems fairly encouraging to the growers of fleece wools. The sales on the Boston market for the past week amounted to 4,650,000 lbs., which is nearly one million pounds more than the aggregate of sales in the previous week and nearly three times the total of sales for the corresponding week of 1911.

Elgin.

Butter.—Market firm at 30¢ per lb., a 1¢ decline from the price of the previous week.

THE LIVE STOCK MARKETS.

Buffalo.

May 6, 1912.

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

Receipts of stock here today as follows: Cattle, 185 cars; hogs, 105 double decks; sheep and lambs, 155 double decks; calves 2,500 head.

With 185 cars of cattle on our market here today and Chicago reporting 25,000 and lower, we have to report the worst market seen here in several weeks. In fact, cattle weighing 1,200 lbs. and over sold 15¢@25¢ per cwt. lower than last week. The demand for the butcher grades of cattle, weighing from 1,200 lbs. down, was not nearly as good as last week, and these suffered a loss in price of fully 15¢@25¢ per cwt. and quite a few going over unsold.

We quote as follows: Best 1,400 to 1,600-lb. steers, \$8.35@8.60; good prime 1,300 to 1,400-lb. steers, \$7.75@8.10; do. 1,200 to 1,300-lb. do., \$7@7.65; best 1,100 to 1,200-lb. shipping steers, \$7@7.25; medium butcher steers, 1,000 to 1,100, \$6@6.50; light butcher steers, \$5.75@6.25; best fat cows, \$5.50@6; fair to good do., \$4.25@5; common to medium do., \$3.50@4; trimmers, \$2.50@3; best fat heifers, \$6.25@7; good do., \$5.25@5.85; fair to good do., \$4.85@5.10; stock heifers, \$4.25@4.50; best feeding steers, dehorned, \$5.25@5.50; common feeding steers, \$4@4.25; stockers, all grades, \$4@4.25; prime export bulls, \$6.25@6.75; best butcher bulls, \$5.25@5.75; bologna bulls, \$4.50@5; stock bulls, \$3.75@4.75; best milkers and springers, \$5@6.50; common to good do., \$2.50@4.

With 105 double decks of hogs on sale today, and the quality very poor, also a limited demand, trade was slow and generally 10¢@15¢ lower than Saturday's average. Some of the light weights and ordinary grades of yorkers strong quarter lower; a few choice hogs sold at 8¢; several loads at \$7.95, but the bulk of the sales were at \$7.80@7.90. Light yorkers \$6.75@7; pigs, \$6.50@6.65 as to weight and quality; stags, \$5@5.75; roughs, \$6.75@7. Too many of one kind of hogs coming here at the present time; not good enough for our packers, and eastern demand not large enough to take them unless prices are very low. Trade was very unsatisfactory on this kind today, and while all were sold, prices were mean.

The lamb market was in a demoralized condition today. Very little demand; few of the choice lambs selling from \$7.90@8; one or two loads of fancy at \$8.15. Will be about 40 loads holding over unsold. Look for a little improvement the balance of the week, but the runs will have to be light to raise them much. The sheep market was active; prices about a half lower than last week. Prospects are steady.

We quote: Best lambs, \$7.90@8; cull to common do., \$6@7; wethers, \$6.50@6.75; bucks, \$3.50@4.50; yearlings, \$6.75@7; handy ewes, \$5.75@6; heavy ewes, \$5.50@5.75; cull sheep, \$2@3.50; veals, choice to extra, \$8.25@8.50; fair to good do., \$6.50@8.

Chicago.

May 6, 1912.

Cattle. Hogs. Sheep.
Received today 26,000 40,000 20,000
Same day last year 21,304 37,085 23,650
Received last week 56,413 172,274 77,953
Same week last year 48,674 154,070 83,520

The best class of cattle offered today sold readily at firm prices, and a consignment of three car loads of prime Iowa steers that averaged over 1,500 lbs. brought \$9. Otherwise trade was rather slow, prices averaging 10¢ lower. Hogs were steady to a little lower, with an early sale of prime heavy barrows at \$7.82½. Otherwise sales of common to choice lots were at \$7.10@7.75, the best light hogs going at \$7.65. The average weight of last week's receipts was 228 lbs., compared with 230 lbs. a week earlier, 211 lbs. early last January, 243 lbs. a year ago and 234 lbs. two years ago. The sheep market was demoralized, prices ruling 50¢@75¢ per 100 lbs. lower, reported heavy receipts at Buffalo helping to render the general demand unusually poor. Mutton has had such a boom that many Chicago retail meat markets have ceased selling it. Prime wool Colorado lambs brought \$9.75 and fat clipped lambs \$8.50, while common to fair spring lambs from farming districts sold at \$6@9 per 100 lbs.

Cattle have sold for a week past at the highest prices ever known at this season of the year, the demand having increased considerably, as stocks of beef held in cold storage were much reduced. Everything with any "kill" sold higher, and while the medium and pretty good lots showed the most advance, tops were higher, and so were canners, cutters, etc. In short, it is a wonderful market, and with medium grade steers selling enormously higher than prime beefs sold in past years, stock feeders made lots of money on cattle fed only a few months. The outlook for the summer is extraordinarily good, owing to the unusual shortage of cattle in feeding districts nearly everywhere, and it is safe to say that those who buy their feeders carefully and feed them right will come out well ahead

in the end. There will always be those who make money by feeding cattle for long periods, but these times the larger number make the largest profits by feeding for a short time, even if the cattle fail to grade high when marketed. Beef steers have been selling mainly at a range of \$7.40@8.60, with choice to extra steers going at \$8.60@9 and several transactions at \$9. No good steers sold below \$8.25, medium steers bringing \$7.75 and upward, fair steers \$7.10 and over and poor lots \$5.85 and better, with not many sales under \$7. The better class of yearlings went at \$8@8.75, and cows and heifers shared in the general upward movement, selling at \$4.30@8, with cutters bringing \$3.40@4.25, canners, \$2.35@3.35 and bulls \$4@7.50. Calves had a good outlet at higher prices for all except undesirable ones, buyers paying \$3.50@8.60 per 100 lbs., while milkers and springers were strong and higher for the best, bringing \$55@75 per head, the commoner cows selling at \$35@45 and beefy cows taken mainly by killers. The stocker and feeder trade was not especially large, high prices scaring away buyers, with stockers selling at \$4.40@6.40 and feeders at \$5.90@7. Beef cattle sold largely 15¢@20¢ higher last week.

Hogs have been marketed recently with unexpected freedom, and prices have had marked declines since a few weeks ago, when prime barrows of strong weights brought as high as \$8.20 per 100 lbs. However, prices during the past week ruled extremely high and far above figures paid in former years, 1910 excepted. Monday is still by far the great day of the week, a liberal share of the receipts showing up on that day, and on Monday last week 57,429 hogs arrived, but so good was the local and shipping demand that only a small decline in prices occurred. Eastern shippers have continued to purchase a generous share of the daily offerings, usually taking the better class of hogs of good weights, and this competition with local buyers was a bullish factor, checking the downward course of prices to a marked degree. The lighter weights sold at quite a discount, and this applied to 185 to 195-lb. offerings. Of late there has been a marked increase in the average weight of the hogs marketed, but hogs still average much less in weight than last year, and increased supplies of good weights could be used by packers to advantage. Provisions are selling much higher than a year ago, and not long ago pork showed an advance of \$4.50 per barrel. Fresh pork is especially active, it being much the cheapest article in the meat line. Hogs, as well as cattle and sheep, were marketed in much increased numbers last week, and this explains the lower prices, closing sales being at \$7.15@7.75, compared with \$7.50@8.07½ the preceding Saturday. Stags sold at \$7.80@8.15 and boars at \$3.25@3.75. The best 185 to 195-lb. hogs sold at \$7.60@7.62½. Pigs brought \$5.25@7.

Sheep and lambs astonished nearly everybody last week by the unprecedented boom in prices that was brought about by the inadequate offerings. As usual, choice lambs led off in the upward movement, the demand centering in these, and they brought the highest prices ever paid. The other kinds of lambs advanced at a slower pace, but they rose, too, as they were purchased largely as substitutes for killers to take the place of prime consignments. Yearlings, wethers and ewes, too, had their share in the advances, and anything with any claim to quality sold extremely high, making plenty of money for sheepmen. Prices were much above the views of sheepmen in search of feeders, and buying orders were away under asking figures in most instances. The highest prices of the week were paid on Wednesday, when clipped lambs sold at \$6@9.75 and Colorado woolled lambs at \$10@10.60. Clipped flocks sold as follows: Yearlings, \$7.25@8.35; wethers, \$4.75@7.60; ewes, \$5@7.75; bucks, \$5@6.50. There were subsequent declines, and at the close the best woolled lambs went at \$10.25, the best clipped lambs at \$9.25 and best shorn yearlings at \$8. Best clipped ewes closed at \$7 and best clipped wethers at \$7.40.

Horses showed more activity last week, there being a large attendance of local, eastern and western buyers, including farmers from the surrounding country in search of farm workers. Such horses, averaging 1,100 to 1,450 lbs. were salable at \$100@200 per head, breedy mares selling much the highest. Light drafters sold at \$175@225 and prime heavy drafters as high as \$300 and occasionally higher. Most of the wagon horses sold at \$160@200, and saddlers were scarce and firm at \$160@200. A few high-class pairs of drafters found buyers at \$600@715.

LIVE STOCK NOTES.

A car load of 1,286-lb. distillery-fed bulls brought \$6.75 per 100 lbs. at the Chicago stock yards recently, a new high record price.

Close observers of the Chicago cattle market are confident that killers will have a hard time pounding prices for cows and heifers up to the time for marketing Texas cattle off grass. For weeks fat female cattle have been in strong demand at advancing prices, with extremely short supplies. The choicer kinds have been selling anywhere from \$6@8 per 100 lbs.

Many of the recent medium and immature steers shipped to market were sold because of the advancing prices for corn. Cattle such as have been bringing from \$7.25@7.75 show big profits to owners, and they are apt to be tempted to seize the opportunity rather than to feed longer.

A successful Iowa stock feeder who is the owner of a 600-ton silo says it is one of the chief means of bringing him wealth. He says he has produced as much as three pounds of beef per steer per day by feeding silage.

Robt. B. Ogilvie thinks dairymen should use Shorthorn bulls and let a cow while producing \$75 worth of milk and butter-fat per year, raise a calf that at 15 months could be sold on the Chicago market at nearly as much.

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.

May 9, 1912.

Cattle.

Receipts, 924. Bulls steady; cow stuff 35@50c lower; other grades 15@25c lower than last week.

We quote: Best steers and heifers, \$7.60; steers and heifers, 1,000 to 1,200, \$6.75@7.50; do. 800 to 1,000, \$6.50@7; do. that are fat, 500 to 700, \$4.50@5; choice fat cows, \$5@5.50; good fat cows, \$4@4.25; common cows, \$3@3.25; canners, \$2@3; choice heavy bulls, \$5@6; fair to good bolognas, bulls, \$4@4.75; stock bulls, \$3.50@4; milkers, large, young, medium age, \$40@60; common milkers, \$25@35.

Bishop, B. & H. sold Parker, W. & Co. 1 bull weighing 1,130 at \$5, 2 do av \$45 at \$5, 2 do av 1,115 at \$5, 3 steers av 720 at \$6.50, 1 cow weighing 830 at \$5, 3 do av 993 at \$5, 1 do weighing 1,030 at \$6, 3 butchers av 823 at \$5.50; to Bray 1 cow weighing 840 at \$3.25; to Hammond, S. & Co. 3 cows av 1,023 at \$4, 2 bulls av 1,250 at \$5.75; to Bresnahan 2 butchers av 600 at \$4.25, 2 canners av 695 at \$2; to Schuer 2 cows av 940 at \$3.50, 1 do weighing 1,030 at \$4, 3 do av 973 at \$4.40; to Bresnahan 9 do av 850 at \$3.75; to Thompson Bros. 5 do av 902 at \$4.50; to Schuer 3 do av 887 at \$4, 3 do av 853 at \$3.40, 2 do av 780 at \$3.25; to Newton B. Co. 2 steers av 970 at \$7.25, 2 cow and bull av 865 at \$4.50, 18 butchers av 880 at \$7.25, 12 do av 771 at \$6.50, 2 do av 795 at \$5.50, 3 steers av 900 at \$7, 1 bull weighing 1,180 at \$5.50, 2 do av 730 at \$6, 2 cows av 760 at \$4.50, 5 steers av 1,080 at \$7.25, 1 do weighing 800 at \$6, 14 do av 1,011 at \$7.50; to Thompson Bros. 8 cows av 931 at \$5.10, 2 steers av 875 at \$6.60; to Sullivan P. Co. 4 cows av 1,080 at \$5.15, 1 steer weighing 1,420 at \$7, 2 cows av 910 at \$5.50.

Roe Com. Co. sold Breitenbeck 20 steers av 826 at \$7, 8 do av 780 at \$6.50; to Hammond S. & Co. 2 bulls av 1,360 at \$5.50, 2 do av 680 at \$4.50; to Mich. B. Co. 4 butchers av 995 at \$6, 5 cows av 1,002 at \$4.25; to Newton B. Co. 1 steer weighing 1,230 at \$6.75, 5 cows av 1,180 at \$5.25, 1 do weighing 860 at \$3.50, 1 steer weighing 1,220 at \$7.25.

Belheimer sold Kamman 6 steers av 930 at \$7, 4 butchers av 607 at \$4.50.

Haley & M. sold Kull 5 steers av 596 at \$5.50, 1 do weighing 920 at \$6.25; to Nagle P. Co. 5 cows av 1,070 at \$5.15; to Applebaum 2 heifers av 400 at \$4.25, 1 do weighing 650 at \$5, 3 cows av 883 at \$4.25; to Parker, W. & Co. 1 bull weighing 1,140 at \$5.50, 1 do weighing 1,190 at \$5.50, 1 do weighing 1,440 at \$5.50, 6 cows av 1,015 at \$4.75; to Sullivan P. Co. 7 do av 1,061 at \$5, 2 do av 980 at \$4.25, 1 do weighing 1,100 at \$4.75, 6 steers av 952 at \$6.85, 5 cows av 932 at \$5.35; to Lachalt 1 do weighing 1,240 at \$5.25, 2 steers av 645 at \$6.25, 4 butchers av 820 at \$6.25, 1 steer weighing 830 at \$6.50; to Bray 2 cows av 795 at \$3.50, 1 heifer weighing 530 at \$4.50; to Kamman B. Co. 1 bull weighing 750 at \$4.50; to Bresnahan 2 canners av 740 at \$2.60, 3 do av 970 at \$3; to Regan 1 heifer weighing 690 at \$4, 4 do av 532 at \$4.

Spicer & R. sold Parker, W. & Co. 40 steers av 980 at \$7.60; to Hammond, S. & Co. 2 do av 975 at \$6.50, 1 bull weighing 1,400 at \$6, 1 heifer weighing 570 at \$3.50; to Kull 1 bull weighing 860 at \$5, 1 cow weighing 690 at \$3.50; to Fish 1 cow weighing 1,070 at \$5, 5 stockers av 614 at \$4.50; to Mich. B. Co. 1 bull weighing 1,610 at \$6, 2 steers av 750 at \$6, 7 butchers av 861 at \$6, 9 cows av 860 at \$5, 1 bull weighing 1,400 at \$6; to Regan 4 heifers av 530 at \$4.75, 3 do av 573 at \$5; to Hammond, S. & Co. 4 bulls av 1,282 at \$5.50; to Allen 16 feeders av 708 at \$5.50, 3 steers av 550 at \$5.50, 6 do av 593 at \$5.50; to Newton B. Co. 3 bulls av 1,550 at \$5.50, 1 do weighing 1,050 at \$5, 21 steers av 1,073 at \$7.65, 18 do av 965 at \$7.10, 10 do av 771 at \$6.

Robinson & S. sold Schuer 5 cows av 932 at \$4, 2 do av 930 at \$3.25.

Same sold Parker, W. & Co. 6 bulls av 1,526 at \$5.50, 2 cows av 1,150 at \$5.50.

Hely sold Bresnahan 5 cows av 894 at \$3.50.

Same sold Nagle P. Co. 4 cows av 1,070 at \$5.25.

Veal Calves.

Receipts, 1,031. Market 25c lower than last week. Best, \$7@7.50; common, \$5@6. Bishop, B. & H. sold Applebaum 10 av 123 at \$7; to Mich. B. Co. 1 weighing 130 at \$7; to Newton B. Co. 5 av 120 at \$5, 21 av 135 at \$7.50; to Sullivan P. Co. 25 av 130 at \$7.25, 9 av 140 at \$7, 15 av 130 at \$7.25; to Nagle P. Co. 11 av 100 at \$5.50, 61 av 135 at \$7.25, 26 av 140 at \$7; to Parker, W. & Co. 2 av 150 at \$6, 36 av 130 at \$7; to Nagle P. Co. 6 av 95 at \$5.50, 35 av 135 at \$7.25; to Goose 20 av 116 at \$7; to Burnstine 4 av 150 at \$7.50, 3 av 240 at \$8; to Rattkowsky 9 av 140 at \$7; to Parker, W. & Co. 8 av 125 at \$6.50; to Sullivan P. Co. 2 av 125 at \$7.50. Spicer & R. sold Mich. B. Co. 6 av 150 at \$7.50, 8 av 125 at \$7.50, 1 weighing 80 at \$6.

Haley & M. sold Mich. B. Co. 4 av 130 at \$7.25; to Newton B. Co. 2 av 205 at \$5, 1 weighing 125 at \$7, 5 av 125 at \$5, 10 av 139 at \$7.50; to Parker, W. & Co. 2 av 160 at \$7.50, 4 av 120 at \$7.50, 12 av 160 at \$4.50, 20 av 135 at \$6.50; to Mich. B. Co. 33 av 170 at \$6.

Receipts, 1,653. Market steady with Wednesday; 50@75c lower than last

week's close; common very dull. Best lambs, \$7.75@8; fair to good lambs, \$5.50@7; light to common lambs, \$3.50@4.50; fair to good sheep, \$4.50@6; culs and common, \$2.50@3.

Bishop, B. & H. sold Nagle P. Co. 125 sheep av 61 at \$3.50; to Sullivan P. Co. 4 do av 140 at \$4, 3 do av 80 at \$3.50, 11 do av 100 at \$5.50; to Mich. B. Co. 3 do av 140 at \$5, 25 do av 80 at \$4, 149 lambs av 80 at \$7; to Thompson Bros. 5 sheep av 85 at \$4, 13 lambs av 75 at \$7.50, 6 do av 88 at \$7; to Fitzpatrick Bros. 56 do av 57 at \$7.25, 6 do av 85 at \$7, 7 sheep av 110 at \$5.50, 14 spring lambs av 55 at \$11; to Young 36 lambs av 80 at \$7.25; to Fitzpatrick Bros. 36 do av 83 at \$8, 38 do av 75 at \$5, 26 do av 90 at \$8, 32 do av 75 at \$6, 67 do av 58 at \$6.50, 3 do av 130 at \$4.50; to Barlage 46 do av 52 at \$3.50.

Haley & M. sold Newton B. Co. 6 sheep av 88 at \$3, 13 lambs av 65 at \$7, 2 spring lambs av 55 at \$10, 8 sheep av 95 at \$4; to Sullivan P. Co. 12 lambs av 75 at \$7.25, 1 sheep weighing 90 at \$4; to Barlage 2 do av 135 at \$4.50, 8 lambs av 75 at \$7.

Spicer & R. sold Barlage 37 lambs av 55 at \$5; to Mich. B. Co. 7 sheep av 57 at \$3.50, 33 do av 58 at \$3.50; to Young 20 lambs av 65 at \$7.15, 30 do av 70 at \$6.75; to Sullivan P. Co. 7 sheep av 70 at \$5, 1 do weighing 150 at \$3.50.

Roe Com. Co. sold Barlage 3 sheep av 90 at \$4, 10 spring lambs av 38 at \$10, 9 do av 60 at \$5.

Hogs.

Receipts, 3,365. Market steady with Wednesday; good grades 15c higher than last week; pigs 15c lower.

Range of prices: Light to good butchers, \$7.75; pigs, \$6.25@6.50; light yorkers, \$7@7.50; stags one-third off.

Bishop, B. & H. sold Hammond, S. & Co. 1,040 av 200 at \$7.75, 1,295 av 180 at \$7.70, 580 av 170 at \$7.65.

Spicer & R. sold Parker, W. & Co. 315 av 195 at \$7.75, 540 av 180 at \$7.70, 275 av 175 at \$7.60.

Haley & M. sold same 220 av 195 at \$7.75, 385 av 185 at \$7.70, 210 av 170 at \$7.65.

Roe Com. Co. sold Sullivan P. Co. 365 av 195 at \$7.75, 86 pigs av 115 at \$6.40.

Friday's Market.

May 3, 1912.

Cattle.

Receipts this week, 1,802; last week, 1,508. Market, quality considered, steady with Thursday.

We quote: Extra dry-fed steers and heifers, \$7.50@8; steers and heifers, 1,000 to 1,200, \$6.75@7.25; do. 800 to 1,000, \$6.50@7; do. that are fat, 500 to 700, \$5.50@6.25; choice fat cows, \$5@6; good do., \$3.75@4.50; common cows, \$3.50@3.75; canners, \$2@3; choice heavy bulls, \$5@6; fair to good bolognas, bulls, \$4.25@4.75; stock bulls, \$3.50@4; milkers, large, young, medium age, \$40@60; common milkers, \$25@35.

Veal Calves.

Receipts this week, 1,808; last week, 1,830. Market steady at Thursday's prices. Best, \$7.50@8; common, \$4@6.50.

Sheep and Lambs.

Receipts this week, 5,255; last week, 3,574. Market very dull; butchers finding it hard to sell at high prices; trade some lower; woolled stock very hard to sell. Best lambs, \$8.25@8.50; fair to good lambs \$6@7; light to common lambs, \$4.50@5.50; fair to good sheep, \$5@6; culs and common, \$2@3.

Hogs.

Receipts this week, 9,832; last week, 9,665. Market dull and 10c lower than on Thursday.

Range of prices: Good butchers, \$7.50; pigs, \$6.25@6.50; light yorkers, \$7@7.25; stags one-third off.

Arthur H. Boswell, sheep buyer for Swift & Co., at Fort Worth, Texas, who showed up at the Chicago stock yards a few days since, made the following statement: "We are expecting the best spring supply of Texas grass sheep, both in point of quantity and quality, we have had for a number of years. The San Angelo, Del Rio and Comstock countries are just now particularly well stocked, and although the season is at least three weeks late over the greater part of the big state, sheep wintered extremely well in the sections referred to, and the range is now reported in excellent condition, a great amount of moisture during the winter having caused an early growth of grass and weeds. By May 1 Texas grass sheep should be available in quantities that will in a measure alleviate the present shortage of matured muttons."

Nebraska farmer-stockmen are making a wonderful success in raising choice hogs for the market by feeding just as much corn as they will clean up nicely in a day and at the same time keeping a sufficient quantity of late cut alfalfa before them. The most successful stockmen also provide comfortable, sanitary quarters for their hogs, besides keeping a plentiful supply of good, pure water where it is easy of access.

Howard Vaughan states that beef cattle are being produced at a profit on his farm near Marion, Iowa, and affirms that there is money to be made by growing the right kind of cattle on high-priced Iowa land. He says: "For instance, I am producing steers that weigh from 800 to 850 lbs. at 11 months of age and which sell for \$65@70 per head. There is money in such beef production as that, and that is the kind of beef cattle that Iowa farmers ought to grow on their high-priced farms. One trouble with the farmers who fail to make cattle pay is that they do not grow the quick maturing kind. They feed their stock too long. Let me illustrate with one of my calves. I might have brought that 11-months-old yearling along to bring \$100 on the market, but it would have required another two years to put on the necessary additional weight. The result is easy to figure out. To get the added \$30 in value would require feeding the animal two years, and there is no profit in that. By doing that, a feeder loses all that he makes in the quick growth of the first

year. The quick maturing animal is the one that makes the surest and largest profits."

This is the greatest calf marketing season of the year, and the Chicago stock yards have held on some days not far from 9,000 calves, receipts being largely from the dairy districts. Some of these steer calves are desirable for fattening, and good bargains are to be had. Farmers have found that getting calves on pasture as soon as they are weaned and roughing through the winter, with the The Chicago and other western packers are gobbling up all the moderately fat little steers weighing 900 lbs. and upward they can get hold of, just as they have done in so many former years, and this is cutting heavily into purchases of country buyers who want to finish partly fattened well-bred steers. There is going to be a great scarcity of choice beefs the coming summer, according to all accounts.

VETERINARY.

(Continued from page 550).

whatever, and it does not seem to produce any pain. E. S. Cedar Springs, Mich.—Apply one part chromic acid and five parts water to bunch once a day for a week, then apply equal parts powdered alum and boric acid twice a day. In my practice I usually remove such bunches with a knife, then apply healing powder, powdered alum and boric acid.

Feeding Unbalanced Ration.—I have a sow with ten pigs five weeks old, which seem to be weak in back; some of them appear to have lost control of hind quarters; sow appears to have same ailment. Have been feeding sow ground corn; oats and skim-milk. E. D., Blissfield, Mich.—Feed no more corn, but feed oats, a little oil meal, some roots and add a little lime water to each feed. The sow and pigs should be kept clean and dry.

Grub in the Head.—Our sheep are having head trouble, some of them go blind and others have died. They have some discharge from eyes and considerable discharge from nose. We have had two go blind and three died soon after they were taken sick. One of them lingered some days after going blind and another one is blind, is still alive and does not seem to be very sick. We have also lost several lambs from same ailment. We feed our sheep corn, oats, fodder and hay. J. R. F., Dundee, Mich.—Your sheep show symptoms of grub in the head and the best way to get rid of grub is to trephine through bone of face and dislodge grub; then wash out head with tepid weak salt solution. Also wash out eyes and nose with one part hydrogen peroxide and eight parts water.

Sprained Stifle.—My driving mare got into deep snow last winter and sprained her left hind leg. The stifle joint seems to be the only part affected, when standing still she invariably holds leg up as if in pain and frequently drops foot to the ground, but keeps it there but a little while. Our local Vet. says he is sure the leg was not fractured. This accident occurred some five weeks ago. L. W. G., Decatur, Mich.—Apply one part tincture iodine, one part aqua ammonia and four parts olive oil to stifle once a day.

Indigestion.—Sprained Fetlock.—Windgalls.—Destroying Horns.—I have a five-year-old horse that is not thriving; have fed him corn, oats and hay, but he does not pick up. He is not shedding his old coat, is dull and dumpish and must be weak. I also have another seven-year-old mare that sprained fetlock joint some time ago and she also has wind-puffs. She walks fairly well but trots lame. What had I better apply to destroy horns on a calf one week old? J. H. G., Sunfield, Mich.—Your horse's teeth may need floating. Increase his feed and give a tablespoonful of Fowler's solution and 1 oz. of ground gentian at a dose in feed three times a day. Apply one part turpentine, one part aqua ammonia and two parts olive oil to fetlock joint and puffs two or three times a week. Apply caustic potash to horn as soon as possible after birth and continue to apply it until you have destroyed the whole horn bulb and this will prevent the horns from ever growing.

Scours in Calves.—My calves are bothered very much with scours this spring and I am at a loss to know what should cause it, unless they inherit this weakness from their sire. I am told that this bull's calves are inclined to be too loose in bowels. Two of my calves died and I am treating a third one, but am quite sure he will not get well. J. B., Orion, Mich.—Your calves may be kept in an unhealthy, damp basement barn and if so remove them to a dry, airy, well ventilated pen and allow them to move about out doors in the sunlight. They may become infected through navel. Give each calf 5 grs. of salol at a dose three or four times a day. Apply hydrogen peroxide to navel twice a day, ten minutes after these applications apply equal parts of powdered alum and boric acid.

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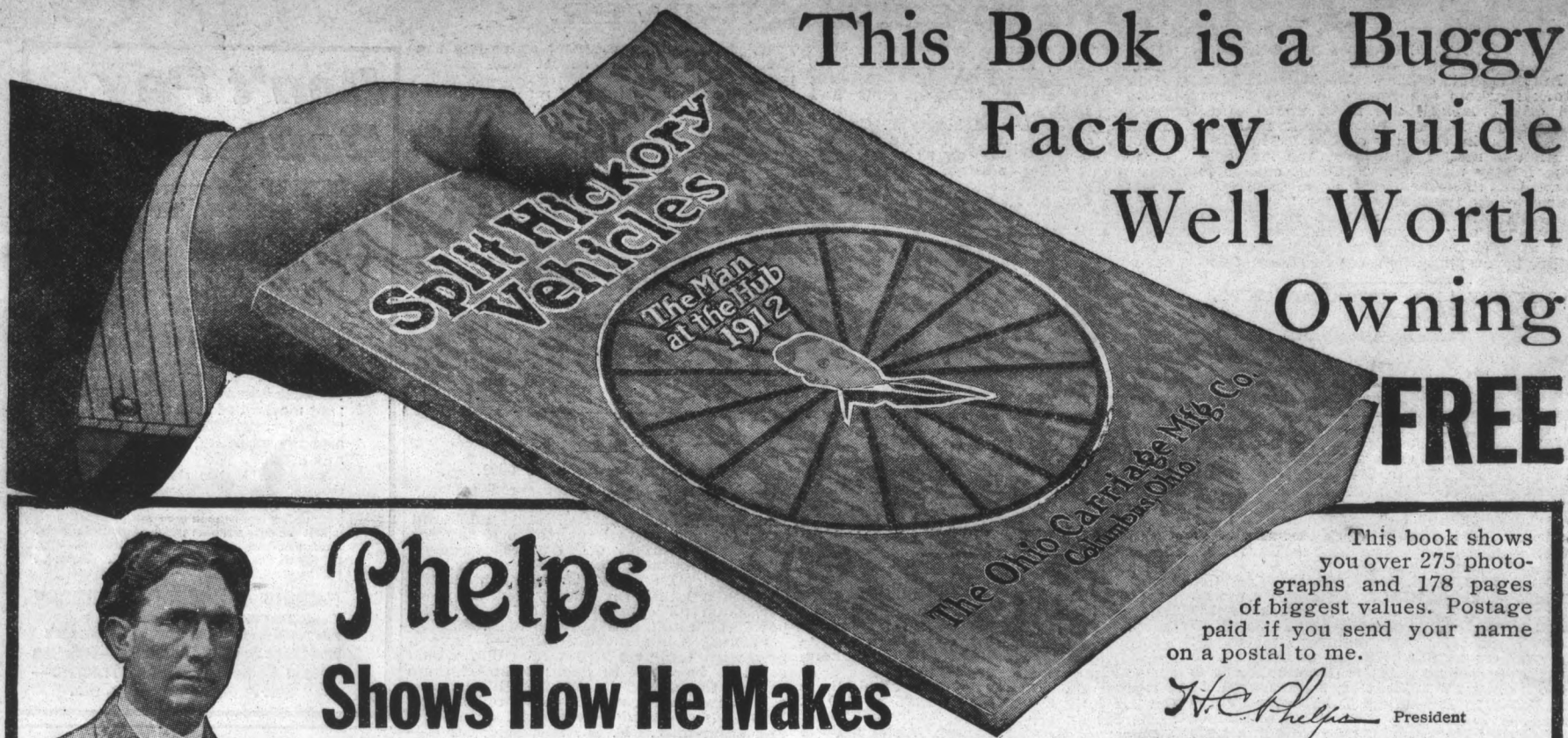
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