

Mr. Silmon

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THE CULTURE OF CORN IN MICHIGAN.

Corn is king, and ranks first among the many profitable crops that the land produces for the benefit of mankind, and any farmer is lucky that resides in a latitude in which it can be successfully grown. The writer has had 25 successful years in its production, some seasons raising as high as 90 acres, and will give a few ideas regarding the production of same. As the demand is increasing in foreign countries and at home each year, it is gradually becoming a very valuable crop and requires our earnest attention. I have sold thousands of bushels for the low price of 20¢ per bushel and have known of its being sold at 15 cents. But those times have passed and the corn belt farmer seldom has to take less than 40 cents as soon as it is harvested in the fall, and at present can get around 70 cents per bushel. I have sold corn here in Michigan as I husked it from the field for 35 cents per basket, which is equivalent to 70 cents per bushel and this corn more than paid the price which I gave for the land it grew on, yielding over 100 baskets per acre.

My idea in producing good corn in Michigan is to have clover sod ground or land well fertilized with barnyard manure. I have produced six consecutive crops of good corn here in one field by giving the same a light coat of manure every spring. I do not believe in deep plowing, especially on sandy loam or gravel soil. What is the use of plowing down manure eight to ten inches deep? It would be much better if left on top entirely, but if only plowed down four to five inches it will grow the corn all right. One of the most successful farmers in Illinois made a thorough test of plowing for corn. He plowed a few acres each, from four to 10 inches deep in the same field, and he had much the better corn on the four-inch deep plowing and that was much the same kind of soil as our best farms here. It is not only harder on your teams, but useless to plow over five to six inches for corn on ordinary sandy loam soil. After the ground is plowed it should be thoroughly harrowed and worked down so that the corn will have a solid place to take root.

I used to be an advocate of early planting, but I believe that this is all wrong. Unless the season is unusually early, the 20th to the 25th of May is early enough to start planting. When the ground is warm it comes up immediately and will grow as much in a day as in a week when cold.

Good seed corn is one of the most important factors in producing a good yield. It should be gathered early in the fall and placed to dry in a well ventilated room. The very best way is to string it up with a portion of the husks or tie together with twine and hang over a wire, where the mice cannot get at it. I have 25 bushels saved last fall which I spread thinly on an upper floor in the tenement house, which is keeping fine by raising the windows and giving plenty of ventilation. I plant with a check-row planter and drop only three kernels. Would rather have two than four, but three is all right. If the corn is graded my machine will drop three every time.

Just before the corn comes up it should be harrowed so as to loosen up the soil and kill all the small weeds. It will do no harm to harrow after it is up nicely, so you can see the rows both ways. This will save extra cultivating and you will not have to start the cultivator until the corn is several inches high, and can do much better work than when it is too small. The first and second time through should be very carefully and well done. Do not be afraid to get very close to the

corn and see that the dirt rolls around every hill. Do not let the shovels scrape along on top, but let them in quite deep. After the corn reaches a height of a foot or over, the fiber roots start and you should get farther away from the hills then so as to not injure them. There is a great difference in opinion as to how many times corn should be cultivated. But from my experience here in Michigan four times is all that is necessary. In

and the fourth time widen out your sections on the cultivator nearly as wide as you can, so as to not harm the fiber roots which reach well toward the center of the row. Do not be afraid to let the shovels well in the ground at all times; this keeps the soil loosened up nicely.

One great difficulty in doing justice to our corn here in Michigan is that when it requires cultivating very badly the wheat harvest comes on and requires our time

farms there. This farm has produced hundreds of acres that have yielded 50 to 70 bushels of shelled corn per acre. Taking into account the difference in price per acre of the land here and in Illinois, there is much more money made here in the production of corn than there, notwithstanding the fact that Illinois is famous as a great corn state.

Washtenaw Co. B. F. WASHBURN.



A Poor Start for a Corn Crop—Drilling the Seed in on Poorly Prepared Ground.

Illinois the weeds are 50 per cent worse than they are here and they sometimes have to cultivate more to subdue them. As a rule they cultivate them from three to five times, but never after the corn reaches a height of over three feet. An Illinois farmer once came to Michigan in the fall to look for land and happened to see some farmers cultivating corn with one horse after the ears had set. On his

when we ought to be in the corn. Last season I had to leave my corn after the third time through and the dry weather shortened up the yield one-fourth. It is almost impossible for me to get any extra help at this time of year, and I believe I will cut out a part of my acreage of wheat as I think there is more profit in the corn.

Of course, you cannot produce good



A Good Start for a Corn Crop—Planting Good Seed in a Well Prepared Seed Bed.

inquiry they told him that this was necessary here in Michigan to hold the moisture. He returned home, saying he would not move to a country where they cultivated their corn the whole year around. But this is unnecessary in Michigan as I have produced good yields of corn here and only cultivated three times. Four times is better but you should do it thoroughly, get close to the hills the first and second time, the third time farther away

yields of corn on wornout land, no matter how well you tend it. But I am really surprised how this land will grow corn when it is kept up. When I go back to Illinois they always ask me how much buckwheat or beans I raised, as they don't think Michigan cuts any figure in acreage or yield of corn, but during my nine years of farming here I have produced good yields of corn, yes, fully as much as the average yield on the good

THE PRINCIPLES OF CORN CULTIVATION.

Some one has said that weeds are a blessing in disguise. As it is, we have stirred the soil to eradicate the pests centuries before the world ever heard of the principles of moisture conservation. Cultivation serves a double purpose. It kills the weeds, and what is more important, conserves soil moisture.

In the seven great corn producing states, the yield of this cereal has been found to closely follow the curve of the rainfall in the month of July. If the rainfall for that month is only a fraction of an inch less than normal, the corn yield is decreased several million bushels. Three hundred pounds of water are used by the corn plant in the production of a single pound of corn. Thus, the very intimate connection between the supply of moisture and the yield can be plainly seen and the necessity of making every drop of water that falls during June, July or August serve the purpose of the growing crop can be thoroughly appreciated.

Damp, moist soil beneath a log, a pile of straw or a manure heap, even in dry weather, has been noticed by everyone. In such cases the log has served as a mulch. In the lower layers of the soil and subsoil is a great reservoir of moisture. This water is brought to the surface by capillary action. Every tiny particle of soil is covered with an extremely thin film of moisture. These films get into connection with one another and the whole system serves as a pump that brings this underground moisture to the dry upper surface. Constant evaporation carries away hundreds of gallons of water which is immediately replenished from beneath. Any mulch serves to stop this upward current of water and prevents evaporation to a large extent.

A thin layer of dust serves as a mulch as does the straw. Stirring the soil to the depth of but a few inches will create such a mulch and will help to conserve the rainfall. But care must be taken not to till the soil when it is yet too damp, for in such cases the particles puddle together and the value of the mulch is entirely lost. The most effective time to cultivate is as soon after a rain as possible without danger of this running together of soil particles. Experiments show that a three-inch dust mulch is as effective as a deeper one and more valuable than the more shallow sort. Thus, cultivation to that depth is usually thoroughly effective.

The easiest time to kill a weed is when it is small. Hundreds of farmers advocate the harrowing of corn with an ordinary spike-tooth harrow before it comes up and when it is still coming through the ground. The treatment is thoroughly effective in killing the small weeds between the hills as well as those between the rows. It also serves to maintain a mulch at a time when it is badly needed. Harrowing, however, is often practiced too long a time for the teeth soon begin to take the small plants out of the ground.

Many advocate the use of the weeder until the plants are a few inches high. The weeder is a most effective tool in that it takes every small weed in its path as well as to pulverize many small clods. There is some objection to this tool on the score that it necessitates a going over of the field to uncover many young

plants. If the corn does not come up evenly, it has a tendency to tear up the later plants together with the weeds.

As soon as the corn is up, it is time to begin with the sulky cultivator. There are many arguments as to just the right type of shovel to use and here again much depends upon local conditions, but in all localities, the use of long narrow shovels commonly known as "bull-tongs," is advisable. These stir the soil to some depth and do not throw dirt on the corn. With them you are able to get much nearer the corn than otherwise. Guards are a very necessary adjunct during the first two cultivations.

In the first few times through the field, the quality of the work done counts for far more than the number of acres covered per day. One should aim to get as near the hills as possible and this means the covering up of many hills and the consequent stopping to uncover them. One needs a slow, steady team, and, if really done right four acres a day is about all that one can do well with a single-row sulky. It is too often that we see men running through eight and ten acres a day and leaving a strip eight or ten inches wide of untouched soil on either side of the row. Such practices help to make our corn yield per acre as low as it is. Excessive ridging should be guarded against, for such makes for undue evaporation although at the same time some ridging, in order to cover small weeds, saves a great deal of hand labor at hoeing time.

Weeds sap the moisture supply and so a crop of weeds is a sure sign of need of cultivation; yet it often happens that a field may be entirely clear of weeds and at the same time need stirring in the worst sort of a way. Often in clay soils, the moisture in the atmosphere will destroy the effectiveness of a mulch. On any soil, a rain, no matter how light, a slight crust will form. The right sort of corn cultivation means not only the making of a dust mulch but the maintenance of one.

Ohio.

CLYDE A. WAUGH.

FARM NOTES.

Eradicating Weevil.

We are bothered with bugs in Canada peas after they are ripe. Please prescribe a remedy and oblige.

Ottawa Co.

SUBSCRIBER.

The damage to the peas is done by weevil. This insect lays its eggs on the pods, directly over each pea, and after the egg has hatched, the larva eats its way through the pod and into the pea where it passes the winter and emerges again about planting time, by which means the species is perpetuated. Of course, the infested peas are ruined for seed purposes. Where the damaged peas are very numerous they can be separated from the seed peas by putting them into water when those which are infested will float upon the surface and may be easily removed. There are a number of ways of destroying the larvae in the peas, one of the best of which is to subject them to the fumes of carbon-bisulphide, placing the peas in a tight box and using the liquid at the rate of one to two ounces to each 100 lbs. of seed. This will destroy the larvae but will not injure the germinating power of the seed. When so treated, care should be taken to keep the box away from all light or fire as the liquid is very volatile. The weevil may also be destroyed by subjecting seed peas to a temperature of 145 degrees F. or by soaking the seed in boiling water for one minute, the germinating power of the peas not being destroyed by either treatment if the temperatures mentioned are not exceeded.

Cross Pollenization of Corn.

Please explain how to cross-pollinate seed corn in next issue of your valuable paper.

Ogemaw Co.

SUBSCRIBER.

Where it is desired to improve corn by cross pollenizing a site should be selected for the work which is a considerable distance from other growing corn to avoid mixing. Then seed from a separate ear should be used in planting each row, and the stalks of alternate rows should be detasseled before the pollen is shed. This will insure that the ears on the detasseled stalks will be fertilized by the pollen from stalks produced from seed from other ears.

Applying Lime on Potato Ground.

I have a small piece of ground that I am fitting for potatoes, which I plan to seed to alfalfa next spring. I would like to apply a little lime. How and when ought it to be applied?

Ottawa Co.

E. C. S.

So far as the alfalfa is concerned, liming the soil when fitting for potatoes this spring would give best results. The bene-

ficial effects of lime, so far as the alfalfa crop is concerned, are thought to be principally in placing the soil in a better condition for the development of beneficial soil bacteria, although the alfalfa plant uses a relatively large amount of lime as an actual plant food as compared with most other plants. But in applying the lime before the potatoes are planted this spring, conditions will also be made more favorable for the growth and development of other bacteria, including the fungous diseases of the potato, such as scab. If the land has not been planted to potatoes recently and if the seed is treated with formaldehyde to kill the scab spores, however, this tendency will be reduced to the minimum, and it is probable that the yield of tubers may be somewhat increased by the application of lime. At least it seems to be the conclusion of some Michigan potato growers who have experimented with liming the soil for the crop during the past two years that where commercial fertilizers are used liberally on the crop, better results are secured where lime is also applied. However, it must be remembered that there is little accurate experimental data on this subject, hence one must be guided by his best judgment and it is a good plan to experiment a little at the same time to find out the truth of the matter so far as possible under the local conditions with which we have to do. It would thus be a good plan to lime part of this land before the potatoes are planted and the balance next year before the alfalfa is sown, leaving a strip without liming at all as a check on the other portions of the field. The best way to apply the lime on a large scale is with a distributor adapted to the purpose, but for a small area it can be sown with a fertilizer drill or even by hand. The main thing is to get it evenly distributed and well mixed with the soil.

THE SPRING PLOWING.

The right time to plow for spring crops is as soon after the first frost is out of the ground, and it is dry enough to turn up, and roll over fine and mellow. It is safer to plow sod ground when too wet, than to plow stubble, and of course sandy, and gravelly soils can be plowed sooner than clay.

Land will usually produce better crops if it can be plowed and lie a short time before it is seeded, or planted, in order that it may have the benefit of the air, and the sun, which in the opinion of many excellent farmers seem to enliven it, or make the latent fertility more active, and available. In farmer's language, land ought to be plowed long enough before seeding "to get warm."

"Plow deep, while sluggards sleep, and have some grain to sell or keep," was first printed in "Poor Richard's Almanac," but whether it originated with Dr. Franklin, or was an old saying that had been in existence long before his time, is not known; but whether he himself was the author, or merely repeated and sanctioned an old adage, is not material. It shows he was a believer in deep plowing without any qualifications; but Dr. Franklin was a printer, a statesman, and philosopher but never a farmer, nor a farmer's son. What knowledge of farming he had must have been obtained from books.

The prevailing opinion among farmers at the present day seems to be, and is also that of the writer, that land should be plowed deep, or shallow, according to the depth, and nature of the soil. A deep, rich soil will be likely to raise a better crop by plowing deep, thereby enabling it to absorb, and return, more water for the benefit of the crop in dry weather, also to give the roots of plants a chance to push down deeper to obtain moisture from the subsoil. Another thing, it probably facilitates the rise of the ground water by capillary action. Nothing has been more clearly established by experience than the impropriety of turning the thin top soil to the bottom of a deep furrow, and unless there is given at the same time it is done, a good dressing of manure, there will be a positive damage to the land for several succeeding crops.

Some years ago, the writer tried the experiment of deep and shallow plowing on the river flats, or alluvial lands, along the Susquehanna river. Part of a field of sod ground was plowed only about five inches deep and the remainder as deeply as two teams could draw the plow—or eight or nine inches deep. It was planted with corn and the whole field produced a good average crop, and no appreciable difference could be discovered between the part plowed shallow and the part plowed deep.

Afterwards I tried the same experiment

on the flats, this time instead of sod, stubble ground was plowed and the result was the same. Both the deep and shallow plowing gave a yield equally good. It was noticeable, however, that the deep plowing buried the weed seed so deeply that the weeds did not get up on that part like they did on the other.

Our upland, composed of clay loam, will not bear deep plowing unless manured at the same time. To deepen a thin soil requires several years, and can be done by setting the plow to run a little deeper each year, bringing up only about an inch of the subsoil each time.

Pennsylvania.

J. W. INGHAM.

DEEP OR SHALLOW PLOWING—WHICH?

In regard to this question it is essential to discriminate clearly between deep plowing and deep stirring. There is a vital difference between the two; so much so that, whereas, perhaps not one farmer in a hundred could, from his practical experience, urge the adoption of the former, there must be very few who could not conscientiously speak favorably of the beneficial influence of the latter.

Much, of course, depends upon the nature of the land, and particularly of the subsoil, but the stirring of the latter to a depth of even two inches or three inches below the ordinary furrow can scarcely fail to have a useful effect in promoting the prosperity of the succeeding crops, for the reason that allowing the plant roots to extend over a large area requires less exertion in search of nutriment and moisture.

Obviously it must be a very friable subsoil that would not derive benefit from deep stirring at occasional intervals. The objection to deep plowing, on the other hand, is that instead of loosening the subsoil and leaving it where it was, it brings it to the surface and involves the burying of the more fertile top soil to a depth at which the nutriment that it contains is available to the plants only after they may be said to have emerged from the delicate and precarious stages of development.

The new soil that is brought to the top would, in the course of time, no doubt, become as mellow in texture and as rich in elements of plant food as that which it has displaced, but a certain period must elapse before this can be accomplished. In the meantime the farmer brings this hungry soil to the surface and incurs the risk of reaping inferior crops, until by heavy expenditure in tillage and liberal manuring he has enriched and refined the new surface soil. Deep plowing, therefore, is in average cases to be avoided for the twofold reason that it involves diminished yields and increased expenditure to the farmer for at least one rotation.

Scientifically, as well as practically, the bringing up of the subsoil to the surface is disadvantageous. As is now generally known, the fertility and yielding properties of all soil are largely regulated by the action of useful bacteria therein. But for the presence and activity of the various micro-organisms in the land, crop production would be unprofitable, if not impossible, and consequently bacterial life may be said to constitute the very essence of fertility. Having regard to this fact, it is necessary to consider the conditions that are most conducive to bacterial activity.

Numerous searching investigations have shown that the fertilizing bacteria are much more plentiful in the surface of the regularly cultivated soil than in the lower strata. Therefore, the importance of retaining the soil that teems with bacterial life on the surface is evident and indisputable. If this soil, in which the beneficial micro-organisms are constantly fulfilling their indispensable functions, is buried below soil in which bacteria are comparatively scarce, it is clear that unfortunate consequences must result. On the whole, deep plowing is unprofitable and highly inadvisable on ordinary soils, but, on the other hand, subsoil stirring may be of great benefit under normal conditions.

Illinois.

W. H. UNDERWOOD.

PURE CULTURES A SUCCESS FOR INOCULATION.

I am mailing you under separate cover an alfalfa root pulled out of a field sown last May, sowed with barley one bushel to the acre, which was allowed to get ripe and was threshed and yielded 20 bushels per acre. The seed was inoculated with pure culture from M. A. C. This field never had alfalfa on it before nor neither did the farm, with the excep-

tion of one and one-half acres on a distant part of farm sowed in 1910. This field was sowed to rape, pastured by hogs next year, sowed to oats and fall plowed and seeded to alfalfa with barley last year, with two tons of limestone screenings to the acre applied early in the spring. I send you this to show how easy it is to get inoculation with the pure culture, which is so much cheaper than applying four or five hundred pounds of soil from an old field. I have used the pure culture a number of times, both in Antrim county and here, with uniform success. The acre and a half sowed in the spring of 1910 yielded last season five large loads, or five tons, at three cuttings in spite of the extremely dry weather. Allegan Co. W. W. BURDICK.

This alfalfa root showed a fine development of nodules, but they were so dry as to make illustration impracticable.—Eds.

HOW TO APPLY FERTILIZER TO THE CORN CROP.

How shall I apply commercial fertilizers to my corn for best results? Will use 200 lbs. per acre. Shall I put it all on with grain drill a week or so before planting, or would it be better to put 150 lbs. with drill, and balance with a hand planter in the hill with the corn?

Mecosta Co.

C. V. B.

I think about 100 lbs. of fertilizer to the acre is sufficient to put in a hill. We do not want heavy applications where the fertilizer is left in handfuls in a place. A teaspoonful to a hill is just as good as more. It is all the plant will use them, and I should prefer to put the balance of the fertilizer broadcast and work it into the soil before the corn is planted.

However, I am of the opinion that C. V. B. will find it profitable to use more than 200 lbs. of fertilizer to the acre on corn. This will help the corn but the corn plant is a wonderful feeder. It requires a vast amount of food if you want to get a big crop, and the possibilities of a corn crop are wonderful. The average farmer only raises about 30 bushels of corn to the acre, and yet some people raise 100 bushels of shelled corn to the acre. The principle difference is because one man's field is a great deal richer than the other. Of course, there is probably some difference in tilling and a little difference in seed, but the great limiting factor is plant food. You can't grow a big crop of corn unless you have plenty of plant food. Food must be supplied in some way or other if the ground is not new land and naturally rich.

Of course, a clover sod turned down makes an excellent foundation for a corn crop. If this crop has been manured with stable manure all the better. Under such circumstances an application of 200 lbs. of fertilizer to the acre probably would give excellent results. But, on the other hand, if you did not have a clover sod or did not have the stable manure for the corn crop then there ought to be 400 or 500 lbs. of good fertilizer used per acre. In this case I would broadcast 450 lbs. or 400 lbs. at least, and then use 50 to 100 lbs. with a hand planter in the hill. This will give the plant a nice start, and just as soon as its root system is developed it will reach out and feed upon the fertilizer which has been distributed broadcast.

COLON C. LILLIE.

The usual monthly bulletin of the Department of Commerce and Labor brings out the fact that in March of this year we exported 5,192,121 bushels of corn, against 9,773,149 in March, 1911. The value of our corn exports this year in March was \$3,765,666 against \$5,121,481 in March of last year. Our wheat exported last month, amounting to 1,144,933 bushels, was valued at \$1,105,929 against 1,854,363 bushels, valued at \$1,663,696, sent abroad in March, 1911. Only 5,354 head of cattle, valued at \$509,175 were exported last month, against 10,502 in March, 1911, valued at \$979,893.

In 1899 151,321,000 acres of land were used for the production of our five leading crops—corn, wheat, potatoes, sweet potatoes, and rice, against 147,555,000 acres in 1909, a decrease of 2.5 per cent whereas the population of the country during the same period increased 21 per cent. This decrease in acreage was entirely in wheat, for which the area fell off 15.8 per cent while the yield increased 3.8 per cent.

Sold His Bulls.

Fred J. Wilber, who had a small ad. in a late issue of the Michigan Farmer, "Bulls For Sale," reports that the advertisement sold his bulls. If there are any others of our readers who have a surplus of bulls they can dispose of them at fair prices through an advertisement in the Michigan Farmer and it will not cost much. Write us for rates.

THE CANADA THISTLE PROBLEM.

Being a constant reader of the Michigan Farmer, and noticing so much comment on the Canada thistle problem, I desire to give my experience in this connection, as I have cleared two farms of Canada thistles.

When you hear a man say that Canada thistles cannot be killed, just go back on his farm and see how he cuts them. Generally you will find two thistles cut and three standing. He will wait until they commence to bloom before he looks after them at all, then if you happen to hear him talk in some gathering of farmers you will hear how he has cut his thistles. Then when threshing time comes he takes the threshing machine back in the field and threshes out a little stack of 20 or 30 bushels in order to take the curse off. I know of one man who had an infested stack threshed in the field, getting 11 bushels of oats, and then was angry because the thresher charged him for a "set job."

A well-to-do man said to me the other day, "I wish I had the 'gall' you have. I would make the men in my neighborhood cut their thistles when they should be cut." I have had men arrested because they did not cut their thistles, but it is the same old thing the next year. If you tell one of these men that he is not a law abiding citizen, he is mad right away, but nevertheless he is not, and should be compelled to abide by the law.

I note in a recent issue of The Farmer that one "Subscriber" said, "There ought to be a way to prop these weak-kneed officials up to a point where they would do their duty." The law imposes on you just the same duty as it does on the officials, Mr. Subscriber. Why don't you get to work? I commenced on the "rich" men in my community and made them comply with the law first, and they are just the men to commence on. It is just the same in the school. Make the big boy and the big girl mind and the little ones will follow suit.

I own a farm of 120 acres, which I bought nine years ago, when about 20 acres of it was covered with thistles. Now I can take my hoe and cut every thistle that would go to seed in one day. Nine acres was a solid thistle patch. After two years in corn I don't believe you could find five stalks inside the plowed area.

I believe that it would be a good plan to have a law providing for the appointment of a special officer by the governor to look after this thistle and brush deal. As for the township officials, there are too many men looking after a political job who think it would cost them a few votes to enforce this law. Every other interest seems to be looked after by the state. We have game wardens, men appointed to protect the timber land for the rich, as well as on the state land, etc. But if there isn't anything done to remedy the thistle and milk weed situation, and it goes for the next 20 years as it has for the last 20, there will be plenty of farms that will be so unproductive that no crop can be grown at a profit. I would rather have the "thistle men" curse me while I live than my kin when I am gone, for leaving them a Canada thistle patch as an inheritance.

Barry Co. E. F. CHARTEN.

THE WOODLOT—ANOTHER VIEW OF IT.

I was quite interested in the article in your issue of January 27, by Edward Hutchins, on the "Woodlot," and later the article on the same topic by Mr. Walbridge, of Branch county. Mr. Hutchins discusses the matter from a financial standpoint and, I think, said that "laying aside any sentiment" of forestry that he had about decided that the land was worth more for cultivation than for a woodlot, making some estimate of the amount of wood, price, etc. As I finished the article I fell in this train of thought. Suppose that we should all come to the same conclusion as Mr. Hutchins indicates (as many have in our own country), what a desolate, forest devastated country we would have, and as I have seen our west half of the country when it was almost an "unbroken wilderness," every old "primitive forest" or a small piece of one is quite dear to me.

Now, I have nine acres of timber, much of it what is now commonly termed second growth. I bought this woodlot of 40 acres in 1863 and went away soon after to the army, returning in 1866. I reserved one tree of "whitewood," about three feet in diameter on the stump, and a few years ago cut it to be sawed for my own use, and we had it skidded near

the highway and an agent of a basket factory caught sight of it and very readily offered me such a price for it delivered at the factory that I could not think of keeping it for my own use. I think the timber was used for berry boxes. In the last 12 years ye have cut hemlock logs enough from the nine-acre lot to make \$80 worth of lumber at present prices, and this winter I have taken out a 40-foot poplar hewing stick that I do not think that I could have bought anywhere in the country and the plank to have made a sill of like it would have cost me perhaps nearly \$10, and besides this we probably have cut in the last 15 years 80 cords of stove wood from this lot. Have just cut 20 cords this winter and probably 50 cords more could be cut from good-sized timber to be thinned out in time, and let the other smaller timber grow; and besides this there are probably 30 or 40 trees of hemlock growing, nearly large enough for sawing timber, having cut out several trees for timber this winter.

So I think the "timber lot" is a good money investment as the stove wood is worth \$2 per cord above the cost of cutting. I have no stock running in this woodlot so that everything is left to grow, with many small sugar maples that I give away, a liberal number every year to those who care to plant them.

Allegan Co. PIONEER.

LARGE OR SMALL DISKS.

Would like to know through your paper, which disk would run the easiest, a 16-inch or a 20-inch? My land is clay loam.

Ottawa Co. J. J. H.

If the 16-inch disk and the 20-inch disk both turn the soil the same depth I think there would be practically no difference in the pulling power necessary to move them, but I believe almost invariably that the small disk will pull the heaviest because I am quite positive that it will go in deeper on an average, than the larger disk. My experience is that with 20-inch disk you have got to load it pretty well if it goes in anywhere near as well as a 16-inch disk, but if they both go in to the same depth I don't believe there would be any difference in the amount of power it took to pull them through the ground.

COLON C. LILLIE.

BUY YOUR MOTOR OIL BY THE BARREL.

The large increase in the use of automobiles by farmers makes this question one of increasing importance to a considerable number of Michigan Farmer readers. There is no one factor in the handling or care of any kind of machinery which adds more to its life than the proper use of a good grade of lubricating oil. The great majority of farmers are in the habit of buying their lubricating oil in small quantities, generally not more than a gallon at a time, and paying a retail price for same.

This is not good economy even in the purchase of lubricating oil for ordinary farm purposes, since lubricating oil does not deteriorate and the last gallon in a barrel of lubricating oil is as good as the first gallon taken from it. While it is good economy to use first-class lubricating oil upon all farm machinery, it is especially important that a first-class grade of motor oil be used on automobiles, and in fact all gasoline engines and this oil will also be better for other machinery. It is certainly good economy to buy this by the barrel, and the best grade of lubricating oil which is well adapted to use on gasoline motors—an excellent and well known brand of which is advertised in these columns—can be now purchased in barrels or half-barrels anywhere.

For the automobile owner, particularly, it is good economy to buy oil in this way, as it insures a uniformity and grade of oil which will add much to the durability of the automobile and its satisfaction in service, and good oil purchased in this manner will not cost more than poorer oil purchased in smaller quantities.

SEED CORN.

Farmers should test any corn they may have selected for their own planting, test it now, don't wait till planting time. If it does not show a satisfactory test, don't plant it, but get your seed before it is too late. Good northern grown seed corn suitable to Michigan is scarce, secure your seed while you have a chance to get it. We have it now, but later we may not have it. If your local dealer cannot supply you with our seed corn, write us at once for prices and samples. Alfred J. Brown Seed Co., Grand Rapids, Mich.



Why Plow with Dull Shares?

You wouldn't use a dull razor. Why burden your team with dull plow shares?

Ordinary soft center shares when sharpened by the blacksmith are not re-hardened. Why? Because he is cautioned against it by the manufacturer—he can't afford to take the risk. **ACME SOFT CENTER STEEL SHARES** can be re-tempered any number of times, any place that fire and water can be found and at our risk. Both user and blacksmith are protected by

OUR GUARANTEE

Acme steel hardened shares, shovels and shapes are warranted not to break under any condition where plowing for crop is being done. Shares guaranteed against breakage under same conditions of usage after blacksmith has drawn the temper, sharpened, heated to a cherry red and re-tempered same. Acme shares are guaranteed to wear as long as any other soft-center steel shares made.

By re-tempering, you get hard shares—hard shares wear—retain their sharp edge—reduce the cost of plowing per acre. "Acme Shares Don't Break." ONE BLOW BREAKS OTHERS

CAN'T BREAK THE ACME

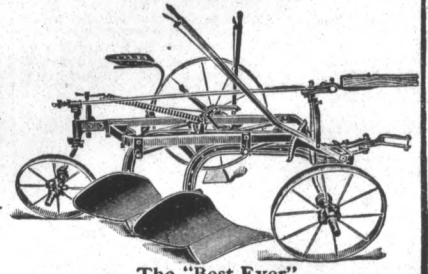
Note the difference in these photographs between Acme Shares and others. Mr. Farmer—why not have the perfect Acme Shares on your plows? They cost no more than others and think how much more they are worth to you. Where can you get Acme Shares? On Moline Plows only—The best plows in the world—The best made, the best balanced, the easiest to handle.

The "Best Ever" Sulky and Gang Plows are made of carefully selected materials, in a factory making only high-grade implements. Positive wheel control—perfect scouring qualities—light draft and many other strong features in addition to the Acme Steel Shares and Moldboards which place Moline Plows in a class by themselves.

Write today for FREE FOLDER on Best Ever plows, also Acme booklet.

MOLINE PLOW COMPANY

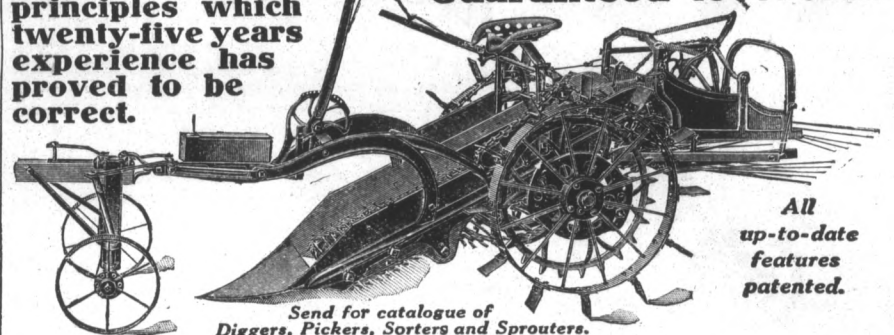
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Built on scientific principles which twenty-five years experience has proved to be correct.

Guaranteed to Work.



All up-to-date features patented.

Send for catalogue of Diggers, Pickers, Sorters and Sprouters.

THE HOOVER MANUFACTURING CO., Box 45, Avery, Ohio.



THE EASY WAY

To get your hay in is to use a

Porter Hay Carrier

Here is a real Hay Carrier; a genuine labor-saver and will last a lifetime.

It will work in any barn and handles clover, timothy, alfalfa, or straw with perfect success.

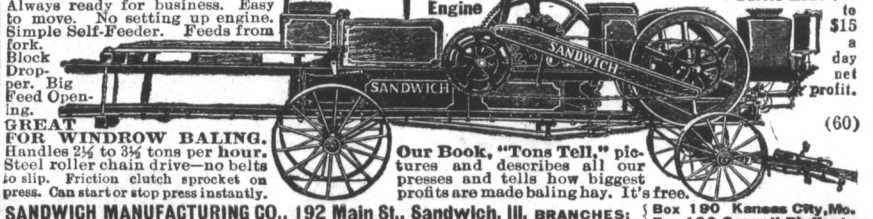
See them at your dealer, or if he does not have them, write us. Send for catalogue of complete barn and cow stable equipment—hay carriers, hay slings, hay forks, feed and litter carriers, sanitary steel stalls, cow stanchions, etc., mailed free upon request.

J. E. PORTER COMPANY, Ottawa, Ill.

Sandwich Motor Press

A great combination solid steel Hay Press and hopper-cooled Gas Engine mounted on same truck—complete, compact and fast-working. Can furnish outfits with 4, 5, 7 and 9 H. P. Engines. Always ready for business. Easy to move. No setting up engine. Simple Self-Feeder. Feeds from fork, block, drop, or big feed opening.

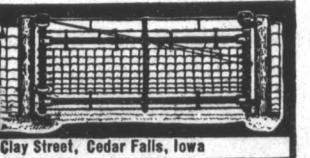
We Make a Full Line of Hay Presses—Motor presses—horse-power presses—steel frame or wood frame presses—big and small presses. Balers make \$10 to \$15 a day net profit.



SANDWICH MANUFACTURING CO., 192 Main St., Sandwich, Ill. BRANCHES: Box 190 Kansas City, Mo. Box 190 Council Bluffs, Ia.

IOWA NEW GALVANIZED GATES

Let me ship the gates you need for 60 days free inspection and trial. Save from \$50 to \$250 on your gate purchase. Iowa Gates are made of high carbon steel tubing and large stiff No. 9 wires. Rust proof—wear proof. Write for my special proposition today. Complete galvanized frame, also painted gates cheaper than ever before. Jos. B. Clay, Manager, IOWA GATE CO., 57 Clay Street, Cedar Falls, Iowa



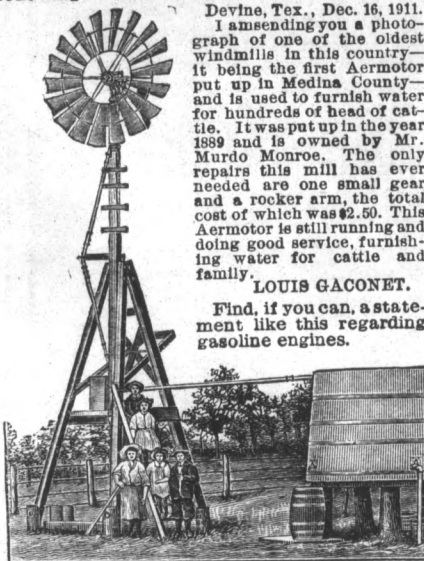


The Aeromotor with the automatic regulator stops when the tank is full and starts when the water is lowered 4 inches. You oil it once a week. A gasoline engine has to be started and stopped and oiled and attended almost constantly, and you have large expense for gasoline and oil. The wind is free.

We make gasoline engines (exceedingly good ones) but, for the average water supply for the home and 150 head of stock, an 8-foot Aeromotor with a storage tank, which is a necessity with any kind of water supply—is all that is needed and is by far the more economical. The supply of wind for the Aeromotor is more to be relied upon than the supply of gasoline, batteries and repairs for the gasoline engine.

The cost of gasoline, oil, batteries and repairs in pumping for 150 head of stock with a gasoline engine, will buy an 8-foot Aeromotor every year, and you are still to the bad the amount of time you spend over the gasoline engine.

But the gasoline engine has its place on the farm notwithstanding the fact that 100 people are maimed or killed with gasoline where one is injured by a windmill, and that 100 farm buildings are burned with gasoline where none is injured by a windmill. For the water supply, the windmill is the thing. Thousands of farmers who have done their first power pumping by a gasoline engine have become tired of it and are buying windmills. That is one reason why our windmill business increases from year to year. We can furnish you much testimony like the following:



Devine, Tex., Dec. 16, 1911. I am sending you a photograph of one of the oldest windmills in this country—put up in Medina County—and is used to furnish water for hundreds of head of cattle. It was put up in the year 1889 and is owned by Mr. Murdo Monroe. The only repairs this mill has ever needed are one small gear and a rocker arm, the total cost of which was \$2.50. This Aeromotor is still running and doing good service, furnishing water for cattle and family.

LOUIS GACONET.
Find, if you can, a statement like this regarding gasoline engines.

Of course, there are places where a windmill cannot be used. There you will have to use a gasoline engine, with all its disadvantages. We will furnish for that place a small engine which costs but \$37.50 complete, so it can be set to pumping in 30 minutes. Or we will furnish you a pump jack—the best made—for \$6.00, to do pumping with a larger gasoline engine.

Send for catalogue giving full information about water supply. Aeromotor Co., Chicago, Branch Houses: Oakland, Cal.; Kansas City, Mo.; Minneapolis, Minn.

DAIN

SIDE DELIVERY RAKE

This Machine Makes Hay WORTH MORE

To Feed—To Sell

Let hay lie in the swath and the sun scorches it robbing it of its color and much of its nourishment. In the ordinary close-packed windrow, the air is shut out. But throw it up in a loose fluffy windrow with the **DAIN** (Steel Frame) Side Delivery Rake.

And the hay is evenly dried by the warm air. All the rich juices and natural color are preserved. If you sell hay, get the higher price that hay of good uniform color always commands. If you feed your hay, get the benefit of the increased feeding value to your stock.

Handles the Hay Gently
The rake bars have a slow, steady motion. The spring fingers lift the hay softly. The tender foliage parts, high in feeding value, are not shattered off and wasted.

Cures the Hay Quickly
Hay cures slowly in the swath thatch. Tossed hay falls back on the damp ground. The Dain Side Rake makes loose open windrows and exposes the damp stable so that it dries out and warms up. This reflected heat helps cure the hay more quickly. In "catchy" weather, quick curing is of greatest importance.

Special Features
• Teeth may be raised or lowered.
• Teeth turn with gentle motion.
• Harmless to tender products.
• Rakes clean, leaves trash and dirt.
• All hay absorbed by cushion springs.
• Easy regulation of bevel gears.
• Easily adjusted to handle light or heavy hay.

All Dain Hay Tools Are Money Makers
They're made by hay tool specialists, 29 years of experience back of every machine. They're the most simple, the most time and work saving, the most durable and dependable. Ask your John Deere dealer to show you the Dain line of mowers, rakes, stackers, loaders, presses, etc. Write us for new booklet of the tools in which you are interested. We'll also send you free "Better Farm Investments and How to Use Them," the most practical and valuable book ever published for farmers.

Be sure to ask for package No. 75

John Deere Plow Company
Moline, Illinois

"Get Quality and Service, John Deere Dealers Give Both"

LIVE STOCK

FEEDERS' PROBLEMS.

Getting the Stock on Grass.

The average farmer is always in something of a hurry to get the stock out on grass in the spring as a means of saving feed. This will be universally the case this year in view of the general shortage of both hay and grain, hence a word of caution will be most timely.

Violent changes in feed should always be avoided in the care of live stock. Changes should be made gradually, particularly such a radical change as that from all dry feed to grass. If the live stock is turned to pasture as soon as the first bite of grass is available and all other feed is discontinued at once, the digestive function is sure to be disarranged. When the grass first starts it is very succulent, and does not contain as much nutriment as will be the case when it gets a little more growth. Such a violent change will tend to physic the animals too severely, and there will be a consequent shrinkage in weight which it will require time to overcome. It is much better practice to make this change gradually, continuing the grain ration for a time and giving a feed of good hay each morning before turning the stock to pasture. The extra cost and trouble will be more than repaid in the gain in condition which will result.

Pasture Crops for the Hogs.

Too much cannot be said regarding the advantage of sowing pasture crops for the hogs, where clover or alfalfa pastures are not available. One of the very best pasture crops for hogs is Dwarf Essex rape, sown broadcast at the rate of four or five pounds per acre or in drills to be cultivated, using about two pounds of seed per acre. Where sown broadcast clover can be successfully seeded with the rape, thus insuring a good hog pasture next year. The value of rape as a hog pasture is fully attested by many authentic experiments to which reference has recently been made in these columns. Another experiment of a similar nature recently made at the Ohio station affords equally interesting evidence of the value of rape as a hog pasture. Six pigs, weighing about 45 pounds each at the beginning of the test, were kept on slightly less than one-quarter of an acre of rape for 11 weeks. During this time the pigs received 825 pounds of a mixture of nine parts, by weight, of ground corn to one part tankage, and gained 369 pounds in weight. Another plot, more fertile than this one, yielded an even more luxuriant growth, of rape, and showed a larger carrying capacity.

It will be especially profitable to provide succulent and productive pasture in the hog lot in a season like the present when grain is scarce and high in price, and there is probably no better plant for this purpose than rape, which has the advantages of being cheap to seed and a vigorous grower which will afford pasture a few weeks after sowing and has a long season of productive growth.

Rid the Live Stock of Parasites.

With the coming of spring, it will prove profitable to take steps to rid the live stock of the external parasites which are all too apt to infest them in winter quarters. This is particularly true of the sheep, especially the coarse and middle wool breeds, which are very generally infested with ticks. Where early lambs are raised, as is the general practice in Michigan, the ticks will mostly desert the older sheep for the lambs after the sheep are shorn and greatly retard their growth. It is the wisest kind of economy to dip the lambs soon after the sheep are shorn, and if the entire flock is dipped twice after shearing, allowing an interval of about ten days between dippings, these pests can be so far eradicated as to eliminate this handicap to success with the flock. This will add not a little to the thrift of the lambs and the less healthy members of the older flock, and will add to the profit derived from this department of farm production. It will also prove a great saving in feed required to keep the flock in good condition next winter, when feed is likely to again be at a premium on most farms.

What is true of the sheep is true to only a slightly lesser degree of the other stock. The cattle and even the hogs are also likely to be infested with external parasites at this season of the year, and it will pay to eradicate them, both from the standpoint of economy in production and the comfort of the animals. The poultry,

too, need attention of the same kind, and it will be wise economy on the part of every farmer to attend to the eradication of these parasites at once. There are various preparations which can be used for this purpose, but perhaps none as convenient to use or more effective or economical than the standard dips advertised in the columns of the Michigan Farmer, the profit in using which will be attested by hundreds of progressive stockmen throughout the state. This is really a factor in the economical feeding of live stock which should not be neglected by any farmer, even where live stock production is only a side issue in the general scheme of farming followed.

Buckwheat Straw for Bedding.

I am sowing a large acreage of buckwheat this year and wish to inquire if the straw is good for bedding. I have been told it is not, especially for hogs. What can you tell me about it? I need the straw, but if it is unsuitable to use would stack it outdoors instead of putting in the barn as I intend. Would be very much pleased to receive reply through the Michigan Farmer, out of which I get plenty of valuable information every week. Hillsdale Co. E. E. L.

Buckwheat straw is not a suitable bedding material for pigs. It is irritating to them, and the writer knows of at least one instance in which two or three litters of young pigs were lost through letting the sows make their nest around an old stack of buckwheat straw. Whether the deleterious effects of buckwheat straw are confined to pigs or not we do not know, never having used it, but would give it a trial if occasion offered.

KEPT SILAGE FROM FREEZING WITH STABLE HEAT.

That topic of frozen ensilage has come up so many times this last winter and spring that I venture to relate the experience of a friend. His cow barn was of ample floor space but with a rather low ceiling and well battered around the sides as well as overhead. The roof, eaves, and connecting chute of his silo were also as nearly air tight as a careful mechanic could make them. During the coldest days and always at night he left the door between the silo and the cow stable open and the excess of heat from 15 cows went up into the silo. He said that this was as good as the King system of ventilation and I personally know that he had no frozen ensilage, when the rest of us had from one foot to eighteen inches. I can see objections to this plan from a sanitary standpoint but still I shall feel justified in using the principle in a modified form in my own barn another winter.

Lenawee Co.

J. D. McLouth.

BEST RATION FOR HORSES.

Will you kindly advise me as to the best ration for horses, used on the road? Am feeding mixed hay, (clover and timothy). Grain can be bought here at the following prices: Corn, 85c; oats, 60c; bran, middlings and cottonseed meal \$1.65 per cwt., and oil meal \$2.25 per cwt. Oceana Co. L. F.

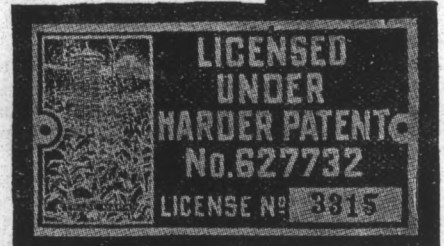
For horses doing a considerable amount of road work there is no grain equal to oats. You can keep them in good flesh a little better if a portion of the grain is corn, but corn is too heating, causes the road horses to sweat easily, and does not give them as much spirit as oats. I am quite positive that for road work one can afford to buy oats for a horse even if they do cost a little bit more than other grains. With draft horses, horses doing slow work, then the case is different, and one can compound a ration out of corn, and bran, or oil meal, and cottonseed meal, and perhaps a little cheaper ration than he can where he feeds all oats and keep his horses in better flesh, but for a driving horse there is nothing that will give the horse the endurance, the vigor, and the spirit of oats. Feed a horse a moderate amount of good hay and then give him the balance of the ration with good oats and he will go to the end of the road every day, and he will feel like going every day, but you go to feeding him on corn and bran and cottonseed meal, he lacks spirit, he is logy, and the grain ration is nowhere near as satisfactory as plain oats and plenty of them. I think it pays to feed all horses a little bit of oil meal once in a while, or a small amount every day on account of its laxative effect, and protein content as well. If the driving horse seems to be too constipated, the hair shows that he is a little bit unthrifty, there is nothing better than a small allowance of oil meal every day and this can be used in sufficient quantities to regulate the bowels as necessary, otherwise put your main dependence on oats.

COLON C. LILLIE.

This License On Your Silo Makes You Safe

The license plate shown below is furnished you only by the leading and reliable manufacturers who have licensed the manufacture of silos with the Harder patent. The plate protects you from prosecution for patent infringement.

Our rights were established by the United States Circuit Court of Appeals, the highest court in patent cases, United States Circuit Court Third Circuit, Ryder vs. Schlatter, United States Circuit Court Southern District of New York, Ryder vs. Townsend, United States District Court, Eastern District of Wisconsin, United States Silo Co. vs. Beaver Silo & Box Mfg. Co.



The Law Gives Us This Protection

The patent law holds that not only manufacturers but also users of silos which infringe our Harder patent are actionable and we may obtain satisfaction from owners or users of infringing silos. This announcement is published as a fair notice to all prospective silo purchasers so they may govern themselves accordingly.

The Harder Patent Is Just This:

Here, in the exact language of the original patent is the claim on which the United States Government granted the patent:

4—A silo or tank having a continuous opening from top to bottom, braces between the edges of the walls forming the opening and reinforcing strips for the door sections substantially as described.

This claim has been upheld by every Court which ever tried a Harder patent infringement case. In justice to ourselves and to the manufacturers who are legally licensed, we are bound to protect these rights and prevent infringement by either a manufacturer or user.

Our FREE Bulletin Explains Fully

It contains full particulars of the Harder patent together with United States Court decisions and a complete list of manufacturers who are authorized to use the Harder Patent on the silos they sell. It shows you just which silo you can buy without violating the law. If you care for a copy of this bulletin you can have it free by addressing:

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Self-Loading Hay Rack

ONE MAN DOES IT ALL.
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 **JAS. G. BAILEY, Delavan, Ill.**

Kouns Steel Stackers, Rakes and Sheds make good hay. Let me show you.

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MORE MONEY
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Write for descriptive booklet

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FOR SALE OR TRADE!
A 4-YEAR-OLD BELGIAN STALLION,
Weighs 1800 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.

& BUGGY WHEELS PRICES PAID
With Rubber Tires, \$18.45. Your Wheels Re-rubbered,
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Shafts, \$2.10. Repair Wheels, \$5.95. Axles \$2.25. Wag-
on Umbrella free. Buy direct. Ask for Catalog 28
SPLIT HICKORY WHEEL CO., 528 F St., Cincinnati, Ohio.

ALWAYS mention the MICHIGAN FARMER
when you are writing to advertisers.

BREED TYPE IN RAMBOUILLETS.

I purchased a registered flock of Ram-
bouillet ewes in the fall of 1909, through
an ad. in the Michigan Farmer and had
good luck until now. As I am new at it
would like to know if I am put out al-
ready. Last fall I bought a new stock
ram. They said he was registered and
gave me papers for him, and now his
lambs are coming and they have brown
spots on ends of ears and small ones on
nose. What does it mean? Has my ram
some grade blood back of him? He has
fine white marks himself.

Kalamazoo Co.

B. F. F.

The inquirer has no occasion for alarm
at the appearance of the brown spots on
the nose and ends of ears in his lambs.
It simply means that characteristic of
Merino sheep which in later years has
become undesirable and breeders have
sought to eliminate from their flocks as
much as possible, has made its appear-
ance in this man's flock of lambs this
spring. It does not signify that the ram
is not pure-bred; rather is it a sign that
he is pure Merino. If he has a certificate
of registry and he bought the ram of a
reliable breeder there is no reason to
question the purity of the ram's breed-
ing. The spots are rather another in-
stance of proving the law of breeding

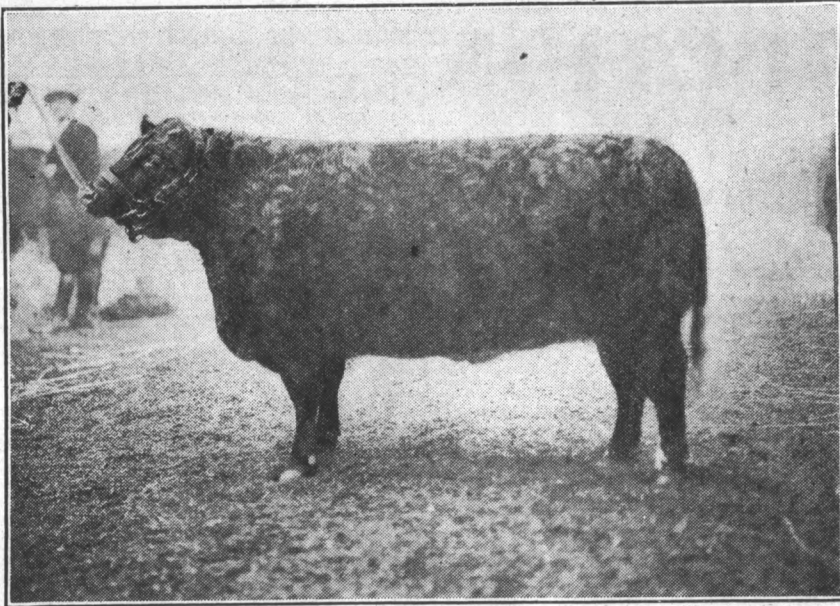
far less objectionable than many faults of
fleece and form which may not be so ap-
parent to the average eye.

Washtenaw Co.

ROSCOE WOOD.

LIVE STOCK NOTES.

Buyers and sellers of hogs seem to agree
in one thing, namely, that prices are like-
ly to rule not greatly different from re-
cent quotations, with recoveries to \$8 per
100 lbs. for the best droves after breaks
in the market. There must always be
limits to advances as a matter of course,
and further rises would be calculated to
further check the consumption of hog
products. Still it will be seen by looking
backward that two years ago the market
prices for hogs in Chicago were \$9.55 @
10, and if the receipts are to continue as
small as they have been part of the time
recently there is no telling how high the
market may go. Recent prices were the
highest seen since January, 1911, the top
hogs bringing \$8.10. Hogs are now the
most profitable of all farm products, con-
sidering the time required to grow them,
and cheap hogs look a long way off, with
general reports of a moderate sized spring
pig "crop." It will undoubtedly pay farm-
ers owning thrifty, growing, young hogs
to finish them off in first-class shape,
giving them plenty of weight, and it is
encouraging to note the fact that the av-
erage weight of recent marketings at Chi-
cago shows a considerable increase over



Copyrighted Photo by F. Babbage.
Shorthorn Heifer, "Village Lassie."—Best beast bred by exhibitor at the Smith-
field, Eng., show; owned by W. F. Garne & Son.

known as atavism or reversion, which is
the recurrence of any peculiarity of an
ancestor in a subsequent generation after
an intermission of one or more genera-
tions.

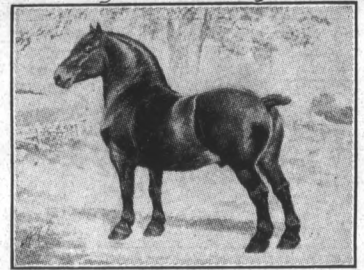
Brown spots on the ears and nose were
characteristic markings of some of the
old Spanish cabanas from which came the
foundations of both the American Merino
flocks and the Rambouillets; for they all
came from the same source. For a long
time breeders considered them as a char-
acteristic of the breed, and at one time
men considered them a fancy point to be
desired, but in later years when some
breeders took care by selection to elim-
inate these markings and made much of
a clean white nose and ear, the brown
ones fell in disrepute and breeders sought
to avoid them. But a marking which had
persisted for centuries was not easily kept
out, and even today it will be found to
occur occasionally in the best Merino
and Rambouillet flocks of this country.

The dam of the ram which the inquirer
has may have had these markings, or
possibly the sire; if not, they come from
more remote ancestors. There may be
something in the breeding of his flock of
ewes whereby the mating with this ram
once more brings these markings into
evidence. It might be that if this ram
were bred to ewes of other breeding these
spots would not occur in the progeny.
Being simply an undesirable marking or
fancy point, it is probably best to dispose
of the ram, unless he has some extraor-
dinary quality of fleece or form; and in
the selection of another take special care
to guard against this fault.

This is but one example of the unex-
pected factors with which a man who is
breeding live stock must contend. There
is no known way to provide against them.
But so long as your correspondent meets
no greater disappointment than brown
spots in his breeding work he may indeed
consider himself fortunate. If he suc-
ceeds in securing the qualities of fleece
and form which he desires in order to
produce a profitable sheep he will ac-
complish much toward improving the
flocks of his community. The appearance
of brown spots will not affect the market
value of the wool nor the mutton, and
while they may not be desired they are

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The Home of the



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who know a horse, who need a horse,
and who are familiar with values
when they find something suitable.
Have you, Mr. Stallioner, spent dol-
lars uselessly searching for a first-
class Belgian stallion or a No. 1 Bel-
gian mare for a price at which you
could afford to own same? Have you,
Mr. Prospective Purchaser, decided
where you are going to find what you
want?

We want to state here, and to state
most emphatically, that our twenty-
five years' buying experience in Bel-
gium, 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 com-
petition.

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 im-
ported Belgian stallion or mare, come
to Hewo and save all these useless
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sents every dollar that is demanded
for same, and be a gainer of several
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Puffs, and all lameness from Spavin,
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press, charges paid, with full directions for
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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—Weakness.—There is no veterinary surgeon in this locality and any advice you can give me regarding my 16-year-old mare will be greatly appreciated. This mare was fed oats and oat straw during winter, ran down in flesh, became weak, her appetite failed and she seemed to get out of condition. I imagine her kidneys were sluggish and I also treated her for worms, but none passed her. Now what I would like is to have you prescribe a remedy that will give her an appetite and strength. W. A., Marion, Mich.—Her teeth may need floating, if so file sharp edges off inside of lower rows and outside of upper, but remember it is a mistake to file off too much of the teeth. Give her 1 dr. ground nux vomica, a tablespoonful of Fowler's solution and 1 oz. ground gentian at a dose in feed three times a day. Her food supply should be increased and she should be fed some roots with her grain and mixed hay.

Indigestion—Colic.—I would like to know what to do for a mare that recently lost her colt and what I can give her that will prevent her having colic when on grass. D. C. M., Stanton, Mich.—Commence feeding her 1/2 oz. ground gentian, 1/2 oz. ground ginger, 1 dr. ground nux vomica and 1 oz. bicarbonate soda at a dose in feed three times a day and this will tone up her stomach and digestive organs so that she will not suffer so readily from indigestion and colic when on grass. She should be pastured on land that is not shaded.

Light Milking Mare.—We have a mare that has a young colt, but she has a very small bag and is a very light milker. We feed her oats, bran and hay. I forgot to say that her colt is only five days old. J. C. B., Swartz Creek, Mich.—Your mare should be fed more of a milk producing ration. Mix together equal parts ground corn and oats by weight 200 lbs., bran 200 lbs., oil meal 50 lbs., this with mixed hay and some grass will increase her milk flow. If you give the colt cows' milk add one-fourth clean water and after a while feed it some well cooked gruel.

Catarrhal Mastitis.—I am having trouble with my cows' teats after the following fashion: During the winter I found on trying to milk I could not get milk out of a teat. On examination found a little scab on the milk vent; this I attributed to getting wet with snow when out watering and freezing on the point of teat, but this month of April I have had two more cases and want to know if it is an infectious ailment. The teat vent is inflamed or swelled so that milking is very difficult and slow. The teats that have been affected remain swollen and I am ordering teat plugs. R. M., Otsego, Mich.—Your cows suffer from a contagious form of catarrhal mastitis and is no doubt caused by an infectious germ and is perhaps spread when milking is done. Doubtless repeated exposure of skin in wet cold weather will aid in producing this inflammatory condition of the teat canal. Discontinue washing your cows' udder, but clean them by dry brushing, only using water when necessary to wash off wet manure and wipe bag with a damp cloth dipped out of a two per cent solution of bicarbonate soda, then apply a small quantity of a good quality of vaseline. They should be well bedded and kept clean and the hands of milker cleaned after milking each cow. No danger from using their milk. If you use disinfectants to bag, make the solution weak, for it is a mistake to use them too strong; besides, the cows should be kept out of cold winds and from laying on cold wet ground.

Looseness of Bowels.—I have a draft mare that generally scours when allowed to stand in stable a day or two. I feed her two quarts of corn meal and two quarts of bran three times a day and she also has all the hay she cares to eat. When an opportunity presents itself she seems to be wild to eat brush and is especially fond of young cherry trees. J. C., Boyne Falls, Mich.—Feed her oats and well cured timothy; also give her 1 oz. of ground gentian, 1 oz. powdered charcoal and 1/2 oz. powdered quassia at a dose in feed three times a day. Feed her some roots and let her have grass as soon as possible.

Exostosis—Swollen Glands.—For past 12 months there has been a hard bunch on inside of fetlock joint of my three-year-old filly which occasionally causes soreness and a little lameness. I also have a 12-year-old mare that is troubled with swollen glands when she runs on pasture, but when fed dry feed is all right. C. H., Alean, Mich.—Apply tincture of iodine to bony bunch every day or two until lameness leaves. Give your 12-year-old mare 1 dr. iodine potassium at a dose twice a day, if glands bother her.

Influenza—Pink Eye.—I wish you would give me a few symptoms of pink eye in horses. Mrs. A. B., Sparta, Mich.—Influenza, pink eye, la grippe is a specific infectious and contagious fever in horses and the first symptom noticed is a refusal of food, especially grain. They always have high fever, the animal is dull, stands with head low, has chilly spells, coat becomes dry and starry, ears hang, the animal is indifferent about moving. The

(Continued on page 543).



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A Fine Jersey Bull Calf out of a cow that gave 32 lbs. of milk per day with first calf, price \$25.00. Duroc Jersey pigs at \$10 a piece; \$19.00 for two; \$25.00 for three, no kin boars or sows. F. A. LAMB & SON, Cassopolis, Mich.

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An excellent example, and one that should be easily comprehended in discussing the value of foods for dairy cows, is to consider the composition of pasture grass. A large proportion of dairy farmers depend largely upon pasture grass alone during a large portion of the summer without feeding supplemental forage or grain foods. Pasture grass is composed of, water 80 per cent, ash two per cent, protein 3.5 per cent, crude fiber four per cent, nitrogen, free extract, 9.7 per cent and ether extract 0.8 per cent. Mixed hay shows this composition about 15 per cent water, ash 4.7 per cent, protein 6.1 per cent, crude fiber 31.1 per cent, nitrogen, free extract, 41.9 per cent and ether extract 2.1 per cent. Mixed hay occupies almost as prominent a place in the average cow's winter ration as pasture grass in the summer ration; that is, to a great extent it forms the basis of a hay and straw, or hay and corn ensilage diet for dry cows and young things. Now, the mixed hay, while it has nearly twice the percentage of protein in pasture grass, has four times the percentage of nitrogen-free extract and nearly three times the percentage of ether extract, yet it has seven times the amount of crude fiber.

Cows during the winter time will keep in good condition on mixed hay. In quality, good mixed hay is better than a mere maintenance ration, that is, a cow can be maintained in the winter time in fair flesh on mixed hay supplemented by a portion of corn ensilage instead of entirely mixed hay, yet it would require additional concentrated food to enable her to milk to her best capacity because it requires too great an expenditure of energy for her to digest and assimilate enough mixed hay to produce a satisfactory milk flow. So it will be seen that summer foods for cows should contain as much nutritive matter as pasture grass and in winter time as much nutritive matter as good mixed hay, if the cows are to be merely maintained without being milked, but if they are milked in winter time the food should be more nourishing and contain a much lower percentage of indigestible matter than mixed hay alone.

A number of years ago one of our leading dairy authorities made a very practical test in feeding grass green and dry. For a number of days he saved the clippings from a lawn mower and fed them to one of his cows in the stable. After satisfying himself on this point he fed her the same number of days on the same ration, only he dried the grass and fed it after it was cured. What was the result? When fed in the succulent condition the grass produced a large flow of milk, but when cured and fed dry the cow began to get thin and drying up. Now, in order to keep our cows from getting thin and drying up during the winter time we should plan to feed some form of succulent food to take the place of the succulence that was dried out of the grass while it was being cured into

hay. Here the silo is valuable; it provides for us a way to store our corn crop for winter so that it can be fed in a palatable and succulent form. Root crops are a prominent factor in providing succulence in winter rations. Any practical feeder will tell you that he can obtain better results from less grain food while feeding roots than when feeding it in connection with dry roughage.

In what way can this nutritive matter be brought to the cows in the cheapest and most convenient form? Obviously, where general crop growing is being practiced a large portion of the farm should be set aside for the production of hay, corn and oats. Sixty bushels of corn on an acre will contain nearly as much protein, nearly as much nitrogen-free extract and about twice as much ether extract as two tons of mixed hay, which should be a fair crop for soil that would produce that much corn to the acre. The ether extract from corn and oats has a higher nutritive value than the ether extract from hay and ensilage, and the addition of the crop of corn stover or oat straw will enable the farmer to produce considerable more nutriment than from the land producing hay, and at the same time enabling him to conduct a rational rotation of crops to build up the fertility of his land. Sixty bushels of oats to the acre will give about as much food nutriment as two tons of mixed hay with the same advantages as the crop of corn, excepting that the oat straw will have less feeding value than the corn stover. Therefore, the farmer will produce in conducting his farm with a rotation of crops, a great deal more food nutriment for his cows, and by producing oats and corn to grind and feed in the winter time with his mixed hay and ensilage, stover and straw, he can keep more cows on the same area than he would be able to do if he depended on mixed hay alone for winter feeding.

This brings us down to another important problem—that is the growing of proteinaceous forage and hay crops in our rotation instead of mixed hay. Well cured clover hay shows a composition of 6.2 per cent ash, 11.4 per cent water, 12.6 per cent protein, 26.9 per cent crude fiber, 40.6 per cent nitrogen-free extract and 2.4 per cent ether extract, while alfalfa, the queen of forage crops shows a composition possessing a feeding value almost equal to wheat bran. To improve the land and the ration at the same time we should grow these crops on our farms in place of mixed hay. It is fundamentally wrong to assume that large profits can come from a highly specialized dairy business that does not provide for the growing of legume and grain crops and proper methods of handling the soil. In connection with an effort to as nearly as possible grow a balanced ration we should study the limitations of home-grown feeds and make up the deficiency of digestible protein in the cheapest and most efficient manner. In theory, corn silage and proteinaceous fodder and hay will make a very good well-balanced ration, but in common farm practice it will pay to add to the efficiency of such foods by adding a few pounds of by-product concentrates. For that reason I like to use a small amount of the purchased concentrates to re-inforce the home-grown foods.

New York. W. MILTON KELLY.

GRINDING AND COOKING CLOVER HAY.

What, if anything, would be gained by grinding clover hay, then cooking the same with the ration of corn meal and bran with it, and feeding same to milk cows or fattening steers? Why could not corn stover be handled the same way?

Hillsdale Co. W. S. C.

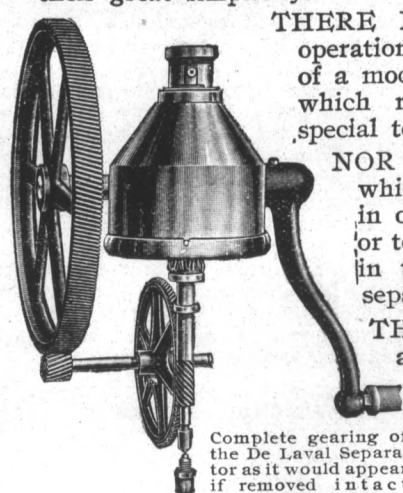
It is not necessary to grind clover hay to get results with cows. Of course, if the cows are so old that their grinding teeth were defective or gone, then it might pay to do so, but good, normal, healthy cows with good teeth can grind their own hay and enjoy it very much, and it will not pay to grind it.

So far as cooking feed for cows or any kind of live stock, only in rare instances is it profitable. People used to have an idea that it paid to cook feed for animals. Reasoning, of course, that human beings did better when their food was cooked and therefore animals would also. Careful experiments show that it does not pay. Even in cooking feed for hogs no one yet has ever got pay for the fuel, let alone the necessary labor in doing the work. Where some of the starchy foods, like potatoes and pumpkins, and also in the case of cull beans, are fed to hogs, it pays to cook. In feeding cull beans to cows it would pay to cook them

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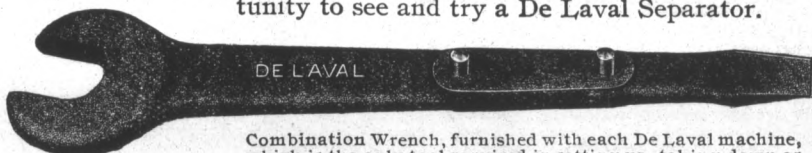
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unless they were dry enough to be ground into meal, and then I do not think it would pay to cook beans. The digestive organs of the lower animals are designed by nature to handle their food uncooked, and they can digest just as large an amount of it in a raw state as they can in a cooked state, at least a sufficiently large per cent of it so that it does not pay to cook it. Repeated and careful experiments at several experiment stations have proven this.

PLANT ENSILAGE CORN THICKER.

In raising corn for ensilage where plenty of grain is wanted would it be profitable to plant the corn 3 ft. apart and put three kernels in a hill on good, new, heavy soil. This is my first attempt at raising corn for silage.

Berry Co. M. D.
I think you will get considerable more seed to the acre by planting ensilage corn thicker than suggested. To have the hills three feet apart each way and three kernels would do very well for corn that you intend to husk and want to get a large yield of ear corn, but with ensilage corn you are not after a large yield of ear corn but want to get the largest amount of digestible dry matter to the acre. I would suggest that you plant the corn in drills three feet or three and one-half feet apart and put it on thick enough so that you have the kernels drop every three or four inches in the row. You won't get a large yield of large nice ears of corn, the most of it will be nubbins, but you will get more feed to the acre, and that is what you are after.

WHAT SHOULD CREAM TEST?

How much had cream ought to test at our local creamery when 35 lbs. of cream churned at home makes 9½ lbs. of butter, and later, with the cream screw changed, 46 lbs. of cream makes 14½ lbs. of butter?
Ogumaw Co. R. W. R.

It is impossible to tell what per cent of butter-fat cream contains by simply knowing the yield of butter from churning the cream, because butter not only contains butter-fat but it also contains some casein, water and salt, and these three ingredients are unknown quantities in the butter. In order to have it possible to tell how much butter-fat in the 35 lbs. of cream, even though you know that it makes nine and one-half pounds of butter, you have got to know the per cent of moisture in the butter, the per cent of casein that it contains, and the amount of salt added. This butter might contain an abnormal amount of moisture or it might contain a too small a per cent of moisture, that is below the average. Until this factor is known and also the amount of casein and salt incorporated it will be impossible to tell what the cream ought to test.

OATS EXPENSIVE COW FEED.

I am feeding oats, bran, cottonseed meal and oil meal to my milk cows. Please state in what proportion by weight I should feed these to obtain the best results, also whether you would suggest the substitution or addition of any other kind of feed.

Ingham Co. SUBSCRIBER.
At the present price of oats and bran I think I should cut out both of these feeds. Get some dried beet pulp and feed simply cottonseed meal and dried beet pulp. I believe that if you would substitute dried beet pulp for the oats and the bran that you would get just as good results as you are getting now, and the dried beet pulp would cost considerably less than the oats and bran. At the present price of oats it seems to me that they are too expensive to figure in a ration for a dairy cow. If you insist on feeding these grains, however, I would mix them in the proportion of bran and oats equal parts. I would feed the cottonseed meal separately. If you take a lot of pains in mixing it thoroughly then you could feed 100 lbs. of cottonseed meal to 400 or 500 lbs. of equal parts of oats and bran.

There was an extremely large calf trade at the Chicago stock yards for the Easter holiday demand, and good veal calves sold at much higher prices. Around 17,000 calves in a single week is a good number to dispose of, but all the good ones sold well.

H. W. Harry Mfg. Co., of Kansas City, Mo., and Massillon, Ohio, manufacturers of all metal silos, corrugated and plain galvanized steel tanks, corrugated metal culverts, galvanized steel bins, etc., send a 32-page, illustrated catalog describing these goods in detail and containing other information of value to farmers and stock feeders. Write for a copy, mentioning this paper.



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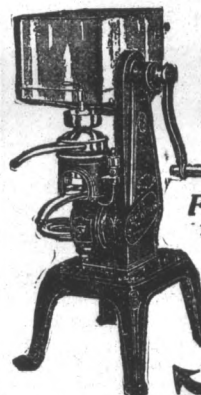
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PRACTICAL SCIENCE.

THE COMPOUNDS PRINCIPALLY CONCERNED IN ANIMAL NUTRITION.

(Continued from last week.)

Fats.

The fats are in one respect, similar to the carbohydrates. This is, that they consist simply of various combinations of the elements carbon, hydrogen and oxygen. No other elements than these three enter into the structure of fats. One difference, however, between them and the carbohydrates consists in the fact that the hydrogen and oxygen are not in the same relative proportion to each other as in the carbohydrates. The fats, or oils, correspond in some degree to the inorganic compounds known as salts. In this respect they may be considered compounds consisting of organic acids on the one hand and glycerine on the other. The organic acids, however, consist of nothing but carbon, hydrogen and oxygen. The glycerine likewise is composed of exactly the same elements.

The real function of the fats in the animal body is essentially the same as the carbohydrates, that is, they are used in the body to furnish heat to maintain the temperature. In this respect, however, the fats are of considerably more value than are the carbohydrates. In fact, one pound of fat is worth two and one fourth pounds of carbohydrates as a heat producer. Typical fats are corn oil, cottonseed oil, olive oil, butter-fat, lard, tallow, etc.

In discussing these compounds we are attempting to pave the way for a little better understanding among our readers of the processes and principles of digestion and nutrition which we shall dwell upon in order.

THE DIGESTION OF FOOD.

BY FLOYD W. ROBISON.

Digestion Defined.

By the term digestion of food is meant all of those changes which food undergoes within the body, which changes are preparatory to the absorption of that food material into the body. The uses of food within the animal body are to repair waste tissue which is used up in the various voluntary as well as involuntary functions of the body and to maintain the temperature of the body, permitting likewise of the elaboration of various animal secretive products and to promote growth. Digestion, then, is a process of making food material soluble in the digestive juices of the body. Digestion is therefore aided by various mechanical processes within the body, such as the chewing and mastication of the food in the mouth, the soaking process which in various animals takes place in the first portions of the alimentary canal and the grinding and peristaltic actions which occur later on in the digestive organs. Digestion is likewise aided and accelerated by the action of many enzymes—small, more or less unorganized ferments—which are active in the various secretive juices of the body. Bacteria likewise play an important role in the digestion of food and especially in the digestion of raw foods do bacteria play an essential part. The whole object of these various processes is to separate the valuable from the undesirable constituents of the food material so that the cells which line the alimentary canal may have submitted to them acceptable food materials.

The Alimentary Canal.

The alimentary canal is a long winding tube with various enlargements from time to time where different digestive changes take place. At these various points glands or secretive organs are located, the function of which are to supply fluids containing various active enzymes which attack the food for the purpose of rendering it soluble, and hence capable of being absorbed into the system. It is provided with an intricate network of nerves and blood vessels and is very intimately connected with the circulatory and nervous systems. The alimentary canal by itself is a long, continuous tube and is in reality not within the body proper. It is commonly considered that when a material of any description is taken into the mouth, it is then taken into the animal system. This, however, is not true. It is merely passed along before the portals of the body proper where it must pass the examination of the watch guards of the body before it is permitted to enter and

become a constituent part of the body.

Length of Alimentary Canal.

The length of the alimentary canal varies greatly in different animals. In the horse its average length is nearly 100 ft.; in the ox, nearly twice that length, and is the shortest in the hog. The capacity of the alimentary canal of the horse is about 225 quarts; of the ox, approximately 375 quarts; of the hog, about 30 quarts, and of the sheep, about 35 quarts. In the sheep and in the cow—classified as ruminants—animals which chew the cud—there are four stomachs.

The first three are usually not classed as true stomachs. They are really enlargements of the esophagus. The reason they are not classed as stomachs is that they do not secrete enzymes. They are pouches used for the storing of food materials. In each of these store houses the food which has become mixed with the saliva in the mouth is attacked by various bacteria which break down the cellulose walls of the raw foods and thus permit the juices of the mouth and later on, of the stomach, to come into actual contact with the contents of these cells. In the human race these three stomachs are dispensed with and this explains why it is so advantageous to cook vegetable food, by which cooking process the same result is accomplished as in the case of the domestic animals is accomplished by bacteria.

Digestion Begins in the Mouth.

The first act of digestion within the animal body takes place in the mouth where at the time of the mastication and grinding of food it becomes mixed with the saliva which is secreted in the mouth and which contains the ptyalin ferment, the office of which ferment is to change the starch into sugar. This process continues down the esophagus until the true stomach is reached where, due to the reaction of the gastric juice which is acid, the activity of the ptyalin ferment stops.

In the stomach is secreted the gastric juice which contains two ferments, or enzymes, known as pepsin and rennet. The purpose of the digestion in the stomach is to begin the conversion of the proteins of the food, the albumens. This action begun, the food material is passed on to the duodenum in the intestines where the reaction is again alkaline, as in the mouth, and in the glands of which the digestion of the starch may again go on to completion and likewise the digestion of the proteins is finished.

In the intestines the pancreatic fluid is secreted, in which pancreatic fluid, besides the ferments which complete the starch digestion and protein digestion exists a ferment for the digestion of the fats. This ferment is called steapsin. It has the power of breaking up the fat into glycerine and fatty acid.

Digestive System of Ruminants Different from Other Animals.

The digestive system of ruminating animals is very much different from that of animals which do not ruminate. The digestive system of the cow and the sheep differs very materially, therefore, from the digestive organism of the horse, for example. Because of the prolongation of the alimentary canal with the presence of the several enlargements of the esophagus in animals which chew the cud, such animals can make advantageous use of very fibrous foods. It is customary for the sheep and the cow to have a very bulky ration and because of the prolonged construction of their alimentary canal they are thus able to utilize it to a much greater degree than can most other types of animals. The horse lives to a considerable degree upon the same class of food as does the cow and sheep but is not able to make advantageous use of roughages to anywhere near the extent to which the cow can utilize them. The horse has a small stomach and there is no enlargement of the esophagus to permit of the soaking of the food where it may be simultaneously attacked and digested by bacterial action. Neither does the horse chew the cud, thus having a second opportunity to mix the food with saliva and thus encourage its digestion. Installed, however, between the large and small intestine is a pouch or enlargement of the intestine which is called the caecum, which is for the purpose of prolonging the digestive action which is started in the small intestine, and this in a measure thus compensates the horse for his lack of the other stomachs which exist in the cow.

In the lower intestine again, bacterial action assists once more in the breaking down of the food material and thus from the time the food is taken into the mouth until the undigested portions are excreted, it is subject to the constant attacks of the various digestive fluids of the body, together with frequent assistance from bacteria which, in health, assist nature very materially in her work.

Proteid Digestion.

The digestion of proteids begins in the true stomach. This stomach contains a fluid called the gastric juice which is acid in character, containing about 0.2 or 0.3 per cent of hydrochloric acid. In health, this fluid is generally considered antiseptic and whatever bacteria may be present in the food when it reaches the stomach is rendered inactive and killed. The principal way in which infection may take place by means of a polluted or contaminated food supply is through the lack of tone of the system, from time to time, permitting the gastric juice to become abnormal and below its usual content of hydrochloric acid.

The principal act of digestion in the stomach is the conversion of the proteins into peptone—an intricate complex protein body which, however, is soluble in the digestive juices. Proteid digestion is continued in the intestine where the more complex protein compounds are broken up and made soluble in the circulatory system. At these points the vast distinction between true proteids, or the proteins, and the amides, or the amines, is noticed. During the process of digestion, especially destructive digestion where the system is not in perfect tone, compounds similar to the amines which exist in food materials are created in the body. These amines have not been considered directly nourishing to the body. They do serve, however, as an excellent culture media for the various bacteria which inhabit the great colon, or the large intestine, and in this respect prevent the destructive digestion of some of the higher proteids. They have therefore been aptly termed, "Sparers of Protein."

LABORATORY REPORT.

Using the Babcock Test.

I have a two-bottle Babcock tester and would like to know whether it is possible to test milk and cream by measuring it without buying the scales. What kind of acid should I use? What proportion of acid and milk or cream should be used? Newaygo Co. B. G.

In answer to the query of B. G., above, we will say that in testing milk it is sufficiently accurate to measure the milk, using for this purpose a 17.6 cubic centimeter measuring tube, called a pipette. The milk is measured into the test bottle and then the same quantity of sulphuric acid, commonly known as oil of vitriol, is added to it. The two are intimately mixed and then the bottle is put into the Babcock tester and rotated for three or four minutes, at about 70 turns per minute. Hot water is then added to it. It is thoroughly mixed again and rotated for a couple of minutes. Hot water is then added until a layer of fat rises well up into the neck of the bottle. It is then placed in the Babcock tester and rotated again for about a minute and then removed and the percentage of fat read directly on the graduations on the neck of the bottle.

It is not permissible for accuracy to use a measuring tube or pipette when testing the amount of butter-fat in cream. The only reliable method is to use a cream scales and weigh out exactly 18 grams or, as it is sometimes done, nine grams and then the result is multiplied by two.

Gypsum.

The Michigan Gypsum Company is selling plaster in paper sacks. They say it analyzes 46 parts sulphuric acid; 23 parts carbonate of lime; 21 parts water of crystallization. The farmers in this part of the country would like to know if that is anything more than common plaster. An answer through the Michigan Farmer would be appreciated.

Kent Co.

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Regarding the question raised by Subscriber, printed above, we will say that plaster is chemically called sulphate of calcium, otherwise known as sulphate of lime, and would have the composition outlined above except that instead of being 33 parts carbonate of lime it would be 33 parts lime. This product, the analysis of which is printed above, in the question is ordinary plaster, and is otherwise known as land plaster or gypsum. It does not contain so much water of crystallization, but undoubtedly the product questioned contains much free water and this has been called water of crystallization—erroneously so, of course.

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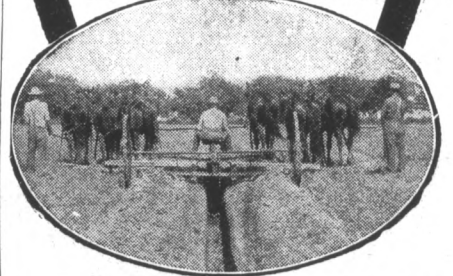
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The Lawrence Publishing Co.,
Detroit, Mich.

DETROIT, MAY 4, 1912.

CURRENT COMMENT.

How Much Money Have You Made? This is a practical question which every farmer should be

prepared to answer at the end of the fiscal year which marks the close of his farm operations for each season. But it is a question which most farmers cannot answer in a wholly satisfactory manner. If their bank account has grown somewhat during the year they are satisfied that they have made money. But the only accurate way to determine whether the year's business has been profitable or not is to take an inventory at the beginning and close of the fiscal year, allowing for depreciation or increase in the value of the plant or equipment and striking a balance which will represent the actual gain or loss.

Too few farmers do this. It is not a great task, and it is not important that it be done at the beginning of the calendar year. In fact, it is better to take this inventory in the spring when the stock and feed is at its lowest point for the year. There is no better time than the present to do this necessary preliminary work that you may be able to give a satisfactory answer to this important question another spring. A complete inventory of the farm and its equipment, followed up by the keeping of a simple system of farm accounts will accomplish this desirable end. If the system is made a little more complete, it will also be possible to tell just where the money was made or lost, which is also valuable information. This can be accomplished by keeping an account with each crop and each kind of stock maintained, so it will be possible to know what the product cost and whether it yielded a profit in its sale or inventory value. This is not a complicated or difficult proposition, and the man who follows out the ideas above advanced will find it greatly to his financial advantage and a source of great personal satisfaction as well.

The Township Unit System. At the recent April election a number of townships in the lower peninsula of

Michigan voted to adopt the township unit system in the control of their schools. In addition to these, quite a number of townships will hold special elections in May for the submission of this question, and still others are now circulating petitions for the submission of the proposi-

tion to the electors at a later date, according to a recent report of Superintendent of Public Instruction Wright.

This apparent increase of public sentiment for the township unit system of school control warrants an explanation of the system at this time. In the minds of many people the township unit system has been confounded with centralization or consolidation of schools. The township unit system, however, does not mean the consolidation of country schools or the abandonment of the schoolhouses as now located, but rather the dissolving of the various school district organizations and the placing of all the schools in the township under the control of a board of education which is elected at large. This system has long been in very general use in the upper peninsula of Michigan and in many of the northern counties of the lower peninsula, where its efficiency has been demonstrated under conditions of sparse population or small district schools, such as obtain in many of the townships throughout the state.

In order to bring this question before the voters of a township it is necessary to secure a petition signed by one-fourth of the school electors of a township. The women who are qualified school electors as well as the men have a right to sign these petitions and vote on the proposition of adopting the township unit system when same is submitted to the electors at any regular or special election. While it is not probable that this system will soon come into general use in the more thickly populated counties of the state, it has some well defined advantages where the population is scattered or the schools are small, as above noted.

Clean-up Day in Michigan. A recent circular issued by the State Board of Health calls attention to the fact that the

greatest financial burden to the people of Michigan is that produced by disease, and that the diseases which contribute most largely to this burden are in the large class of preventable diseases. The fact is also pointed out that the most important principle in the prevention of disease is sanitation, and that a proper degree of sanitation and hygiene consistently maintained will save thousands of lives and millions of dollars in this state each year. Among these diseases which are mentioned as largely preventable by proper sanitation and hygiene are tuberculosis, typhoid fever, diphtheria, and many other of the more common and destructive diseases, which are very largely within the power of public control.

To the end that concerted activity throughout the state may be established to the end that better sanitary conditions may prevail, Gov. Osborn has designated May 15 as Public Health and Clean-up Day, in Michigan. In accordance with the spirit of this proclamation the State Board of Health asks that the day be made one of general cleaning up of unsanitary conditions, and the establishing of healthful, sanitary conditions. In accordance with this idea the mayors of cities and presidents of villages, through the co-operation of local boards of health, have been asked to extend the effect of this proclamation in their jurisdiction, and the suggestion has been made that the day be made a day of public health teaching in every school in the state.

Much of public good would be accomplished through the general co-operation of the public with this movement. Not alone in the cities and villages, but upon the farms of the state as well should such co-operation be given. In the busy rush of the spring work the job of cleaning up unsanitary conditions about the home and buildings is apt to be too long neglected for the appearance of a favorable time in relation to the other work in hand. Every reader should co-operate with this movement to the end that the spring clean-up about the farm should be completed by the date set as general clean-up day in Michigan.

Agriculture in Congress. There are under consideration in congress at the

present time a number of bills which have an important bearing on agriculture. Among these the bill providing for the appointment of a National Rural Credit Commission to study the agricultural co-operative credit systems which are in successful operation in European countries has been mentioned in recent comments.

Among other bills which it is stated on good authority will be favorably reported by the committee on agriculture of the House are two which are designed to control the trading in futures, one bill touching such trading in the cereals and the other in cotton. These bills seek to con-

trol the trading in futures through a censorship of telegraphic and telephonic communication, requiring an affidavit to be filed by the contracting parties to the effect that the commodities bought or sold are actually in existence as represented by the transaction. The details of this plan were given through these columns some time ago. There is, of course, active opposition to these measures from the leading cotton and grain exchanges of the country, and the hearings which will undoubtedly be held on the bills may contribute something to the general public understanding of the underlying problem if nothing more.

Still another bill has been passed by the senate which will become a matter of interest to agricultural producers throughout the world as well as in this country. This is a bill providing for an international investigation of the causes of the high cost of living throughout the world or, more properly for the participation of this government in such an investigation.

Then there are a number of bills under consideration providing for the fostering of a greater degree of extension work in agricultural education by the national government. There appears to be little doubt that one of the several bills providing for such aid will be passed by the present congress if not at this session, as there is a general disposition among all factions in congress to extend a helping hand to agriculture at the present time.

New Business in Our Foreign Trade. The marvelous development of the present century is perhaps illustrated

in no better way than in the growth of our foreign business along absolutely new lines. Among the manufactures of recent development which have assumed important proportions in our trade with foreign countries may be mentioned automobiles, aeroplanes and motion picture films. Some recently published statistics relating to the nature and extent of this trade are of more than passing interest. It is gratifying to note that the larger proportion of this trade occurs in exports, thus aiding in maintaining the balance of trade in favor of our own country, as well as attesting the superior progress made by our countrymen in these comparatively new lines of industry.

For instance, these figures, which are for the eight months ending with February, show that the number of automobiles imported, aggregated 717, valued at \$1,572,376, and automobile parts valued at \$212,192. During the same period the automobiles exported aggregated 12,347, valued at \$12,064,383, automobile tires valued \$1,641,373, and automobiles parts valued at \$2,426,264. The record of exports of automobiles extends back to 1902, in which year the total exports were \$948,528, as compared with a total value of \$17,594,336 in 1911, including tires, and an estimated total for the present fiscal year of \$25,000,000. These figures are rather startling and significant by way of showing the remarkable progress of our country in a comparatively new line of foreign trade.

Perhaps even more significant as an example of recent development of our manufactures are the figures relating to the foreign trade in motion picture films. This trade is of such recent origin that figures relating to it are not available further back than the last six months of 1911, during which period there were 42,000,000 lineal feet of motion picture films exported from this country, and it is estimated that during the present fiscal year there will be exported some 75,000,000 feet, or sufficient to reach more than half way around the world. During the eight months ending with February the exports of motion picture films aggregated 49,672,781 feet, valued at \$3,927,097, as compared with imports aggregating \$516,407 in value.

The foreign trade in aeroplanes is, of course, very limited in comparison to the other commodities above mentioned, yet here again the balance of trade is in our favor, the exports being about double the value of the imports and closely approximating \$100,000 for the period named. These figures are gratifying in that they promise a continued season of prosperity for our country through the development of new industries which give employment to hundreds of thousands of our laboring men, the product of whose labor is finding a ready and ever increasing market in foreign countries.

HAPPENINGS OF THE WEEK.

National.

The floods of the lower Mississippi are increasing in severity. Late last week a stretch of country 75 miles long was completely inundated, with many towns in the vicinity threatened by the high waters. Extra levees were erected to pro-

tect Rayville, La., but should the water rise much more these will be broken through. Train service has been discontinued on the New Orleans and North-eastern railway.

Spreading rails ditched a mail train west of Antwerp, Ohio, and injured four men so badly that they are not expected to live; eight or ten others were hurt more or less.

In the intercollegiate peace oratorical contest held at Monmouth, Illinois, where representatives from Iowa, Illinois, Wisconsin, Nebraska and Michigan met, Mr. Blansard, of the University of Michigan, carried off first honors, and Mr. Crafton, of Galesburg, Ill., took second place; the awards were \$75 and \$50 respectively.

At Broken Bow, Nebraska, a schoolhouse in which were twelve children and the teacher, was picked up during a tornado and carried a half mile and deposited. None of the scholars were hurt but the teacher is suffering from severe bruises.

Wind blowing at the rate of 70 miles per hour did great damage to suburban property at Duluth, and caused \$50,000 of damage to a coal and dock company.

The contract for the erection of the new Michigan Central Depot at the end of the International Tunnel across the Detroit river at Detroit, has been awarded. It is agreed that the structure will be completed by January, 1914. The terminal will involve a cost approximating \$6,000,000.

The bodies of Col. Astor, Isidor Straus, C. M. Hays, and 202 others have been picked up in the vicinity of the disaster of the steamship Titanic off the Grand Banks, Newfoundland. The bodies were taken to Halifax where many persons are waiting with the hope of finding the remains of friends who sailed on the ill-fated boat.

Tests made of the coal sunk in the battleship Maine 14 years ago in the Havana harbor, show that it lost but ten per cent of its value during the period of its submersion.

A proclamation has been issued by Gov. Osborn designating May 15 as a general day for cleaning up cities, towns, villages and country places of Michigan.

According to the census of 1910 the voting strength of the United States is 26,999,151. Less than one-half of the percentage of male citizens over 21 years of age are native born, the remainder being children of immigrants, or born abroad.

A tornado which swept over a part of Texas and Oklahoma last Saturday killed 60 persons.

Fire supposed to have been due to incendiaryism, resulted in three fatalities and the loss of \$80,000 of property at Knoxville, Tenn., Sunday.

The general conference of the Methodist Episcopal church will begin its session this week at Minneapolis and continue them for a month.

The first boat to reach Duluth from the lower lakes arrived there the 26th after plowing through some heavy fields of ice and being heavily driven by a storm.

While official announcement has not been made, it is generally understood that an amicable agreement has been reached between the anthracite operators and the representatives of the miners. It is anticipated no more trouble between the men and the employers will occur for several years.

The adoption of a new wage scale by the Grand Trunk system for engineers has brought an agreement from the engineers that they will not go on strike should the men on American lines agree to quit work. Minor matters are to be placed in the hands of arbitrators for settlement.

In the interests of economy the federal authorities are making a shake-up in the Detroit post office which will likely result in many official changes and perhaps a reduction of salaries for some positions. All residence districts will be given but two deliveries per day; now some of the sections have three deliveries.

The railway magnates are appealing to the interstate commerce commission to arbitrate their differences with the locomotive engineers who have voted to walk out on strike unless their demand for an increase in wages is allowed. Neither the commission nor the representative of the engineers will agree to the plan; but the commission has suggested a special arbitrating board for the purpose.

Foreign.

The bazaar quarters of the old city of Damascus were burned late last Saturday. Several persons were killed and property estimated to be worth \$10,000,000 was destroyed.

The federal and rebel forces of Mexico are marching toward each other and a decisive battle is expected soon. The rebels number 6,000 and are under the command of the rebel leader, Orozco, while the federals have 8,000 troops in rank.

Commissioners from Nicaragua are in this country soliciting a loan of \$5,000,000. The long established custom of settling differences among the soldiers and officers of the German army by dueling will hereafter become a penal offence should the bill introduced into the Reichstag by the centrists be made a law.

An explosion wrecked the coal colliers at Yubari on the island of Yazo, Japan, and entombed 283 miners. There is little or no hope for rescuing the unfortunate men.

The blind workers in the Bristol Asylum of England, have gone on strike for more pay. The women are now paid but \$1.75 to \$2.00 per week and the men \$2.50 to \$2.75 per week. It is contended that this wage is the smallest paid for blind labor anywhere in the kingdom.

The political situation in Mexico has become much complicated the past week, and there appears a general apathy toward all Americans, many of whom have left that country for safety. The United States and France are sending warships to points along the coast for the protection of foreign interests. All business is at a standstill. The rebels have been generally successful in their campaigns.

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

MICHIGAN FARMER
AND **LIVE STOCK**
PUBLISHED WEEKLY
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The FARM BOY
and GIRL
SCIENTIFIC and
MECHANICAL

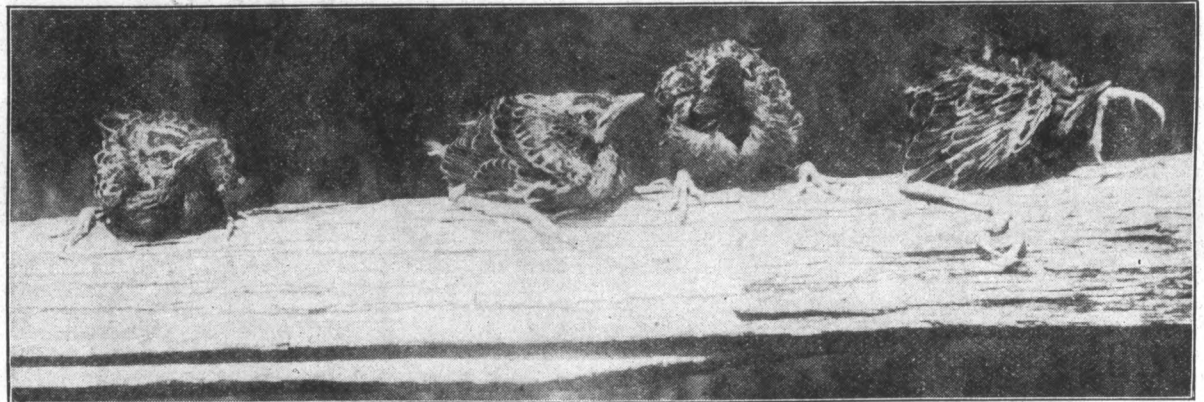
This Magazine Section forms a part of our paper twice a month. Every article is written especially for it, and does not appear elsewhere

THE MEADOW LARK—Farmer's Proud and Beautiful Friend. By Nelson A. Jackson.

When the bright, spring days arrive and the weather becomes somewhat settled, I commence to listen for the clear, penetrating whistle of the meadow lark. Every bird student, whether a dabbler or not, recognizes the note of this denizen of our grass lands. There is something in his piercing "spring-of-the-year, spring-of-the-year" that compels attention.

From early spring to late autumn, with the exception of a few weeks in August, their whistle is heard from telephone pole, fence stake, tree and often from the ground. Back from my home, on a small knoll, there stands a good-sized elm. On the very topmost branch of this tree, morning and evening, there balances a meadow lark, who pours forth his soul in song. He is one of my bird landmarks. Last summer, one of my meadow larks—I claim all the birds about my home and grounds as private property—had a distinctive song. I could always tell that one. His whistle was softer and more melodious and bell like in tone. I simply had to stop and listen to it, no matter what I was doing. This bird was surely a prima donna of meadow larks.

The meadow lark, although not a lark but a cousin of the blackbirds and orioles,



The Fledglings, in their short period of Helplessness, frequently fall a Prey to Snakes and other Enemies.

is a proud bird. It is amusing to watch one of them swagger along a few rods in front of you, when walking through the meadow. The bird seems perfectly indifferent to your presence, unless you approach too near, when with a disgusted "peent," he will take wing and sail to a more secluded spot. When he flies, the broad white feathers on both sides of his

tail are distinguishing marks. If you will notice, the bird usually keeps his back towards you, but if you wish to see a bit of color that is beautiful, try to get a good view of the meadow lark's breast with the sun shining on it. I have sometimes had this opportunity from my study window. The jet black crescent, with the bright yellow background, is enough to cause any bird to be proud.

Although the meadow larks are very abundant, their nests are seldom found. The nests are placed in some slight depression of the ground. They are made of coarse grasses, usually arched above, or perhaps the bird will build underneath the shelter of some old article in the field. A few years ago my attention was called to a nest built beneath an old piece of tin. Only once after the discovery of this nest was the old bird surprised by my approach. She knew that someone was coming and would slip quietly from the nest and fly up from some distant part of the meadow. The mother bird would never return to the nest while I was in sight, although I made some long stops during my study of the nest. There were five eggs, but soon after the young were hatched some tragedy befell the home. What havoc snakes and field mice make with the white speckled eggs and helpless fledglings! If the meadow lark were not a prolific bird, sometimes rearing two and three broods in a season, their number would rapidly diminish. A second nest of which I made several studies was more fortunate.

The meadow lark is not only a beautiful bird, but he is of great value to the farmer. He lives almost entirely upon cater-

pillars, ground insects and their larvae. Grasshoppers are a favorite morsel, when they can be obtained. When insects are



Nest and Eggs of Meadow Lark.

scarce, the bird of necessity varies his diet with weed seeds.

The meadow lark has many enemies, but the worst one is man, who often shoots the bird for table use. I prefer to shoot them with field glass and camera.



Young Meadow Larks in Nest—A Study in Protective Coloration.

In yonder pleasant little valley
There dwells a farmer, Growler Jones;
And there for years, his good wife, Sallie,
Has listened to his sighs and moans.
With Nature's laws he's never suited,
And, be the weather foul or fair,
He stands a judge, self constituted,
To criticise them everywhere.

A thousand woes, imaginary,
Have aged this man beyond his years;
His morbid senses, visionary,
Have made his life a vale of tears;
With fretting and with constant scowling
He's marked his brow with heavy frown,
With foolish and incessant growling
The corners of his mouth drawn down.

Should summer sun seem hot and drying,
Says he: "We'll have but half a crop;
For want of rain the grain is dying—
'Tis weeks since we have had a drop!
The streams are low, the wells are failing,
The corn is rolling up its leaves,"
He tells us in a voice of wailing;
There'll be a famine, he believes.

And then again, he'll sigh, and wonder—
Should clouds appear foretelling rain—
If we'll have hail and pealing thunder,
Or wind to tangle up the grain;
And at the storm's most distant rumble,
He then, with features all awry,

THE PESSIMIST AND THE OPTIMIST.

BY E. L. K. W.

Is heard to say, with growl and grumble,
" 'Twill be as wet as it was dry."

And, as the raindrops lively patter,
Says he, "How can I do the chores?
It's always so, 'That's what the matter,'
'It never rains without it pours';
Why not have had," he's heard to mutter,
"A gentle rain, I'd like to know.
Now every stream, ditch, drain and gutter
Will soon be filled to overflow."

And when the elements seem vying
To make all nature most complete,
Then he will fall to prophesying
Of diverse trials we must meet—
Some trouble from the future borrow.
And tells us, too, does Growler Jones,
Though fair today, 'twill storm tomorrow,
For he can feel it in his bones.

He prates of fate, of hopeless fiat,
Of storms on land, and ocean fogs.
Declares, "with Congress running riot,
The country's going to the dogs."
In earthly trials multiplying,
This foolish man will still persist,
All source of pleasure thus defying—
This grumbling, growling pessimist.

Could he but have, all made to order,
A world where peace and joy pervade,
Across whose pure sequestered border
The ill of life could not invade,
With ample ways and means invented
To make this world complete throughout,
Methinks he'd still be discontented
With nothing there to growl about.

But Jones, the growler, has a neighbor
Whose cottage in the grove you spy;
'Tis happy, jolly Simon Tabor,
But better known as "Uncle Si."
No time has he for vain repining,
No time for useless moans and sighs,
But, seeking, finds a silvery lining
E'en to the darkest clouds that rise.

With modest means, no labor scorning,
By toil he earns his daily bread,
Beginning with the early morning,
That loved ones may be clothed and fed.
With day's work over, homeward wending,
His voice is heard, at close of day,
With Nature's peaceful vespers blending
In some sweet, fondly cherished lay.

Tho' frugal, he was never greedy;
Gives freely of his humble store;

And never have the poor and needy
Been sent unaided from his door;
With friends he shares his early berries,
And many an urchin testifies
No other apples, plums or cherries,
Are half so sweet as Uncle Si's.

If visited by grief and sorrow,
Or trials come, as come they must,
By faith he sees a brighter morrow,
Believing all God's laws are just.
From heart sincere his words of cheering
And deeds of love are manifold,
Unconsciously himself endearing
To high and low, to young and old.

By his advice, so aptly spoken,
Or words of praise, where praise is due,
The gloomy clouds are often broken
To let a ray of sunlight through.
With love and joy his heart o'erflowing,
This hope-inspiring optimist
Is, by his gifts of cheer bestowing,
A practical philanthropist.

In this wide world of fret and flurry,
Had we the faith to set us free
From anxious care and useless worry,
How much more happy we would be!
We'd travel on through life, obtaining
A foretaste of the World on High,
If all like Jones would cease complaining
And live like Dear Old Uncle Si.

JANE'S MAY-BASKET.

BY INA C. ESTES WHITE.

Little ten-year-old Jane lived with her parents and little brother a short distance from town on a small "farm," as she laughingly called their ten acres. Her father worked down town but found time to care for "old Daisy" the cow, and "old Jim" the horse, and to cultivate their small fields.

Little Jane was lame. She did not have to use crutches when she walked but she had a very decided limp and it tired her very much to walk to her school in town. So when the weather was not good her mother always hitched up old Jim and took her to and from the schoolhouse. Jane was a very bright little girl, always a favorite with her teachers because she learned so fast and tried so hard to get her lessons "just right." She could sing like a bird, write clever verses and stories, sew and bake. Her mother often said that nature had tried to make up for that unfortunate lame ankle.

One stormy March day Jane and a little friend went out to play where her father had fallen a tree. They thought it would be great fun to walk the length of the trunk as it lay there on the ground. Jane's father had gone to the house for some tool he wished to use. If he had been there he would not have allowed them to walk the great slippery log. They walked it a few times in safety, but finally Jane's little lame foot slipped and she fell, striking her leg on an ugly knot. One of the neighbor boys who was passing carried her to the house. She had to stay in her little bed for several weeks, until the broken bones could grow together again.

By the last week in April she could get around a little with the aid of a cane which an old man who lived in town made for her. Jane always kept that little cane. It had a brass plate on one side with her name engraved on it.

"O, mamma," cried Jane on the morning of the last day of April, "may I make some May-baskets, and won't you hitch up old Jim and take them around to the houses tonight?"

Her mother looked at her pale, pleading face and answered, "Yes, dear, but what will you make them of?"

"O, if you'll give me some paste and some of your tiny match boxes I can make some pretty ones!"

"But where will you get your flowers, dear?" her mother asked.

"I'll pick all the blossoms off my petunia and Bethlehem star, and maybe I can hobble down back of the garden and get some violets. O, I'll manage if you'll only help me, mummy dear," she said with an arch look at her mother, who was always "mummy" to her when she wished to tease her for something or was in pain and wished to be comforted.

Jane worked hard all day. She covered the boxes with pretty colored paper which she fringed all around the top edge. She made handles of braided paper and sewed them on with thread. In the bottom of each basket she put a layer of damp cotton. She filled them with flowers which she gathered back of the garden on the river bank and the blossoms from her choice petunia. Jane was very, very tired and went to bed early that night. Her mother took the baskets and left them at the doors of the little friends' houses.

Not one May-basket was brought to Jane that night. Her mother knew it was not because the little girls did not like Jane but because she lived so far out of town. They were afraid to come so far in the dark.

Jane's mother thought of how hard and lovingly Jane had worked all day to make baskets for others, and how she was not going to be rewarded with one in return. The thought of Jane's tiny, disappointed face in the morning was more than she could bear. So she took the box that Jane's little red shoes had come in and covered it with pretty paper, sewed braided handles on it and made it look as nearly like Jane's tiny baskets as she could. Then she filled it with fragrant blossoms and leaves from her house-plants. All along the edge of the basket she draped some smilax and primrose blossoms. She then tiptoed to Jane's room and placed the basket on a chair by the bed where she could see it when she first opened her eyes in the morning. Jane was sleeping soundly and sweetly, and as her mother stooped to push the damp curls from her forehead she stirred in her sleep and smiled.

The next morning when Jane awoke the sun was streaming through the window and she thought she heard a robin singing "cheer up! cheer up!" Then she spied the basket on the chair. At first she thought she must be dreaming and shut her eyes tight. But when she opened them again the basket was still there. "O, such a big one," she cried. "I wonder who made it."

She ran her hand lovingly over the white and scarlet geraniums, and the little pink roses that nestled close to the rose-geranium leaves. "O, I know. Mother made it!" Then her face grew sober as she thought of how her mother had prized those pretty blossoms. Quickly she knelt by the side of her little bed and asked God to make her good and deserving of such a kind mother.

Jane's mother died three years after that May morning. Jane is a woman now and has a happy home of her own, but there never comes a May-day morning without thoughts of that beautiful basket and the gentle mother who made it for her.

DREAMS VERSUS ACHIEVEMENT.

BY PEARLE WHITE M'COWAN.

Neil Brooks was what some folks called "visionary." That is to say, he had "theories." Now theories, as everybody knows, are all right when practically applied. But it was just this practical application that Neil lacked. He would lie for an hour on his back under a tree planning all sorts of possible improvements and reformations, "vaporize" on the feasibility of his dream plans for another hour to the first person who would listen, and then, instead of getting up and hustling to put his plans into execution, why—down he'd lie and dream some more.

Now this, naturally, was not conducive to success, but Neil, visionary, voluble, and impracticable, had not yet woken up to that fact.

Six months before, when his father died, neighbors had said, "Perhaps this'll wake that Brooks boy up," but beyond a few days of sadness, they saw little to uphold their hopes.

On this particular morning, Neil was "supposed to be" cultivating corn on what the family called the "East Forty." Not that that was the size of this particular field. Indeed, the whole farm comprised scarcely more than forty acres, and this was merely a little standing family joke. Neil's sister, who loved "big" things, in a spirit of mischief, had one day mirthfully dubbed certain portions of their little domain, the "East Forty, the Back Eighty, and the South Twenty," and being a family much given to light jests and raillery, they appreciated the ludicrousness of it and the names had "stuck."

It was one of those days that you read about, poets enthuse over, "What is so rare as a day in June?" and all that sort of thing. The old gray mare lazily flicked a fly from her side, and reached for the bit of grass that lay just ahead of her between the rows, then, meeting with no objections in the way of rein or voice, deliberately meandered to the fence corner where grass grew more abundant, dragging the old spring-tooth cultivator behind her and tearing out several hills of corn in her progress. But the boy, on his back just under the shade of the old stone wall, paid no heed. He was just now very busily engaged in figuring out how much quicker that corn field could be gone over with one of those wonderful new "Tu-Ro" cultivators that he'd been reading about in a catalog. (Neil was partial to catalogs. They always fired him with enthusiastic plans and "visions." There were so many new and labor-saving devices described in them). It took some time to figure it out to his satisfaction, and just as his lagging conscience began to give him a few little uncomfortable prods, his attention was arrested by the sound of voices on the other side of the wall. Two men were evidently coming along the highway on foot.

"I hate to do it," remarked one, whose voice Neil recognized instantly. "Brooks would have 'made good' in time, if he had lived, but it's not a paying investment as it stands. The mortgage is due in December and, unpleasant though it will be, I shall have to foreclose. If the boy had shown any inclination to hustle and amount to something, I would have ex-

tended the time, but he's just as unambitious as ever."

"It'll be mighty hard on the mother, though," broke in the other, with a strong note of sympathy in his voice.

"Yes, but what's a man to do?" queried the first speaker petulantly. "Look at that field of corn now—weeds most knee high, horse out there in the fence corner, boy most likely dallying 'round the house airing some of his 'opinions.' He's got good enough ideas about things, but he hasn't any 'get up and get' to back them up." Evidently they were unaware of the boy's proximity.

"Their private opinion publicly expressed," growled Neil viciously to himself. It was the first time he had ever been treated to a rehearsal of his neighbors' opinion of himself, and it didn't set well. Nevertheless he got up and went to work. The longer he worked the madder he got, first, at the man who had so disparagingly estimated his character, then at himself for having made such an estimate possible.

He had known all along that the mortgage was due that winter, but with his customary optimism he had never doubted that it could be renewed, probably indefinitely. Thus vague and uncertain were his ideas of business men's methods.

Now, however, his eyes were opened. He thought of all the old familiar places about the little farm; the old swing in the barn, the orchard, the spring at the foot of the hill, the stock, Mollie and the old gray mare he was driving, the sheep and pigs, Bess and Jersey and the two calves. If the mortgage was foreclosed these would all have to go. They could not take them into town.

Then the other man's remark, "But it will be hard on the mother," came back to his mind, and with it the smart of a reproving conscience that his first thought had not been of her. Snatches of conversations, in which she had tried to urge his responsibility upon him, came back with ten-fold force, and with them stinging upbraids from his own conscience. He remembered, with a pang, the worn look that had been growing upon her face in these latter weeks, and thought how she and his father had struggled and economized for years that this little home might sometime be free from debt and a refuge to them in their old age. And now that the husband and father had been taken away, must all her hopes be blasted? Must the added sorrow of "losing the place" come to her, to her who knew and loved every vale and knoll on the little farm and every nook and corner in the dear old house. With manly tears in his eyes, he vowed that it should not be.

Oh, Neil was waking up all right. It takes a mighty hard jolt to rouse some folks from the lethargy that youthful bigotry and natural optimism throw over them sometimes, but when that kind of a person once wakes up he usually proves that he can "do things."

Surely the old gray mare wondered at and rather resented the change that had come over her usually too-considerate driver that day, for she got no more snips of green grass from the fence corners, and precious few "rests," it seemed to her, between the rows.

When night came, Neil knew that he had cultivated more corn that one day than he had ever done in two before. And, somehow, it seemed good to him. For the first time in his life he knew the joy of work, and work well done.

But it did not end there. After the rigid self-condemnation that had followed the over-hearing of that highly illuminating and humiliating conversation by the stone wall, Neil had vowed that in the six months that were left to him before a foreclosure could be made, he would prove to the owner of that mortgage that there was "good stuff" in him.

In three months the farm was a different looking place. Crops were clean, fences up, and Neil for the first time was taking pride in keeping them so. Early in September, the man who had had such a poor opinion of him came along one day, and, shaking hands, complimented him on the condition of things in general. "You're doing splendid this summer, splendid," complimented the mortgage owner, as he rubbed his hands together and looked out over the well-tilled fields. And Neil felt confident that the "chance" of renewal that had been hinted at that day in early June was his for the asking. However, perhaps he wouldn't have felt quite so sure if a little calculation earlier had not shown him that, if all went well, as things bade fair to do, the "bean money" (the South Twenty was in beans) could go to make a fair-sized pay-

"TALKIN'."

BY MRS. H. L. SOPER.

Down at the store the boys discuss a mighty lot o' things, From price o' corn, and politics, to lace and diamond rings; And arger!—till they git so mad, an' a'most fight; the while I set a calmly watchin' 'em, I jest set still an' smile.

I 'low the world is bad enough; but Good is somewhar round, An' if we only look fer it, it allers can be found.

What good it does to blarney 'bout old John D. an' his ile, W'y, I can't see. So I jest set, an' calmly watch, an' smile.

I don't stay long down at the store, fer I must cut the grain And harvest it all safe an' sound fer fear 'twill come a rain. So, I jest simply walk 'long back ter my home. A mile O' pretty road in front o' me, I jog along an' smile.

I don't know ez it helps things much to talk about the law 'F all yer goin' ter do about it's set around and jaw. There's heaps o' work that we kin do to help along, the while We mind our biz, an' do our best, and jog along—an' smile!

ment upon the principal itself. The sale of other and minor crops would pay the interest and keep up the household expenses. Perhaps this "figuring" was a little return to his old "visionary" habits, "counting chickens before they hatch," you know, but who can blame a boy, or man either, when he sees a good-sized field of beans, or wheat, or oats, for "figuring" just a little as to what they'll bring, and what he'll spend it for.

Certain it was, Neil's beans did look promising. Then, just when he had them nearly all pulled, it began to rain, and it rained and rained, for days and days. And too much rain at just this time, as all bean farmers know, will rust and discolor them until they are unfit for market. Thus, in spite of Neil's best efforts, those beans were very near a failure. Thirty dollars, when you've expected at least a hundred, is disappointing even to older folks than Neil. Then when it means spending all your evenings and spare time for weeks in tediously picking beans over by hand to realize even that amount, things do look discouraging.

For a few days after the threshing, with bushels of unmarketable beans piling up on his hands, Neil felt pretty "blue." True, he knew that they would be able to eke out enough to pay the interest, and probably a little beside, but he wasn't at all sure that this would satisfy his creditor. He knew more about business men's methods now than he had a few months previous, and he felt sure that, under the circumstances, if any extension of time was granted, he would have to go to his creditor with a sum large enough to make it seem worth while.

So he talked things over with his mother and determined to sell the sheep. There were only twelve of them—old sheep that his father had bought the year before at a bargain, of a man who, leaving the country, was glad to dispose of them at any price. Neil could see now how he might have made them pay him a snug little profit this fall. But since his awakening, pasture had been poor; he had been obliged to feed the other stock more than usual, and the grain and "fodder" raised upon their little farm during the summer would not carry all the animals through until spring, so it seemed best to sell them, though in their poor condition they would bring only about what his father had paid for them.

But just about this time Neil's brain began to "buzz" with a new project. He bethought himself that beans, even though discolored and unfit for table use, may be ground and fed advantageously to sheep. Government bulletins and farm papers were industriously studied, with the result that the sheep were kept a little longer and those unmarketable beans converted into marketable mutton. When, in December, he finally took them to town, he found to his delight that his sheep, with the aid of "poor beans" and a slight increase in the price of meats, brought just about double what he had been offered in the early fall for them.

Now, if he happens to be in a talkative mood, Neil will tell you that he learned many things that summer, among others, that he could "do things," not merely "dream them." And again, that a seeming failure may sometimes be converted into something very like success if you don't give up too easily and but use your brains a little.

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CONVERTING A TOY SAILBOAT INTO A SIDE-WHEELER.

BY I. Z. Y.

There are few homes where you will not see the hull of an old toy boat lying around, if there are any boys in the house. With very little trouble the boat can be changed into an interesting little model.

A hole, Fig. 1, about one inch diameter, is made in the center, care being taken

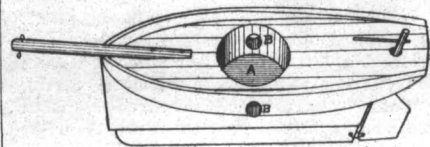


Fig. 1.

not to cut through the sides, which taper to a thin edge toward the middle.

Other holes, B, B, each about half an inch in diameter, are bored through the sides, passing into the first hole.

A stiff paper tube, Fig. II, C, such as is used for mailing drawings or pictures, is cut to proper length, and attached to the bottom of the boat with a small tack, DD, to form a hinge, by cutting the side and turning it up as shown.

The proper length of the tube is found by cutting a little at a time off the top, until the boat is not "top heavy" when floating on the water.

A piece of fine string, attached to the bowsprit at E, and to the top of the tube at F, will keep the latter in an upright position.

The paddle-shaft, Fig. II, G, and Fig.

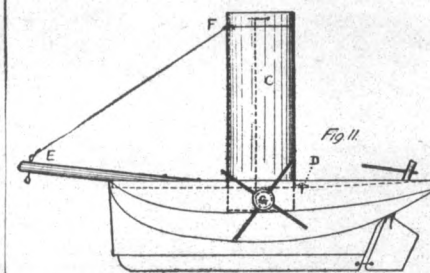


Fig. II.

III, H, is made from a round stick, about half an inch in diameter, cut down to a

smaller diameter in the middle, so that it will work easier in the holes through which it passes. Plenty of play should be allowed, because when the boat gets wet, the wood swells.

The blades of paddles, Fig. III, I, I, I, can be cut with an old pair of shears from the sides of an old tin can. If part of the rim is cut with each piece, it will help in stiffening it when being driven into the hubs of the shaft.

These blades are cut triangular in shape, and, before being driven into the hubs, a slit had better be made first with

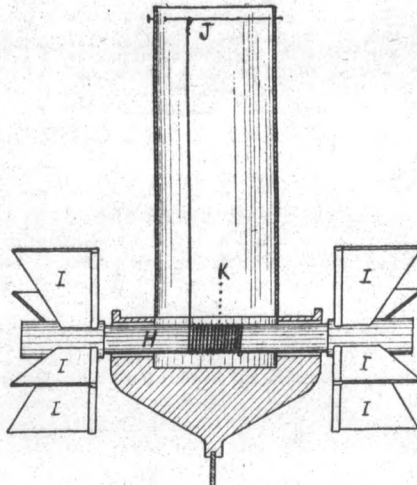


Fig. III.

a jack-knife, to give them a start and prevent the tin bending under the blows of the hammer.

Procure a piece of string elastic, or a long broken elastic band, and fasten one end to the top of the tube at J by means of a piece of wire or wood.

Connect the other end of the elastic to middle of the shaft at K by means of a small tack or staple, as shown in Fig. III, which is a cross section of the boat.

The trouble with most model boats driven with elastic is that the elastic is too strong and the boat soon runs down. The elastic must not be too heavy, and by using all elastic instead of part string, so often done, the wheels will not revolve so fast and the boat will go a greater distance.

THE MAY-TIME FESTIVAL—PRESENT AND PAST.

BY MARY MASON WRIGHT.

On a beautiful May morning a troop of flower-laden children are seen marching down one of the streets, in our largest city, to the tap of the drum. The procession is headed by a small queen, crowned with flowers, and a small king in regal attire. Down the street the gay pageant wends its way, and finally turns into Central Park. Here the queen and king select the spot on which to set up the May-pole, and the company seat themselves on the grass or flit about like so many gay birds with their chatter and chirp. Finally, the May-pole is erected, with delightful ceremonies, is gayly decorated with flowers by the happy subjects, and a floral throne fixed up for the May-queen. Bowing to their queen in homage, the subjects join hands and dance and sing around the May-pole until their throats are dry and hoarse and their feet tired.

As our eyes wander over the park we soon discover that these children are not the only ones that are celebrating the May-festival, for the park seems fairly alive with color, movement, flowers and song. Joyous groups in gala attire are dancing and making merry around other May-poles.

On reflection, we are but witnessing what remains of the old-time May-festival—one of the oldest of all the festivals. These children are unconsciously imitating the joyous ceremonies with which the ancients welcomed the birth of nature. In the classic era of Rome May was sacred to Apollo, and almost the entire month was made a holiday. The Ferialia, a feast in honor of the goddess of flowers, led up to the first day of May being held as a festival of flowers, with rites very similar to those practiced afterwards in the middle ages, of which our May-day is but a modification. The May-queen traditionally represents the Roman goddess, Flora. This festival comes down to us not only through the Romans, but through the Druids as well, for they, on May first, lighted great fires on the hill-tops and, early on May-morn, even before daylight, they went out into the woods and fields and gathered flowers and shrubs and decorated their homes, palaces and churches, not forgetting even the most humble of these.

"Going a-Maying" is a very old custom in England. For centuries the people looked forward to May-time as the happiest of the year. The May-pole was set up on the village green, and all through the month of May gaieties went on about it. In fact, May-day was a national holiday, and one perhaps more heartily observed and celebrated than is our Christmas. One of the old Puritan writers in speaking of this festival says something like this: "Against May every parish, town and village assemble themselves together, both men, women and children, old and young, and go out in forest and field; * * * then they return bringing with them birch-boughs and other branches of trees, and flowers to decorate their assembly places withal. But their chiefest idol they bring from thence is the May-pole, which they bring home with great veneration. * * * This being reared up, they strew the ground around with flowers, setting up arbours and bowers hard by it. Then they fall to and leap and dance about it as the heathen people did at the dedication of their idols." Another writer gives us a different picture when he writes of how the heads of the parishes, marching together, with their pipers piping, their thundering drums drumming, their feet dancing, their bells ringing, and their handkerchiefs swinging. "So they go forth where they have their summer arbours, bowers and May-poles."

In the earlier days of the celebration of the May-pole festival in England, old and young, men, women and children took part in it; but later it became more of a festival for the lads and lassies; at least they went in search of the May-pole, and the greens and flowers with which to decorate, while the men and matrons gathered on the green to await their coming, and to join in the festivities of planting the May-pole and hailing the Queen of the May.

Although the pretty old-country May-day customs are kept in many parts, especially in the idea of the May-pole with its fluttering ribbons, and the little Queen of May crowned with flowers, yet the spirit of the "Merry, merry May" as once known has long since been dead. The May-festival, in its deepest meaning, is a recognition of the renewed fertility of the earth with the returning spring, and it seems fitting that it should be recognized as a time of rejoicing.

THE OLD PLEA

He "Didn't Know It Was Loaded."

The coffee drinker seldom realizes that coffee contains the drug, caffeine, a serious poison to the heart and nerves, causing many forms of disease, noticeably dyspepsia.

"I was a lover of coffee and used it for many years and did not realize the bad effects I was suffering from its use. (Tea is just as injurious as coffee because it, too, contains caffeine, the same drug found in coffee).

"At first I was troubled with indigestion. I did not attribute the trouble to the use of coffee, but thought it arose from other causes. With these attacks I had sick headache, nausea and vomiting. Finally my stomach was in such a condition I could scarcely retain any food.

"I consulted a physician; was told all my troubles came from indigestion, but was not informed what caused the indigestion. I kept on with the coffee and kept on with the troubles, too, and my case continued to grow worse from year to year until it developed into chronic diarrhoea, nausea and severe attacks of vomiting. I could keep nothing on my stomach and became a mere shadow, reduced from 159 to 128 pounds.

"A specialist informed me I had a very severe case of catarrh of the stomach which had got so bad he could do nothing for me and I became convinced my days were numbered.

"Then I chanced to see an article setting forth the good qualities of Postum and explaining how coffee injures people so I concluded to give Postum a trial. I soon saw the good effects—my headaches were less frequent, nausea and vomiting only came on at long intervals and I was soon a changed man, feeling much better.

"Then I thought I could stand coffee again, but as soon as I tried it my old troubles returned and I again turned to Postum. Would you believe it, I did this three times before I had sense enough to quit coffee for good and keep on with the Postum. I am now a well man with no more headaches, sick stomach or vomiting and have already gained back to 147 pounds." Name given by Postum Co., Battle Creek, Mich.

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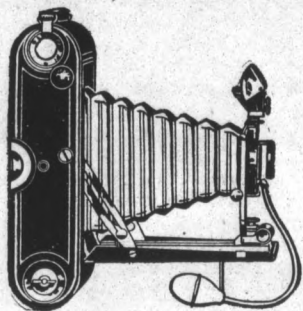
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Huron and Quay Sts., Port Huron, Mich.**12 YOUR NAME IN GOLD**
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GROSS CO., 2147 Arthur Ave., New York. 10c**THE MIRACLE OF LEAVES.**

BY CHARLES H. CHESLEY.

Some Wonder Worker through the wood
Sped far abroad today,
And where the bare gray beeches stood
He hung a leafy spray.The groping elm, with festoons green,
He decked at Spring's behest,
And stretched a canopy serene
To hide the hang-bird's nest.Like gleaners glad the maples stand,
No more with meagre sheaves,
But scattering with lavish hand
The miracle of leaves.Be this my aim; that with each year
New thoughts and hopes arise,
As leaves upon the oaks appear
When all the old dream dies.**A DAUGHTER OF THE GULF.**

BY JANE WINSTON.

(Concluded from last week.)

Somehow, Curtis believed none of this.
He pondered the situation for a long min-
ute before he said, "Then you intend to
marry Miss Roscoe?"

"You say that is the current rumor."

"I came here to tell you to stop it. I
tell you so yet, in spite of all you have
said."

"Do you mean to threaten me?"

"You can interpret my words for your-
self.""I do interpret them," returned Gar-
lington, pointedly, "and, in that case, you
are going to lose a girl, as well as my-
self. Do you think I have not seen what
is going on in that shell shop?"It was Curtis's turn to stare. "I do not
understand you," he began, when Gar-
lington cut him short."See here; as sure as you interfere be-
tween myself and Sallie, I will cook your
goose with that girl. You may think that
I can not, but I would not advise you to
risk it. You have no real standing with
these people here, anyway; a man out of
a show. I have been in the town long
enough to know them. They would listen
to me before they would credit you. Look
here; are you going to believe my
story or to wait for me to send for proofs
of Mollie's death. I can do it, if you will
give me time?""I will see you again," mumbled the
other, anxious now to get away. His
head was in a whirl, and he wanted to
think this thing over."It would not sound very well you
know," Garlington called after him, "for
the Whitewave public to know that you
had tried to blackmail me."Curtis turned on his heel. "It would
sound worse if they knew I had succeed-
ed," he retorted. "You can not use that
without incriminating yourself."Garlington, like a woman, had the last
word. "I'll show you whether I can or
not," he jerked, and Curtis went away in
a quandary. He had but to believe the
other's story and his part in the affair
would be ended, but, somehow, he could
not believe Garlington.Next morning, when Curtis went for his
mail, he received a soiled letter, bearing
the Houston postmark, and addressed in
large irregular characters to D. L. Cur-
tis, Esq. So far as he was aware, he
knew no one in Houston, but the hand-
writing struck him with a dull sense of
recognition. He opened the missive and
read:Dear Little Red:—
John and me are here, and he is bad
hurt. They say he is dying, but I hope
it's not so. We are broke. I want you
to come. I heard you was there, and I
wanted to telegraph, but did not have the
money. I know you, Red, and I know
you will come as soon as you get this.
Lovingly, Nell Harmon.Curtis felt that he stood at the parting
of the ways. Here was a chance to find
out if Garlington were telling the truth;
on the other hand, if Nell Harmon came
to Whitewave, it might complicate mat-
ters terribly. What would Linden Gray
think of her? The gulf girl had wound
her way deeply into his heart. Surely he
had done his duty in that one interview
with Garlington; he had only to believe
his story, and let the matter drop. As
for the Harmons, he owed them little;
they had parted in anger, and he had
made his own way. Then the face of the
gulf girl rose before him.Curtis boarded the first outgoing train.
When he reached Houston he had a long
search for the address given in the let-
ter, finally locating it in a miserable quar-
ter of the city. In response to his knock
the door was flung wide open and a stout
woman of fifty fairly threw herself into
his arms."Oh, Red, Red, I knowed you would
come," she sobbed; "John died this morn-ing, and my heart is clean broke. My
baby boy, and the only one I had left in
the world. You won't let him go to the
potter's field, Red?"Curtis had foreseen this contingency
and was prepared to meet it."I knowed you would," she said, when
he relieved her fears on this score. "Red,
you are the best boy of the lot, if you are
no kin to me. And the others are all
scattered to the four winds of heaven; I
don't know where a one of them is to-
day.""Where is Mollie?" asked Curtis, when
she stopped for breath."I had a letter from her since we have
been here. Why, she is in Ohio, trying
to make a living for the three children
that villain left her with, that is what
she is doing! If I ever lay hands on him
he will know it. But here we are stand-
ing talking about Mollie, and poor John
laying in yonder; come and see him, Red;
he was talking about you only last
night."For the next twenty-four hours Curtis
was all that an own son could have been
to this woman who had reared him. But,
when all was over, he was seriously per-
turbed in mind. Nell Harmon had al-
ways a knack of getting her own way;
she was now determined to return to
Whitewave with him, and Whitewave to
Curtis meant Linden Gray. Mrs. Harmon
had been a handsome woman, in a cer-
tain florid style; she was still sufficiently
striking to create a sensation in White-
wave, and her tongue no man could tame.
Yet, for all this, the next day's sun saw
them journeying together to Whitewave,
Curtis with the restless sensation of a
man who carries a bomb. As they alight-
ed from the train at their destination
Curtis saw Garlington among the little
crowd that lined the depot platform, so
he quickly directed Mrs. Harmon's atten-
tion to another point.**Chapter V.**Whitewave was wondering over the
sudden departure of Garlington. Rumor
said that he had been called away by the
death of a relative, and would return
soon, but no one could say positively
whither he had gone. Curtis was mend-
ing a necklace, and wondering over the
change in Linden Gray. Another might
have noticed nothing, but he knew her
every mood, and it was as if a mist had
arisen and veiled the sparkling sea. She
was working near him now, but all morn-
ing she had scarcely given him a look.
Suddenly, the window was darkened.
Curtis glanced up and his heart stood
still. Mrs. Harmon was entering the
shell shop."I had a time finding your place," she
began, as soon as she was fairly inside.
Her face was flushed from the walk she
had taken and, to Curtis's horror, she
brought with her a strong perfume of
whiskey. Her somewhat soiled white hat
was tipped rakishly over one eye, while
its broken plumes trailed dejectedly to
one side. She wore a freshly ironed white
linen skirt, a very much wrinkled waist
made of cheap yellow silk, and white cot-
ton gloves.Curtis came to his feet with a bound.
Linden was about to walk away, but Mrs.
Harmon was too quick for her."You are Miss Gray, I suppose," she
exclaimed. "They told me about you
down town." Curtis saw the color sweep
over the girl's face in a wave, and look-
ed away. "Seems like Red is doing well;
he always was ambitious, so much more
so than my boys. I was all the mother
and father he ever knew, you know; his
people died, and I took him when he was
not so long as my arm. Ah, the times
we have seen together. We Harmons are
show people from the handle. But my
boys never made any success at it." She
lowered her voice tragically. "Whiskey,"
she whispered, "whiskey. But, if Red is
like he used to be, he never touches the
stuff."Curtis never knew how he lived
through the next half hour. Mrs. Har-
mon inspected everything in the shop.
She held Linden as if by some magic
spell, and her tongue ran like a mill race.
He felt that Linden's impression of the
visitor was anything but favorable, but
he knew his foster mother too well to at-
tempt to hasten her departure. When
she had gone he returned to his work
with a scowl. A few minutes later he
looked up to find Linden standing before
him. On her face was a look he had
never seen before, and she seemed to be
struggling for utterance."Mr. Curtis," she burst out, presently,
"I want you to move your shop."There was a pause. He sat staring
steadily at her, trying to understand this
thing. She evaded his gaze."I do not exactly see what you mean,"
he began, when the silence had become
awkward."Just what I said," she jerked, and was
again silent."You have rented the space to some-
one?" he ventured.

"No."

"Then it is something I have done?"

"Yes."

"Well, my dear Miss Gray, if you will
let me know what it is, maybe I can ex-
plain or straighten it out."She went away without a word. Re-
turning almost immediately, she flung a
pink slip down before him. To his amaze-
ment, it was the check Garlington had
given him.

"Where did you get this?" he cried.

"Mr. Garlington gave it to me. He came
here the night before he went away, and
told me about how he came to give it to
you.""It was a loan. I paid him back. I
can prove it; I have my own check, which
came back from the bank to me, as this
did to him."But the mist had veiled the sea. "I
want you to move," she repeated.He bit his lip. "I fail to see why," he
said. "I do not know what this means.""It means that I am done with you,"
she cried. "You are not the man I
thought you were." He had never
thought she could be like this. "You
threatened Garlington, when he made
the loan. You are a cheap man.""What chance have I ever had to be
anything else? I may be everything that
is contemptible, but I love you, Linden.
Don't say you are done with me.""I did think that I could love you.
But I never can again. Oh, I could have
forgiven anything else, anything but a
cheap thing like that.""If I move I leave Whitewave. You
are all that holds me here."But this threat had no effect. She
would have no more to say to him. When
a week had passed, and her attitude re-
mained the same, he went to Mrs. Har-
mon."You and I are going away," he an-
nounced. "Nobody needs us here.""I am going to stay," was the surpris-
ing reply.

"What can you do?"

"Oh, never fear. Nell Harmon can
keep herself. I like the place and the
people, though they do not like me so
far. They all look at me like your girl
of the shell shop.""And little wonder. She must have
thought you were half drunk." He had
avoided this red-hot subject but, now
that she had opened it, he could resist
no longer.She sprang to her feet, striking an at-
titude that might have served as a model
for a statute of vengeance. "You were
ashamed of me," she cried. "Red, you
were ashamed of the woman that stood
out in the wet and snow, many a cold
night, to make you what you are. I will
show your girl what I am made of. Folks
is folks, the world over. And it's good
to hear the sea again. The first thing I
can remember is that roar. And it was
there I met my old man, John Harmon,
that never brought me anything but trou-
ble. I have been half over creation since,
but I never forgot it. You will make a
big mistake if you leave, Red. Your girl
is just like that gulf. It is the sweetest
thing in this world, and it can be the
most cruel."**Chapter VI.**Curtis went back to the old life. Lin-
den would not even bid him good-bye.
The band mourned his departure, and
Charlie Masters most of all. But Curtis
told himself that he should never have
stopped at all. He was a son of the road,
after all. It would be a joy to return to
it. But he soon found that the months
in Whitewave had changed him. Amid
the bustle and gaiety of the life with
which he was so familiar he often actu-
ally longed for its quiet monotony. Worst
of all, he could not forget Linden Gray.
The happy days with her haunted his
dreams with sickening regularity.One morning, more than six months
after his departure from Whitewave, he
picked up a newspaper. A headline in
the lower corner attracted his attention.
"Storm Warning for Gulf Coast," it read.
He swore, and dashed the paper down.
Was he always to be reminded of that
cruel, languorous, semi-tropical land, with
its soft airs and purring sea, radiant
flowers and many fruits? Within three
days, Curtis's heart stood still when it
was rumored that Galveston was again
destroyed. It seemed an age before he
could learn anything definite. Then came
the newspapers; "Galveston is safe be-

hind seawall," he read. "Coast suffers greatly. Whitewave and Angleton totally wrecked."

Curtis dropped everything and started for Whitewave. He told himself that it was his duty to look after his foster mother, but he knew that this was merely an excuse. The train could scarcely bear him fast enough to the land of his desire. Long before he reached it, the marks of the storm became evident. To his distress, the news of the misfortune of the two towns was not denied. The loss of life had been small, but there had been loss of life. He passed what had been Angleton, now a town of tents. And Angleton was fifteen miles inland.

The last day of his journey was performed behind the best team he could hire, for the railroad was still hopeless. He traveled slowly, over almost impassable roads. Everywhere was destruction, wrecked country houses, overturned palms, sorrowful faces.

Twilight had fallen before they were able to see anything of Whitewave, and Curtis was glad of it. When they stopped at last before its twinkling lights, a man with his arm in a sling came out of the circle of darkness. Curtis sprang from the vehicle as he recognized Charlie Masters.

"Of all people," gasped Charlie. Curtis seized him by the shoulders.

"Tell me," he commanded, "is anybody hurt here? Anybody we know?"

"Linden," began Charlie. Curtis fell back with a strange cry.

"No, no, not Linden. Linden is all right. Her aunt Jane was killed."

"Take me to her," Curtis managed to say.

Charlie secured a lantern and they began the march, threading their way with difficulty through piles of wreckage.

"I am a married man now," announced Charlie. "Sallie and I were married yesterday." A woman came out of a tent ahead of them.

"That is Mrs. Harmon," remarked Charlie. "She struck Whitewave folks as being rather odd at first, but they sure think a lot of her now. She is not going to stay, though. She wants to go to her daughter somewhere, and a lot of us are going to make up the money when the train gets to running."

Mrs. Harmon greeted Curtis with a cry of joy. "I must tell Linden," she exclaimed, and darted back into the tent. In a few minutes Curtis and Linden were alone together.

"I never thought to see you again," she said, half sobbing. "Your mother is the best woman in the world. She saved my life, and I thought she was drunk that day. To think that the gulf could do that way. We fought for our lives for fifteen hours in that water."

"And I was not there to help you. I am never going to leave you again. Linden, you will never send me away again?"

"Never again," promised Linden.

INFLUENCES AT WORK ON COUNTRY BOYS.

BY Z. I. DAVIS.

Some of the men of greatest character in this nation have been those who came from the farm. Abraham Lincoln, George Washington and many others of similar virtues were born and brought up in the rural districts. Thus some people seem to think that it is easy to bring up a boy in the country because his surroundings are more conducive to his best development. There is a prevalent idea that fewer obstacles present themselves in the way of disciplining him.

There is some ground for taking the position that the farm is the best place to bring up boys. But there are exceptions to every rule. Good and bad influences are at work there the same as elsewhere. Because of the usual absence of saloons, gambling places and dens of vice, there are not as many temptations along these lines. But there is danger from contact with the depraved victims of these vicious institutions. No place has yet been found where vice and its followers can be conveniently segregated on earth. Many drunkards and gamblers, after squandering their last nickel, join the army of tramps who remorselessly prey upon farming communities, taking advantage of the dearth of help. Their usual rule is to remain at a place until they have eaten enough to fill out their shriveled skins and fatten their purses. Then they surreptitiously leave in the night, or early morning, before the family is aware of it.

In most instances it is no fault of the farmer that they have disappeared. He gave them good table board, a comfortable lodging, and much kinder treatment

than they deserved, but wanderlust, laziness and discontent have become a habit with them. At best they are little better than eye-servants, and usually inefficient, doing more harm than good.

The worst feature of such cases is their influence upon the boys. As a well of pure water becomes contaminated from filth emptying itself into it because of the insufficient protection of a good curb, so the young life may receive to itself the subtle poisoning ejected into it by these dregs of human society.

Thoughtful and conscientious parents will guard their children from association with rough hired help. Here is a brief description of a true incident. A certain boy on a farm always made friends with every hired man that came along. He was easily influenced, and was persuaded one day, by one of the men, to smoke tobacco. At first, fancy cigars satisfied him, but as the habit became stronger, a pipe, strong tobacco and quantities of it, took their place. About that time he concluded that he would not go to school any longer. Although a few terms more of hard work would have brought him to commencement day, he took his books home and never returned. He became less careful of the company that he kept, and later he formed the abominable cigarette habit. (A short time ago a young man of twenty-five years was taken to a Michigan asylum as a result of incessant use of tobacco. He was an only son, and his mother, who lives on a farm, is nearly broken hearted.)

Returning to the story of the first boy, the next hired man was of a more vicious character. He had obscene literature in his pocket, and, after the day's work was done, spent the evening in telling questionable stories and retelling conversation to the boy that would have made his parents rise up in righteous indignation if they had heard it. But the disseminators of vice are full of deceit and hypocrisy.

If parents would do what they could to surround their children with wholesome environment, shielding them as much as possible, making as much of an effort to protect them as to protect their crops from harmful parasites, the outlook would be brighter. What profit is it to the farmer "if he gain the whole world," and lose his own boys?

A BIRD'S NEST PARTY.

BY RUTH RAYMOND.

A little girl of ten recently gave a birthday party to commemorate the event. Ten little girls were invited and a merry time they had. A bird guide book was secured and each guest was named after one of the native birds. The name was printed on a card and pinned on the front of the dress when the little girl arrived.

After all were assembled, paper and pencils were provided and each guest was requested to write as nearly as possible her own habits. When the papers were collected and read aloud there was much merriment as the guide book gave many different habits from those written. Bird stories were told and bird songs sung. All went to the orchard and hunted for bird's nests. Games were played and when all were tired and hungry luncheon was served in the dining-room which was tastefully decorated with evergreens and flowers.

A big bird's nest, made by covering a bowl with green crepe paper, was the centerpiece for the table and contained hard boiled eggs, one for each guest with name lettered on the side.

At each plate was a dainty nest of moss containing tinted candy eggs the size of birds' eggs. Fruit cake and ice cream were served, the latter being cut in egg form the size of a goose egg, one for each guest. Each little girl, as she wended her way home, carrying her green nest full of candy eggs, thought a bird's nest party the very best of any.

A horse dealer was showing a horse to a prospective buyer. After running him backward and forward for a few minutes, he stopped and said to the buyer, "What do you think of his coat? Isn't he a dandy?"

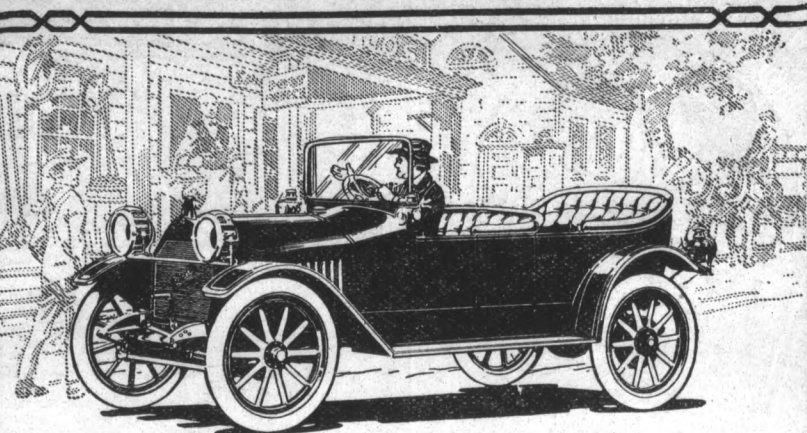
The buyer, noticing that the horse had the heaves, replied, "Yes, I like his coat, all right, but I don't like his pants."

A teacher in a big elementary school had given a lesson in an infants' class on the Ten Commandments. In order to test their memories she asked, "Can any little child give me a commandment with only four words in it?"

A hand was raised immediately.

"Well?" said the teacher.

"Keep off the grass," was the reply.



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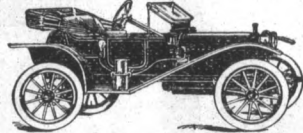
Late last March, when the country roads were at their worst, Earl Sowards drove a recently-bought Hupmobile '32' touring car, fresh from the Detroit factory, to his home in Decatur, Ind.

His testimony as to the pulling power of the '32' is so convincing and emphatic that we quote it verbatim from his letter to us describing the trip:—

"It is the best mud-turtle you ever saw. I could not tell you how bad the roads were, for if I did you would not believe me," the letter says.

"I had 23 miles where I never saw a place that the mud was less than six inches deep; and one place the mud came above the running board for a space of 40 rods or more. It is impossible to stick the car."

"The Model '32' is the best car on earth to pull in the mud. I know, for I have driven several of the best makes. I have had eight years of experience. I never touched any part of the motor, only to put in oil."



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"I was pulling through the mud along by a farmer's house. Just in front of the house was some water, and I thought I would have some fun; so I let my motor die slowly and stopped for a chat. I asked him if he would get his team and pull me out. He answered: 'There are not two teams in the country that could do it.'"

"Then I told him that I would have to pull myself, and he said: 'I guess you can stay with me until the mud dries up a little.'"

"When I was ready to go on, I started up as if nothing had happened."

"He said he was going to have a car of that kind."

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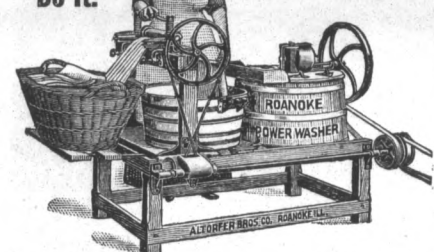
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I CAN'T vs. I WON'T.

EVER notice how some one small
thing in your life has the power to
upset you completely and leave you
gasping around for words to express your
feelings? Perhaps some person "rubs the
fur the wrong way" whenever she ap-
proaches, or it may be a rainy Monday,
or a strong smell of onions, or a certain
color or a word that has this trick of
turning your world topsy-turvy. Most of
us have some such aggravation, and with
me it is the utterance of the words, "I
can't."

Don't know whether it is because I
heard those words so much from boys
and girls when I was teaching school, or
because I've had to do so many things I
thought I couldn't possibly do and found
them not so difficult after all, or because
I have found out from watching other
people that "I can't" usually means "I
won't." Whatever the reason, I always
want to "rise right up in meeting" every
time I hear anyone, large or small, say
"I can't" and tell them "to try, try
again."

There's the matter of eating, for one
thing. How often a mother says, "Mary
never can eat any breakfast when the
rest do. She just sips a little coffee and
picks at things until nine or ten o'clock
and then she wants a real meal. She
just simply can't eat when she first gets
up."

I want to tell that mother that Mary
would find her appetite for an early
breakfast in a hurry if she didn't know
her mother would let her eat whenever
she felt like it. There isn't the slightest
reason in the world why any child should
be allowed to form such habits in the first
place. If Mary's mother would cut out
that "sipping coffee," and give her small
daughter a bowl of well-cooked cereal
and cream, followed by a soft cooked egg
and a bit of toast or bread and butter,
and let Mary understand that that was to
be her breakfast because it was what she
needed to make her a strong, healthy girl,
Mary would develop an appetite for real
food that would astonish her mother. Half
the dyspeptic women in the world were
made so by the mistaken kindness of
their mothers. If children were not asked
what they wanted to eat, but were given
good, plain, wholesome, nourishing food
they would consume it without question.

The same holds true of grown folks and
their diet. Nothing is better for the hu-
man system than plenty of eggs and milk,
good beef and mutton, well cooked cereals

and vegetables. Yet how often we see
people living, or existing, on baked goods
and canned goods, pies, cookies, rich
cakes and sauce with pork chops or roast
pork as the only meat they will touch.
Their bad color and nerves show that
they are eating the wrong foods, but if
you remonstrate with them they shrug
their shoulders and say, "I can't eat eggs
and vegetables. They don't agree with
me." As a matter of fact, they don't
like eggs and vegetables very well and
they won't cultivate a taste for them.
They are constantly taking drugs to do
what plain nourishing food would do for
them more easily and with no discomfort.

As a matter of fact, there is no one
who couldn't live right if he tried. And
one of the first steps in living right is to
feed right. Our whole life depends upon
what we eat. Sound minds in a sound
body spell success and happiness. And it
is a little too much to expect a sound
mind without the sound body, and alto-
gether too much to expect the sound body
without the right food. Of course, we
need other things, fresh air and exercise,
plenty of sleep, and temperance in all
things. But health depends upon good
pure blood, and good pure food is neces-
sary to make the blood. And I've noticed
that the ones who "can't" eat what they
should usually come to a time in their
lives when they really can't eat anything
else. Improper living tells on the body
sooner or later and when the doctor is
called in, milk and eggs and the simple
things the patient has refused before are
the very things he must now take.

How much better for all of us to do as
we should when the choice is in our
hands, rather than wait until we are so
placed that we must do or die. Really,
you can do anything that is right, no
matter if it is disagreeable. The trouble
is that so many of us have formed the
habit of shirking out of the disagreeables
behind our pet phrase "can't." Anyway,
be honest about it, and if you don't in-
tend to do as you ought, say "I won't,"
for everyone knows you can if you try.

DEBORAH.

DON'T SAY "I CAN'T."

BY E. SOUTHWATE BALDWIN.

Don't say "I can't," because you can.
There is adamant in every man.
Each rugged hill has a treasure-mine,
And every heart has a hidden shrine.
However wrecked a human life,
Some fiber of worth survives the strife;
Each one of us has power to do
If strength and courage we seek to woo.

FLORAL WORK FOR MAY—By Eva Ryman-Gaillard.

May is the month when bulbs, shrubs,
early-blooming perennials and a few an-
nuals are making the world bright with
color, and filling the air with fragrance.
Most of the spring flowers will be through
blooming by the end of the month and
every flower-head should be removed to
prevent nature's effort to produce seed
which means exhausting the strength of
the plant that should be expended in
making a strong, sturdy growth that will
mean more and finer blooms next year.

Very few subjects can be mentioned,
when space is limited, so this month's
talk will be mainly for the benefit of such
women as find themselves in new homes
where the flower-garden is poor, if not
entirely lacking, and for those who want
showy and quick returns for the little
time and strength they can give to its
cultivation. The low-growing, fragrant
beauties of the garden require as much,
if not more, care as many more showy
sorts and for that reason we shall men-
tion a few of the newer forms of old-time
favorites that combine free-flowering hab-
it with tropical appearance and recom-
mend them to the busy woman.

The dahlia was for a long time known
only as a tuberous-rooted plant that re-
quired lifting and careful storing during
the winter, and there was little variety
of form. Now-a-days, however, they are
grown from seed sown about the middle
of May. Among the newer sorts we may

take our choice of shapes and colors and,
from May-sown seed, secure a grand
showing of flowers during late summer
and fall. If some specially fine variety
develops it is an easy matter to protect
from frosts until fully matured, when the
tuber may be lifted and stored for plant-
ing the next season.

The "cactus-flowered" is one of the
best for growing from seed but clematis-
flowered, peony-flowered, ostrich plums,
and pomponne varieties are all good. Seeds
germinate quickly and the plants make
very rapid growth, making a gorgeous
showing easy to obtain.

The old-time sunflower with its enor-
mous single blossoms had little claim to
beauty but the newer types are so strik-
ingly beautiful that they deserve con-
spicuous place. Some of them grow to be
ten feet tall, branch very freely and are
so completely covered with flowers closely
resembling enormous yellow chrysanthem-
ums that they well deserve the name,
"Fountain of Gold," sometimes applied to
them. Other sorts are dwarf and make
fine edges for borders, or beds of the tall-
er growing sorts. Among the dwarfs one
has foliage spotted with bright yellow
and is very attractive.

The flowers range from red to orange
and all have long, wiry stems that make
them especially desirable for cutting.
Their lasting quality makes them splendid
for decorative work, if used with feathery

grasses or light greenery that will soften
their rather bold outlines.

Get the sunflower seed into the ground
as soon as danger of frost is past. Make
the soil very rich, as the plants must
have nourishment to meet the demands
of an enormously rapid growth. Make
the soil fine and cover the seed to about
four times their thickness. If a hollow is
made and filled in as the plants grow it
gives them a much stronger hold in the
ground and prevents leaning over during
strong winds. Plant the seeds generously
and when well started pull up the weaker
plants, leaving just enough of the most
sturdy to fill the space without crowding
when well grown.

Nearly all annuals may be sown in the
open ground this month and those who
want late flowers to keep the garden gay
until the very last will not forget the
asters, cosmos, annual "mums" and other
well known favorites. As an all-around
beauty-booster there is nothing to equal
the nasturtium, there being no other plant
that will give as quick and sure returns
in all sorts of places and in poor soil. Too
rich soil induces growth of rank foliage
at the expense of the flowers. In rather
poor soil the foliage is small but the
blooms are large and many. If the flow-
ers are closely picked the plants bloom
freely all summer and fall but it is a
good plan to sow seed in places where the
floral display can be sacrificed in order to
obtain the seed-pods for use during the
pickling season.

Seeds of both biennials and perennials
may be sown this month if available. The
early sown seed gives stronger plants,
and they withstand the winter better than
those secured by fall or late summer sow-
ing, as is commonly advised.

May is, emphatically, the seed-growing
month in the garden and it is worth while
to remember that many flowers of one
variety make a finer showing in the gar-
den than a few of many kinds and that
they are much more easily disposed of if
a market of any kind is at hand. There
seems to be a craze for old-fashioned
flowers and those common in our grand-
mothers' gardens are the favorites of to-
day, among those buying as well as
among those growing them.

Someone has said that roses hate wet
feet and we know that mildew attacks
the bushes standing in the shade where
the soil is constantly damp. Bushes in
such locations should be moved to a more
sunny place but as the moving must wait
until fall, if it is to be well done.

Moving the bushes may furnish the cure
but for this season we must do the next
best thing and use insecticides. A thor-
ough spraying with the following mix-
ture, about the middle of this month, will
prevent much of the trouble: Mix a
pound of common soap and half-a-pound
of sulphur with enough hot water to form
a paste, then add enough cold water to
make ten gallons of the solution. Keep
well stirred when using and be sure that
the material reaches both upper and un-
der side of leaves.

By the time flower-buds form, all sorts
of chewing and sucking insects will ap-
pear and spraying with hellebore, or other
insect powder, mixed with water must
be resorted to if the bushes are too large
or too many to be treated with dry pow-
ders. A pound of whale-oil soap dissolved
in eight gallons of water makes an effec-
tive remedy for many insects. If the
slimy, worm-like rose slug puts in an
appearance the insecticide must be used
in powder form in order to have it stick
to the slimy body.

If the soil is poor scatter some well ro-
tated manure around the bushes and fork it
in, not working deeply into the soil as the
rains will carry the nourishment down
among the roots. Any long, ungainly
branches may be cut away now but to do
any amount of pruning would rob the
bush of all buds. The needed pruning
should be left until later in the season,
or until early next spring.

To make dustless dusters take squares
of cheesecloth, wash thoroughly and dry.
Then soak in paraffine oil over night.
Wring out all the oil you can, wrap in
paper to draw out more oil. Hang out
and dry thoroughly and they are ready
to use.—Mrs. A. D. P.



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KNITTED SHIRT FOR BABY.

CAST on one needle 100 stitches, knit three ribs; thus knit two rows, purl two rows, knit two rows, then knit 40 stitches, and with the third needle continue to work on these 40 stitches until you have 22 rows that is 11 ribs. Leave these stitches on the needle. With the third needle cast off 20 stitches for the shoulder (by passing one stitch over the other), of the 60 stitches left on the first needle. Knit on the remaining 40 stitches 22 rows for the back the same as the front. In the 23rd row cast on 20 stitches, for the other shoulder, and knit them on one needle with 40 stitches left from the front.

You will not have 100 stitches again on which knit six rows as at the beginning. Cast off the stitches and sew up the side under the arm, leaving the armhole open. A crochet edge is worked round the neck and sleeves.

First row, one single into the edge of knitting, two chain pass over one stitch of knitting, one single into the next. Repeat around the edge. Second row, one double under two chain of last row, three chain one double under next, two chain, repeat. A ribbon is run through the first row of crochet around neck and also sleeves and fastened with a dainty bow.

THE SPRING HARVEST.

BY E. M. STETSON.

There is a spring harvest for the housewife that is right at hand, a harvest that is generally not planted by men, and one that requires no overseeing eye other than that of Dame Nature. This is found in the wild greens that grow and flourish after the severe winter weather has abated and the warm sun comes out to give life to the soil.

Then, there spring up all over the fallow fields, beside the clear brooklets, and in the hidden and shady places many edibles that the good housewife will find of much avail in her search for a varied bill of fare. Wild mustard grows luxuriantly in many places, is hardy, will stand a good deal of cold and gives a most delightful sting to the tongue when cooked with meats for a relish. It makes fine greens, and is not to be despised when worked up into a soup.

Dock is often combined with it, and the two are said to be more easily digested when cooked together than with either alone. The dock is a bit tart and adds to the peppery sting of the mustard. Dandelion, in places where it does not grow too luxuriant and rank, is also a fine thing for greens. It is a little slower in gathering than the mustard and dock, but it is very nice and palatable for the table.

One of the finest greens found is what is called by some, "lamb chops," and the true name has never been given. It is a slim weed that is filled with a sort of egg-shaped leaf of a gray green color, with a sort of icing on it. This resembles somewhat the "pig-weed" which is bitter and has a bad odor and is not fit to eat. But the "lamb-chops" green is of a mild odor and has a most soft and delicious flavor when cooked and dressed with a thickened cream dressing. Set all the youngsters to hunt for it, and get in a whole tub full, for it cooks down a great deal, and one taste of it keeps calling loudly for another.

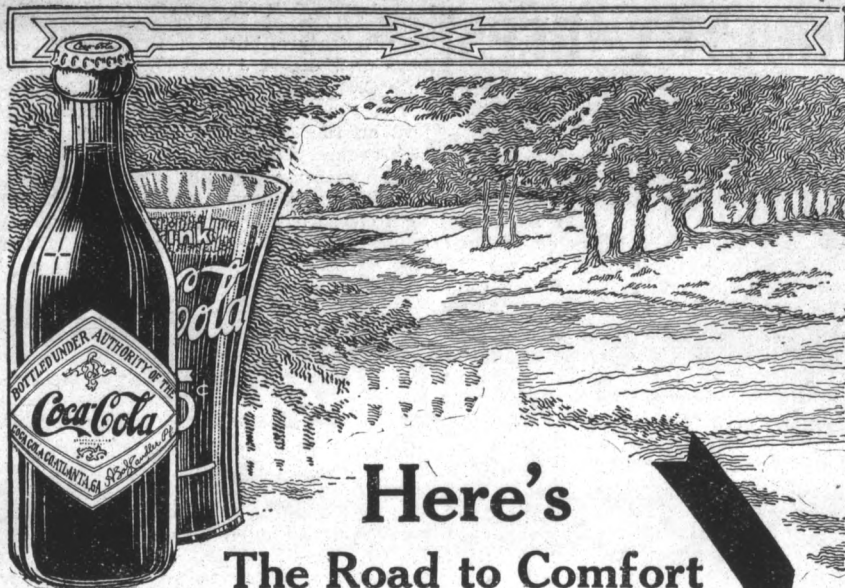
HUMAN WELFARE QUERIES.

Household Editor.—I have got to put my baby on a bottle. Do you think she would do better on Jersey milk?—Young Mother.

Few babies can take Jersey milk as it contains too much cream. Your better plan is to prepare skim-milk and add cream by teaspoonfuls until the baby is taking all it can digest.

Household Editor.—Can you suggest ways of serving eggs to invalids? My patient is tired of poached and soft-boiled.—Nurse.

Separate white and yolk. Beat white as for frosting, pour into a buttered glass and set in hot water to cook. Set the glass on a can cover to keep from bottom of the dish. As the white cooks and rises in the glass, make a little hole in the center and slip in the yolk, taking care not to break. Cook three or four minutes. If the patient cannot take cold foods or drinks you can make eggnog with hot milk. The egg will not cook if you pour in a little milk at a time and beat well. Vary the eggnog by giving only the whites occasionally. Scald a quarter cup of milk and add to it an egg which has been slightly beaten. Cook over water and stir constantly, then add salt, pepper and butter to taste.



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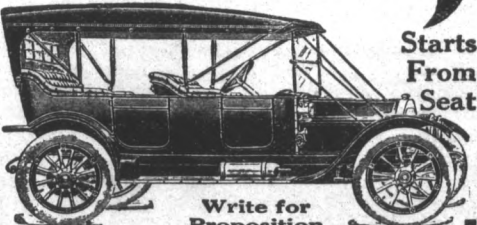
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POULTRY AND BEES

GROWING SUNFLOWERS IN THE POULTRY YARD.

Sunflower seed is good for all farm animals, but chickens especially should be provided with it when it is so easily grown. During the hot days of summer the plants will furnish shade for all members of the flock and later the seed will contribute to the food supply. The seed forms one of the cheapest and best parts of the ration for laying hens, the oily consistency of the seeds rendering them especially adapted to regulating the bowels and promoting egg production.

Sunflowers are very easy to raise; they will grow wherever corn will though they do best in good sandy loam. Plant about the middle of May. If not wanted for the shade they will furnish, plant the seed thinly in rows about three feet apart. Thin to about ten inches in the rows after they have obtained a good start. Cultivate the same as you do corn.

The rows should be a little closer than three feet if shade for the fowls is desired. During days of extreme heat the shady rows offer a retreat from the sun's rays that is thoroughly appreciated by any and all kinds of poultry. A patch of sunflowers in the duck yard is particularly desirable if other shade is lacking. A feature worth considering is that sunflowers retain their shade-producing quality until bitten by frost, after which the leaves begin to drop.

When the flower is ripe cut the stalks and let them lie two or three days to dry out. Then cut off the heads and store them away. Birds, especially sparrows, are very fond of sunflower seed and if the stalks are left standing until the seeds are dry they will extract a goodly portion of them in a few days. The heads should always be thoroughly dried out before they are stored for the winter. When thoroughly dry the fowls can harvest the seeds themselves. Simply throw out the whole heads and the fowls will soon be busy at work.

The seeds combine both medicinal and condimental qualities. I do not know whether a flock could get along on an exclusive diet of the seeds or not, but it is certain that best results are secured by feeding them in limited quantities in connection with grains. Horses and cattle can be given about a pint of the seeds twice a week with good results.

Sunflowers yield at the average rate of from 20 to 30 bu. per acre, though much larger yields than this have been secured under very favorable conditions. When large yields are desired large heads must be secured, and therefore the plants should not be crowded. As most people plant them as much for the shade which they furnish as for the seeds, it is seldom that extra large yields are secured.

Indiana.

W. F. P.

FEEDING LITTLE TURKEYS.

Everyone who has even a single sitting of turkey eggs wants to save as many poults to raise to maturity as possible. The main factor in the life of the little thing for the first few weeks is the kind of food it eats, and this determines to a great extent whether or not it comes to an untimely end.

Best of all foods for the first week is hard-boiled egg, and it is best because it is safest. Eggs are cheap at this time of year, at least, one turkey is worth many of them.

After the first week the diet may include stale bread crumbs, dry or dipped in cold water and squeezed as dry as possible. Milk curd treated as for cottage cheese is also good and a safe food at any age. Bread made from corn meal well baked in the oven makes another which can be recommended after a couple of weeks. As soon as the poults will eat cracked wheat or prepared chick food these may be given, but sparingly at first. Avoid sloppy, mushy food of every kind. It causes bowel trouble.

Water, clean and fresh, is necessary from the very first. Give it in shallow dishes so there will be no wetting of feathers. Milk may also be given. Grit is essential to proper digestion of their food. Green food the little things are very fond of. An enclosed run on grass is a good place for them at first. If shut away from grass, provide lettuce, or clover, or alfalfa cut fine. Lawn clippings

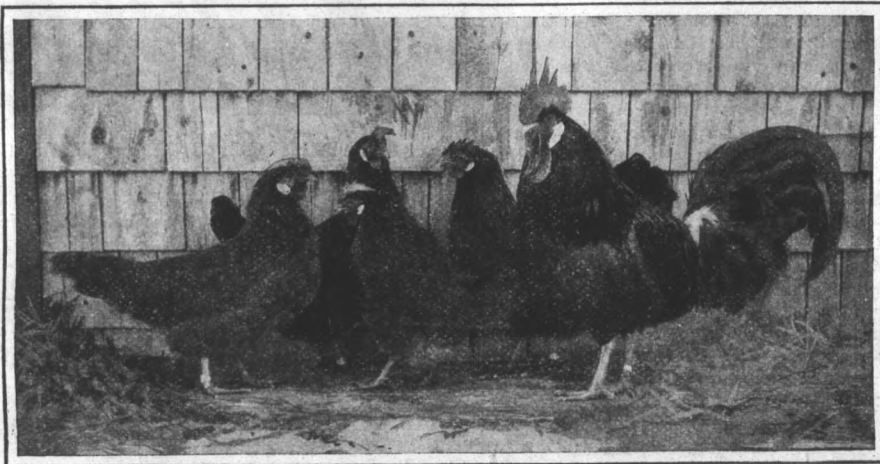
will find favor, also onion tops chopped fine. The right kind of food is an important feature, but even then young turkeys will die if infested with lice. Be sure they are free from these blood suckers if you would have them thrive. Use lard on the heads and under the wings, also around the vent. Or sprinkle common pyrethrum powder into the feathers. A lousy turkey drops its wings and stands with closed eyes. At this stage it will be found badly infested and prompt attention will be needed to save it.

California.

E. E. R.

TURKEY HENS AS MOTHERS.

With regard to the qualities of the turkey hen as a sitter and mother, very little can be said that is not entirely favorable to her. She is devoted to the nest, and her gentleness, in spite of the fact that she is a big heavy bird, with strong, thick legs that would seem capable of doing any amount of mischief, makes her the most trustworthy of sitters. It is a very rare thing for a turkey to break any of her eggs, and when such a thing does happen it is most likely due to the owner's own want of care in choosing eggs with good shells. When there are a large number of eggs in a nest there is always a considerable amount of pressure upon those in the center, and unless they are thick shelled they may collapse, of course. Care in choosing suitable eggs is of great importance, therefore. In this connection it may



"Gold Special" Pen of S. C. Brown Leghorns at Detroit Show of 1910. Owned and Exhibited by Chas. W. Ruff, St. Clair County.

be useful to point out that extreme care is called for in hatching out duck eggs, since these are, as a rule, very thin shelled. Anyone who has had experience in hatching duck eggs under hens will know how necessary it is to avoid putting too many even under a most careful hen. It is the pressure upon those in the center that causes so many accidents with them.

The turkey hen, having hatched out her brood, will prove herself the best of mothers. She has a way of stalking slowly and majestically about the fields, in marked contrast to the way in which the average old hen rushes about with her chicks. She seldom loses a poult, and will stay unmoved for the benefit of any little weakling that drops behind the others.

Canada.

W. R. GILBERT.

MOVING BEES.

The best time of the year to move bees is in the spring. Bees moved in the fall, especially if it is done very late, will not, as a general rule, winter very well. That shaking up after they have settled down for the winter gets them all stirred up and they gorge themselves with honey, making very bad conditions for going into winter. Bees moved in spring, on the contrary, never seem to suffer any bad effects. In fact I have often thought that the thorough shaking they get seems to do them good. They certainly go to work with a vim, and some of the best crops of honey I have ever had were from bees that had been moved in the spring a distance of over 20 miles.

I have a whole apiary to move 7½ miles this spring—at least what there is left of the apiary. I have not seen these bees since the first of March and don't know their present condition, but there will probably be 40 to 50 colonies to move, all in big chaff hives. That is really the cause of moving them home, as chaff hives are so unhandy in an out apiary. Hereafter those big cumbersome hives will never leave the home yard and, just between you and me, I believe that most of them will be stacked up along the fence, except for a while in the spring

when I shall set the bees in them for protection. For the man who has only one yard to look after, and who expects to stay with his bees much of the time, there's nothing I like better than those same big hives, but not for outyard work.

About Loading and Unloading.

As soon as roads get a little smoother I shall hie me away some afternoon, up to where those bees are, with a goodly supply of wire screen. When the bees are all in I shall tack the screen over the entrances, which is practically all the preparation these bees will need. The bottoms are fast anyway, and the packing on top will keep them in up there. We'll have to be a little careful about the weather being too warm, with no more ventilation than that, but still I have never had any trouble that way. Then the next morning we'll go with the teams and load them on. Our wagons will all have springs under the beds, and broad flat racks to set the hives on. The hives are set on so that the frames run crosswise of the wagon. This is very important, for the jolt of the wagon is mostly all sidewise and your combs would soon be in a heap if they were set so they could flop sidewise. If these directions are followed, and the wagons are driven carefully, one will experience no difficulty in moving bees.

The stands upon which they are to set should all be leveled and ready so that they can be set just where they are want-

ed as they are unloaded. Don't let any of them out until they are all unloaded or there may be trouble. If the weather is very hot it will be best to put screen over the top also or there will be danger of suffocation.

Mecosta Co.

L. C. WHEELER.

APIARY JOTTINGS FOR MAY.

The best time to transfer combs and bees is from about the middle of April to sometime in May. At this time the combs are light and free of new honey, and brood-rearing is but fairly started, consequently the work is quickly accomplished without the loss of brood and without a dauby mess and a waste of honey as is the case when combs contain new honey and brood rearing is in an advanced stage.

I find that even in the small state of New Jersey conditions differ so widely that no set of laws can be laid down for all localities. I would, however, make this suggestion: Wherever early blooming trees are present, such as soft maples and elms, it will not be necessary to feed meal, for when it becomes warm enough for the bees to fly freely these trees will yield pollen in abundance.

I would set combs from which bees have died during winter in an empty hive body and place them under a strong colony. Close up all openings except the entrance under the lower body, thus compelling the bees to pass over the unoccupied combs continually when leaving or entering their hive. In this way the combs will be kept free from the wax moth until such time as they can be used for swarms or some other purpose. When the queen gets crowded for space in the upper body she will go down and commence laying eggs in the empty combs below. These combs of hatching brood can be used to great advantage in building up weak colonies or making nuclei.

The wide-awake farmer does not wait until his bees have swarmed and are clustered on a tree top before he thinks of preparing hives. All preparatory work, such as painting hives, wiring brood frames and getting the section boxes ready, should have been done at leisure

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times during the winter and early spring. How easy it will be to manage a dozen or more colonies if everything is in readiness now. For instance, if a swarm issues it will only be the work of a few minutes to take a hive from the barn or shed in which it is stored and hive the swarm. If a honey flow bursts forth suddenly, what satisfaction it will give you to know that you have on hand a few hundred section boxes ready to set on the hives at once. If this work is put off until summer time it is more than probable that it will not be done at all.

Bees fed with combs of sealed honey will use this honey sparingly, just as if it had been their own crop. But when fed with liquid food, especially warm food, the effect is the same as that of a honey crop. It entices them to breed. Each bee, as it carries its load from the feeder to the cell, seems to impart the news to all it meets. The honey-sacs are all more or less loaded with the welcome sweet, and the queen is offered more food than otherwise. If too much food is given the bees will store it in the cells and fill them up unduly. So this must be guarded against. We are feeding only for breeding, and must leave the room for brood. All we need is to make the bees feel that they have a sufficient supply to encourage them to continue their breeding. If the hive is well sheltered, and the space is adequate to present needs, there is no need of fear of chilled brood. Food given in spring must not be as thick as the winter food, and if honey is used, it is advisable to add a small quantity of water. We all know that the bees need more water when feeding brood on old honey than on fresh nectar, and I believe that thin food, if not unreasonably thin, will induce more rapid breeding and require less trips for water.

New Jersey.

F. G. HERMAN.

EXPERIENCE IN GROWING DUCKS FOR MARKET.

My earlier experiences in duck raising were not encouraging. To a small flock of Pekins I essayed to add new blood and bought a sitting of eggs from a famous eastern breeder who prefixed the word mammoth in his ad. The eggs, at a long price, came to hand, plus express. They were packed in a wooden box and all but four were broken.

I put the eggs away in a quiet place to settle after their long shaking up, and then put them under two trusty hens, so that if one proved unfaithful the other might save the day. In due time three ducklings appeared, two ducks and a drake. They were pets from the start and only the digestive organs of ducks could have undergone the constant stuffing they received. A large elm tree shaded the water fountain and it used to be a standing joke in the family that when they had made the circuit of the tree they were ready to take a drink and begin the next meal.

A flock of my home strain of ducks used to join them and I felt certain that a dozen of them consumed as much as a good cow, in grain, bran and forage. When I came to the place where I felt sure they had "eaten their heads off" any number of times I decided to try to market them without waiting for the Thanksgiving market. We scalded them and wrapped them in blankets after the most approved directions, but four of us worked all one day in picking five ducks, and then I spent a day selling them from house to house in a town eight miles away. Nobody knew anything of the flavor of fat young ducks and I decided the later hatches of ducks must cost me less for feed and marketing.

Seventeen young ducks were placed under the care of a big motherly Plymouth Rock hen who had hatched a part of them, and they were very carefully escorted to a nearby pasture where there were many grasshoppers and a fine brook. It was now warm enough so that danger from cramps was over and there seemed nothing that would harm them in the water. So we left them busy with the hoppers and thereafter each morning those youngsters led the Plymouth Rock mother a wild life as they scampered for their favorite field. Then their adventures in the brook almost rent her motherly heart in twain. They dived, and ducked, and ate hoppers all day long and came up at night satisfied. We ate on our home table the entire 17 at different times and each duck furnished a feast.

I never tried to raise them for market again. One who is near a large city can doubtless do well, as they mature quickly, but if they can't be sold they are expensive to feed, except on a hopper diet.

Hillsdale Co.

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Single Comb Black Minorcas—2 pullets, 1 chl., nice birds. Also EGGS. Circular free. D. C. HUGGETT, Grand Lodge, Mich.

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HORTICULTURE

PLANTING TREES.

As soon as the trees are received from the nursery they should be unpacked and examined. If there is any complaint to be made in regard to packing or shipping, it should be attended to at once. Reliable companies are willing to make amends for any fault on their part and it is no more than just that they should be dealt with promptly. If they hear nothing unfavorable they have reason to suppose that everything is as it should be.

The trees may be root pruned then or they may wait until they are set out. In either case they should not be left exposed to the drying atmosphere, but should be covered at once. If they are to be set immediately they may be kept in some cool place, a shed or the north

Holes are dug large enough to admit the roots without crowding. Not only are the roots injured by being bent and huddled together, but the soil cannot be packed around them. As a result there will be air spaces and loose earth about the roots, both injurious. The roots should be spread out and bedded in moist surface soil, firmly worked in among them. After the roots are covered the hole is filled and the soil firmed down to about two inches of the top, then finished with loose dirt, to form a surface mulch.

It is unnecessary to use a large amount of water in setting trees. Unless the spring has been unusually dry it is not necessary to use any more water than for moistening the roots for puddling. To set a tree in a mud hole is neither necessary nor advisable.

The transfer from the nursery row to the orchard is a severe trial at best and should be made as easy for the tree as circumstances will permit. The future value of the tree depends upon it. Neg-



When Not to Spray. Young Orchard of Frank Edgecomb, Grand Traverse County. side of a building, packed in wet straw. It is better, however, to heel them in. Make a shallow trench and place the trees along singly, not erect, but slanting as much as is convenient, with the tops to the north. They might lie upon the ground, were it not that they would require more dirt to cover the roots. The soil about the roots should be kept moist. In this manner trees may be kept for several days.

Root pruning is of the first importance. Every tree should be carefully examined. All broken roots should be removed. They do no good and tax the vitality of a tree as much or more than the healthy roots. The amount of root pruning that is advisable depends entirely upon the individual tree. Roots long enough to interfere with planting should be shortened. If there is an abundance of small roots they may be shortened one-third. The ends of large roots are split and maimed in digging. Of course, this injured part should be cut off. In cutting such roots the wound is made on the under side and at a slant.

If the ground is level enough a line is the most convenient guide for setting trees. On two opposite sides of the field stakes are driven at intervals to correspond with the rows of trees. Beginning at one end a wire is stretched across from one stake to its mate opposite. The wire is marked at regular distances for the trees. The place for the tree is then marked on the ground and the wire moved to the next stakes. When marking enough has been done, the holes are dug and the wire again stretched across. The marks on the wire will show just where the tree is to stand.

The wire for this purpose need not be large, merely strong enough to admit of pulling taut. If galvanized wire is used a dab of black paint will mark the place for the tree sufficiently. It is convenient to have a ring at one end, such as will slip over the stakes. The wire can usually be used and is the most serviceable guide I know of.

The trees are set so that the point of budding on the trunk will be about an inch below the surface. If set too deep the roots will be in the cold subsoil and the tree will be obliged to depend at the beginning upon the upper roots alone or throw out new, which causes delay and is a tax when strength can least be spared.

When trees are taken from the trench the roots are dipped in water, then kept covered till set. It is still better if they can be "puddled," that is, dipped into a thin mud of clay. The object is to keep the small roots from drying out.

lect or ill usage at this time will probably result in a shock from which the tree will be long in recovering, if it ever does. Oakland Co. FRANK D. WELLS.

PLOWING THE GARDEN.

With many farmers the garden is so unimportant that the plowing of the ground is left till after the rush of the spring is over. This is a wrong policy any way the matter may be presented. Any ordinary garden yields abundantly, compared with the best fields on the farm, and since from the garden comes so much of personal satisfaction, as well as of health, no reason can be advanced for neglecting it to the small advantage of the field crops; and it takes no longer to plow the ground in early May than it does in June and usually much less time to get the soil in shape for, by the later date rains and perhaps dry weather have so packed the ground as to make it difficult to get a fine surface mulch for the reception of garden seeds.

It is best where the garden can be plowed all one way that dead-furrows may be avoided, but the additional time usually prevents this unless one is equipped with a reversible plow which will do the work without the dead-furrow and loss of time.

Deep plowing, especially where roots are to be grown, is preferable, only one should not turn up sub-soil in any large quantities; however, the garden soil is usually deep, due to the variety of crops, and the frequent cultivation, and this fault is not apt to appear.

Do not plow down coarse manure. It is apt to dry out the land too much and will interfere more or less with after cultivation. Straw matter is usually brought in the garden by the practice of pitting potatoes, fruits and roots there, bringing a large amount of straw and chaff and digging up the subsoil to cover the pits, all of which militates against conditioning the soil afterwards.

TREATMENT FOR WINTER-KILLED TREES.

Prune severely, leaving as little as possible of the damaged wood. Give good clean culture and provide fertility if lacking. In case the trunk is frozen a sprout from near the ground may be allowed to form another top; remove the old one. If the new top is from below the union of the scion and stock of the original tree, then the top will require to be budded or grafted to the variety desired.

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



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FARMERS' CLUBS

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President—J. D. Leland, Corunna.
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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.

In the last two issues we have presented some information regarding the progress of the Farmers' Club movement in Minnesota. Michigan Club members will also be interested in the progress of a similar movement in Wisconsin, which probably can be described no better than it has been by Mr. William Toole, of Wisconsin, in the report of farmers' institutes of Wisconsin for 1911, edited by Geo. McKerrow, superintendent of farmers' institutes for that state.

In the opening paragraphs of his article, Mr. Toole reviews the trend of organized effort among the farmers of Wisconsin, including the Patrons of Husbandry, the Farmers' Alliance, the Society of Equity and the country literary society, to each of which he gives credit for the accomplishment of such good as is bound to result from a closer association of farmers in a business or social way. Coming down to the subject of Farmers' Clubs proper, Mr. Toole says:

"During all these years the Farmers' Clubs (oldest of our rural organizations) have kept up a steady intermittent existence. Just as the juvenile population of school districts fluctuates, so the promoters of local activities come and go. Others do not come forward to take their places, therefore interest in the success of the Club may be lost.

"There were probably as many Farmers' Clubs in the state of Wisconsin forty years ago as today, but they have stood the test of time and their popularity will increase. Because of the flexibility of plan and wide range of usefulness made possible, the Farmers' Clubs will fit to the conditions of any community which cares to be benefited by an association of mutual helpfulness.

"If we might have a federation of Farmers' Clubs, promoting interchange of thought and comparison of plans and conditions, it would be possible to bring together a summary of knowledge, experience and practice which would promote a formation of clubs and a permanency or organization which has not heretofore prevailed. In Sauk county, (Wis.), we hope to soon bring about a federation of Farmers' Clubs and kindred organizations."

As illustrating the nature of the Club meetings held, Mr. Toole follows up with an account of a meeting of the Skillet Creek Farmers' Club, of which we will give a summary in a future issue.

CLUB DISCUSSIONS.

Discuss Rural Schools.—The Burton Farmers' Club met Thursday, April 4, and all but four families and several invited friends assembled at the hospitable home of Mr. and Mrs. W. J. Brookins. The president, Mrs. Fauth, announced the opening song and after singing, Mrs. Putnam, the chaplain, conducted the devotional exercises. "Discipline in our rural schools." It is not just what it ought to be, since the teacher has so much to look after, the grounds, outbuildings, school building, and eight grades to teach. School discipline lies somewhat with the parents. A teacher can not make a model pupil from a lawless, misbehaving child. Commenting at home before the child on the teacher's imperfections and sympathy given a child when punished for misdeemeanor does not tend to improve the school discipline. The country teacher is usually taxed to the limit and then expected to maintain proper discipline.

The Ladies' Topics.—"Why is woman more sociable than a man?" Women have little to say. They have the fashions to talk about. Some men are as sociable as women. Men are sociable when running for office. Men are not confidential. Women talk from the heart, men from the head. On what grounds do the anti-suffragettes base their opposition? Women do not care for the ballot. Some men

the women's vote will hurt their business. They have no good argument against woman's suffrage. Woman is perfectly capable and there is no good reason why she should not express her opinion by vote. Only the liquor men oppose the measure. Equal suffrage has not done any of the evils predicted. Polling places are as safe and respectable as the postoffice or opera house. A pure woman will be just as pure whether she is permitted to vote or no. Reforms cannot come about all at once but in Colorado, altogether 25 statutes in 16 years are due directly to women, all looking to the betterment of men, women and children.

Soil Fertility.—"How to build and maintain the virgin soil." Learn how before the great necessity is here. The increased population in the country does not compare with the city increase. Less skill is required along professional lines. These days more capital and labor and faith in the soil is necessary. The farmer should be exalted since he must be professional in his line. He should have a knowledge of the complex machinery necessary at this time and its lubrication. Going to school is not the only means of education. We may have magazines and books in the home. Following the discussions on these and other subjects, of which the above is a summary of the ideas advanced, the Club adjourned, the place of holding the May meeting to be announced later.

Forage Crops Discussed.—The Columbia Farmers' Club, of Jackson county, held the April meeting in Macabee hall in Brooklyn, Saturday, April 13. The subject for discussion, "Forage Crops as Substitutes for Clover," was introduced by Walter Reading and discussion led by Mr. Dunn followed by Mr. Harper and others. Mr. Dunn favored millet, and Mr. Harper thought oats cut green made a very good substitute while some others favored cow-peas and oats. Mrs. Clarke Greene gave two vocal solos and Miss Mae Crego recited "A German Woman's Idea of Woman's Suffrage." The junior exhibit committee were given more time to complete their report on what we will do as to prizes. Miss Gladys Reading gave an Easter recitation. Club closed by singing "Blest be the Tie that Binds."

A Good Meeting.—The April meeting of the Ingham County Farmers' Club was held on the 13th with Supt. of Schools and Mrs. Riggs, in Mason, where dinner was served. Through the kindness of Mrs. Millbury, the program was rendered at the Millbury home, next door. President Ives called the meeting to order and after the usual opening exercises introduced Mr. Palen, of the State Dairy and Food Department, who told of the work of that department of the state government. After referring to the work among the drugs, he spoke particularly of the work with milk. Any sample of milk to be tested was sealed and numbered and when taken to the laboratory given to another member, one member acting as a safeguard to the other to eliminate any mistake. Any milk testing below three per cent of butter-fat looks suspicious that it has either been watered or skimmed, but any milk that has been examined and passed, there is nothing more to it. If there is any doubt about the test, the farmer is invariably given the benefit of the doubt. Ropy milk is caused by uncleanness and diseased milk belongs to the work of the state board of health rather than to the pure food department.

To Organize Corn Clubs.—Mr. Allen, as chairman of the committee of the Corn Club, gave his report. He read the rules as printed last week and stated there would be three prizes—for the best production, the best ten ears, and the best description of how grown. Several prizes have already been promised and it is expected every contestant is to be remembered with some prize. Supt. Riggs thought the school board would give free tuition to the eight-grade pupils and Mr. Robb stated that the M. A. C. offers two free tuitions to each county to any of the short courses, this free scholarship good for five years. Commissioner Searl was present and stated that he had personally visited 13 schools and there were still four to look after; that he wished a meeting of the committee and the boys at his office next Saturday. Uniform seed has already been secured and farther notice of this meeting will appear elsewhere. The report of the committee was accepted and adopted.

"The Home Apiary." was well handled by W. L. Cheney, who said in part, instead of the question, "How much money can be made out of this business?" it would be well to ask, "Am I qualified for this line of business?" and if any of you are thinking of taking up bee keeping as a business, think the matter over carefully before investing much money. He described the worker bee, the drone and the queen bee, following the growth from the tiny egg to the worm, the work of the nurse bee, the capping of the cell when the full grown bee would crawl out about the 21st day. The average life of the worker bee was about three months, while during the busy season often one would not live over six or eight weeks. Drones are larger than the working bees, have no sting and do not gather honey; after the swarming season the workers proceed to kill them and he had a trap there to show how one could help in this work. He also explained about the queen cells and the work of the queen bee, and had samples of comb there to show the different cells. He spoke of the manufactured foundation and said there was a chance to make money as there was a standing offer of \$1,000 to anyone who could manufacture a pound of artificial honey in the comb. An excellent program was rendered, including an especially good paper by Miss Taylor on "Women in History." The next meeting will be an orchard meeting at Pioneer Farm with Mr. and Mrs. Ellery Royston. A demonstration of spraying will take place at 11 o'clock, so be there early and enjoy the pleasures of the day.—Mrs. Tanswell, Cor. Sec.

GRANGE

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

THE MAY PROGRAMS.

State Lecturer's Suggestions for First Meeting.

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

Suggestions for Second Meeting.

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

AVOIDING "BREAKERS" IN GRANGE CONTESTS.

Periodically, it appears, the Grange has contests. Whether the outbreak is contagious and we catch it from other states, or whether the germ is inherent and develops spontaneously under certain conditions, I do not know. Certain it is there is no mistaking the fact that contests are prevalent just now in Michigan.

The last time—or was it next to the last—that contests swept the state, in a lecturers' conference at State Grange one lecturer discussed "How to hold a contest and not leave a row." I recall how we all smiled when we saw the topic on the program, but how we also secretly agreed the subject was timely and wisely chosen. It did seem difficult then, if all reports were true, to conduct a contest without a fuss. Many aforesaid staunch Grange went asunder upon a danger reef in a contest. If such a condition exists today I have not heard of it. Perhaps it is too early in the season to tell. Perhaps a little later wireless reports of disaster will come in.

But disaster need not follow in the wake of a contest. It is not necessary and may be guarded against. Trouble comes commonly, when it does occur in a contest, from one or both of two distinct causes.

One of the causes is the inability of some few people to take defeat affably. They are not what the college boys call "good losers." This is a highly desirable quality—the ability to stand "getting beat" in play good naturedly. If the contest trains us to do this, credit one more point in its favor. If we fail in the test and lose temper and mettle, why, so much the more need to practice again in another contest!

The second reason for a sometime failure of a contest is far more insidious. Its effects are apparent afterward and not during the progress of the contest. This cause is over-success! That is, it comes of running up high scores without much attention to quality features. It is gaining members faster than the Grange can or does assimilate them. In the desire to get new members one or both sides overreach discretion and bring into the Grange persons who later tire of the order and drop out or, what is worse, remain and become pricking thorns in the flesh for years after. This trouble also leads to putting onto the program too many numbers of poor quality or poorly prepared, through attention to their "count" rather than to their value. This lowers the lecture hour standard and gives new members a low notion of Grange ideals.

Happily, our present contests seem to be steering clear of these difficulties and, beyond question, they are adding hundreds to Michigan Grange membership this year.

JENNIE BUELL.

AMONG THE LIVE GRANGES.

Successful Contest.—Mt. Vernon Grange, of Isabella county, closed its membership contest early in April, the losing side serving a supper April 15. The contest resulted in the addition of 25 new members and in 10 re-instatements; also in a

better general attendance, the organization of a capable degree team and marked improvement in degree work.

Iron-ton Grange, of Charlevoix county, had an attendance of 55 members and five visitors at its last meeting. This Grange will start a contest with the first meeting in May. It also voted to hold a plowing match in the fall.

U. P. Claims Largest Grange.—Ironwood, in the heart of the Lake Superior mining region claims the distinction of possessing the largest Grange in the state. Ironwood Grange received its charter only two years ago, but at this time has a membership of nearly 500, a class of 50 having been initiated recently. With this Grange the insurance feature has proven a strong drawing card.

Morenci Grange, one of Lenawee county's good subordinates, continues in vigorous healthy condition as evidenced by the addition of ten new members at one of its March meetings. This Grange is doing good program work. It recently voted to change the time of meeting from Saturday to Friday, the change going into effect this month.

New Subordinate at Brighton.—Brighton Dairy Grange was organized in Macabee hall at Brighton, Saturday evening, April 20, by Deputy Earl Stone, of Durand. The officers chosen are: Master, Fred Crippen; overseer, Van L. Folland; lecturer, Mrs. M. B. Francis; steward, Louis Krause; secretary, M. B. Francis; chaplain, M. C. Macomber; treasurer, Arthur Prosser; ass't steward, Frank Folland; lady ass't steward, Mrs. Fred Crippen; gate keeper, Gregory Bergin; Ceres, Mrs. Frank Folland; Pomona, Mrs. M. C. Macomber; Flora, Mrs. Geo. Duckering.

To Study Co-operative Marketing.—Following the orchard program recently carried out by Grand Traverse Grange, a committee, composed of Bros. R. H. Ellsworth, D. H. McMullen and E. O. Ladd, was appointed to outline a plan for the investigation of co-operative methods of marketing farm products. The members are anxious to increase their incomes by selling their products to better advantage, and this committee is to take up the entire marketing problem and learn how farmers in other fruit sections manage to get high prices for their crops. It was pointed out that in another three years about a million of recently set fruit trees will come into bearing, and that unless new markets are found and a new system of marketing elaborated the fruit will not bring enough to pay for the picking. The marketing methods pursued by the fruit growers of the west will be examined with special care. It is the intention of this committee to co-operate with a committee to be appointed by the local board of trade with a similar end in view and it is proposed to ask the Pomona to give consideration to the subject of co-operation in an early program.

U. P. Pomona Dedicates New Hall.

A joint Grange and farmers' institute meeting was held at Baraga early in April, at which time the county Grange, known as Seward Pomona, dedicated its new hall. The meeting was a great success, notwithstanding the fact that some of the institute speakers were unable to be present. The opening session brought out an attendance of nearly 100. Pomona Master Lundin presided. Reports from the several subordinate Granges were received, and the committee which had been appointed to investigate the road commissioners of the county rendered its report. The institute program was then taken up, N. I. Moore, of Jackson county, assisted by local speakers, discussing practical farm, dairy and poultry topics of general interest and value to all present. At the election of officers for the farmers' institute, C. H. Anderson succeeded Hoaken Lundin, who declined reelection, and Chas. Price was re-elected secretary.

In the evening Master Lundin called the gathering to order and in a few well chosen remarks stated that the time had arrived for the dedication of the hall. He told his hearers how Baraga Grange was organized about 2½ years ago in the corner schoolhouse and had come to see the necessity of having a home for themselves; he told of the trials and tribulations of the various committees who assisted in the work, how the undertaking was started with a credit balance of \$175; he told of the generosity of the people and showed that to date \$2,600 had been spent upon the building. Deputy State Master Seward then assisted the members in dedicating the building. The mid-summer meeting of Seward Pomona will be held at Skanee in June.

COMING EVENTS.

Pomona Meetings.

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

BOOK NOTICES.

"The Indiana Weed Book," by W. S. Blatchley, former State Geologist of Indiana, is a comprehensive book of 190 pages, describing and illustrating the weeds of Indiana, most of which are also more or less common in Michigan. This book contains 139 separate illustrations, many of them embrace a number of subjects. It contains chapters on weeds in general and means for their eradication, as well as accurate descriptions and illustrations of same, together with illustrations of the seeds of common weeds, and other information of a similar value. This comprehensive and well written book, bound in paper cover, is sent post-paid to any address for \$1. Published by Nature Publishing Co., Indianapolis, Ind.

MARKETS

DETROIT WHOLESALE MARKETS.

May 1, 1912.
Grains and Seeds.

Wheat.—The boom started nearly three weeks ago continued through the past week with scarcely an interruption, considered in the light of the great advance made since prices started going up; for, while the total advance has aggregated a margin of nearly 18c the only declines for cash grain were recorded a week ago Tuesday with a drop of 1/4c and on last Monday when a 1/4c decline was gained by the bears. On all other days except Tuesday of this week the market quotations have advanced. The weaker feeling at the opening this week was largely due to the news of heavy rains in Kansas where the plants were threatened with dry weather. The bears were also favored with a better state report from Oklahoma and the fact that the world's visible supply is larger than in 1911. This bearishness was counterbalanced by more extensive damage reports from Ohio and other states east of the Mississippi, by the delayed seeding in the northwest, and by the strong cash demand from millers. The visible supply of this country shows a decrease of nearly two and one-half million bushels. One year ago the price for No. 2 red wheat was 91c per bu. Quotations for the past week are:

	No. 2	No. 1	Red.	White.	May.	July.
Thursday	1.14 1/4	1.12 1/4	1.14 1/4	1.14 1/4		
Friday	1.16 1/4	1.14 1/4	1.16 1/4	1.16 1/4		
Saturday	1.18 1/4	1.16 1/4	1.18 1/4	1.18 1/4		
Monday	1.18	1.16	1.18	1.17 1/4		
Tuesday	1.18	1.16	1.18	1.16 1/4		
Wednesday	1.17 1/2	1.15 1/2	1.17 1/2	1.16 1/4		

Corn.—Further advances have characterized the corn trade, due in part to the sensational advance in wheat and also to the delay farmers are experiencing in getting their spring's work disposed of. In the southwest there is a strong demand for corn, and all over the country the calls are good. The visible supply also shows a decrease of over two and one-half million bushels. One year ago the price for No. 3 corn was 55c per bu. Quotations for the past week are:

	No. 3	No. 3
	Corn.	Yellow.
Thursday	81	83
Friday	81	83
Saturday	81 1/2	83 1/2
Monday	82	84
Tuesday	82	84 1/2
Wednesday	82	84 1/2

Oats.—This grain failed to make advances in spite of the better prices for wheat and corn and of the delay in getting in the new crop over wide portions of the oat growing states. There is a very light supply of the grain in the hands of dealers and feeders who use light grain stuffs are substituting cheaper feeds for oats. One year ago the price for standard oats was 35c per bu. Quotations for the week are:

	Standard.	No. 3
		White.
Thursday	63 1/2	63
Friday	63 1/2	63
Saturday	63 1/2	63
Monday	63	62 1/2
Tuesday	63	62
Wednesday	63	62 1/2

Beans.—With practically no dealing on the local market, the board of trade has had little to guide them, in the establishing of values, but the nominal figures given out show that they feel the trade to be a little stronger, having advanced prices six cents the past two weeks. Following are the quotations:

	Cash	Oct.
Thursday	2.47	2.25
Friday	2.48	2.25
Saturday	2.48	2.25
Monday	2.48	2.25
Tuesday	2.48	2.25
Wednesday	2.50	2.25

Clover Seed.—The trade has suddenly become inactive, due to the falling off of demand from agricultural communities for seeding purposes. Cash and October quotations remain unchanged from the closing figures of last week, while Alsike has declined. Here are the quotations:

	Cash.	Oct.	Alsike.
Thursday	12.00	10.20	11.75
Friday	12.00	10.20	11.75
Saturday	12.00	10.20	11.50
Monday	12.00	10.20	11.50
Tuesday	12.00	10.20	11.50
Wednesday	12.00	10.10	11.00

Rye.—The increase in quotations for cash No. 2 rye amounted to 1 1/2c, which makes the present price 95 1/2c per bushel.
Timothy Seed.—Market very dull. The present price is \$6 per bu., which is 10c below last week's figure.

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.—With the increased offerings at nearly all large market centers there developed a weakness in the potato trade, and the market lacks a firm undertone at figures five cents below the quotations of last week. The new prices are \$1.10 per bushel on track in bulk, and \$1.15 where sacked.

Provisions.—Family pork, \$20@21; mess

pork, \$19.50; clear, backs, \$19.50@20.50; picnic hams, 10c; bacon, 14@16c; pure lard in tierces, 11 1/4c; kettle rendered lard 12 1/4c per lb.

Dairy and Poultry Products.

Butter.—Neither creamery nor dairy butter was effected by price changes the past week. The demand is normal and the supply steady with former weeks. Quotations are: Extra creamery, 31c; firsts, do., 30c; dairy, 22c; packing stock, 21c per lb.

Eggs.—With the arrival of increasing supplies, values suffered a decline of a cent the past week, making the price for current receipts, case count, cases included, 18 1/4c per dozen.

Poultry.—This deal is firm; no change in quotations, which are as follows: Live.—Spring chickens, 15@16c; hens, 15@16c; turkeys, 16@18c; geese, 11@12c; ducks, 14c; young ducks, 15@16c per lb.

Veal.—Veal is steady. Fancy, 10@11c; choice, 8@9c per lb.
Cheese.—Steady. Michigan, old, 22c; Michigan, late made, 20 1/2@21c; York state, old, 22@23c; do. new, 20 1/2@21c; Limburger, 21@22c; domestic Swiss, 22@24c; brick cream, 20@21c per lb.

Fruits and Vegetables.

Hickory Nuts.—Shellbark, 2c per lb.
Onions.—Unchanged; \$2.40 per bu.
Honey.—Choice to fancy comb, 15@16c per lb; amber, 12@13c.
Apples.—Trade continues firm with values running about steady. Baldwins are selling at \$3.40@4; Steele Red, \$6@6.50; Ben Davis, \$2@2.50.

OTHER MARKETS.

Grand Rapids.

The potato market is easier, largely on account of heavy receipts of foreign stock, so buyers say. Then the supply of home-grown potatoes is found to be larger than was expected and the loss from freezing is small. Some of the largest local buyers were not paying over 80c Tuesday, though prices paid by others were around \$1. The egg market is somewhat below last week's figures, the price paid the country trade Tuesday being 17 1/2c. Dairy butter is firm at 25 1/2@26c. Prices paid on the city market Tuesday morning were as follows: Apples, \$1.50; potatoes, \$1.30; pieplant, 90c; parsnips, \$1; radishes, three bunches for 25c; lettuce, 10c. Beans are doing a little better, the price to farmers being on \$2.15 basis. All grains continue to climb, the retail price of wheat being \$1.25; oats, 70c; corn, 85c.

Chicago.

Wheat.—No. 2 red, \$1.12 1/2@1.16; May, \$1.14 1/4; July, \$1.11 1/4.
Corn.—No. 3, 77 1/2@78 1/2c; May, 80 1/4; July, 77 1/2c per bu.

Oats.—No. 2 white, 57 1/2@58 1/4c; May, 56 1/2c; July, 54 1/2c per bu.
Barley.—Maltng grades, \$1.00@1.36 per bu; feeding, 75@85c.

Butter.—Demand continues good. Market steady to firm with prices which have ruled for several weeks being well maintained. Quotations: Creameries, 28@31c; dairies, 24@28c.

Eggs.—This market has weakened in the face of record-breaking receipts but prices are being fairly well maintained. Top grades are off 1/2c; miscellaneous offerings unchanged. Quotations: Firsts, grading 70 per cent fresh, 18c; ordinary firsts, 17c per dozen; at mark, cases included, 17@17 1/2c.

Potatoes.—Unexpectedly liberal offerings are responsible for a material break in prices and declining interest in this market. A loss of 12@15c since this time last week is recorded. Michigan and Minnesota stock now quoted at \$1.10@1.15 per bu; Wisconsin, \$1.08@1.13.

Beans.—Active, with prices firmly held. Quotations: Pea beans, choice hand-picked, \$2.65 per bu; prime, \$2.55; red kidneys, \$2.50@2.60.

Hay and Straw.—All kinds of hay, except clover, 50c@1 higher; clover shows a decline of \$1. Rye straw is \$1 higher. Quotations: Timothy, choice, \$27@27.50; No. 1, \$25.50@26.50; No. 2 and No. 1 mixed, \$24@25; No. 3 and No. 2 mixed, \$18.50@22; clover, \$20@22; No. 2 and no grade, \$13@18; alfalfa, choice, \$25.50@26; No. 1, \$24@25; No. 2, \$21@22.50. Straw—Rye, \$11@12; wheat, \$8@9; oat, \$9.50@10.

New York.

Butter.—In this market supplies have been running below requirements with the result that, while western markets have seen no change, prices here have advanced rapidly the past week, creameries being quoted 4c higher. Creamery special 26c; extras, 35 1/2c; firsts, 34@35c; packing stock, current make, No. 2, 23 1/2@24c per pound.

Eggs.—Receipts liberal and market somewhat unsettled. All grades fractionally lower. Quotations: Fresh gathered extras, 21 1/2@22c; firsts, storage packed, 20 1/2@21 1/2c; do. regularly packed, 19@20c; western gathered whites, 20 1/2@21c per dozen.

Poultry.—Quiet. Dressed. — Western fowls, 14@17c; turkeys, 13@22c per lb.

Boston.

Wool.—The sales of wool for the past week here amounted to more than was sold the previous week or during the corresponding week of 1911. The London auctions show a strong tone to the market on the east side of the Atlantic. Here the market is strong and prices show no tendency to go down. Wool growers in the west are not letting the crop get out of their hands as rapidly as they were some weeks ago, and they are holding for better prices than are now offered, the general sentiment being that when many buyers are present competition will get for sellers more satisfaction. In the fleece states there is no activity and one cannot guess what the attitude of growers will be; it is presumed, however, that the asking price will be in harmony with the firm situation prevailing in the general wool trade for the past several weeks. The manufacturers show a slight inclination to balk at the present basis of val-

ues for the raw material, but as this is their usual method of getting better terms, and since orders for manufactured goods are running large for the season, growers will not take much fright at the manufacturers' attitude. There appears to be good and just reasons for asking a liberal quotation for fleeces this spring.

Elgin.

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

THE LIVE STOCK MARKETS.

Buffalo.

April 29, 1912.

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

Receipts of stock here today as follows: Cattle, 165 cars; hogs, 90 double decks; sheep and lambs, 85 double decks; calves, 3,000 head.

With 165 cars of cattle on our market here today, and 26,000 reported in Chicago, we have to quote our market, quality considered, from steady to 10c per cwt. lower than last week on the best grades of cattle. All the butcher grades sold full steady with last week, and we have to report again today, as last Monday, the weather was soft and rainy and disagreeable all day long. About everything was cleaned up at the close, and the market about like the opening, with prospects steady at present prices for the remainder of the week.

We quote: Best 1,400 to 1,600-lb. steers, \$8.50@8.75; good prime 1,300 to 1,400-lb. steers, \$7.75@8.25; do. 1,200 to 1,300-lb. do., \$7.25@7.75; best 1,100 to 1,200-lb. shipping steers, \$7@7.25; medium butcher steers, 1,000 to 1,100, \$6.25@6.60; light butcher steers, \$5.75@6.25; best fat cows, \$5.50@6.50; fair to good do., \$4.50@5.25; common to medium do., \$3.75@4.25; trimmers, \$2.50@3; best fat heifers, \$6.50@7.25; good do., \$5.40@6; fair to good do., \$5@5.25; stock heifers, \$4.25@4.50; best feeding steers, dehorned, \$5.50@6; common feeding steers, \$4@4.25; stockers, all grades, \$4@4.25; prime export bulls, \$6@6.50; best butcher bulls, \$5@5.50; bologna bulls, \$4.25@4.75; stock bulls, \$3.50@4.50; best milkers and springers, \$5@6; common to good do., \$2.50@3.50.

The supply of hogs here today totaled 90 double decks, which is a fair run for this season of the year, and with good liberal supplies at all western markets, our trade was about a dime lower on all grades, and in some cases pigs sold as much as 15c lower than the best time Saturday. A few selected hogs, closely sorted and good weights, sold at \$8.35, but the general sales were at \$8.25@8.30, generally at the latter price. Lights, \$7.50@7.75; pigs, \$7.25@7.40. Trade closed full steady here today, and with a good clearance, we think the outlook is fairly good for the balance of this week.

The lamb market was active today; most of the choice lambs selling from \$9.40@9.50. Look for steady prices the balance of the week, and for higher prices after the 10th of May. The sheep market was active; prices about a half higher than last week. Prospects steady.

We quote: Best lambs, \$9.40@9.50; cull to common do., \$7@8.25; wethers, \$7@7.25; bucks, \$3.50@4.50; skip lambs, \$3.25@5.25; yearlings, \$7.50@8; handy ewes, \$6.25@6.50; heavy do., \$6@6.50; cull sheep, \$2@4.50. Wool lambs about all in. Best selling today \$10@10.40; veals, choice to extra, \$8.25@8.50; fair to good do., \$6.50@8; heavy calves, \$4@5.

Chicago.

April 29, 1912.

Cattle. Hogs. Sheep.
Received today 25,000 54,000 15,000
Same day last year 21,666 57,415 24,839
Received last week 49,086 146,621 71,124
Same week last year 47,980 146,470 72,625

This week starts off with a good Monday supply of cattle, liberal hog receipts and an extremely meager run of sheep and lambs. The demand for cattle is now much better than a short time ago, and today's offerings are selling freely at well maintained prices, a noteworthy sale being that of a consignment of four car loads of prime heavy steers at \$8.85. Hogs are off 5c owing to the big run, with an exceedingly good local and shipping demand at \$7.45@8, the best 185 to 195-lb. lots selling 5@10c below the top price. Hogs received last week averaged in weight 230 lbs., compared with 228 lbs. a week earlier, 217 lbs. five weeks ago, 246 lbs. a year ago and 227 lbs. two years ago. Sheep and lambs are once more booming under the extremely small offerings and a strong demand. All predictions made regarding advances have been smashed, with prime wool lambs selling this morning at \$10.20 per 100 lbs., prime shorn lambs at \$9.50 and prime clipped wethers at \$7.50.

Cattle sold extremely well on the whole last week, with moderate receipts and a good average demand on local and shipping account, although high prices continued to restrict the consumption of beef to such a degree that large offerings would have caused reductions in values. Men who have been for many years prominently identified with selling cattle at the stock yards said that never in the past at this season of the year had the general run of cattle, especially the commoner and medium kinds, sold so well. A big share of the beef steers changed ownership at \$6.75@8.50, with choice heavy heaves selling at \$8.50@8.90, the top figure being still another high record price for the season. The commoner lots of light-weight steers sold at \$5.75@6.90, with fair and medium steers bringing \$7@7.90 and no really good weighty steers going below \$8. Desirable yearlings could be bought much cheaper than heavy long-fed cattle, such steers bringing \$7.50@8.30, while cows and heifers were active at \$4@7.75, with a sale of 34 prime 645-lb. heifers at \$7.75. Not enough fat female cattle are arriving to meet the lively demand from killers, and they are headed in an upward direction much of the time. Cutters are finding buyers at \$3.35@3.95,

canners at \$2.25@3.30 and bulls at \$3.75@7.10. There is still lively competition for the better class of heavy feeders with some "kill," and packers are securing the larger share, country buyers taking more stock steers than feeders. Stockers are selling at \$4@6.35 for extremely inferior to fancy lots and feeders at \$6@7 for desirable lots, with very few over \$5.75, however. A few days ago a sale was made of 26 head of prime 977-lb. fleshy red feeder steers at \$7 for shipment to Pennsylvania. Fewer calves have been coming from the dairy districts, and prices have advanced, with sales at \$3.50@8.25 per 100 lbs. Milch cows sold at \$35@70 per head, the principal demand being for choice cows. Cattle prices advanced largely 15@25c, steers, cows and stockers and feeders included, and calves sold 50@75c higher.

Hogs have shown good rallying power recently after considerable reductions in prices, although all classes of buyers made determined efforts to prevent a new advance to the recent high time, when \$8.20 was paid for the most desirable offerings. The largest runs by far usually show up Monday, and the receipts on that day last week reached the unusually liberal total of 65,585 head, causing a quick drop of 15c in prices. The receipts have been increasing unexpectedly, with the gain largely owing to the heavy Monday arrivals. The hogs are all needed, however, and even at reduced values, they are still bringing in handsome profits to stock feeders, notwithstanding the dearthness of corn and other feeds. On some days there have been large supplies carried over to the next day, and this has helped to depress the market, as many as 14,000 hogs being carried over. Sales have been made largely within a 10c range, with the bulk going not very far below top figures, and light hogs that averaged around 185 to 195 lbs. sold well below the prices obtained for heavier lots of choice barrows. Hogs are being marketed on an average considerably heavier in weight than earlier in the season, but there are still a good many light weights.

Sheep and lambs have been selling wonderfully well recently, with a big general demand and nowhere near enough prime lambs to meet the trade requirements. The result of this was one of the liveliest marking up of the price list ever known, everything good in the line of lambs, yearlings, wethers and ewes participating fully, but the biggest boom took place in lambs, the market ruling the highest of any time in two years. Clipped stock has greatly predominated, and on Wednesday last week there were only seven car loads of Colorado wool lambs on sale. The wonderful boom has surprised nearly everybody, including the most optimistic, who had hardly expected to see the market go up so rapidly. However, the available supply of fat mutton on the hoof is decidedly short, and there is no telling how high prices may rule before the grass flocks and spring lambs are marketed freely. The advance for the week reaches \$1.25@1.40 for lambs per 100 lbs., while sheep are largely \$1 higher. Unshorn offerings sold as follows: Lambs, \$6.50@9.75; feeding and shearing lambs, \$6.75@8; yearlings, \$8@8.50; wethers, \$6@7.60; ewes, \$4@7; bucks, \$5.50@6.25. Choice shorn lambs sold at \$8.25@8.65. A bunch of 49 head of Kentucky spring lambs, the first of the season, sold at \$10.50 per 100 lbs., averaging 52 lbs.

Horses were in extremely good general demand last week, with a large attendance of local and eastern buyers, as well as buyers from farming districts, and prices were well maintained. Farm workers weighing from 1,100 to 1,450 lbs., mares preferred, have had a good outlet at \$100@200 per head, good broody mares selling at the highest figures. Wagon horses were wanted at \$160@250, with not many going as high as \$225 and the greater part at \$200 and under. Light drafters weighing 1,550 to 1,650 lbs. have a large sale, and heavier and better draft horses are wanted at \$230@325, with a greater scarcity of the class salable around \$300.

LIVE STOCK NOTES.

Advices received by prominent Chicago live stock commission houses are that the hog supplies available for the next three months in Ohio, Indiana, Illinois and Missouri are the smallest known in a quarter of a century. A year ago this region was full of hogs.

Bulls have been getting unusually scarce in western markets and are fetching remarkably high prices. The boom in hogs has resulted in placing a premium on sausage material, and buyers have been scouring the country in search of thin bulls.

The cattle receipts at the six principal western markets for 1912 to date are approximately 200,000 head smaller than for the corresponding period last year.

The percentage of female cattle coming to market for some time past has been rather small, and the quota of good cows and heifers is as light as has ever been known at this season of the year. The receipts embrace a large showing of medium and low-grade butcher cows coming from dairy districts. Limited numbers of high-grade heifers and cows are bringing very high prices, sales ranging from \$6@7.50 per 100 lbs.

Horse dealers are complaining of the difficulty experienced in buying enough farm work horses in farming districts to complete car loads at the prices recently prevailing. Not long ago a visitor at the Chicago stock yards said he had ten Michigan country buyers scouring that state for farm horses, and they had secured all together but 14 horses.

The exceptionally big run of hogs at Chicago on Monday, April 22, aggregating 65,583 head, caused general surprise, but it was not regarded as any indication of larger supplies left back in feeding districts than had been reported. Hogs are in large demand in all the markets of the country and promise to continue active at high prices.

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 2, 1912.

Cattle.

Receipts, 1,390. Market active at last week's prices on all grades: quality good. We quote: Best steers and heifers, \$7.75@8.25; 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, \$5.50@6.50; choice fat cows, \$5@6; good do. \$4@4.75; common cows, \$3.50@4; canners, \$2@3.25; choice heavy bulls, \$5@6; fair to good bolognas, bulls, \$4.25@4.50; stock bulls, \$3.50@4; milkers, large, young, medium age, \$4@5.5; common milkers, \$2@3.5.

Bishop, B. & H. sold Goose 7 cows av 960 at \$4.20, 1 bull weighing 1,000 at \$5; to Parker, W. & Co. 17 butchers av 723 at \$6.25; to Sullivan P. Co. 3 steers av 1,047 at \$7.50, 5 butchers av 894 at \$6.25, 4 do av 615 at \$4.50, 35 steers av 1,060 at \$8, 1 bull weighing 1,030 at \$5.40, 6 butchers av 970 at \$5, 6 do av 871 at \$6.75, 2 steers av 1,090 at \$7.50, 1 bull weighing 1,700 at \$5.50; to Kamman 1 cow weighing 970 at \$5.75, 1 do weighing 1,220 at \$6, 2 do av 1,015 at \$4.75, 2 bulls av 1,340 at \$5.50, 2 do av 770 at \$5; to Mich. B. Co. 3 cows av 1,013 at \$5.75, 4 do av 962 at \$5.75, 4 do av 1,060 at \$4.75, 1 steer weighing 950 at \$7; to Newton B. Co. 1 bull weighing 1,080 at \$5.75, 18 steers av 1,255 at \$8, 14 do av 770 at \$5.50, 2 cows av 1,090 at \$4, 2 bull and heifer av 835 at \$5; to Rattkowsky 1 cow weighing 1,150 at \$5.75; to Schuer 2 do av \$85 at \$3.50; to Hammond, S. & Co. 2 do av 1,110 at \$5.60, 10 steers av 933 at \$7.15; to Heinrich 33 do av 931 at \$7.25; to Thompson Bros. 10 butchers av 886 at \$5.40; to Kamman B. Co. 4 cows av 990 at \$5.75, 1 bull weighing 1,170 at \$3.50; to Schuer 4 cows av 860 at \$4; to Hammond, S. & Co. 23 steers av 944 at \$7.45, 22 do av 960 at \$7.45; to Parker, W. & Co. 10 do av 880 at \$7.25, 10 butchers av 785 at \$5.25, 1 bull weighing 1,630 at \$5.25.

Roe Com. Co. sold Sullivan P. Co. 6 cows av 1,150 at \$5.75, to Nagle P. Co. 27 steers av 1,104 at \$7.85, 11 do av 970 at \$7.25; to Mich. B. Co. 5 butchers av 958 at \$4, 15 steers av 1,000 at \$7.50, 5 do av 752 at \$7; to Newton B. Co. 4 butchers av 820 at \$6.25, 2 do av 785 at \$6.50, 2 cows av 850 at \$3.50, 1 do weighing 780 at \$3.50; to Mich. B. Co. 6 steers av 786 at \$6.50, 6 do av 860 at \$6.65; to Thompson Bros. 3 cows av 957 at \$5.50; to Kamman B. Co. 6 butchers av 816 at \$6.50; to Parker, W. & Co. 10 steers av 978 at \$7.25, 4 do av 832 at \$6.

Haley & M. sold Sullivan P. Co. 3 cows av 1,057 at \$5.20, 8 steers av 811 at \$6.50, 2 butchers av 655 at \$4.50, 1 cow weighing 1,130 at \$6, 2 do av 950 at \$5, 1 do weighing 1,310 at \$6.50, 19 steers av 873 at \$7.10, 5 do av 740 at \$6, 1 bull weighing 500 at \$4, 1 heifer weighing 620 at \$4.75, 26 steers av 1,020 at \$7.30, 28 do av 820 at \$6.85; to Goose 5 cows and bulls av 1,066 at \$5, 1 cow weighing 1,020 at \$4.50, 1 canner weighing 820 at \$3; to Schuer 1 cow weighing 930 at \$3.80, 5 do av 950 at \$4.55; to Nagle P. Co. 1 do weighing 980 at \$5; to Hammond, S. & Co. 2 steers av 890 at \$6.40, 12 do av 850 at \$6.90; to Applebaum 2 cow and bull weighing 1,000 at \$5.25; to Kamman B. Co. 13 butchers av 900 at \$6.70; to Newton B. Co. 1 steer weighing 1,250 at \$8.10; to Sullivan P. Co. 1 bull weighing 1,040 at \$5, 1 cow weighing 800 at \$4, 4 steers av 852 at \$6, 5 butchers av 792 at \$5.50; to Mich. B. Co. 8 do av 700 at \$6, 6 do av 650 at \$6, 16 steers av 888 at \$7.35; to Sullivan P. Co. 8 cows av 1,100 at \$5.25, 2 steers av 865 at \$6.25, 1 heifer weighing 770 at \$3.25.

Roe Com. Co. sold Mich. B. Co. 3 butchers av 790 at \$5.25; to Sullivan P. Co. 18 steers av 1,047 at \$7.40, 1 cow weighing 1,050 at \$6, 3 do av 723 at \$5, 20 steers av 1,007 at \$7.40; to Breitenbeck 20 do av 1,056 at \$7.15; to Schuer 5 butchers av 538 at \$4.50; to Newton B. Co. 20 steers av 1,062 at \$8, 25 do av 1,067 at \$8.25, 1 do weighing 840 at \$7, 1 bull weighing 1,160 at \$6, 1 bull weighing 950 at \$5.50, 3 heifers av 553 at \$4.75, 2 canners av 855 at \$3.50; to Mich. B. Co. 6 bulls av 1,023 at \$5.50, 17 butchers av 660 at \$6.50, 1 cow weighing 850 at \$6, 6 do av 820 at \$5, 2 do av 840 at \$4, 1 do weighing 850 at \$5, 1 bull weighing 910 at \$6, 3 steers av 797 at \$7, 22 do av 895 at \$7; to Sullivan P. Co. 10 butchers av 712 at \$6; to Fry 3 do av 663 at \$6, 1 cow weighing 1,210 at \$5, 1 do weighing 1,020 at \$5, 10 butchers av 950 at \$6; to Nagle P. Co. 9 steers av 1,091 at \$7.35, 1 do weighing 930 at \$7.60, 9 do av 970 at \$7.60, 4 do av 975 at \$7.60, 12 do av 1,072 at \$7.50.

Weeks sold Schuer 4 bulls av 715 at \$4.70, 8 cows av 800 at \$5.

Same sold Rattkowsky 3 bulls av 1,200 at \$5.35.

Same sold Parker, W. & Co. 10 butchers av 633 at \$5.50.

Merritt sold Mich. B. Co. 2 cow and heifer av 1,265 at \$6.10, 7 cows av 780 at \$5.10.

Veal Calves.

Receipts, 1,083. Good grades 25@50c higher than last week; common 50c@1.00 lower. Best, \$7.50@8; common, \$3.50@6.

Spicer & R. sold Rattkowsky 8 av 130 at \$7.75, 5 av 100 at \$6; to Thompson Bros. 3 av 130 at \$7.75; to Sullivan P. Co. 2 av 140 at \$8, 8 av 125 at \$6.

Robb sold Mich. B. Co. 8 av 130 at \$7.50. Haley & M. sold Newton B. Co. 3 av 100 at \$6, 18 av 135 at \$8; to Goose 7 av 135 at \$7; to Rattkowsky 5 av 125 at \$8,

2 av 160 at \$8.50; to Mich. B. Co. 5 av 120 at \$7.50, 33 av 130 at \$7.75. Bishop, B. & H. sold Parker, W. & Co. 9 av 140 at \$7.50; to Hammond, S. & Co. 1 weighing 150 at \$7.50, 3 av 145 at \$7.50, 14 av 130 at \$8, 13 av 100 at \$6, 49 av 125 at \$7.50; to Nagle P. Co. 37 av 140 at \$7.25, 3 av 160 at \$7.75; to Thompson Bros. 11 av 105 at \$5.50; to Sullivan P. Co. 2 av 120 at \$6, 14 av 135 at \$7.75, 2 av 110 at \$7, 4 av 125 at \$6, 20 av 135 at \$7.75, 7 av 135 at \$8, 17 av 130 at \$7.50, 17 av 135 at \$7.75; to Parker, W. & Co. 24 av 140 at \$6, 12 av 130 at \$8, 6 av 105 at \$7; to Kull 15 av 140 at \$8.50; to Goose 13 av 135 at \$7, 14 av 120 at \$7.50, 24 av 135 at \$7.50; to Parker, W. & Co. 51 av 135 at \$7.50.

Sheep and Lambs.

Receipts, 3,140. Market 75c@1.25 higher than last week; quality very common. Best lambs, \$9@9.25; fair to good lambs, \$7.50@8; light to common lambs, \$5@5.50; spring lambs, \$10@11; fair to good sheep, \$5@6.75; culls and common, \$3@4.

Bishop, B. & H. sold Sullivan P. Co. 545 lambs av 76 at \$9.50; to Fitzpatrick Bros. 20 do av 50 at \$5, 10 spring lambs av 53 at \$11, 40 lambs av 80 at \$9.25; to Bullen 94 do av 60 at \$7, 19 do av 50 at \$4; to Fitzpatrick Bros. 27 sheep av 80 at \$2.50, 2 lambs av 80 at \$7, 5 do av 70 at \$8; to Young 53 do av 60 at \$7.50, 2 sheep av 90 at \$6; to Sullivan P. Co. 5 do av 70 at \$6, 17 lambs av 73 at \$9, 12 sheep av 110 at \$4, 95 lambs av 75 at \$8.75, 14 do av 75 at \$9.25, 23 do av 50 at \$8, 7 sheep av 115 at \$6, 48 lambs av 75 at \$7.60; to Parker, W. & Co. 103 do av 80 at \$9.25, 14 do av 65 at \$6; to Nagle P. Co. 14 sheep av 110 at \$6, 14 do av 90 at \$6; to Fitzpatrick Bros. 13 do av 90 at \$4.50; to Hammond, S. & Co. 43 lambs av 75 at \$9; to Thompson Bros. 24 do av 65 at \$7.

Roe Com. Co. sold Newton B. Co. 43 lambs av 70 at \$9, 54 do av 68 at \$9; to Eschrich 26 do av 50 at \$6.75, 16 do av 57 at \$7.25, 2 sheep av 110 at \$5; to Barlage 107 lambs av 57 at \$8.

Haley & M. sold Parker, W. & Co. 39 lambs av 55 at \$7.35; to Newton B. Co. 56 do av 70 at \$8.50, 4 do av 100 at \$8, 1 buck weighing 160 at \$4.

Spicer & R. sold Newton B. Co. 15 spring lambs av 48 at \$10; to Nagle P. Co. 36 do av 50 at \$10.50, 20 sheep av 95 at \$5; to Newton B. Co. 17 lambs av 45 at \$7.25; to Mich. B. Co. 19 lambs av 58 at \$6.75, 15 do av 67 at \$7.

Hogs.

Receipts, 5,876. Nothing sold up to noon; packers bidding 25c lower than last week; pigs 40c lower.

Range of prices: Good butchers, \$7.40@7.60; pigs, \$6.60@6.65; light yorkers, \$7@7.25; stags one-third off.

Bishop, B. & H. sold Parker, W. & Co. 1,215 av 200 at \$7.60, 1,240 av 185 at \$7.55, 1,555 av 170 at \$7.50, 830 av 140 at \$7.40.

Haley & M. sold Hammond, S. & Co. 185 av 195 at \$7.60, 250 av 180 at \$7.55, 240 av 175 at \$7.50.

Spicer & R. sold same 275 av 200 at \$7.60, 360 av 185 at \$7.50, 210 av 170 at \$7.50.

Roe Com. Co. sold Sullivan P. Co. 210 av 200 at \$7.60, 175 av 160 at \$7.50, 130 av 185 at \$7.50.

Friday's Market.

April 26, 1912.

Cattle.

Receipts this week, 1,508; last week, 1,140. Market steady at Thursday's prices.

We quote: Best steers and heifers, \$7.75; steers and heifers, 1,000 to 1,200, \$6.75@7; do. 800 to 1,000, \$6@6.75; do. that are fat, 500 to 700, \$5.50@6.25; choice fat cows, \$5@6; good do. \$4@4.50; common cows, \$3.50@4; canners, \$2@3; choice heavy bulls, \$5@6; fair to good bolognas, bulls, \$4.50@4.75; stock bulls, \$3.50@4; milkers, large, young, medium age, \$4@5.5; common milkers, \$2.5@3.5.

Veal Calves.

Receipts this week, 1,824; last week, 1,455. Market steady at Thursday's prices. Best, \$7.25@7.75; others, \$4@6.50.

Sheep and Lambs.

Receipts this week, 3,549; last week, 4,535. Market strong at Thursday's prices. Best, \$8; fair to good lambs, \$7@7.50; light to common lambs, \$4@5; wool lambs, \$8@8.50; fair to good sheep, \$4.50@5; culls and common, \$2.50@3.50; spring lambs, \$9@10.50.

Hogs.

Receipts this week, 9,545; last week, 8,343. Market 10c higher than on Thursday.

Range of prices: Good butchers, \$7.85@7.90; pigs, \$6.75@7; light yorkers, \$7.50@7.75; stags one-third off.

CROP AND MARKET NOTES.

Lapeer Co., April 29.—The heavy rains of the past two days ended this morning. Ground so wet now will delay farther preparation for putting in the oat crop. April has been a cold month, which makes the season about three weeks late. But little oats drilled in as yet. Wheat a short crop for Michigan this season. Clover meadows and pasture also damaged. Pastures short and insufficient for the needs of stock. Six months feeding stock already has practically exhausted the supply of hay and other fodder and many farmers are on the road looking after hay and other fodder. Good hay costs about \$22 per ton. Some potatoes still in the hands of farmers and sell at \$1.15@1.25 per bu. But very few planted as yet. There will be lots of sugar beets put in this spring. Cattle and horses, and in fact, all live stock, bring big prices.

Mecosta Co., April 23.—April has been in the main an average of the usual year. Grass is growing good so that people who are short of feed can soon turn cattle to pasture. Not much plowing done yet; some oats have been sown for a week. Potatoes which had taken a slump have made a gain. They are quoted by local buyers at \$1.05; hay, \$22; butter-fat, 31c; eggs, 16c; hogs, 6½c; veal, 5c; horses \$15@225; cows, \$20@50.

VETERINARY.

(Continued from page 526).

eyes are sometimes swollen and almost entirely closed, in some cases the tears drop over the cheeks. The pulse usually runs quick, beating from 60 to 100 times per minute and the respirations are also quickened. The animals always show great muscular weakness; following this high fever and weakness the legs usually stock. The complications which often follow affect lungs, heart, and the animal may die from exhaustion. These are leading symptoms of influenza and a horse seldom has more than one attack in two years.

Nervousness—Imperfect Vision.—I have a standard bred four-year-old colt that is very nervous, but well broken. The slightest excitement seems to bring on nervousness and he shies at every little puddle of water in the road. He has never been punished for shying, but he makes some high and long jumps over small objects in road as if afraid of being hurt and I believe he shows it more this year than last. M. C. Doster, Mich.—Your horse is near-sighted and will perhaps gradually grow a little more so as he grows older. Give him 1 dr. ground nux vomica, ½ dr. iodide potassium and a desertspoonful of Fowler's solution at a dose in feed two or three times a day.

Garget.—We have a two-year-old heifer that has occasional attacks of garget in one hind quarter of udder. We applied antiphlogistine to udder and vaseline to teat; then she got well, but in a few days went wrong again. Mrs. L. D. F., Gratiot Co., Mich.—Give her 1 oz. hypo-sulphite soda, ½ oz. powdered nitrate potash at a dose in feed twice a day for ten days and apply hot raw linseed oil to bag once a day.

Tumor on Cord.—Last February I castrated a boar pig; wound seemed to heal all right; lately a bunch showed in scrotum which is increasing in size. W. D. J., Cassopolis, Mich.—Had you used greater cleanliness and shortened cord a little more, he would have been all right. Remove tumor with a knife or if it is an abscess open it and apply one part iodoform and 12 parts boracic acid twice a day.

Out of Condition—Stocking.—Have a large mare that worked in woods all winter which has stocked hind legs and is in an unthrifty condition. Had her teats looked after by our local Vet, but I wish you would tell me how to reduce swollen leg and get her back in condition. R. B., Acme, Mich.—Chronic stocking is diffi-

cult to reduce and if you expect to work her, avoid using irritating applications, but get her in good health and it will perhaps reduce some. Wet leg with cold water, apply cotton and bandage lightly over it, leaving bandage on a few hours. Give two tablespoonfuls of ground gentian, a tablespoonful sulphate of soda, a tablespoonful of bicarbonate soda and a teaspoonful powdered fenugreek at a dose in feed three times a day for a month or two.

Weak Knees.—I receive great benefit from reading your notes in the Michigan Farmer but have failed to find a prescription for weak knees. I wish you would tell me what to do for a four-year-old colt that is inclined to be troubled with weak knees. Have noticed him showing a little tendency to weakness since he was two years old. H. O., New Boston, Mich.—Your colt is perhaps predisposed to become crooked in his knees and although it depreciates his market value somewhat, he will be just as useful for work. By using a stimulating liniment to back tendons occasionally, it will help strengthen flexor tendons and prevent him from growing worse and possibly make him considerably better. Apply one part turpentine, one part aqua ammonia and four parts olive oil to tendons two or three times a week. I find many horseshoers are inclined to apply high heeled shoes, which is a mistake, although it may give a little relief at time shoes are applied, I believe better results follow shoeing him level.

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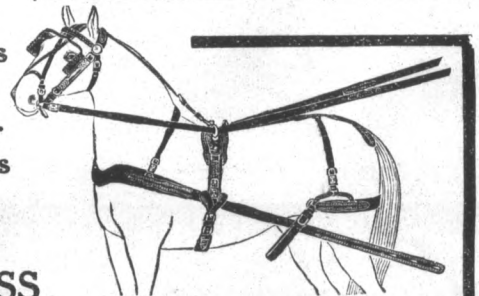
L. J. BRADLEY, Augusta, Mich.

SEED BEANS—Early Marrow (White Navy) variety. Picked 148 pods from one stalk. E. YOUNG, Farmington, Mich.

Send Us Samples of your heavy picked and wet BEANS. We pay highest prices. Postage on half pound sample is four cents. We have some extra quality H. P. Pea Beans for seed; price \$2.75 per bushel f. o. b. Detroit. Sample mailed on request. Split or cull beans for feed \$19 per ton. Sacks included f. o. b. Detroit.

MICHIGAN FARMERS' ELEVATOR CO., 983 Junction Ave., Detroit, Mich.

\$10⁷⁵ In Nickel Trimmings
\$11⁴⁰ In Rubber Trimmings
BUYS THIS FINE SINGLE HARNESS



Act quickly! Send your order direct from this advertisement. This splendid harness—Williams' Quality Harness, and made from bark tanned leather, for only \$10.75 in nickel trimmings and \$11.40 in rubber trimmings. Just exactly as described below, positively the greatest bargain we have ever made and good for a short time only.

Rush your order in at once. Don't delay and miss this great offer. Bear in mind, this is Williams' Quality Harness and protected by Sears, Roebuck and Co.'s ironclad guarantee.

Trimmings—Nickel buckles with solid nickel German silver hook and terrets, or imitation rubber buckles with genuine rubber hook and terrets.

Bridle—¾-inch box loop cheeks, patent leather blinds, round blinker braces, open or blind blind, overcheck or side reins.

Lines—¾-inch fronts, 1-inch hand parts, to loop in the bit.

Breast Collar—Full 2¼-inch, V shape, single strap, single neck strap.

No. 10G3537¼ Special May and June price of harness with solid nickel hook and terrets. **\$10.75**

No. 10G3538¼ Special May and June price of harness with genuine rubber hook and terrets. **11.40**

In any event be sure to write at once for our great free Special Harness Catalog showing the world's largest and most superb line of harness, saddles and saddlery goods. Simply send letter or postal and we will promptly forward you this great book, free and postpaid.

SEARS, ROEBUCK AND CO., CHICAGO, ILLINOIS

FRESH WATER

can easily be secured. Install a

Fairbanks-Morse Fresh Water System

It does the work of practically two ordinary water systems — pumps from well and cistern simultaneously by compressed air. No water storage; power plant located where you wish. Write for full information and Catalog No. 601 WT.

FAIRBANKS, MORSE & CO.,
Chicago Detroit

WHEN YOU WANT IT—WHERE YOU WANT IT

Our Average Profit on No-Rim-Cut Tires Is 8½ Per Cent

Last year our average profit on No-Rim-Cut Tires was 8½ per cent. Every penny we got, save a profit of 8½ per cent, went into size and quality.

That in a factory with the largest output and most modern equipment ever known in

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

You will never get more for your money—more mileage per dollar spent—than in Goodyear No-Rim-Cut Tires.

Far Outsell All Rivals

Goodyear No-Rim-Cut tires now hold the topmost place. They far outsell all rivals.

In the past 24 months the demand has increased by over 500 per cent.

Over one million of these tires have been tested, on some 200,000 cars. The demand today—after all that experience—is three times larger than one year ago.

That astounding record—rarely excelled in all the history of business—marks a tire, Mr. Motorist, which you ought to know.

10 Years Spent Getting Ready

The success of this tire is a sudden sensation. But we began to perfect it 13 years ago.

We started with the idea that he who gives most will get most.

So we surrounded ourselves with experts—the ablest men we could find. And we told them to secure the maximum mileage, without any regard to expense.

It was years before we approached tire perfection. It was ten years from

the start before tire buyers realized what the Goodyear concern had done. Then came this avalanche of trade.

Mileage Tests

To learn facts quickly we did two things.

We put Goodyear tires on thousands of taxicabs—where mileage is known, where conditions are arduous, where comparisons are quickly made.

And we built in our shops a tire testing machine. There four tires at a time are constantly worn out, under all road conditions, while meters record the mileage.

Thus we compared every fabric and formula, every grade of material, every method of wrapping and vulcanizing.

Thus every idea which our experts developed was put to the mileage test. Thus rival tires were compared with our own.

Thus year after year Goodyear tires were made better. In the course of time we got close to finality.

Rim-Cutting Ended

Then we found a way to end rim-cutting—a method controlled by our patents.

We examined thousands of ruined old-type tires, and we found that 23

per cent had been rim-cut. By ending this trouble—at vast expense—we saved that 23 per cent.

In seven years' experience with No-Rim-Cut tires there has never been an instance of rim-cutting.

Adding 25 Per Cent to the Mileage

Then we found that extras added to cars were overloading tires.

So we made these tires—No-Rim-Cut tires—10 per cent over the rated size.

That meant 10 per cent more air—10 per cent added carrying capacity. And that, with the average car, adds 25 per cent to the tire mileage.

With these tires of maximum quality—made oversize, made so they can't rim-cut—we met the prices of other standard tires.

Investigate These Tires

In view of these momentous tire facts, don't you think, Mr. Motorist, that you ought to investigate Goodyear No-Rim-Cut tires?

Send for our 1912 Tire Book, based on 13 years of tire making.

GOODYEAR
No-Rim-Cut Tires
With or Without Non-Skid Treads

THE GOODYEAR TIRE & RUBBER COMPANY, AKRON, OHIO

Branches and Agencies in 103 Principal Cities

Main Canadian Office, Toronto, Ont.

We Make All Kinds of Rubber Tires, Tire Accessories and Repair Outfits

Canadian Factory, Bowmanville, Ont.

(634)

One of the Most Remarkable Pieces of Mechanism Ever Invented

is the Knotter on the New Century Binder. Like other big inventions it is simple but sure and absolutely dependable. The knot is tied perfectly and tightly every time. You don't have to follow after the New Century to tie by hand bundles on which the knot has slipped. Look at the knot this binder ties (no other machine ties this kind) and you'll see why bundles stay tied. It can't slip. The

Walter A. Wood

NEW CENTURY BINDER

uses any kind of twine. It never wastes an inch. The knot is tied right on the bundle (not an inch above) and a piece of twine is not cut off and thrown away with each bundle as is usually the case.

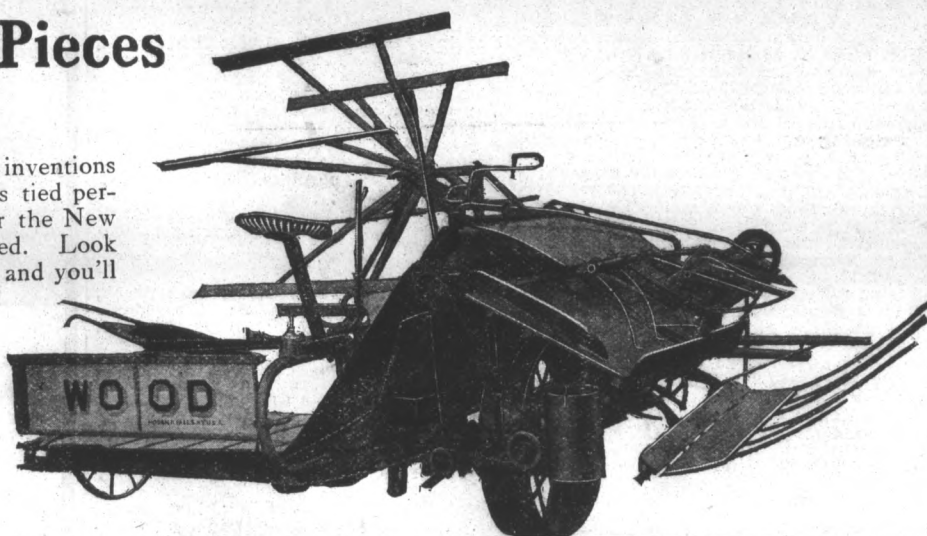
The New Century has the best cutter-bar equipment found on any harvester. That's because it's made of Walter A. Wood Malleable Iron with steel ledger plates riveted to the guard with steel rivets. These hard steel plates take the wear. They cannot move a fraction of an inch despite the constant shocks of the sickle.

The New Century is as light in weight as it is possible to make it and still retain the strength and endurance which have given it such a big reputation for service in the field.

Send for Our Big Catalog

free—and let us give you details. All parts are fully illustrated so you can see just how the New Century is made. Mail coupon today.

WALTER A. WOOD MOWING & REAPING MACHINE CO.
606 Michigan Ave. Detroit, Mich.



The triangular support for the rear elevator is one piece of steel held together at the lower end by a malleable iron casting. This gives remarkable strength and prevents sagging which would cramp the elevator. The cross shaft and gear are larger and have larger teeth than in other binders. Hence, they stand wear better.

The separation of grain on the deck is perfect, no matter how tangled it may be. Two of the three packing arms keep the grain from crowding the needle, which is therefore not under strain. You are not annoyed by having to stop to separate bundles from untied grain.

All these and many more features make the New Century Binder rapid, powerful, of great capacity and long life. There is no grain grown that the New Century will not cut and bind without giving you a moment's trouble. It gets all the grain regardless of its condition.

"I raised a very heavy piece of wheat of twenty-eight acres which was very badly tangled. I owned a binder of another make which was in good repair and one that is advertised to handle heavy grain. I made no progress. I took a Wood machine on trial. It was to handle the grain to my entire satisfaction. I showed the machine no mercy. It cut, elevated and bound the grain perfectly and with extremely light draft. I now congratulate myself that I need not fear to raise as large grain as I can for I own a machine that will handle it."
Chas. J. Leonard, Union City, Mich.



The Knot

No other binder ties this kind. No twine wasted. Will not loosen

Walter A. Wood Mowing & Reaping Machine Company
606 Michigan Ave., Detroit, Mich.

Send your big free catalog describing the New Century Binder.

Name

Address