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## TILLAGE.—By CHARLES HENRY SPURWAY.

**Y**OU ask me why we till the soil,  
You ask what need to strive and toil,  
To make old earth give up her yield  
To reap returns from every field.

Perhaps you think it's just by chance  
That crops grow, and we can't enhance  
Their growing by some special art  
Or means by which to help to start,  
The seeds that on the ground we sow,  
Which grow to crops for us to mow;  
Or help the seedlings on their way,  
And give them food from day to day,  
So they can grow and give us grain  
For us to sow and reap again.  
Perhaps you think it does no good  
To plow the ground well if we could;  
To harrow well, and firm the earth,  
And gather moisture for the birth,  
That must take place before the rye,  
Can send its masts toward the sky;  
Before the wheat can come to head,  
And give to us our hard-earned bread;  
Before the corn, the king of all,  
Can grow so straight, and slim, and tall.  
So if you will but listen now,  
I'll tell you why we hold the plow;  
I'll tell you why we turn the sod,  
And harrow well to crush the clod;  
I'll tell you why we roll the field,  
And how we may increase the yield  
By cultivating well the soil  
To reach the end for which we toil.

Now if we plow the soil in fall,  
Which often is the best of all,  
We'll make a mulch which will retain  
More water for next season's grain;  
For melting snows and winter rains,  
Which otherwise would find the drains,  
Or be transported far away,  
Would be entrapped and there would stay.  
If in the fall we plow our land,  
Then Old Jack Frost will lend a hand;  
He'll loosen well the hardened clay,  
And keep it so for many a day.  
The freezing also breaks down rocks,  
And in so doing it unlocks  
Some plant food, which the growing grain  
Will soon convert to golden gain.  
In the spring when winter's o'er,  
When we think of crops once more,  
Then there will be less work for all  
To do, if plowing's done in fall;  
Many insects too are slain,  
Which would destroy the growing grain.

Fall plowing is not always best.  
A sandy soil had better rest  
Undisturbed throughout the fall,  
Than be dispersed by every squall  
Of wind, that may then blow across  
The field, and cause a greater loss  
Or elements which should be kept  
Upon the field, instead of swept

Away by every gust of wind  
And leave but barrenness behind.  
When plowed in fall, and soil lies bare,  
Without a thought, much less a care.  
The beating rains and water rills  
Will sweep away the sandy hills;  
And leave them quite devoid of power,  
To furnish food at the needed hour,  
To struggling plants, that in their need,  
Of strength sufficient can not heed,  
Or satisfy, through constant strife,  
The purpose of their better life.

And in the spring as in the fall,  
Plow early if you plow at all;  
This saves the water which is there,  
From being dispersed into the air  
By sucking wind, or drying sun,  
Which takes off water by the ton.  
Early plowing warms the bed  
For little seeds, which soon are spread,  
Upon the ground and tucked away,  
Like little children tired of play  
Are cuddled snugly in at night,  
But waken with the morning light.  
Spring plowing loosens up the ground,  
And very soon nitrates are found;  
For then the soil admits the air,  
And little germs can get their share  
Of air and heat, and right away  
Will start the process of decay,  
Which liberates food for the needs  
Of growing plants as well as seeds.  
The time to plow is also set,  
Not too dry, nor yet too wet;  
And if our fields are made of clay,  
We'll need to watch them every day;  
And when the moisture gets just right,  
So that the soil will turn up light,  
Disc or harrow that soil now,  
And we will have more time to plow.  
If plowed too dry, or plowed too wet,  
The little grains of soil will set  
Together and form lumps of clay,  
That will not crush for many a day.  
Loose open soil needs much less care,  
It easily admits the air;  
And plows up fine and mellow too,  
Which leaves the farmer less to do  
Of cultivating, and we know  
Is the best place for crops to grow.

After plowing in the spring,  
The harrow then the lumps will bring  
To smaller size. The plunker too,  
Has an important work to do;  
It smooths the surface, crushes clods,  
Packs the soil, and breaks up sods.  
Perhaps the roller also shares  
With other implements their cares,  
And all together used with brains  
Can fit the soil for greater gains  
In yield of crops, because the bed,

For little seeds is rightly spread;  
Loose above, but firm below,  
Before the seeds therein we sow;  
This gives the seed a better start,  
And helps it more to play its part  
In Nature's play, and also give  
Us sustenance that we may live.  
The heavy roller firms the ground  
As the massive wheel is drawn around;  
The clods are crushed, the water flows  
To where the little seedling grows;  
The soil is warmed by shining sun,  
Because the soil grains one by one  
Are pressed together till they meet,  
And in this way conduct the heat,  
Beneath the surface to the seed,  
To greatly satisfy its need  
Of energy which gives it life,  
To carry on its endless strife.  
And if success you would achieve,  
Do not the surface rolled leave;  
But harrow soon, and spare not toil,  
To save the water to the soil.  
In cultivating well we must  
Keep on the soil a mulch of dust;  
This will evaporation stop,  
And save the water for the crop;  
Dry and loose, not very deep,  
Is the best mulch for us to keep;  
And after each long, heavy rain,  
The soil must be worked up again.  
Stirring the soil gives other needs,  
It loosens food, and kills the weeds;  
And other things we do not know,  
About the soil, and how plants grow,  
And how they feed, and in what way,  
They take on weight from day to day.  
All these are things which must be known,  
And every year they will be shown;  
Unto the man who will but look,  
Old Nature opens like a book.  
And are they not worth all the time,  
That's spent to learn them? Every line  
We read, and every little act  
Can ought but teach a worthy fact.

So tillage is the farmer's hope,  
And every valley, crest and slope  
Must bear witness to the skill,  
With which they all are made to fill  
Their purpose, and yield clothes and bread,  
So that the world is warmed and fed.  
And the farmer's task is not so light,  
To do things well, and do them right  
Requires strong arms and willing hands;  
A broad, keen mind that understands,  
The part in Nature to be played;  
The forces which must needs be stayed;  
The time to act, and when to wait;  
Not too early, not too late;  
Not too slow, not too fast;  
But hopeful, cheerful, to the last,  
Seeking knowledge where she hides,  
Seeking truth where truth abides.

## The Shade Tree Problem.

WHEN I purchased this farm three years ago there were hundreds of shade trees, principally black oak, scattered over the fields and many along the line fences. They were left by the owner supposedly for shade and wind breaks. But when I came to figure up the annual loss and expense these unnecessary trees entailed, I decided to rid the farm of them, and have already made nearly a clean sweep of them all. Michigan being a timbered country and all the inhabitants being used to the forests, it no doubt seems very unnatural to see a bare field, without a few trees dotting the surface here and there. But no one realizes the actual damage and expense that too many shade trees are upon a good productive farm. No matter whether a tree is standing in the center of a cultivated field or along the line fence, it saps the land of its moisture and fertility for rods around and a good sized tree will damage nearly a quarter of an acre of land that would produce many bushels of profitable grain for the farmer each year, to say nothing about the extra time and labor it requires to get around such trees with machinery, especially a check row planter.

By getting rid of the trees on this farm I am sure I have saved 10 acres at least of good productive soil, which means a net profit of \$100 per acre. It came to me not long ago that "I ought to be prosecuted for ridding the farm of the beautiful shade trees that were left here by the former owner." In answer to this criticism I wish to say that I am not able to own a farm just for a "park." I am farming for the "cash" there is in the business.

### Shade Trees All Right in their Place.

Of course, shade trees are all right in their place. We have a beautiful hard maple grove of nearly 100 fine trees in the yard and on the west side of the residence, which help to break the prevailing wind from the west. These shade trees are of great value to the farm and are prized very highly, as they are where they should be and not scattered over the fields.

Of course, a grove of shade trees back in some unproductive field that is generally utilized for pasture, is all right, but not so in a level cultivated field. When it comes to shade for stock the trees are an expensive nuisance. The stock will hang around them a good share of the time, depositing all the fertility where it does no good whatever.

### Artificial Shade for Stock.

The very best and most profitable way to make shade for stock, if they are grazing in a field that we devote to crops, is to construct a temporary cover out in the field on a knoll or some place where the land is not as productive as it should be. This shed or cover can be made quickly and cheaply by setting a few posts and nailing to them plates to support, rails, and on top apply a thin coat of straw or marsh hay. I did this on my farm in Kent county for a flock of 130 ewes. When I plowed up this field I had several acres of very fertile land that was not previously as good as other portions of the field. It did not require more than one day in time to make this shade and remove it, yet it was a great value to the sheep and much more so than shade trees for the fact it was dark under the low shed and it kept the gadflies from bothering the flock, which many times proves serious when they have no dark shelter to protect them.

### Little Savings a Factor in Success.

If a farmer ever expects to pay off his indebtedness he must figure all these little details that save his dollars as they all count up each year. The unnecessary shade trees are costing the farmers in Michigan millions each year, yet they do not realize this. But when you come to count up one to ten acres in every farm of good productive soil that is shaded and sapped by the roots of trees you will see what it amounts to.

### The Woodlot.

It is very convenient and also useful to have a good-sized woodlot to fall back on, yet it is very expensive nevertheless if it stands on good level, productive soil. When I came here there was about 60 acres of second growth oak and hickory. I am cutting this off down to about 20 acres, and I find it has been a profitable effort on my part. The interest on what the timber will bring is around \$100 per year, and in addition to this saving, I will have 30 acres of as

fine pasture land as can be found, which I figure is worth around \$200 annually for my stock. This being new land it produces double the pasture that old soil does. Now this \$300 would heat my house, barn and almost the back yard, with no extra expense except hauling the coal from town. However, in case the coal should advance so high in price that we could not afford to use it, it is very agreeable to have a nice little woodlot to fall back upon.

Washtenaw Co. B. F. WASHBURN.

### BOOK-KEEPING SUGGESTIONS FOR THE FARMER.

Perhaps it is not as necessary for the farmer to keep a book account of his business, as for the merchant, banker and other men conducting business on an accounting basis. As we know, nearly every business with the exception of farming, is today conducted with a strict and accurate book account of each day's business transactions, and these books can therefore be relied upon giving at a glance, the exact state of affairs at the end of the day, week, month or year, revealing the strong points as well as the weaker ones and giving the manager of such business the opportunity of each year either eliminating entirely or fortifying these weaker or unprofitable parts, thus building up a business as strong and profitable as possible under the circumstances.

Now as to the farmer's necessity for accounts, as far as the actual money paid out and actual money resulting from the sale of live stock and different crops is concerned, perhaps at the end of a year the farmer can and does get a fairly accurate result of his year's labors by depending entirely upon his memory for his data, and there is no necessity of bothering with keeping such accounts, but this only for men upon small farms and possessed of good memories. Farming on a Large Scale Makes Accounting Necessary.

There is no doubt of a farmer needing to resort to book-keeping who is conducting the 200 or 300 acre farm and employing several men, and especially if the farm is a stock or dairy farm. In order to run this farm with the success one should expect from it and derive all the profit possible, the farmer must know exactly where he stands at all times, and can therefore strengthen his weak points, pointed out by his books, as does his city business friend. Or, if he finds himself running a losing business in spite of all he can do, he can dispose of his business at once because he knows the exact result of each of his efforts and does not stumble on for years trying to guess where his methods are wrong. In other words, knowing he is guessing wrong, but depending upon guessing until he hits the right guess. So much for the farmer of this type.

Now the majority of farms consist of from 60 to 100 or 150 acres of land, and the necessity of the owner of these farms keeping books is probably not absolute and he can depend upon his memory for his book-keeper, as far as mere money transactions are concerned. But there are a few things that few, if any, farmers observe, and if they were more careful in observing, by having a book to which to turn, it would put hundreds of extra dollars into their pockets every year, although perhaps it would not be truly termed book-keeping.

### A Record of Needed Knowledge.

One is the neglect to save valuable recipes, found in almost any of our farm papers today and especially in the veterinary department of the Michigan Farmer, for reference in the case of accident, sickness or disease of the animals of our every-day farm. Such misfortunes occur upon every farm at very frequent intervals and with animals of great value, as well as those of lesser worth, and in a majority of cases a knowledge derived from the study of some other man's misfortune in your farm paper and the treatment given therein—would have saved an animal of great value, if only until your veterinarian arrived, if such be necessary.

In many cases these are very simple matters if understood and usually require very simple remedies, generally articles kept upon nearly every family's medicine shelf.

Again, the experiments of the agricultural colleges given by your farm paper as well as other farmers' experiences and advice asked for through the paper that

can be relied upon, will oftentimes furnish money-saving ideas and be something the reader especially will desire to know about plans he intends carrying out in the future. But in nine cases out of ten if he doesn't clip them out or copy them in his book he will have forgotten by the time or at the time he most needs to know them.

Once the practice started of keeping tab of things of importance we find in the farm paper it is surprising how many things of value, sometimes almost necessary knowledge, the farmer will find in every paper and how often he will refer to his book. For instance, supposing the farmer, contemplates laying a tile drain, his first, and, of course, is ignorant of the methods proper for him to follow to secure the best results, he will, without doubt appreciate the methods and experiences of others found in his paper, taking it for granted he takes one, and by jotting down the details applying to his drain he has, when ready, but to go ahead with his work, confident that he will secure the results he desires.

Again, the results of different applications of fertilizing agents to certain kinds of land for certain crops may be the exact thing we will want to use later on, but which we would probably forget as to amounts, etc., if not saved for future reference at the time.

For another example, many farmers in this section during last spring, trimmed and sprayed large orchards, getting their methods solely from their fruit and farm papers and most of them with the best of results.

But the main trouble is the neglecting of farmers to keep tab of things they will want to know later on and when the knowledge would become most beneficial they are at a loss to remember the facts and have to either wait for information or suffer the loss of animals or crops, as the case may be.

Therefore, with the exception of the large farm, the book kept with these ideas in view will probably prove of more value to the farmer than would one kept for the purpose of having at the end of the year, the amount paid out as farm expenses and the amount brought in by the farm, facts that most farmers can figure out pretty accurately by a few minutes' work with the lead pencil at the end of the year.

Macomb Co.

R. D. SMITH.

### SEEDING ALFALFA IN OATS.

I have been very much interested in the many different articles in the Michigan Farmer, the best of all farm papers, but more especially have I been interested in the culture of alfalfa. G. A. S. asks whether it is advisable to seed alfalfa with oats. Now I will say for the benefit of the inquirer that last spring I had a seven-acre lot that I was intending to seed to clover, clover in oats. This ground, the year before, was planted to corn and 12 or 14 loads of manure to the acre was put on the field. This ground was kept well worked and I husked 90 bushels of ears per acre. This land is a limestone soil and is a very rough, ugly piece of land to handle. It is filled with stone, all the way from the size of a marble to the size of a half-bushel measure. Some places the stone are so thick that one can scarcely get soil enough to cover a hill of corn. To get such a piece of ground in condition to seed means a great deal of hard work. We plowed this field just as early in the spring as we could get on it and let it lay a few days, then I put two teams on it with disc and harrow and we disced and harrowed it till we got an ideal seed-bed. As I said, I had intended to seed with clover, but as clover seed was so high in price that it made me shudder, and as alfalfa was some \$2 less last spring, and I had read many articles in your valuable paper that limestone land was very much adapted to the raising of alfalfa, I concluded to get some alfalfa and try the experiment at any rate. As to how many oats to put on to the acre I could hardly make up my mind. One bushel or even one and a half bushels, seemed too little, as I was afraid there would be too much chance for weeds, so I concluded to put on two bushels of oats to the acre.

As the second week in April happened to be an ideal time to sow, on Tuesday morning I set my grain drill for two bushels of oats and 16 lbs. of alfalfa and 200 lbs. of commercial fertilizer to the acre, and seeded the field. The weather was ideal for germinating the seed and, to my surprise, in four days the seed was coming up, strong and thrifty, and grew

very fast till in the middle of May we had quite a dry spell, when it seemed to almost stand still for a few days. But the rains came in a few days and started it up again.

About the middle of the third week from sowing, I put the roller on and rolled it. I forgot to say that before I harrowed the ground we hauled off most of the larger stone. The reason I did not roll right after seeding is that, should there happen to come a heavy rain before the seed came up on this land, the heavy rain or continuous heavy rains would be apt to form a hard crust over the seed and some of it would never get through the crust and besides, the stone are so very thick that rolling when first seeded would push some of the seed so far down that it never would get through.

The alfalfa grew nicely, considering the fertility of the soil, and when I cut my oats on, if I remember rightly, the 26th of July, the alfalfa stood about six inches high. I threshed 52 bushels of nice, clean, white oats per acre. I felt that was much better than a thump on the head with a stone.

To be sure this plan might not work that way every season, but I think I would seed with oats in preference to seeding alone. The alfalfa grew nicely all the fall and when it went into winter it was as nice a meadow as I ever had but how it will come out next spring remains to be seen. I am a little afraid, but hope for the best.

Monroe Co.

J. M. TUTTLE.

### ALFALFA IN HILLSDALE COUNTY.

A few years ago residents in this section had never seen a field of alfalfa unless they had visited the west. But today the man who wishes to see growing alfalfa need not go outside his own township, and in many cases he can find it in his own neighborhood.

In attempting to explain the introduction and growing importance of the alfalfa crop in this locality, perhaps the most important factor is the failure, in recent years, of the clover crop. Farmers may be found in plenty, in this section, who have paid out hundreds of dollars for clover seed without getting a good stand of clover. The unprecedented high prices paid for the seed, coupled with the unfavorableness of the seasons, have made the clover crop about as discouraging a proposition as any with which the farmer has been called upon to face. The fact that the failure of the clover not only means scarcity of hay but the elimination of one of the methods of enriching the land, has added to the perplexity of the problem.

In seeking to find a remedy for the difficulty, many farmers have tried alfalfa, with varying success. A few have abandoned the scheme as a failure; but by far the greater number have proved that the crop can be grown with profit. The high nutritive value of the alfalfa makes it a paying crop, even when the yield is not heavy, and the fact that it can be cut three times during the season forms an important factor in its favor. Those who feed both alfalfa and ensilage say that milch cows will do well on these without other feeds.

Although the growing of alfalfa has increased greatly, in recent years, it is still a question whether or not it will ever be grown in this locality by farmers generally. So far most of those who have grown alfalfa are men who have an abundance of land. The smaller farmers, who own from 40 to 80 or 100 acres, are inclined to steer clear of the alfalfa proposition, on the ground that it would interfere with crop rotation and drive them to planting the same crop in the same field in successive years. The fact that alfalfa is produced the first time, with some difficulty and expense, and that it does not pay to plow a field while it is yielding well, helps to strengthen the contention of the smaller farmers. But however this may be, it seems certain that the growing of alfalfa will be a permanent practice, henceforth, in this locality. Some who have grown the crop successfully, are enthusiastic, and would not think of abandoning the project. Successive failures of clover such as occurred recently, would doubtless increase the growing of alfalfa in this section, by many hundreds of acres.

Hillsdale Co.

J. A. KAISER.

### Flooded with Letters.

B. B. Reavey, Akron, Mich., who has been advertising Holstein cows, writes: "Although the time is not up, I would like to have my advertisement discontinued as I am all sold out and flooded with letters."

# Inoculating Soil for Alfalfa.

IN the Michigan Farmer of September 21, A. D. M., of Ingham county, says that he may be wrong, but he laughs at the idea of inoculation.

Well, six years ago I thought that inoculation would be all right for those kid glove farmers that live in the city and had plenty of money to hire all their work done with, but that us regular farmers that had to make our living from our farms had no time or money to spend so foolishly. So I sowed five acres without inoculating the soil and have since found out at a cost of several tons of hay that I did not know nearly as much as I thought I did and am willing to confess it, if it will keep some other farmer from making the same mistake. A. D. M. says "he has a neighbor who has started three different fields with alfalfa and he never inoculated." Well, I know of one or two successful fields of alfalfa that were started without inoculation, but they were heavily manured three times in four years before they were sown and I am confident that those fields would have been much better if they had been inoculated and I know of several fields that were not successful because they were not inoculated.

## Thirty Tons of Manure Per Acre.

I have a cement floor and an eight-inch gutter in my cow stable, so that I save all the liquid manure which is worth more, pound for pound, than the solid excrement, and have the model cow stall, so that bedding cannot get into the ma-

or rainy day, inoculating only about one fourth of an acre at a time and disking it in immediately. I then plowed the whole field about the 15th of April and the result is I have the best stand of alfalfa on this plot that I ever saw in this part of the state. When I clipped it the 10th of September the alfalfa was 16 to 18 inches high. I believe that this is the best possible way you can inoculate the soil, for in this way the bacteria is mixed with the manure which seems to be the food they thrive upon.

On plot No. 2 I did not put any manure, but inoculated it at the rate of five tons of soil per acre, and when I clipped it it stood as thick on the ground as it was on plot one but the plants were about four inches shorter.

On plot No. 3 I sowed one-half ton of inoculated soil per acre after it was plowed and the day before I sowed the seed. This was done on a day when the sun shone most of the time but I was careful not to sow a strip more than 25 or 30 feet wide before harrowing it in. Although the alfalfa looked as good the third of July when I cut the peas as it did on any other part of the field, yet when I clipped it there was not more than one-half as many plants per yard and not more than one-sixth of them looked as though they were inoculated, but I think the bacteria will spread so as to inoculate all there is left.

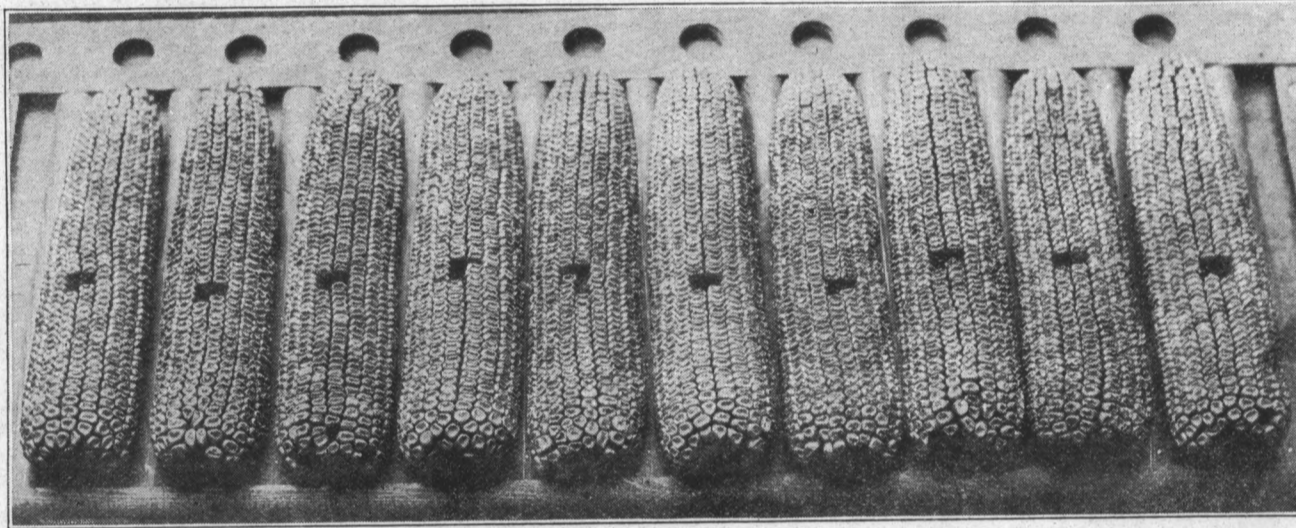
On plot No. 4 I did exactly as I did on plot No. 3, except that I sowed one ten

and I could draw and spread a load in one hour, or the eight loads that I put on plot No. 1, in eight hours, which at 20 cents an hour is \$1.60, while it took three hours to draw the two loads that I put on plot No. 3, as I had to go over so much more ground with each load. Three hours at 20 cents an hour is 60 cents. Thus it cost only \$1 per acre more to inoculate plot No. 1 than it did plot No. 3, and the clippings on plot No. 1 weighed one ton per acre, one-half of which was good hay, which at \$16 per ton is \$8, while the clippings on plot No. 3 weighed 1,500 pounds, but they were nearly all weeds and not worth drawing into the barn. But I had to rake them up and draw them, as I did not want to leave so much trash on the ground. Now I have already got \$8 worth of hay from plot No. 1, which is pretty good pay for one dollar's worth of extra work, and I confidently expect to get four or five tons more hay in the next five years from plot No. 1 than I will from plot No. 3 which, at \$15 per ton, will be \$60 or \$75 worth of hay from one dollar's worth of extra work.

But I shall not have any guesswork about it as I have a set of hay scales in my barn floor, and I will weigh the hay from each plot separately for my own benefit, and will report results in the Michigan Farmer and will suggest that if any of the readers are interested in this, that they save this article so they will have it to compare with my report.

## Kill the June Grass.

When you have got a good stand of alfalfa, the worst thing it has to contend with is June grass, so great care should



Grand Champion Ten-ear Entry at 1913 National Corn Show. Reid's Yellow Dent. Shown by Charles Short, of Indiana.

nure unless I put in too much and the cows cannot get soiled with the manure. I have kept my cows in these stalls nearly all the time, night and day, for four months and they are as clean as they are in the summer time. I clean out my stable three or four times a week and spread the manure in the field and last winter I covered two acres of cornstubble with this kind of manure, putting on more than 30 tons per acre, but leaving two small plots without manure for an experiment.

## Quality of Manure Important.

One day when I was spreading a load near the road, a neighbor who is quite a successful farmer came along and asked me if I knew what I was doing. I told him I was preparing to sow alfalfa in the spring, with peas for the canning factory. Then he said, "I will tell you what you are doing, for I did the same thing myself. In the first place, as soon as the spring rains come the best part of that manure will be washed off into the swamp and then when you plow under such a thick coat of manure as soon as it comes dry weather the surface soil will dry out above the manure and you will lose all your seeding." I told him it would probably do that way if I had manure that was full of straw-like most of the manure generally is, but this is "different," and as soon as it thaws up in the spring I shall disk it thoroughly, so that it will be well mixed with the soil and can neither wash away or dry out. My soil is a sandy loam and I can work it soon after it thaws out.

## An Interesting Plot Experiment.

This two acres I divided into six plots and used different methods and different amounts of soil for inoculation, but sowed it all with 16 pounds of alfalfa seed and three bushels of peas per acre, sowing the third day of May. On plot one I sowed at the rate of two tons of soil per acre, disking it in with the manure the fore part of April, taking pains to do this work of inoculating on a foggy

of soil per acre, but there are five times as many inoculated plants per yard as there are one plot No. 3, showing that the more inoculated soil you use the better the results.

Plot No. 5 was manure the same as plot No. 4 but was not inoculated and there are not more than one-fifth as many plants per yard on it as there are on plot No. 4 and they are nearly all of them small.

On plot No. 3 I sowed a strip with soil the same as the rest of the plot and left it an hour or two to go to dinner before I harrowed it in and that is no better than plot No. 5, showing conclusively that if the soil is exposed to the sun after it has been sown, even for a short time, it will destroy the bacteria so that it will do but very little good, and I think that the reason for many of the failures is because the inoculated soil was left exposed to the sun too long before it was covered.

Plot No. 6 was not manured or inoculated, and although the plants came up all right they never grew to be more than three or four inches high and not more than 10 per cent of them are alive at this time. I will probably plow it up this spring.

## The Depth of Inoculation.

Some people have an idea that the inoculated soil should be near the surface so that the alfalfa roots can get into it as soon as they start, but I think this idea is wrong, for if the soil is rich it don't seem to make any difference with the plants until they are six or eight inches high whether the soil has been inoculated or not, and by that time the roots have gone down deeper than you can plow so they will get the full benefit of the inoculation if it is plowed under six or eight inches deep.

## The Cost of Inoculation.

Now as to the cost of inoculation. I did not have to haul my soil but a few rods and I have a one-horse sled that I hauled it on that would hold 500 pounds

be taken to kill it all out before seeding, but in most localities the June grass will get in, in spite of all you can do. But a good top-dressing of manure every two or three years will help the alfalfa to keep ahead of it.

In most cases the people who have made a failure of growing alfalfa have not paid much attention to studying the needs of the plant, but have sowed it about as they do the common red clover, but if you want to make a success of it you must get your land in the best possible condition and when you inoculate don't go at it in a half-hearted way as though you did not believe it would do much good anyway, but go at it as though you were sure you were going to get \$5.00 for every hour that you spend in doing it, and if you will attend to all the details, as I did with plot No. 1, you will win out. I would not let any man have the extra amount of hay that I will get from plot No. 1 more than I will get from plot No. 3 for the next five years if he would pay me \$5.00 per hour for the eight hours I spent in inoculating plot No. 1.

If any of the readers of this article are still skeptical about the benefits of inoculation I should be pleased to have them call between May 15 and June 15 and see my field.

Oceana Co.

H. K. BRANCH.

## CORN ROOTS.

I saw in The Farmer a short time ago, that W. M. K. puts corn in the shallow root class, and I object, for this reason: In August, 1911, while digging to bury a yearling, which had to be killed on account of a broken leg, I found corn roots a good three feet deep. The ground was so dry that it crumbled away from the roots without breaking them, for it was on sand, where the corn, which was good size, had been cut to feed because of short pasture.

Berrien Co.

F. E. DOANE.

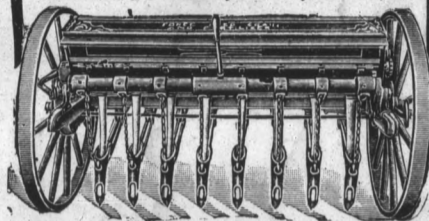
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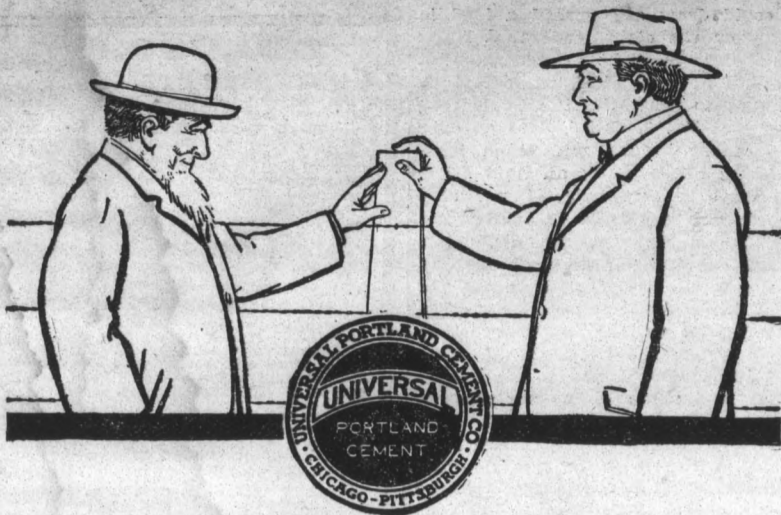
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Jackson, Mich. Oct. 30, 1912.  
Along the fence on one side of a field was a growth of brush briars, sassafras, poplar and willow.

I used three horses and cut a furrow 10 inches wide and from 14 to 16 inches deep. The first few furrows went first rate and then I

began to have difficulty in getting the horses through the tall bushes and trees on account of the trees holding back on the cross lines. I had to bend the trees over and break them down. I bent them the way the team was going. Some were so large it gave two of us all we wanted to do. After this the horses were not bothered much.

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### FARM NOTES.

#### Alfalfa Questions.

I have 12 acres plowed last fall. Want to summer fallow it until July, then seed to alfalfa. I want to top-dress it with manure spread with horse spreader and I want to put on some lime. Will it be all right to put the lime in with the manure, and spread it with the spreader, then drag it in manure, lime and all? I thought I would fill the spreader half full, then put in the lime and put manure on top of lime so it wouldn't blow away. What kind of lime would you advise using, the rock lime or the hydrated, or caustic lime, and how much per acre? Which kind would be the cheapest and the best? Where would you get the alfalfa seed, and would you treat the seed? Also, how many pounds of seed will it take per acre, and when you sow it would you sow it the same as the red clover, broadcast, then drag it in with spike-tooth harrow?

Montcalm Co.

A. M.

It would be all right to mix the lime with the manure and apply with the manure spreader as suggested, provided ground limestone is used. If caustic lime is used there would be some loss of plant food through this method of applying as the lime would liberate some of the nitrogen in the manure and it would be lost in the form of ammonia gas. But if ground limestone, which is a carbonate of lime, is applied there would be no such loss. Also, the ground limestone can better be applied in this manner as more is required per acre to produce the desired effect of correcting oil acidity. Where ground limestone is used it is best to make a liberal application, as better and more lasting results will be secured. Probably not less than two tons per acre should be used and some use much more than that. If caustic lime is used not more than half that amount should be used. There is little difference in the cost. That is, the caustic lime will cost about twice as much per ton, but the per acre cost will be about the same.

You should secure northern grown alfalfa seed if possible. This can be secured from almost any reliable seed dealer and care should be taken that it is pure and free from foul weak seeds. As to the amount required per acre, it is the writer's opinion that eight or ten pounds per acre is sufficient, although in earlier experiments at least twice that much was sown. If sown on a well prepared seed bed it can be sown broadcast and harrowed in or put in shallow with a disc drill, as preferred.

Cow Peas as a Crop for Green Manure.

Will you please inform me if cow peas have much value as a fertilizer? Would cow peas plowed under fit a piece of sandy loam ground for alfalfa? Can seed be treated with liquid so it will inoculate the ground? If so, where can this liquid be gotten?

Wexford Co.

SUBSCRIBER.

A good crop of cow peas plowed down would be beneficial for the soil for alfalfa or any other crop. The effect would be very similar to the plowing down of a good growth of clover. The seed of cow peas can be inoculated with a pure culture the same as alfalfa seed or the seed of any other legume. These cultures are now manufactured to a limited extent by commercial houses, or amounts sufficient for experimental purposes can be secured from the Bacteriological Department of the Agricultural College, East Lansing.

#### Seeding Alfalfa.

I wish to ask a few questions in regard to sowing alfalfa. I wish to sow a small field this spring and, as I have not the barnyard manure to fertilize the ground, what kind and how much commercial fertilizer should I use to the acre? How much lime should I sow to the acre and what time in the season should the clover be sown? Will the first of June do?

Kalamazoo Co.

C. W. D.

The kind and amount of commercial fertilizer to use for best results in seeding alfalfa would depend somewhat upon the condition of the soil. With land that is in fairly good condition a few hundred pounds of a standard grain fertilizer is generally used. Little nitrogen is required on account of the fact that alfalfa is a legume and will supply itself with nitrogen provided it is well inoculated. From 200 to 500 pounds per acre would be a liberal application, depending upon the condition of the soil. The amount of lime to sow would depend upon the kind, running from one-half to one ton of caustic lime to one or more tons of ground limestone per acre. The lime should be applied when the soil is being fitted. The seed can be sown at any time during the spring or summer when conditions are right the same as any other clover seed.

As to whether the field will need lime or not, it is impossible to tell without a trial. Something could be told by testing the soil with litmus paper, but as a

general proposition, on soils where one gets a catch of clover regularly lime will not be needed. If failures of clover seeding are frequent upon this land. It would be a wise precaution to apply lime.

#### A POOR CATCH OF GRASS.

##### Seed Probably Sown too Deep.

I have 80 acres of low land just a trifle higher than muck, with a quicksand bottom. Last year I had 12 acres of new seeding. There was little clover and less timothy in it, and the whole field was a solid bed of weeds four feet high. I put on 10 lbs. of mixed seed to the acre, and put it in with the drill at the same time I drilled in the oats. It is good grass land, in good condition, not too wet and not too dry, and the grass seed was re-cleaned. What do you suppose is the reason I did not have a good catch of grass seed? And why was there such an awful crop of weeds? Is it possible that the seed went too deep? Would it be better to throw the seed right on top after the oats are drilled in, without any harrowing in? Am very anxious about this matter as a poor catch of grass is the ruin of a farmer.

Allegan Co.

J. H.

Of course, it is impossible to tell with anything like accuracy the reason why you had a poor catch of grass on this field, but you probably have suggested the correct reason yourself and that is that the seed was sown too deep. If the land was unusually mellow, as it probably was on this kind of soil, it is a very easy matter to get the grass seed too deep. I would sow the grass seed with the drill when I sowed the oats but I would let the grass seed run behind the hoes and not in the drill. Then I think it would be a good thing to roll the ground afterwards to pack the loose sods down. I believe you will get a catch.

There is no explaining about the weeds but just as soon as the land wasn't occupied by the grass, why the weeds grew up. You don't have to sow weed seed in this country. The ground is full of them and wherever the opportunity offers they come up without any trouble. My idea would be that it would be nearly a waste of seed to sow clover on this low moist land with a quicksand bottom. It is not the right kind of soil for clover. I would prefer to mix red-top with the timothy, or something of that sort. Alsike clover would do a good deal better than red clover. Red clover wants well drained soil with a good clay sub-soil with plenty of lime in it. At any rate there should be a good amount of carbonate of lime in a good clover soil.

COLON C. LILLIE.

#### CANNING FACTORY CROPS.

Our town is expecting to have a canning factory here this season. They are to can corn, beans, peas and tomatoes. I read your article in the Michigan Farmer last season on raising peas for a canner and am taking the liberty to ask you what they paid there; and did you think it paying work for a farmer near town? We have raised cucumbers for the pickle station, but that work is pretty hard, so thought we would like to try the other if it will pay.

Livingston Co.

E. S. N.

I believe that canning factory crops, like peas, corn, lima beans, etc., are a very good thing to raise on the farm for cash crops in connection with the other crops. I would not go into it too heavy at first, but if you raise good crops of peas or beans or sweet corn you will get good pay for them, and one thing I like about this is that the price is fixed. You have a contract. There is no worrying about prices. If you raise the crops you will get your pay. I don't believe canning factory crops are any more profitable than cucumbers at the price which the factories are paying, but as you say it is quite a job to get the cucumbers picked. Canning factory crops, almost all of them, can be harvested by machinery. When you raise sweet corn for the canning factory you will have the nibbings and the stalks left for feed, and if put into the silo it makes good corn silage. Of course, this would not be as good silage as if the entire crop containing all ears was put into the silo, but there will be some small ears left and the stalks are well worth saving if they are put in at the right time. Many people have received splendid returns from canning factory crops but, of course, in order to get big returns for these crops you must raise good crops as well as of any other crops. You can't get good returns if you have a poor crop. A good crop of peas to the canning factory will net you good money and you will have the pea vines left which can be dried and made into hay of as high par value as clover hay or alfalfa hay and makes a splendid food, or the pea vines can be put into the silo.

COLON C. LILLIE.

## Points in Potato Culture.

At the special fruit and potato section of the recent Round-Up Institute, Prof. L. A. Clinton, of Washington, D. C., addressed the meeting on the subject of Potato Culture. In his address he particularly emphasized the following points:

### Michigan Potatoes Are in Demand.

Michigan's potato crop is her most important crop and the one which is most in demand by people living outside the state. Doubtless, the favor of Michigan potatoes contributes more towards the popularity of this state than any other product. It is quite true that our copper mines are very extensive but the common people of the neighboring states are more anxious to know about our crop of potatoes than the output of our copper mines. Potatoes raised in this state have the reputation of being the whitest and possessing the best flavor of any spuds on the market.

### All Soils will Grow Potatoes—Provided they are Given Proper Fitting.

Light soils are best adapted to potato culture. By saying best adapted we mean that potatoes can be grown on light soil with the least expenditure of time and energy in fitting the ground and caring for the crop. However, it is nevertheless true that all soils will produce potatoes if fitted properly. It is very important that the soil intended for the potato crop should be plowed deep so it will be loose, the plant food available, and the largest possible amount of water conserved. Water constitutes some 80 odd per cent of the weight of a potato so one will at once see the advantage to be gained by conserving all the available moisture. The land for potatoes should be plowed either late in the fall or in the early spring so as to keep the moisture which falls during the winter and early spring. It is the custom to have potatoes follow clover or grass in the rotation. It is a good plan to have potatoes follow clover but many times a tough grass sod will be plowed under, the potatoes planted and the farmer wonders why his potato crop is so small but the facts of the matter are that the grass roots have not had time to decay and thus furnish the growing plant with food. No doubt it would be better to plow under the sod and plant to some other crop the first year and follow with potatoes the second year rather than planting the tubers directly on the sod ground.

### Good Seed Determines the Crop.

If half of the hills in a potato field are barren, it goes without saying that the crop is not the largest that could be grown and when we come to trace the deficiency home, we find it lies in the seed. It may be that the farmer has not planted good healthy seed or that the potatoes have been cut in such a way that the ground has dried them out and thus cut off the percentage of germination. Medium-sized potatoes produced in healthy hills are most desired for seed. Where such tubers are obtainable it is best to plant them whole but when this is impossible and large potatoes must be cut, it is well to know how to cut potatoes and why it should be done in a particular way. The ordinary method of cutting tubers is to cut them twice lengthwise. There are good reasons why this is not the most desirable way of dividing the tuber. In the first place, when a potato is cut the injured surface heals over by forming a corky layer. This repairing process is best carried on when the parts of the seed are close together and we can see that if the potato has two long cuts to heal over, it will not heal rapidly and then there is the added possibility of an excessive drying out when placed in the soil. A fairly large marketable potato may profitably be cut into four pieces, each having at least one healthy eye and these pieces should be "chunks" rather than "slices."

### Do Not Fertilize in the Hills.

The use of fertilizers in connection with potato growing has been much abused in the past. A potato fertilizer should contain an abundance of potash, but this should not be applied directly in the hill. To many plants, the direct application of fertilizers acts as a poison. Fertilizer should be applied between the rows at the time of planting, but better still, about three weeks later, at which time it should be applied about 600 pounds to the acre and harrowed in. Some growers use a larger amount of fertilizers than

this but experiments show that all applications of commercial fertilizer to potato land, above 1,000 pounds per acre, are wasted and return no increased yield to the owner. Previous to planting, the crates of potatoes should be put in a tank and soaked in a formalin solution (one pint of formalin to 15 gallons of water), for about 60 or 70 minutes. This will kill all the germs which cause potato scab. Some farmers dust sulphur on their seed potatoes, thinking this will control the scab, but up to the present we have no good reason for believing this remedy to be successful. The most common distances used in planting are to have the potatoes 14 to 16 inches apart in the rows and the rows from three feet four inches to three feet six inches apart. This will allow for cultivation and the killing of weeds without the use of the hoe.

### Cultivate After the Potatoes Blossom.

The cultivation of potatoes should be frequent and level; that is, the soil should not be thrown up in deep ridges. Experiments have shown that potatoes will pay for every cultivation up to about six or seven, but the average farmer cultivates his tubers only five times. Before the plants are up the land should be harrowed with the spike-tooth harrow, which should be followed by a thorough cultivation as soon as the plants and rows can be seen. The first cultivation should be deep and successive cultivations get shallower as the season advances. Cultivation should be given after each rain, however often, to break up the soil mulch and save the moisture and if no rain falls the cultivations may well be about a week apart. It will often be wise to cultivate after the blossoms have opened.

### Spray the Under Side of the Vines.

A microscopic examination shows that 90 per cent of the germs of blight are found on the under side of the leaves and shoots. Then, if we wish to control the blight, which is the most serious disease of the potato in this country, we must be very particular to spray the under side of the plant thoroughly. For this purpose the spray outfit should be fitted with two nozzles, one from above and the other from below and then, with a good pressure the vines will be covered with a fine mist.

In the discussion following Mr. Clinton's address, Mr. Harry Lurkins, of Paw Paw, stated that he believed his large yield this year was due to the fact that he sprayed just before rains. If the bugs are bothering the plants, they can be killed by the addition of arsenate of lead to the spray mixture. Home-made Bordeaux mixture has been found the most satisfactory spray for potatoes and even when blight is not present, this spray has been found to increase the yield. It should be applied about six or seven times during the season.

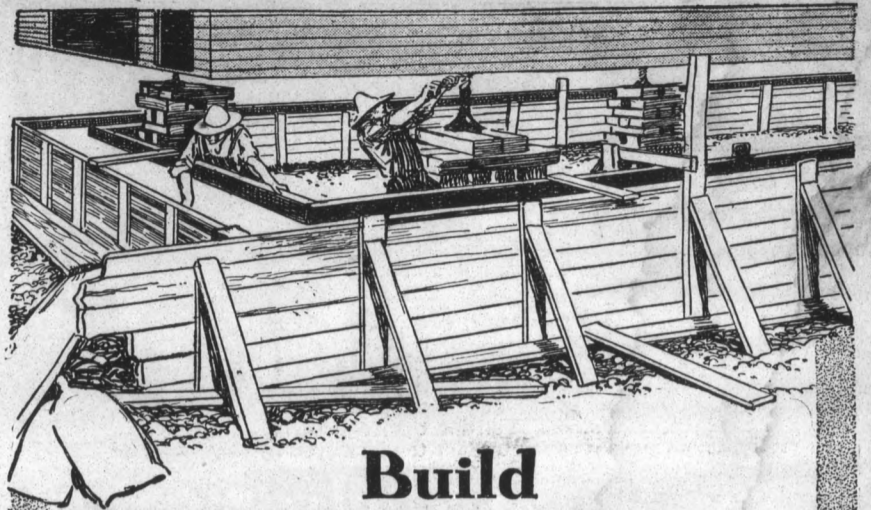
### COW PEAS FOR GREEN MANURE.

Would it be well to sow cow peas to plow under and seed to alfalfa? I have 10 acres of land, six acres of which had potatoes on last year, and four acres of which had corn on. Would like to get it seeded. The land is very level; the soil is sandy loam. It has been cropped for years and nothing put back. Would it be advisable to sow cow peas in the spring and plow under in August or earlier, and how much to the acre?

Livingston Co. S. A. W.

Where cow peas are grown as a crop for green manure they should be allowed to make as large a growth as they will and are better turned down the following spring than in midsummer, as a much lower amount of vegetable matter will thus be added to the soil and it will be in a far more favorable condition for soil improvement. Also, the full value of the nitrogen gathering habit of the legume would be secured.

Soy beans seem to be more favored by Michigan farmers than cow peas and have given more uniform success. On the very light soils of northern Michigan sand vetch and rye are sown in August and plowed down the following spring for green manure. It does not matter what legume is used so far as results are concerned, but it is difficult to build up a soil by this means in a single season by the use of any crop as a green manure to be plowed down for this purpose. This should be made a factor in the general scheme of soil improvement rather than the entire dependence.



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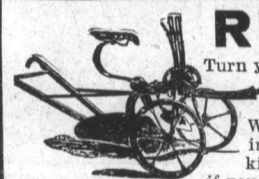


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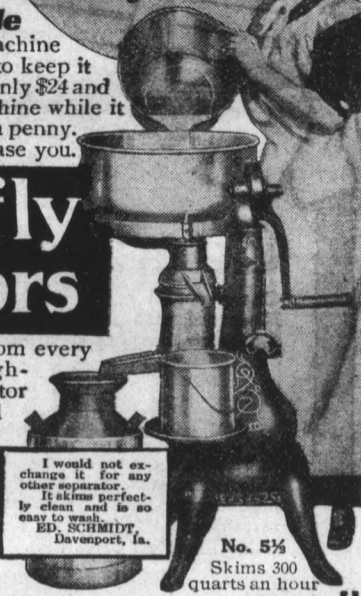
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## Spring Time on the Dairy Farm.

IN spring time the activities on the dairy farm focus about getting the cows out to pasture in good condition and started toward a profitable season's work. The mild winter and abundance of feed has encouraged many dairy-men to try and make 1913 their banner year. At this time last year many good cows had been sold, and those who needed cows to put in their herds put off purchases until pastures were fit for grazing. Last year, too, most cows were thin and weak when spring came, because they had been half-starved during the terrible winter. Their inefficiency was an eye-opener to hundreds of dairy-men who had never before started the season with a herd of run-down, amaciated cows.

### Keep Cows in Condition.

The fast lengthening days are already sending out the call to the pastures. In less than two months the grass should be ready for grazing. The condition of the cows at this time has a great deal to do with the season's results; the first two months of grazing affords a more complete use of pastures than any other time during the season. The cow that drops a calf after being roughed through the winter is not in condition to go out to pasture and give a good account of herself. You cannot build up her run-down system and animal energy in a day. Highly developed cows are not built that way. Cows that for months have been compelled to transform dry and bulky roughage into hair and heat, and to furnish nourishment for a growing foetus, cannot in a few days time convert soft, washy grass into milk and flesh. Those that have been well-fed, and have come through the calving period in good condition, can go out and give a better account of themselves than their unfortunate sisters who have fallen into the hands of men who rough them through the winter, milk them for several months and call their income net profit. They are already keyed up to the high pitch of physical vigor and force exacted by heavy milk production. Cows that have been compelled to subsist on coarse feeds during the winter should have a liberal allowance of grain, as soon as they are safely through the calving period, so that they may begin to build up their bodies and develop a full flow of milk. They must fill their blood vessels and soak their muscles with nourishment in order that they may make profitable use of pasture grass.

### Special Attention for the Young Heifer.

The young heifer needs training and conditioning at this time of the year. The excitement of calving and the new order of things makes her dance about and occasionally put her foot into the pail. This nervousness must be worn off, her udder properly looked after, her teats handled carefully until they have become sufficiently toughened to resist the effects of friction and pressure. A lot of time is necessarily wasted in fussing with heifers after they first freshen. If this comes early in the spring before field work demands attention one has plenty of time to look after them; if it happens later they are quite apt to be neglected.

### Prevent Milk Fever.

Many perplexing problems come up during the calving period. As a rule, it is the best cows in the herd that have the most trouble, fortunately, however, some of the most dreaded affections are easily controlled by preventative treatment. For example, the milking of a cow immediately after parturition is responsible for many cases of milk fever. Nowadays we allow the calf to get the first milk and leave the rest in the cow's udder for 24 or 36 hours to stimulate its activity and prevent a too sudden collapse, which affords favorable conditions for the disease to develop. If the calf is left with the cow for 24 to 36 hours, and the dairyman don't tamper with nature, the disease will scarcely ever develop. No dairyman, however, should be without an outfit for administering the air treatment in case one of his cows is attacked with this ailment.

### More of Such Instruction Needed.

Discussing the care and feeding of dairy cows and heifers during the calving period brings memories of my boyhood days on my grandfather's farm. Grandfather was a mighty good chum, one of those big-hearted men who have the knack of gaining a boy's confidence and teaching him just how things should

be done. For many years after he had retired from active work on the farm he took a great interest in the arrival of young things in the barn and sheep pens, and the writer was his right-hand man.

One Sunday morning in June the good old man and the writer went out to look up "Lady Bess" a Jersey heifer that was missing the night before. I pranced with joy when I found her with a calf; and grandfather's face beamed with a knowing smile when I told him how much the calf looked like "Old Pogis." I shall always remember that Sabbath morning as we sat on a dry hummock, amid a dense growth of hemlock and spruce. It was there he told me the story of a pregnant Universe, how Time broods endlessly, and that the purpose of life is to bring forth young. What grand lessons for an eight-year-old boy to learn from a full-grown man who had the patience and reasoning power to explain the mysteries of life. As the fleeting years enriched retrospection; as the cares of life bear more heavily; how I wish that my four-year-old lad had a wise and patient grandfather to explain to him the mysteries and purpose of life. It is so much better that children should learn these things from older people who have their welfare at heart than from older children and vulgar folks.

I often wonder, too, if dairymen today give their cows as good care at calving time as grandfather did his. Plenty of warm water, some kind of succulent food to relax their bowels, and choice bright hay were his remedies. If more cows got just such treatment today we would have fewer troubles to contend with. Warm water is an excellent remedy both for drinking and bathing the cow's udder with.

### Preparing for Draughts.

Thinking men cannot avoid serious consideration of the problems which dry weather has created, and thinking about these problems inevitably will lead to providing means of tiding stock over this emergency period instead of vainly regretting that it has come. The fact that pastures are less dependable than formerly is more and more impressed upon stockmen as periods of dry weather come more regularly. Years ago farmers experienced a sense of relief when the stock were turned out to pasture in the spring, but during recent years promises of abundant feed have frequently been thwarted by long and protracted periods of drouth. Even the best of pastures diminish in stock carrying capacity as soon as the dry weather checks the growth of grass. Without supplemental feeds it is almost impossible to regulate the number of animals kept in a pasture so that the fresh and sweet herbage will be consumed early in the season and still not leave the stock without an abundance of food later on. Of late stock farmers are depending more and more upon the silo and green soiling crops as a means of circumventing the eccentricities of the weather.

### The Help Problem.

Now, about the hired man? Perhaps you have spent the past month trying to find the right kind of a man. We find many waiting to hire out, but the majority are men who want the highest wages for the least work. In every line of work, from the president of a railroad to the man who scrubs out the one-horse saloon, efficiency measures the value of a man. Let us apply this to our hired help. We want to know that a man is capable and honest. Many a home has been ruined, many a sweet life blighted, by bringing into the sacred family circle the wandering (hobo) laborer. Our man must be strong and healthy, for there are many hard tasks on a dairy farm. He should be neat and clean, and above all possess a fair education. One who will devote special attention to the little details of the business. In these days it is attention to the little details that make a farm show a profit.

We prefer a married man, if possible, as they seem to have some object in life other than getting a dollar without earning it, or racking their brains to get rid of it. If possible, I would have him board and lodge at his own home, which would be nearby. Money invested in a cottage home is a paying investment. It lightens the labors of the household and gives each family the home comforts which belong to every rural home. It is better for both families.

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## Growing Crops on the Dairy Farm.

This subject was discussed by the Hon. J. W. Helme, State Dairy and Food Commissioner. Mr. Helme stated he kept 40 head of cattle on 50 acres. This 40 head is composed of cows and young stock. The young stock are sometimes pastured off the farm during the summer time. He has about ten acres of June grass pasture which is largely creek or river flats that cannot be plowed, and the cows have access to this during the summer time. The balance of the ration, exclusive of the grain fed, is alfalfa hay and corn silage. The only way he can keep so much stock on such a small farm is by growing large crops of ensilage corn and alfalfa hay. He can do this because he has a large amount of manure to keep the land very fertile. A portion of the land is seeded to alfalfa every year and a portion plowed every year for corn. Mr. Helme feeds but very little grain. He feeds about two pounds of cottonseed meal per day for a few weeks after the cows freshen, the balance of the year the ration is composed entirely of roughage, corn silage and clover hay with, of course, the June grass pasture. Commissioner Helme is of the opinion that it is not necessary to have so much grain in a ration and thinks the cows can get along very well indeed without any grain at all, simply the corn silage and the clover hay. A balanced ration can be formed from these two foods so far as the food nutrients are concerned without the addition of any grain, and cows having good capacity for roughage can get along very well and produce quite profitable results with little or no grain.

Mr. W. F. Taylor, of Oceana county, led in discussion. He advised the grow-

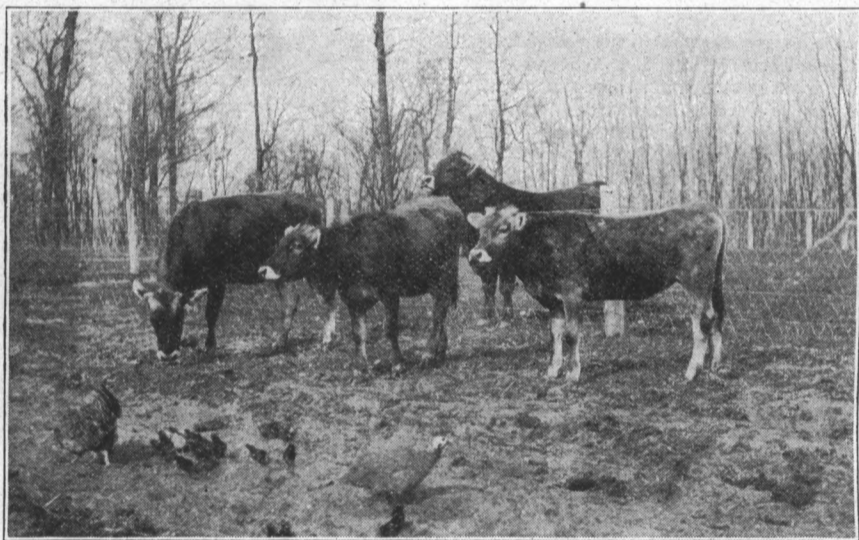
be given a sufficient amount so that she could do her best. He argued for liberal feeding, explaining that the only chance for a profit is in giving the cow all she can use. The tendency is to feed too much to the poor cow and too little to the good cow. The large producer usually gives the best profit. The cost of keeping a poor cow alive is as great as it is to keep a good cow alive. Thirty-five per cent of the ration of a good cow goes for maintenance, while 65 per cent of the ration of a poor cow goes to maintenance.

Roughage is the great natural filler. The cow must have a bulky food. The digestive organs of the cow do not work properly unless she is well filled with a bulky food, but on the other hand, the cow can not get food nutrients enough out of the bulky food to do her best.

Twelve pounds of alfalfa hay and 35 pounds of silage makes a balanced ration so far as the food nutrients are concerned, but this does not contain enough food nutrients for the cow and consequently some grain should be fed. He advised 4 lbs. of corn, 2 lbs. of oats, and 1 lb. of cottonseed meal.

Besides we must have some form of succulency, pasture, silage, or soiling crops. Pasture is very expensive. Only about one-sixth of the grass in the pasture goes for feed, the rest of it is practically wasted. In European countries they resort to soiling, and soiling is much more profitable in this country than pasturing. He also recommended the summer silo. A proper rotation of soiling crops could be arranged so that the cow would have fresh soiling crops practically the entire summer. The only thing that can be said against this system in America is the cost of labor.

Cows differ in their taste and should be fed accordingly to get the very best results. Considerable stress was put up-



Promising Brown Swiss Helpers and Herd Bull owned by A. Leonard, Antrim Co.

ing of corn, alfalfa, and clover on the dairy farm. He wanted mature corn for silage but he said that in case the corn was cut by frost before it matured it could be put in the silo and saved in that way when it could be saved in no other way. He wants the variety of corn for silage that will use all of the corn weather in his section; that is the largest variety of corn that will properly mature, and advised Wisconsin Silver King as one of the very best varieties. Mr. Taylor argued that on a dairy farm many times it is better to have some cash crops instead of attempting to grow all of the ration for the dairy cows on the farm. For instance in his locality potatoes are a profitable cash crop and it pays dairymen to raise a certain acreage of potatoes and buy some feed for the cows rather than to attempt to raise it all on the farm, especially the grain ration. In closing he advised the farmers of Michigan to cling to the dairy idea. It will help them out.

## Economic Rations for Dairy Cows.

The above theme was very ably handled by Prof. O. F. Hunziker, of Purdue, Indiana. He defined the most economical ration as the one giving the greatest net returns. Not necessarily the one that costs the least, but the ration that will enable the cow to produce the greatest amount of profit constitutes the most economical ration. Feeding is both a science and an art. As a science it seeks to furnish a sufficient amount of nutrients and provide those nutrients in the right proportion. The protein and the carbohydrates should be in the proportion of one pound of protein to six and one-half pounds of carbohydrates to make a balanced ration. Then the cow should

on the palatability and digestibility. Cows will not do well if the food is not palatable. They will not eat a sufficient amount of it. On the other hand, if the food is not fairly easily digested it takes too much of the cow's energy to digest. Grain being much more digestible than roughage helps a ration out very much in this respect.

The cost of the ration depends upon the available home-grown feed and the prices of the purchased feed. It may be profitable to sell some of the home-grown feed and buy other feed. Prof. Hunziker expressed his disapproval of the mixed feed upon the market. He said they were usually made up to sell something that was rather inferior and did not advise their use.

The discussion of this paper was led by Mr. Colon C. Lillie, who stated that Prof. Hunziker had gone over the whole field of economical feeding in a most admirable manner, touching upon all of the vital points. Therefore it was difficult to discuss the proposition without repeating, or even to criticize it. The most that he could hope to do was simply to emphasize something that Prof. Hunziker had already said, and he did put great emphasis upon the balanced ration, explaining that the reason why most rations were expensive was because no pains were taken to balance up the protein and the carbohydrates. Reference was made to the experiment recently completed at Champaign, Ill., in which two lots of cows were fed, one on a balanced ration, the other an unbalanced ration. Those receiving the balanced ration were not only fed more economically but they produced better results and the cows were in better condition when the

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Then there are, all told, perhaps a half million inferior and old and worn out machines in use whose owners could easily save \$5 per cow per year by exchanging their "cream wasting" machines for De Laval's, and figuring on an average of six cows per farm, this represents another loss of \$15,000,000 at least.

Then to this tremendous cream waste through the use of inferior separators must be added the excessive cost for repairs on cheap and inferior machines and the cost of replacing machines which should last from 10 to 20 years but which are ready for the scrap heap in two or three years. There must also be taken into consideration the loss in lower prices received for cream and butter due to inferior quality of cream produced by poor separators, all of which must easily equal at least \$10,000,000 more.

This makes a grand total of \$65,000,000 which would be saved to the cow owners in this country by the exclusive use of De Laval Cream Separators.

At first sight these figures may seem startling but any experienced dairyman or creameryman will agree that the cream and other losses without a separator or with an inferior one will average a good deal higher than the above estimates and that these figures are really very conservative.

Any cow owner who is selling cream or making butter and who is not using any cream separator or an inferior machine, is really paying for a De Laval in his cream losses and at the same time depriving himself of the benefit of its use.

De Laval Separators are not only superior to all others in skimming efficiency but are at the same time cheapest in proportion to actual capacity, while they are so much better made that they last from two to ten times longer.

No Cow owner can logically make the excuse that he cannot afford to buy a De Laval, because it will save its cost over "gravity" separation in six months and over any other separator in a year and is sold for either cash or on such liberal terms that it will actually pay for itself while it is being used.



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experiment was completed, so it proved beyond the question of a doubt the practicability of properly adjusting the proportion of the protein to carbohydrates.

He agreed with Prof. Hunziker that feeding is both a science and an art. It is a scientific effort to arrange foods in such a way as to give the right proportion of protein to the carbohydrates. The art consists largely of getting next to the dairy cow, getting on the right side of her, getting her confidence, and coaxing her to eat just a little more of this balanced ration so that she can produce larger yields.

Mrs. Lillie criticized Prof. Hunziker for not putting a little more stress upon the summer silo instead of soiling. The trouble with soiling is that it not only costs so much for labor, but besides one can not depend upon the season. One season might be too dry to get a proper germination so that you could have the right succession of soiling crops, and another season might be too wet and it would be difficult to harvest them. Summer silage will furnish a much more economical food.

There is another thing connected with dairying that was not mentioned. He hardly knew whether it belonged to the art of feeding or not, but it consists of getting the confidence of the dairy cow. Perhaps it isn't necessary for the dairyman to actually love the dairy cow, but it certainly is necessary that he in some way fool her so that she likes him. No one can get the best results out of a dairy cow unless the dairy cow likes the herdsman. No one can coax a large yield of milk out of a dairy cow by currying her with the milking stool. The dairy cow must look upon the herdsman as a friend, and it is not difficult to get her to so regard the herdsman if he is the right kind of a man, and she will eat just a little bit more because she feels as if she wants to please him and then she will give just a little bit more milk also. This can be called sentiment or what you please, but something of this sort is necessary to get the best results with the dairy cow.

### Developing the Dairy Heifer.

Prof. A. C. Anderson had been chosen to present this theme, which he did in his capable and entertaining manner. His advice was to leave the calf with the cow two or three days following birth, allowing him to nurse a little at a time and often to get the first milk, or the callosium of the cow, after which the calf should be fed whole milk for at least two weeks, five or seven pounds per day. Feed too little rather than too much. Gradually substitute skim-milk for the whole milk and in from three to five weeks have the calf entirely upon skim-milk. Just as soon as possible encourage the calf to eat roughage and also grain and he advised any kind of grain you can get the calf to eat. It is better to feed this grain after the calf is fed the milk.

The calves that are dropped in the fall and properly cared for the first winter, when spring pastures comes, are old enough to be turned out to pasture and need be given but little care until fall. Then he advised not leaving them out too long in the fall but to put them in before severe frost comes. Don't compel them to eat frozen grass. Get them in and protect them from inclement weather. When calves are put up in the fall look them over carefully for lice. They are liable to be infested and should be rid of them. If the lice are allowed to remain on, they retard development. This first winter dairy heifers should be liberally fed but largely upon roughage. Encourage them to eat all the roughage possible. If the heifer is well developed she can be bred so she will freshen when she is about two years old. He advised feeding a liberal ration for some time before the heifer freshens. This is the best time to develop a heifer to enable her to produce abundantly when she has freshened. Too many people put off feeding the heifer until after she freshens. This idea is wrong. They should not only be fed after they freshen but also before they freshen in order to get the best development and start them on the road to make profitable cows.

In the discussion which followed Mr. Helme's position on feeding no grain was generally criticized. Prof. Hunziker, on being called upon, stated that his experience and observation was that a purely roughage ration was not profitable, that it furnished little more than a maintenance ration. A cow to produce economically must have some grain with the roughage.

### GROW COWS AND KEEP THEM.

I think I can see good money for the careful men who in the years coming will give intelligent attention to the breeding of good cows—not the general-purpose cow, but rather the pure-bred dairy cow, the one that was not ordained to do everything under the sun but to consume a lot of farm-grown feed and turn it into milk, year in and year out. This cow is the one that does not carry a lot of beef in her frame, but lives for the single end of making milk.

Cows of this kind are in demand, and in dairy regions sell now for about twice as much as they did a few years ago. It is not a difficult task to find the cause. Increased city consumption has stimulated dairy operations. Some men, when they want more milk, induce their cows to meet the demand by feeding them better and by putting more thought and work into their care. Other men simply go out and buy more cows, and there are enough of such men to keep the demand active and constant.

Then we have a class of dairymen who feed a cow all she will eat and have her ready for the butcher when she goes dry, and to the butcher she goes, and another fresh cow is bought to take her stall. This kind of moving-picture dairying uses up cows. The law of the survival of the fittest is not in force with dairymen of that class. But there is another law that is in force and has come strictly into its own—the law of supply and demand. The fellows who buy, feed and slaughter cows are doing it faster than good cows can be produced. These men are through with a cow in seven or eight months. The average breeder takes two and one-half years to produce a cow and two years more to bring her to maturity.

It is a fact that not one out of 50 of our dairymen is raising calves into cows to replenish the normal dairies, in which a cow is usually kept as long as her work justifies her support. But where a cow is needed, she is bought and she is frequently a cow that someone is anxious to sell.

I think I can see good money in breeding superior dairy cows to supply those good brothers who know they must have cows and think they cannot spare the time and effort to produce them themselves. A pure-bred, prepotent dairy bull used on average good cows will produce offspring that can be developed into the kind of cows that are demanded at good prices.

The idea that a cow can be milked for some years and then fattened into beef is largely responsible for the comparatively low market value some men put on cows. They weigh a cow on the beef scale instead of the butter-fat scale. The feed that will make two pounds of beef that is worth ten cents will make a pound of butter-fat worth 33 cents. A cow that will drop a good calf and during the year give 7,000 pounds of four to five per cent milk is a good one. A sensible dairyman should not think of selling such a cow for less than \$150, for the very good business reason that she will pay a splendid percentage on that investment in her.

That is the kind of cow it will always pay to produce, own and keep. When you have that kind, keep her price up. A good cow is like a good friend—always to be valued highly.

Illinois. W. H. UNDERWOOD.

### TROUBLE IN CHURNING.

Noticing complaint in the Michigan Farmer, also in one or two other farm papers, concerning trouble in churning, I would like to say a few words on the subject. During the late fall and early winter months we had the same trouble, but as soon as I resorted to my old remedy of heating the milk of each milking the trouble ceased. I do not set the milk on the range direct, but, according to directions in the Devonshire system, place the vessel over a kettle of boiling water and let it remain until the water comes to the boiling point, but, under no circumstances must the milk be allowed to boil. The milk should then be placed in a room where the temperature will be reduced in the shortest time possible. The higher the degree of heat the milk attains without boiling, the less it will have of the scalded taste, so objection to some; but the immediate reduction of temperature is necessary, as this is what does the work. I always add a slight sprinkling of salt at each skimming and

stir the cream thoroughly, thus incorporating the old with the new.

But the trouble is not always attributable to cold weather. It sometimes arises from improper condition of the cream or from improper management in the make-up of the feed ration. Also, the time of lactation sometimes causes the difficulty, but a careful study of the cause will generally lead to a remedy.

I remember one fall when potatoes were so cheap that farmers went to feeding them liberally to their stock, including milch cows. The result was a universal cry of "trouble with churning," went up. The difficulty was finally traced to the potatoes, and when the quantity fed was reduced and the grain ration increased, no more complaint was heard. We must first find the cause of our trouble, then we can seek for a remedy.

Oceana Co. JENNIE M. WILLSON.

### CONDENSED MILK MEN WANT NEW STANDARD.

There was a gathering of manufacturers of condensed and evaporated milk—representing, it is claimed, over 90 per cent of the total output of the country—in session at the Department of Agriculture, petitioning the department to set a different rule as to the amount of water and solids allowable in the finished milk product. These men claimed that some cows at some seasons give milk that is too good. They explained that at some seasons, varying with the amount of pasture available, there was more or less of solid matter in the milk brought in from the dairy farms to the creamery to be condensed. The rules of the department provide for a certain amount of condensation under the pure food law, but with the present standard the condensed milk at some seasons is too thin, and at others too thick.

The pure food board heard the evidence offered and reserved its decision on changing the milk standard until it had time to go over the statistics that had been presented.

### THE GREAT LOSS IN FOODSTUFFS.

There appears to be a large loss in the distribution of foodstuffs in the United States. It has been estimated by statisticians of the United States government that fully \$75,000,000 worth of dairy and poultry products are lost in the course of a year. Eggs are probably the greatest sufferers, their value being reduced by breakage in transportation and by deterioration in holding.

While a considerable portion of this loss is perhaps unavoidable because of conditions over which man has little or no control, yet it is believed that a very large percentage can be prevented through better means of distribution, the restoration of competitive dealing, better transportation accommodations and a more direct handling of products. The situation has a bearing upon the direct handling of certain products, especially eggs, and it affords an opportunity of stating that great care should be exercised in the selection of crates for handling this product and also that precaution be taken to grade the eggs since the carrying of different sizes is likely to result in breaking the larger ones.

The problem of providing plenty of green feed for soiling and summer silage is one that must be worked out according to local conditions. On the writer's farm summer silage and oats and peas are the best supplemental green feeds for summer. Others might succeed better with alfalfa, clover, vetch, cow peas or soy beans. Any crop that can be cut and cured for winter feeding may be used for soiling.

### GRAND RAPIDS COW TESTERS MEET.

The Grand Rapids Cow Testers' Association held its annual meeting in that city March 3, and re-elected the following officers: President, Milo H. Edison; vice-president, M. W. Willard; secretary and treasurer, John B. Martin; Peter Buth, J. J. Nyenhuis and Colon C. Lillie, of Coopersville, are new members elected to the directorate, which also includes the officers and E. W. McNitt, John Antema, A. DeKline, Ray Briggs and A. Smith. There was interesting discussion of many important topics relating to feeds, diseases and the cost of producing a gallon of milk. J. H. Skinner, Kent county's farm demonstrator, has been trying for some time to get at the cost of production of milk and the figures of the Cow Testers' Association will be used in arriving at the feed cost but this leaves the labor and numerous other items untouched.

Kent Co.

A. GRIFFIN.

# JOHN DEERE IMPLEMENTS



## John Deere Wagons

No other implement on the farm is used as much as the wagon. Nothing is more abused. Consequently the wagon should have the quality to withstand this usage. John Deere Wagons are built of oak and hickory—the best material known for wagon making. They stand up under the most severe tests, and give the satisfaction you want.

## John Deere Ironclad Wagons

A booklet that gives you valuable pointers on how to buy a wagon, and other interesting articles that you should know about. See lower right hand corner of ad. and see how "to get the books you want."

## Dain Hay Tools



Use Dain Hay Tools and put up your hay quicker, better and more economically than with any other hay tools.

The Dain Hay Loader is easy to operate. Simple construction, few parts, nothing to get out of order. Material and workmanship of the known Dain standard, proven by service to be reliable and trustworthy. Ask your John Deere Dealer about the Dain line.

## Dain Hay Loader and Side Delivery Rake

Use these tools to handle your hay rapidly and economically. Should you want information about other Dain hay tools, tell us which tool you are interested in. See lower right hand corner of ad. how "to get the books you want."

## John Deere Disc Harrows and Corn Planters

This spring pressure harrow pulverizes your soil thoroughly and puts it in condition to grow the biggest crop you ever raised. The extraordinary flexibility of John Deere Disc Harrows due to spring pressure, insures thorough cultivation of your entire field. It leaves small middles and cuts out dead furrows.

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The great accuracy of drop is what naturally interests you most. John Deere Planters give the highest accuracy of drop attainable. Repeated tests show ten to fifteen bushel per acre in favor of accurate planting. You profit by the increased yield due to perfect stand, by additional years of service and freedom from break down.



## Bigger Crops from Better Seed Beds and More and Better Corn

Two books that will prove a great help to you in the preparation of your land for seed, and the planting of corn. These books contain valuable suggestions by men who are experienced on those subjects. "To get the books you want," see lower right hand corner of ad.

## Davenport Roller Bearing Steel Wagons

Reduces the draft; makes your hauling easy; the roller bearings do that. Haul larger loads, make fewer trips.



save time. Your time is worth money to you.

You do the same work with one horse less; if you now use three horses you will only need two; if you use four, three will do the work.

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Ask to see the Davenport wagon at your John Deere Dealer's.

## When The Going is Hard

Containing twenty-six articles on wagons. Tells you why the dish is put into the wooden wheels and other things you should know about. It is interesting and you'll like it. Lower right hand corner of ad. tells how "to get the books you want."



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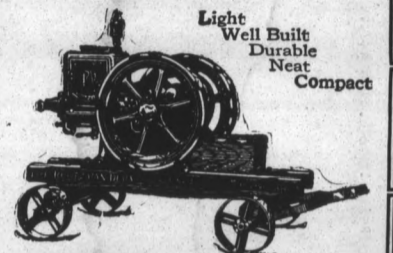
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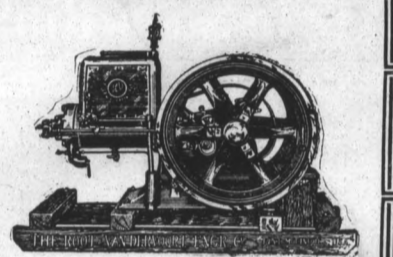
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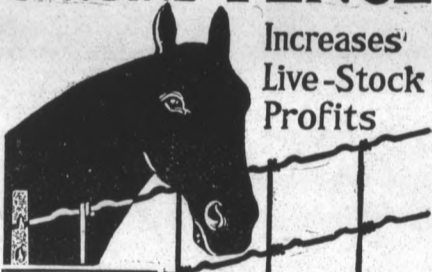
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No matter how good your fence, unless you have gates to match, pigs and other small animals go through, losing forage—profit—you might just as well have.

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**GALVANIZED** throughout, are rust-proof, last longer and look better than painted gates. Described in our complete fence and gate catalogue.

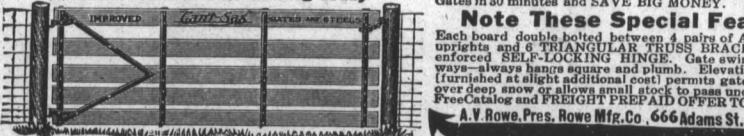
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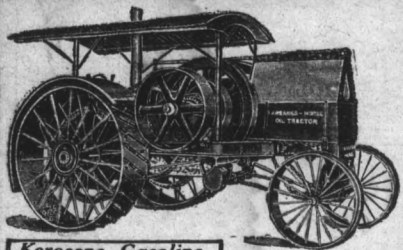
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The power of 15 horses concentrated in a single machine.

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## — and Now, the Angle Steel Rib!

First, we made famous the All-Steel Door Frame. Then we started the Silo World with our patented Inner Anchor. Closely following this, came the indispensable Saginaw Base Anchor. And with this 1913 season, comes the greatest sensation of all—the patented Angle Steel Rib.

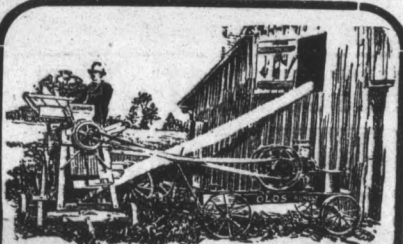
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What happened as the result of these inventions? Why, the Saginaw became King. In a single day, orders recently came in for 587 Saginaws. So many men now want Saginaws that another large factory has just been built. That's number 5. Now, if the Saginaw were not so strong and immovable as a big city skyscraper, would men so overwhelmingly demand it? Would all these level-headed farmers pay out their good money for Saginaw Silos if the price wasn't right? Would America's leading Silo Authorities recommend the Saginaw if it ever produced anything but clean, bright silage? Just because most any Silo is a good investment, don't get the idea that it makes little difference which you buy. Men have doubled their Silo profits simply by choosing the right Silo.

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(Sold with or without elevator)  
CRUSH ear corn (with or without shucks) GRIND all kinds of small grain. Have Conical Shape Grinders. Different from all others.

### LIGHTEST RUNNING

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Handy to Operate. 10 Sizes—2 to 25 h.p. Capacity 6 to 200 bushels.

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## FEED MILLS

## The Need of Better Live Stock.

At the Thursday afternoon session of the recent Round-Up, Prof. E. Davenport, Dean of the College of Agriculture at the Illinois State University, addressed the meeting on the above topic. Prof. Davenport's address was of more than ordinary interest from the fact that he approached this subject from a different angle than that to which the average farmer is accustomed.

### The Cost of Domestic Animals.

At the beginning of his address Prof. Davenport emphasized the fact that the average man who has not given special thought and consideration to the subject does not realize the great cost of the domestic animals maintained on our farms. By this he did not mean the value of the animals alone, but the cost of their maintenance. In this connection he called attention to the fact that by far the larger portion of the products of our farms is used as food for domestic animals which should be sufficient proof that their cost is great and make us solicitous that the returns should be commensurate with the cost. Too often where men have realized the cost of domestic animals they have been inclined to eliminate them from the production of the farm and sell the wheat and timothy hay grown upon the land, thus impoverishing it and ultimately themselves or those who come after them.

By way of illustrating the too common carelessness of farmers regarding this counting of the cost of domestic animals the speaker related a story of how a great convention of lice and other parasites was once called and a regular program prepared for the occasion, all bearing, of course, upon their particular problem of existence. The outcome of the discussion was an agreement of the representatives present that after all their problem was a pretty easy one and that the farmers who owned the live stock were on the whole very good to them. They provided the stock and fed them throughout the year in order to provide them (the parasites) with a home and sustenance, a condition which the speaker allowed, too nearly approached the facts in many cases.

### The Real Problem in Live Stock Maintenance.

Prof. Davenport arrived at the real point in his address which he appeared to particularly desire to impress upon his audience when he stated that the average man approaches this problem at the wrong angle. It is far more common to hear farmers and stock owners discuss diseases of live stock and problems of feeding than problems of breeding. Too many men look at the problem as one of producing feed for the live stock maintenance upon the farm, when the real problem is rather the securing of live stock to consume the feeds grown upon the farm. In other words, the business of the farmers should be to get animals to eat crops and not crops to feed animals.

We must grow legumes on the farm, not so much because of their superior value as feed for animals as because of their favorable influence upon soil fertility. Yet, our sheep and hogs which consume least of these products are the best bred of our live stock, while our cattle and horses which consume most of these rough feeds, are the poorest bred of the animals maintained upon the average farm. Prof. Davenport declared that when our land was cheap we could stand this condition of affairs, but that with land at present high values which in some localities in his state had reached as high as \$325 per acre, we could not. Incidentally the speaker expressed it as his opinion that while Michigan lands have not yet approached such values that the better agricultural land of Michigan is certain to double in value within a short period of years and stated his belief that it was just as valuable, or much of it at least, for farming purposes as the high-priced Illinois lands.

### Michigan Needs Better Domestic Animals.

After asserting that Michigan people did not appreciate the value of their lands for agricultural purposes, Prof. Davenport stated that they also lacked an appreciation of their need of better domestic animals. He advised them to clean out the poor cattle and horses, and get better animals as rapidly as possible. By this he did not mean animals with fancy pedigrees. A pedigree is simply assurance that the animal's ancestors were of the same kind. Modern breeding means that animals are good for some-thing.

As an illustration, the speaker referred to the average horse stock on the farms of the state. Farming today is a question of power. The gas tractor may help to solve the problem in some cases but for the average farmer the solution lies in the quality of his horses. The small horses too commonly found on our farms are inefficient power for best results in farming. The solution of the problem advised by the speaker was to get a good mare and raise the kind of horses needed. He believed that the gelding has no proper place on the farm. The nature of farm work is such that good mares of the right type can do it efficiently and at the same time produce colts at a profit to their owners.

### Better Cattle a Still More Urgent Need.

While improvement in the quality of Michigan horses is greatly needed, Prof. Davenport expressed the opinion that we are improving our horses more rapidly than our cattle. He stated that two things are particularly needed to bring about a much needed improvement in our cattle, the most important of which is good bulls. He urged his hearers not to dispose of their bulls when they get to be four years old just because it is a popular belief that bulls get ugly at just about that age. On the contrary, he said that bulls are always ugly and on general principles should be treated as wild animals, since, if you treat them like gentlemen they are likely to "do you up."

### Inbreeding Recommended.

At this point Prof. Davenport, who is an authority of wide reputation on the subject of animal breeding, urged his hearers not to be afraid of inbreeding. He declared that where a sire has proven especially prepotent as a producer of good individuals, the breeding of such a sire to his own daughters is the best possible breeding. He added a word of caution to the effect that where there were prominent defects in the parents these defects would be intensified as well as the good qualities, but maintained that under judicious use inbreeding was one of the most valuable means of improving the quality of our domestic animals.

Prof. Davenport took a fall out of the class of dairymen who buy fresh cows and sell them when they are farrow, by stating that if he were to recommend the surest way to prevent the improvement of our cattle he would say just that thing: As soon as a cow has demonstrated that she is valuable, kill her! And as soon as a bull has demonstrated his value as a sire, kill him! In effect, he said that is practically what many dairymen and farmers are doing at the present time.

He urged his hearers to buy and use old sires that had demonstrated their usefulness, and stated that at the University of Illinois their herd of Holsteins had been built up by the product of three old bulls which had been discarded by breeders. Never mind the pedigree if the product of the sires is right, and in buying stock always insist on seeing the dams which produced them.

### THE CONTROL OF CONTAGIOUS ANIMAL DISEASES.

Dr. Ward Giltner, State Veterinarian and head of the Bacteriological Department at M. A. C., addressed the farmers present at the Round-Up Institute on this important and interesting subject. As first in economic importance among these diseases the speaker mentioned hog cholera, which is the cause of heavy losses in the state each year. The germs which cause and spread contagious diseases among animals are considered among scientists as the "weeds" of bacteria, as they occupy the same relative place among these important and useful organisms that weeds do among plants of a higher order.

### Contagious Diseases Spread by Commercial Activities.

The destructive contagious diseases of animals are spread by commercial activities. The speaker illustrated this statement by referring to the comparatively recent outbreak of foot and mouth disease in this country. Pleuro pneumonia of cattle, tuberculosis and other contagious and infectious diseases are spread in like manner, hence the need of federal as well as state protection to prevent the spreading of contagious diseases among our domestic animals at home and their introduction from foreign coun-

tries where such plagues are more prevalent.

### Parasitic Infections.

Dr. Giltner mentioned parasitic infections as particularly referring to sheep, which are very largely immune to the more common contagious diseases of animals, but which are the prey of parasitic infection to a greater degree than any other class of our live stock. These troubles are the fault of the owner, who must control them by proper precautionary methods if he would avoid losses from them. To this end a proper rotation of crops is an important factor, as has been demonstrated in the control of Texas fever among cattle, this being a disease the infection of which is transmitted by a parasite. Stomach worms, which cause a large annual loss to the sheep breeders of the state can be controlled by the same means. Clean pastures mean freedom from parasitic infection of this kind, and pastures will remain free from the infection if not used for sheep more than one year.

### Bovine Tuberculosis.

In speaking of bovine tuberculosis Dr. Giltner did not enter into a discussion of its transmission to humans, but treated it rather as a business proposition of importance to the cattle breeders and dairymen of the country. He did not hold out hope for the complete eradication of the disease, but notwithstanding his doubt as to whether it could ever be completely eradicated he emphasized the urgent need of its control so far as possible. Especially should we be careful about introducing diseased animals into our herds.

### THE PIG'S RATION.

Skim-milk and ear corn are splendid foods for growing young pigs. Of course, you don't want to feed too much of the corn or the pigs will fatten rather than grow as fast as they ought to. We have made feeding racks in everyone of our pig pens and feed the pigs alfalfa hay just as regularly as we feed them the corn and the slop made of skim-milk and oats or barley. It is wonderful to see how much alfalfa pigs that were farrowed in September will eat. They stand to the feed rack and eat hay like so many lambs, and it is good stuff for them.

Young pigs are quite liable to get indigestion, a sour stomach, caused in the winter time from so many causes; cold weather, the slop being too cold, and all that sort of thing. They ought to be fed some charcoal or wood ashes, or get them some concentrated lye at the drug store. One can buy this lye very cheaply in pound cans. Use about a half-pound of the lye to a barrel of slop, and feed this to the pigs and it will correct a great many of the stomach troubles which are liable to bother pigs, especially in the winter time.

COLON C. LILLIE.

### SPRING SOWN RYE FOR SUMMER PASTURE.

Kindly tell me if winter rye sown in the spring will make good summer pasture.

Jackson Co.

L. C. L.

Winter rye sown in the spring will not make much of a growth after warm weather comes and will not afford a great abundance of pasture. Due to the peculiarity of winter rye sown in the spring, some who have tried it in other states recommend it as a nurse crop for alfalfa and the writer contemplates trying this plan out in the spring. It would be a far better plan to sow dwarf Essex rape with millet or spring rye for pasture for sheep or young cattle. The rape is not, however, a suitable pasture for dairy cows.

The open winter has been unusually favorable for feeding live stock, and the abundance of cheap feed has caused many farmers to deeply regret that they have so few cattle, hogs and sheep feeding. Most sections are very short on cattle, and reports of this nature come from such former large cattle feeding states as Kansas and Nebraska, farmers out there having very extensively marketed their cattle off grass last autumn, instead of continuing their former habit of putting them on hay for the winter season. In some of these sections there are many farmers who are trying to purchase feeders on reasonable terms, but they are largely opposed to pay the high prices asked by sellers, looking upon them as relatively higher than prices paid in the markets for finished beefs. There is all the time considerable trading in stock steers and in feeders, but conditions are unfavorable for any liberal transactions of this nature, as the average stockman finds it more profitable to do his own finishing than to sell half-fat stock. Furthermore, the killers are to a great extent outbidding country buyers of feeders.

## Saving the Early Pig Crop.

It is only when we consider the large numbers of pigs lost by mismanagement during the early part of spring, the great value they represent, and the disappointment to the breeders and raisers, that we realize the necessity for careful preparations before the pigs are expected to arrive, and faithful attention to immediate needs at the time of arrival, in order to save as large a percentage as is practicable, and give them the needed start to insure success in the business of pig raising. The saying that "a stitch in time saves nine," is not any truer in other kinds of business than in breeding and raising pigs.

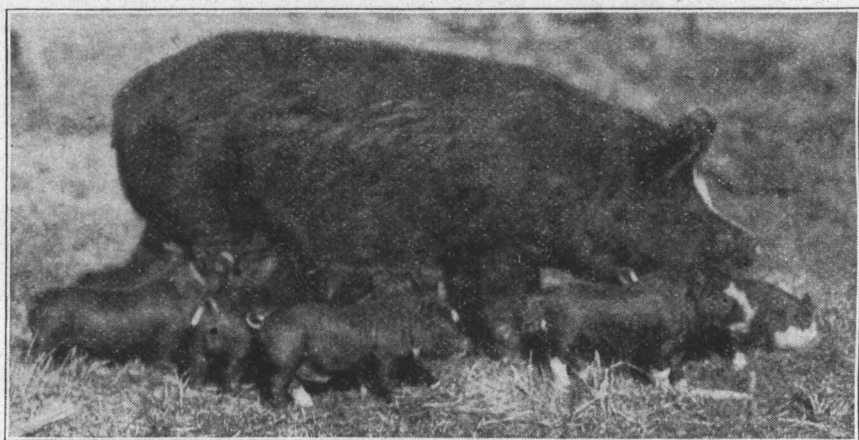
### Conditions which Cause Loss.

In order to meet with success it is well to consider before hand the pitfalls we are likely to encounter. One of the causes that cost the farmers a heavy toll of pigs is lack of life and vigor, on account of sows being fed too heavily on highly concentrated feeds, and not giving the sows, or compelling them to take, a sufficient of exercise to enable them to impart the vim and vigor to the pigs which will enable them to withstand a considerable degree of cold air and ad-

in the feed will almost invariably produce the desired results. If the bowels are constipated there is likely to be a feverish condition of the system, and sometimes the condition reaches delirium, and the sow will snap at the pigs, and if she draws blood and tastes it, she is pretty sure to eat the pigs. Do not feed heavily at this time as it will make the sow stupid and clumsy. Do not gorge the sow at farrowing time with many roots; a few given occasionally are beneficial.

The day on which the pigs arrive do not give the sow any heavy feeds. When she calls for something, give some lukewarm drink. For a sow of ordinary size three or four quarts of dishwater and skim-milk will meet her needs, and she will return to the nest comfortable and remain quiet. It is cruel to give cold swill at this time. I have seen sows shiver with cold after taking a cold drink on farrowing day in cold weather.

The next day feed moderate quantities of sloppy feed at the regular meal hours. Increase the quantity and quality of the feed, gradually, each day, until you are giving the sow full rations about the



Ruling Market Values make it Highly Important to Guard the Spring Pig Crop Against Possible Loss.

verse conditions. Pigs that are in an enfeebled condition at birth require the "tenderest care" to save them.

### The Farrowing Pen.

Another condition which causes loss is the lack of a suitable place in which to allow the sow to farrow. Young pigs are really very tender, and need warmth to come in contact with while they are moist. It is at this point very many fail; they do not make conditions such as will insure warm air in the pen at farrowing time. It is a pretty safe plan to prepare the farrowing pen a week or ten days before the pigs are expected to arrive. Be sure that the bedding is not too abundant, and yet enough of fine straw to make a comfortable nest for the sow. See that there is no possible chance for wind to get under the floor to come up through the cracks, if there are any, or to make the floor cold. Do not allow the cold air from above to come down on the nest at this time. Make a false covering just high enough to allow the sow to stand up under, and put over it either some hay or straw, or an old carpet. Make some false partitions that are just high enough to come up to the cover, and fence the sow in. The partitions will keep the cold air out and prevent the little pigs straying from their mother, which they often do before they get their first meal. The sow's breath will warm such a pen, and the conditions will be very comfortable day and night, because the heating apparatus is there all the time.

There have been times when a cold wave came later in the spring than usual and I have had sows due to farrow. I have fenced them in a small pen in the sheep shed and put a cover on. The sheep manure which had been accumulating for some time was there and heating, which made a warm bed. A small amount of fine straw for bedding was used, and warmth from the manure from underneath was perceptible after the sow had been in the pen a few hours. I have gone to bed at night when the temperature was below zero, and in the morning found a litter of pigs, comfortable and smart.

### Feed an Important Factor.

Still another cause of failure is improper management in feeding the sow before and at farrowing time. For some time before the pigs are expected, give such food as will prevent constipation. Some wheat bran and a little oil meal

tenth day. Do not increase the heavy feed abruptly at any time. See that the sow's bowels are regular and be careful to not feed her anything that will produce scours with the pigs. Better feed regularly of such feeds as are known to be safe in this respect.

### The "Nest" and its Care.

The next day after the pigs arrive, clean the soiled bedding and filth out of the nest while the sow is at the trough eating. Follow up the same each day, putting in to the nest dry, clean straw, in only sufficient quantities to make a good bed. If there is a large quantity of straw in the nest, and the weather is cold, the pigs will crawl into the straw and there is danger of their being laid on and killed.

By the time the pigs are one week old they will begin to get out of the nest and look around. The habit of exercising should be encouraged. It is a bad plan to allow them to get the habit of remaining in the nest very much of the time during the day. If possible, make them comfortable and they will be likely to want to stir around. Running about gives them exercise, enables them to get an abundance of fresh air, and grow in strength as well as size.

By the time the pigs are three weeks old, give a little sloppy feed in a clean, shallow trough twice per day. As good feed as I have tried is a little scalded middlings mixed with new cow's milk and sweetened with molasses. Feed only as much as they will eat up readily at a time. Later, coarser feed can be mixed with the middlings, and I have found that a little wheat bran added to the feed keeps the bowels in a regular and healthy condition, a matter of importance to avoid the disease called the "thumps" that carries off a good many early pigs.

Wayne Co.

N. A. CLAPP.

### RAISING LAMBS ON COW'S MILK.

In your issue of March 1, Leo C. Reynolds gives some good advice about lambs, but when he says that feeding cow's milk to newly-born lambs will "in the majority of cases result fatally," he is away off.

The trouble in such cases is usually constipation, which can be easily avoided by giving a dose of cayenne pepper just before the first meal. For subsequent meals, if cow's milk must be used, take

(Continued on page 396).



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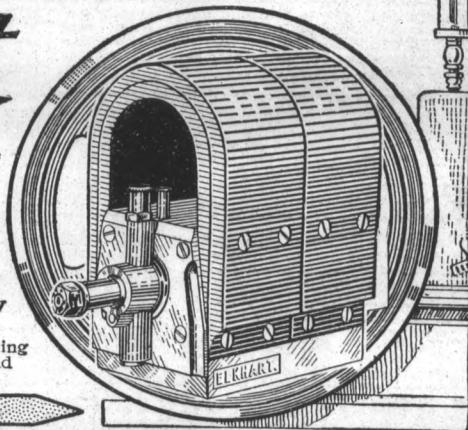
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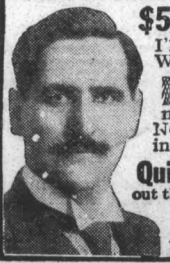
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## WHY INCUBATOR CHICKS DIE

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## Hatching and Rearing Early Chicks

As I have been successful in hatching and in raising chickens, I will describe my methods. I mate up my breeding pens early, putting from 10 to 15 females with a male, or if I have a pen of 25 I use two males, placing them with the hens alternately. In the morning they are fed liberally of wheat, oats and barley scattered in a litter of cut straw; at noon a mash consisting of wheat, bran, hominy, gluten and a little oil meal mixed to a crumbly mass, to which is added a little salt every day and cayenne pepper about every other day. Boiled potatoes are occasionally added. After dinner they receive their green food and green bone. The green food consists of cabbage, beets, clover hay, speckled apples or any such on hand. Their meat food consists of green bone and is fed at the rate of an ounce a day for each fowl. At 4 p. m. they are given all the corn they will eat up clean. Grit, oyster shells and fresh water are before them at all times. I am never troubled about securing fertile eggs.

In hatching with hens, the nest box is prepared and thoroughly painted with coal oil or some good lice killer, filling every crack and crevice; then it is filled with fine hay, sprinkled with insect powder and some china eggs placed in it. The hen is dusted very thoroughly with a good powder and gently placed upon the nest, covering her up for a few days until certain she means business. Once a day she is released for feed and water; if she returns to her nest all right the eggs are given her at once. A week later the dusting is repeated, and again the day before she is due to hatch.

A good many people are successful thus far, but they have no luck in raising the chicks. As soon as the hatch is over I bring the chicks to the house in a flannel-lined basket, cover them with a cloth and put them in a warm place. I let the hen stay on the nest until evening; in the meantime I get my brood coop ready, painting it with lice killer, and then put the chicks with the hen. For chicks hatched in March the coop should be in a building of some kind which the sun can shine into. In the morning the hen is fed but the chicks are not until from 36 to 48 hours old. Their first meal is of prepared chick feed. Feed little at a time and often for the first few weeks; when old enough give them larger grains, wheat, cracked corn, etc. Keep plenty of grit before them and supply green stuff. One of the best things is good tender lettuce, which can be grown in most any corner and thrown to them whole. When they begin running at large with the hens they will not need much meat food. Water they must have at all times, as they drink whenever they see water, whether it is a mud puddle or a stagnant pool. More diseases come from bad drinking water than anything else, so it behooves us to keep plenty of good fresh water before them. Their drinking vessels should be thoroughly washed each time they are filled, and scalded at least once a week in hot weather. Keep them free from lice and you will have no great trouble in raising a good proportion of all that are hatched, providing they are from vigorous parents.

As soon as the chicks are weaned, as we say, from the mother hen, the pullets are separated from the cockerels and moved to colony houses placed about in the orchard, remaining there until ready to go into winter quarters. Here they have new ground to forage over, with ample shade, and the trees are a protection from hawks. The coops are supplied with perches and the chickens taught to roost on them, making them more comfortable in warm weather. These quarters must be scrupulously clean. Whitewashing occasionally not only kills lice but disinfects as well.

In conclusion, let me say that the amateur must not expect everything to run smoothly. Don't count your chicks before they are hatched; don't expect to raise all to maturity that are hatched; don't expect all that mature to be perfect specimens, no matter how much you paid for the eggs. No matter what degree of success you have, don't give up; better luck next time. Remember that in the poultry business, at all times, the indispensable article is grit. Have you got it? If you have, then go in and win, paying strict attention to the following:

Watch for lice and vermin at all times and especially in hot weather. Do not overcrowd or place too many in a coop

together. Feed liberally a ration affording a variety of small grains, meat, grit, green food and fresh water. Keep coops, yards and all vessels clean, and watch for symptoms of disease or ailment; remove ailing chicks and treat at once, under no circumstances leaving a sick, drooping chick in the flock until dead, or convalescent. Keep it by itself. Many minor ailments can be treated successfully, but, generally speaking, it does not pay to bother with a chick under three weeks of age. A. E. VANDERVORT.

### HIRED HELP IN THE POULTRY YARD.

If there is one place, more than another, where hired help is a delusion and a snare it is in the poultry yard. Unless one has a working knowledge of the practical part of the work, it is easy to make the most glaring mistakes, and be perfectly unconscious of the fact. It almost seems that the majority of people, whether they are helpers or proprietors, when they strike the chicken business fail to exercise their wits to the best advantage. From observation in other states it has seemed to me that most people think all that is necessary is to hunt the eggs and revile the unfed, unsheltered hen because they are not more plentiful. In some sections of our own state the throwing of a few ears of corn in the direction of the henhouse, and the gathering of the eggs, seems to constitute the business of poultry keeping in the minds of many.

I have occasionally trusted flocks of fowls for a short time to the care of hirelings and once had a number of pens of highly bred fowls given dish water for drink; "just the same as swilling hogs," I was told when I asked an explanation. I generally find the grain in a heap, and enough fed to last several days, and this in spite of printed directions tacked in a conspicuous place. I have sometimes found that the poultry house door was left wide open, when the wind was blowing directly upon the fowls on the roost. It seems that many think care should be given if they have time; if not, they will get along somehow. They proceed on the principle of "what lives lives, and what dies dies," which was the policy of a former neighbor of mine.

The advent of incubators and brooders however, has put a more business-like face on the situation, and the little word "attention" means more if you are watching an incubator full of high-priced eggs.

Once upon a time I went some eight miles to town to market a bunch of broilers which I had dressed. I left a flock of fine turkeys, a month old, in charge of the hired man, knowing that I should get home late. I charged him again and again to see that they were shut in their coops so that they could not get out in the wet the following morning. I returned late in a pouring rain, with an invitation to spend the evening at the house of a friend which I felt I must accept. I asked about the turkeys and the man said he had shut them up with the utmost care. I therefore postponed my visit to their coop until my return, when I took a lantern and went to investigate. I found the coop door shut and fastened all right, but most of the turkeys had been fastened out of the coop, instead of in, and had perished in the rain.

Hillsdale Co. PRISCILLA PLUM.

### EXPERIENCE IN CHICK FEEDING.

The very best feed I know for feeding baby chicks is toasted white bread to start on and toasted johnny cake next, gradually changing off onto chick feed as they become able to take it. The toasted bread is dried until as hard as it will get, and slightly browned clear through like the Zwieback eaten by dyspeptics; then it is ground in the food chopper and fed dry. The johnny cake is treated the same, a few burned spots doing no harm, as it furnishes charcoal.

I start out with the white bread crumbs mixed with a little bran and fine grit. In a day or two I add the johnny cake crumbs, some onion tops or dandelions chopped fine, and later the chick feed. I have had my full allowance of bowel trouble in little chickens, but have had no trouble when using the above method of feeding. I even took charge of a lot where half had died of bowel trouble and brought the rest through in good shape. Barry Co. MRS. FARMER.

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# WOVEN WIRE AS MEANS OF RESTRICTING RANGE OF FOWLS.

The preferences of individuals must not interfere with the rights of others so, if one lives in town he probably must, or should, keep his chickens shut up in yards; but out on the farms, where the nearest neighbor is a quarter of a mile away, to let the chickens have the run of the lawn and orchard is a good thing for lawn, orchard, and chickens.

A nice flock running at large is a decided attraction, rather than a blemish, if it is also harmless instead of being a nuisance. Where time is at a premium, as it usually is on a farm, aside from the actual economy in the matter of feed, one can save considerable time by letting chickens run about and pick up most of their living themselves. The most scientific system of growing and feeding poultry is planned to follow, as nearly as possible, the natural out-door conditions of our temperate summer-time. If we can give them the advantage of this without having to work artificially for it, we are just so much ahead. Such a flock is bound to be in better condition, also, because of the better facilities for exercising freely, and, incidentally, lawn and orchard are going to be benefited from the fertilizer scattered and the insects devoured.

In such a campaign, however, one must rely quite largely upon his good friend, woven wire fencing. If the chickens are inclined to trouble the fields of freshly seeded small grain, a backyard fence of woven wire will probably be all that is necessary to keep them within bounds. The ripening small fruits must be guarded from their voracious appetites, but a little woven wire will attend to it.

Flowers are wanted on the lawn, so pieces of woven wire will need to be placed over the beds. Cut these about the correct size and shape and hold them in place with little forked sticks or by pressing points of the wire into the ground. It will keep the chickens from scratching in the beds but will not prevent necessary cultivation and weeding.

Iowa. F. NISEWANGER.

## SPRING MANIPULATION OF BEES.

Preventing Dwindling, and Building up for Season's Work.

Correctly beginning the season means much for the success of the bee-keeper. Spring dwindling, weak colonies and robbing result in small surplus. If bees are wintered in a cellar, great care should be taken in setting them out. When

If the colony has an old queen, a new one should be introduced early in the season. Poor honey causes bees to die by the thousands. This can be completely prevented by the feeding of sugar syrup. Another serious cause of dwindling is the desire of the bees to fly on changeable days. This can be lessened, if not entirely prevented, by facing hives north and by leaning a board against the hive front so as to shade and darken the entrance. The giving of sweetened water every night about dark prevents bees from flying much, as their greatest reason for leaving the hive is to bring water for brood rearing.

### To Build up Weak Colonies.

Bees should be kept as warm as possible, which is sometimes a problem during wet cold springs. Covering hives with tarred felt is advisable. To have a windbreak of some kind is a large help; also reducing the hive entrance to about 1/2 x 2 inches. This keeps hives much warmer and prevents robbing.

Stimulative feeding will build up hives into strong colonies. As bees increase in numbers the brood nest should be enlarged sufficiently to make room for the increase and give the queen plenty of laying room.

To get best results from bees it is necessary to do all we can to build up the strength of colonies early in the season, especially where the main honey crop is derived from clover. As soon as bees commence to gather pollen, stimulative feeding may be started. Hives crowded with bees and brood in the very best condition for the opening of the honey season can be obtained in about 35 days of feeding and at the cost of about 40 cents per colony.

Syrup is made of one pound of sugar to three pounds of water. This is fed in one of the feeders described a few weeks ago. Feed from a half to a full pint of warm syrup each day at sundown. It is advisable to make the first lot sweeter to get the bees started, after which it can be made in the proportions named above.

Shiawassee Co.

N. F. GUTE.

### PROFIT IN FEEDING BEES.

The farmer feeds his hogs for gain although there is sufficient pasture to sustain them after grass comes in spring. Likewise there is profit in feeding the bees for early brood and swarms even after honey-bearing blossoms have appeared. Feeding stimulates the rearing of brood, and everyone who has had any experience with bees knows that a matter of two weeks' difference in two swarms often means twice as many dol-



An Inexpensive Bee Shed for the Protection of Colonies from Spring Storms and the Hot Summer Sun.

weather has every indication of being rainy or cloudy on the morrow, commence about sundown to carry out all the hives and put them upon the stands they are to occupy during the summer, unless they are to be again moved a mile or more, in which case they may be set anywhere, with hives not too close together. Bees should not be carried out during warm weather or on an evening preceding a warm day. If the morrow comes off warm, contract entrances to one-fourth of an inch in width. Do not, however, set bees out until cold weather has passed, unless they become very restless or have dysentery.

Bees wintered out of doors need not be unpacked until spring work in the hives is needed.

#### Spring Dwindling.

During the first month after taking bees out of cellar there are more bees lost than during the other 11 months. If bees are kept alive and in their hives during the chilly, cloudy, changeable weather of early spring, good colonies for the summer are sure to be the result.

lars profit. One dollar's worth of sugar is all that one is likely to feed a hive, and this will hasten brood rearing so that by the time white clover comes on there is a strong colony, if not a new swarm, to take care of the honey flow, making the bee-keeper a hundred per cent, and often more, profit. Indeed, there is scarcely a time of year when bees cannot be fed profitably. One would not want to feed after the main honey flow set in, and not until frost in the fall, but there is no economy in stinting the bees in feed. Spring feed may be thin syrup. A box of shorts and bran, mixed, set near the hives where all can help themselves will be found a living mass of bees until pollen from flowers can be procured. The syrup should be placed in a feeder, or in a shallow pan on top of the combs.

Missouri.

H. F. GRINSTEAD.

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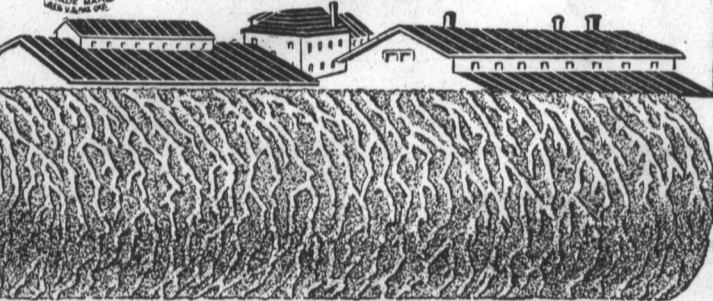
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# The Michigan Farmer

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DETROIT, MARCH 22, 1913.

### CURRENT COMMENT.

The institute season which recently closed shows that the interest in Farmers' Institutes throughout the state has been well maintained. Superintendent Taft states that the one-day institutes have never been as successful as during the past season. Complete figures regarding attendance at all institutes are not available at this time, but comparative figures from a number of counties, including those in which "Farmers' Schools," as well as the regular institutes were held, show that the attendance even in these counties showed a gain over 1911.

The benefits derived from these institutes are out of all proportion to their cost to the state. The cost to the state during the season of 1911 for a total of 1,250 institute sessions with a total attendance of 146,858 people, was \$6.80 per session, as compared with \$51.44 per session in Nebraska, \$39.09 per session in Missouri, \$36.32 in Illinois, and so on down to \$13.62 per session in Ohio, the nearest competitor to Michigan, yet with a cost a little more than double that of the average for Michigan institutes.

Notwithstanding this low cost of the Michigan Institutes, which we understand has been maintained for the present season on a comparative basis with that for 1911, the results have been very generally satisfactory, the character of the Round-Up Institute, for instance, having been better than the average for the preceding year, as will have been noted by Michigan Farmer readers from the reports of the features of this meeting which have appeared in recent issues of the Michigan Farmer.

This reference to the extent, character and cost of the work which has been done through our Michigan farmers' institutes is made because of an apparent misapprehension with regard to a recent comment in which the work being done by farmers' "schools" in some sections of the state was referred to as a logical development of the Farmers' institute which well might gradually supplant it in those sections of the state which have in a way outgrown the old-fashioned institute. This, however, does not apply to the great bulk of farm communities in the state, as appears from the fact that the interest and attendance at the institute meetings, both the one-day institutes and the county meetings, has been maintained and in many cases increased, over former years.

There is undoubtedly a great educational work which may be and is being accomplished by the farmers' institutes, but we do believe that they may very properly be supplemented in very many localities by the more comprehensive instruction which can be secured through the medium of farmers' "schools." Apparently, however, there is plenty of

room for both in the same community and so long as this is evidenced by attendance of, and interest in, the shorter institute meetings, these should be in no way curtailed and the farmers' "schools" where such are desired, should supplement rather than supplant them.

A recent report from the Department of Agriculture states that reports received from correspondents of the Bureau of Statistics of that department indicate that the money wages of farm labor in the United States increased about 3.2 per cent during the past year and seven per cent during the past two years, while since 1902 the increase has been about 34 per cent when the entire country is considered.

According to this report the current average rate of the farm wages in the United States, when board is included, is by the month, \$20.81; by the day, other than harvesting, \$1.14, and during harvesting, \$1.54; when board is not included the average rate is by the month, \$29.58; by the day, other than harvest, \$1.47, and by the day during harvest, \$1.87. This report shows that wages very widely in different sections of the United States, the extreme being \$56.50 as the monthly rate without board in Nevada, as compared with \$17.10 in South Carolina.

Comment is made in this report on the fact that wages for farm labor had an upward tendency during the decade of the seventies, but were almost stationary during the eighties, and declined during the period from 1892 to 1894, since which year they have been steadily tending upward.

In Michigan it would appear that the farm labor problem is about as difficult of solution as in any state, cases having been reported where desirable men have secured a very marked advance over the high wage of previous years for the coming summer season. There is a vast difference between farm hands, and the good ones are certainly worth much more than the poor ones, yet there is a limit to the advance in farm wages which farmers can pay with any prospect of profit to themselves. This question of farm help is one which has been a limiting factor in production and an influence in the matter of the high cost of living, and its satisfactory solution is a vexed problem. So far the only solution appears to be in more scientific farming and more economic production, factors in the success of their business which every farmer should most carefully study.

Delegates are being appointed by governors of states, mayors of cities,

commercial bodies, presidents of universities and presidents of peace societies of the western hemisphere to the Fourth American Peace Congress at St. Louis, Mo., which will be held May 1, 2 and 3, 1913. President Wilson has accepted the honorary presidency of this congress, while Ex-President Taft and Senator Root have accepted vice-presidencies of the congress. Congressman Richard Bartholdt will be active president of the congress, while many prominent men have consented to serve as active vice-presidents and many men of international reputation have accepted memberships on important committees of the body. The general committee includes many of the foremost men and women in the United States.

Preparations for the congress are being made by Chairman James E. Smith, of the executive committee, and other prominent St. Louis men who are serving upon important committees of the body. Present indications are that most, if not all, the countries of the western hemisphere will be represented, with a very large representation from the United States and Canada. Each state is entitled to ten delegates, appointed by the governor, Michigan's governor being among the number who have already availed themselves of this privilege.

This congress is a more important body than many appreciate. The United States alone has 80 peace societies, all of which are expected to be represented at the congress. It is believed by many men who are in close touch with the work of the peace congress previous to the present time, that it has had much to do with the attitude of the powers in the Balkan trouble and has also kept many of our more excitable public men from rushing us into complications with Mexico which would have meant a useless and expensive war. The work of this congress is a matter in which every public

spirited citizen should have an active interest, for which reason we shall be glad to give publicity to the results of its deliberations as we are to give publicity to its coming meeting and the work which it has done in the past.

Notice has been sent out by the Secretary of State relating to the resubmission of the constitutional amendment providing for equal suffrage at the spring election. It appears that there is a possibility that this amendment will be the only one submitted at the spring election. It was considered settled when our last issue went to press, that the amendment providing for the initiative, referendum and recall would also be submitted at the spring election, but a slight amendment to the resolution upon which the two houses did not reach an early agreement, makes it doubtful whether official action can be taken in time to get these amendments upon the ballot.

Others of minor importance may still be submitted at the spring election, but it now appears probable that the equal suffrage amendment will be the only one of especial importance to country voters which will be so submitted. In any event the submission of this amendment is certain at the present time, which is not the case with any of the others mentioned in our recent issue. Thus the electors of the country districts of the state who have been largely interested in this question will have an early opportunity to again express themselves upon this important question at the polls.

In another column of this issue will be found an appeal from the officers of the State Association of Farmers' Clubs to the members of that organization to interest themselves in behalf of the proposed amendment. Other farmers' organizations of the state are working along similar lines, which promises that the full strength of the country vote favoring the amendment will find expression at the polls.

Some weeks ago we published in these columns a digest of the Wisconsin law

providing for the organization of co-operative associations for the purpose of conducting any agricultural, dairy, mercantile or other business on the co-operative plan. This law, as previously noted, prohibits the use of the word "co-operative" by any organization not complying with the provisions of the law and also provides for a distribution of the profits on the basis of patronage after definite dividends on the capital invested and a prescribed reserve fund have been provided for.

A similar bill is now pending in the Michigan legislature which should rally the individual and collective support of farmers within and without the legislature. This bill will undoubtedly engender the opposition of organized dealers, but with the united support of the farmer element this opposition should not be effective. A degree of uniformity in co-operative enterprises is undoubtedly desirable and such uniformity can doubtless best be promoted by a special incorporation act for such organizations.

Some statistics recently published with regard to the causes of fires in the national forests are

interesting, inasmuch as the same causes would apply to fires in other than national forests. The investigation upon which this report was based showed that lightning caused more fires than any other one agency, followed in order of importance by railroads, campers and incendiaries. It was ascertained that about 27 per cent of all forest fires in national forests were started by lightning, while 38 per cent were due to carelessness.

It is probable that this is a much larger proportion of fires caused by lightning than would obtain in forests other than national, inasmuch as these, and especially Michigan forests, are more generally traversed by railroads, and interspersed to a greater degree with settled lands or lands which are being cleared for settlement.

Hence, in Michigan at least, carelessness would be responsible for a very much larger percentage of fires than is the case in the national forests. Last season was a peculiarly fortunate one from this standpoint inasmuch as the rainfall was well distributed throughout the year and except for a brief time during the early part of the season forest fires were not common or destructive. This, however, is a source of considerable and often serious loss in our state

and one which should be avoided so far as possible by the elimination of carelessness in starting fires and permitting them to spread.

### HAPPENINGS OF THE WEEK.

#### National.

The Erdman arbitration board, appointed to consider the differences between the eastern railroad firemen and the railroad companies, is in session in New York city, where for the next 30, or more, days it will be listening to testimony touching upon the demands of the firemen and the defence of the companies. The work is being pushed with the hope that a decision will be arrived at within the 30 day limit, for which time the government pays all expenses. The parties to the controversy may extend the time for hearings beyond that date but they themselves must then stand for the added expense.

According to an announcement made by the Department of Agriculture, Texas has the honor of producing a larger aggregate value of 12 ordinary farm crops, than any other state in the union. These crops are corn, wheat, oats, barley, rye, buckwheat, flaxseed, rice, potatoes, hay, tobacco and cotton. It is her enormous area and large yield of cotton that enables Texas to command a big lead over some of the other wealthy states.

What is believed to be an important development in the treatment of infantile paralysis, is indicated by a report from Baltimore that Dr. Flexner, of the Rockefeller Institute, has discovered the germ which causes this dreaded disease. The doctor declares the germs to be the smallest ever identified. It is hoped now that an anti-toxin may be developed to successfully treat the mysterious ailment.

After two years of work the appraisers of the Harriman estate declare its total value to be about \$70,000,000, which is \$1,000,000 less than it was formerly appraised at.

It is reported from Washington that the department of justice under the new administration will continue the trust investigations begun during the Taft administration. An inquiry is now being conducted to determine whether the Standard Oil Company has been dissolved according to the decree issued several months ago by the Supreme Court of the United States.

The exports from the United States during the month of February established a new high record for that month, the total value being \$194,025,916 with a balance over the imports of \$44,456,702 for the same month in favor of this country.

Late last Thursday night a destructive storm swept over the plains east of the Rocky mountains and many of the central and southern states, reaching as far east as Georgia. The loss from the storm will perhaps never be known. In Nebraska where the disturbance came in the form of a great blizzard two train wrecks in which four persons were killed and 12 injured, were caused by the blinding snow. In Minnesota and Wisconsin one life is reported lost and property estimated to be worth \$500,000 destroyed. Twelve persons were killed in Tennessee and 100 homes are reported wrecked. Other fatalities are reported from Illinois, Alabama, Texas, Louisiana, Kentucky and Georgia. In the latter state 18 are known to be dead as the result of the storm. In all of these states property damage runs high, the general estimates in the south reaching the three million mark.

A rear end collision between two passenger trains near Gothenburg, Neb., on March 14, resulted in 12 persons being killed.

#### Foreign.

It appears that a critical situation is facing the Canadian government at Ottawa, the consideration of a navy bill being the issue which the liberals and conservatives are debating. An effort was made last Saturday by the government to force through the original navy bill by limiting the debate. This attempt aroused the liberals to declare for their constitutional rights, which brought them sufficient support to defeat the effort of the administration. The liberals have submitted a proposition providing \$35,000,000 to be spent for a Dominion navy, while the government is desirous of furnishing funds to construct battleships for the British navy.

Opposition to the new government of Mexico by rebels in the northern states seems more formidable than at first appeared. The center of the revolt is evidently in the state of Coahuila, the government of which is in the hands of a rebel executive, who seems to have a strong following. Advice say he holds the cities of Lampazos and Bustamante. The public press of Mexico city is also taking more notice of the uprisings in the north.

Carl Gustaf Patrik De Laval, known throughout the world as the inventor of the centrifugal cream separator, died on February 3, in Stockholm, Sweden, his native city, at the age of 67 years. Dr. De Laval while best known to fame for his invention of centrifugal cream separators did not by any means confine his activities to the development of the cream separator. He was one of the most prolific and versatile of the world's great inventors. Among other of his notable inventions were the milk tester, a centrifugal churn, an emulsifier, a mechanical cow milker, a new form of lamp, a frictionless vessel, an explosion-proof steam boiler and a process for extracting metals from ore by electrically developed magnetism, in fact, he was tireless in his activity in working out unsolved mechanical problems of every kind, and until the very last he continued actively at work in his experimentation of old and new projects, his brain as fertile and his energy as unremitting as ever.

# Magazine Section

LITERATURE  
POETRY  
HISTORY and  
INFORMATION

**MICHIGAN FARMER**  
AND *LIVE STOCK*  
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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 Country and the People of the Philippines Philippine Agriculture.

By E. A. Coddington, Formerly Division Superintendent of Schools, later Superintendent of Publications for the Bureau of Agriculture, Manila, P. I.  
(Book Rights Reserved by the Author.)

EVERYONE familiar with the country agrees that the greatest resource of the Philippines is its agriculture. The census showed that there were over 815,000 farms having an area of about 7,000,000 acres, of which about 950,000 were forest and 4,000,000 cleared land, but less than one-half of the cleared area was under cultivation. Allowing two-thirds of the country as impossible mountains, forests and jungle—the more important being the unsettled portions of Luzon, and the large unsettled and untouched parts of Mindoro, Palawan and Mindanao—it seems reasonable that one-third or about 25,000,000 acres may eventually be available for agricultural purposes. The census also showed that less than one-half of the civilized population was engaged in gainful occupations; of this number 1,254,000 were engaged in agricultural pursuits, about 960,000 in manufacturing and mechanical pursuits, 572,000 in domestic and personal service, 227,000 in trade and transportation, 120,000 in fisheries, and over 25,000 in professional service. Besides the agricultural regions already named, mention should be made of northwestern Luzon, which, watered by the Abra, Laoag and Bauan rivers, is an attractive section to agriculturists.

### Zacate, the Leading Forage Crop.

Let us take a look at one of the finest agricultural sections which lies at the very doors of the city of Manila, the Pasig and Maraquina river valleys. We go to the Tondo or union station of the Manila & Dagupan railroad, the only railway on the island of Luzon. From this station trains leave for more than a dozen terminals on the island. We take the train for Pasig and Montalban to San Mateo on the Antipolo division. Montalban is at the foot of the mountains near the new dam and water reservoir which supplies the city of Manila. Soon we are winding around to the east through the rich garden districts of Gagalanging, San Lazero and Santa Mesa, and on either side see men cutting zacate which is the principal forage for both horses and cattle; it is a rich green grass, the fields very much resembling a field of oats just before the heads begin to appear; the men cut the grass with sickles, tie it in small bundles which are gathered in piles, and later deliver it to their customers or take it to market in heavy one-horse carts like those found in Europe. Mandalayan, Typical of Friar Estates.

Leaving Santa Mesa, the last station in Manila, we cross the San Juan river and on the right are facing Manda-

layan house, one of the old friar estate houses. During Spanish administration efforts were made from time to time to stimulate the cultivation of the soil and the growth of certain crops. Foremost in this, as in everything else, were the religious orders represented by the friars;

on the Island of Cebu in 1572 and the last by the same order in the southern part of the Cagayan Valley in 1881; these tracts vary from 30 to 50,000 acres and altogether are estimated at 420,000 acres or about six per cent of the farms of the country. Some of these manor

others were devoted to growing sugar cane, coffee and fruit as well as rice for food. On some of them extensive dams and irrigation works were constructed. This move by the religious orders doubtless represented the first organized effort for agricultural development and, save for the abuses practiced by the managers and unfair treatment of the tenants and the people who worked the land, they should have been a most important factor in the country's agricultural development. To dispose of these troubles the Philippine government, authorized by an act of Congress, purchased these estates and they are being sold and leased, first to the people who have lived on them for generations or others who care to purchase them much the same as other public lands.

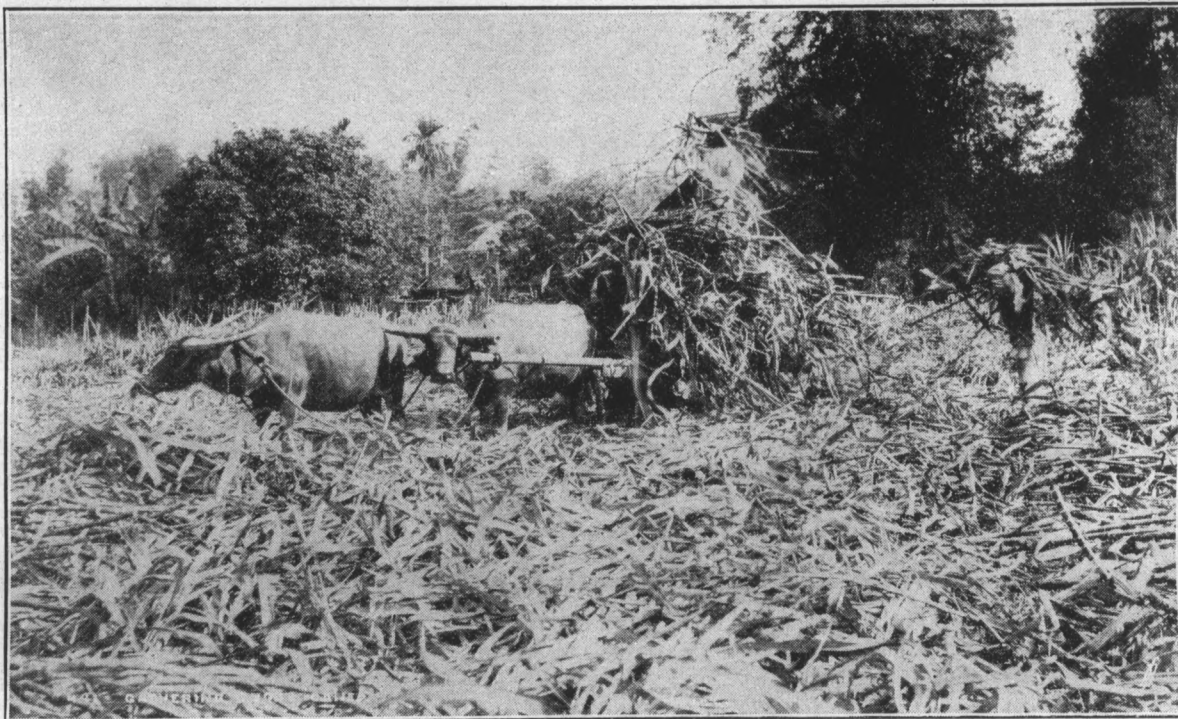
### Pasig and Maraquina Valleys.

Traveling along the north bank of the Pasig and crossing the Maraquina river we reach the town of Pasig, from which we emerge into one of the finest agricultural parts of southern Luzon, a thrifty and prosperous country extending from Pasig to the mountains, and stretching around the north shore of Laguna de Bay (Lake of Bay) to the province of Laguna on the east and south. In the country we find the homes of the people grouped in barrios or towns, the large owners of land not living on their lands

as do the farmers in the United States; in time past this method was necessary for the protection of life and property against the ladrones who came down from the mountains and the pirates who came from the sea.

### The Farmers.

In every agricultural section there are two classes of farmers. First, the hacendero, who owns from 25 to 100 or more acres of land which is usually devoted to growing sugar cane, hemp, coconuts or tobacco; he is generally one of the principales or ilustrados and, if a large land owner, he is known as the cacique—political leader or boss of his community. The second class is composed of the great mass of small farmers who own or cultivate a tract of land from the size of a garden plot to one or two acres for the purpose of making a living. The small farmer spends much of his time in the employ of the large farmer, or, if he lives near the sea, as a fisherman. In some provinces the average size of the farms is about two acres, while the haciendas range from 25 to 60 acres. Most of the farms are worked by the owners or those who have a squatter or prescriptive (Continued on p. 377).



Gathering Sugar Cane.—“There are many varieties of Cane but very few are grown on the Haciendas.”



A small Tobacco Farm in Isabela Province and a Typical Home of a small Farmer. It is built of Bamboo and Nipa Palm and does not contain a Nail.

# The Mountain Path.

By Arthur Wallace Peach.

THE printed item blurred before her eyes, and the peace of the early evening that lay in the quiet room seemed to become suddenly oppressive. She turned with fumbling fingers to the item again, read it swiftly and, dropping the paper, stared out into the gathering dusk about the house. From her heart memories were taking wing, even as out of shadowy corners and hidden cells the golden butterflies seek the summer air.

The item was brief. It said simply that the Reverend Richard Brownell was to speak that evening in the First Church on his work among the miners; but it awoke visions of her happy girlhood with its glorious dreams, the first wonderful love that he had given her, the spring days of courtship, then the great decision, the parting of ways that had separated them, and the autumn of realization.

Echoes, faint but true, had reached her, telling of the noble work he was doing among his people. His life had been like a beacon lighting the darkness of his own field of labor, and shining far out where others toiled for truth and good. The years had brought him fields white with harvest; her own years were sterile as meadows under summer drouth.

She recalled the evening when he came to her, the light of a great and holy resolve on his face, and told her that he had decided to give up his life to work among the far-away miners, and asked her to go with him. How handsome he had looked! How worthy of a true woman's love and honor! But suddenly before her had come visions of the life that she thought would be her lot in such a place as the great mining center; it would mean the sacrificing of the ease and luxury to which she had been accustomed, the social interests into which she had been born. A sudden coldness had fallen upon her. She had remained faithful to him when he had made his quick decision to give up his promising career in the law and take up the ministry, for she was sure she loved him, but to follow him into such a field—she would not. She had not thought it right for him to expect her to leave her home and follow him there; she had argued that his love for her should not ask it, and he had answered simply that he wanted to make his life count for something.

Out of the past came the fadeless memory of his face as she had spoken the words of her decision—the pain, the grief, the crushed hope; but he had gone quietly, without a word of reproach, and from that day no word had passed between them. He had gone to his life of service; she had married his rival, Ernest Seyton, debonair, wealthy, popular, an expert with the horses, a master of the arts of society, but—nothing more.

She crushed the paper between her tense fingers. The little item of faint type had bridged the years, knocked at the door of memory, and sounded the hollowness and emptiness of her life.

The telephone rang silverly, and her husband's heavy, dull voice answered her word of query carelessly, informing her that he would remain at his club that evening.

As she hung up the receiver a word of gratitude fell involuntarily from her lips. She was glad he was to follow his usual custom and spend the evening with his cronies; in the mood she was in, his presence would only accentuate the traits she had been striving through the years to overlook—his serene selfishness, his narrow love of personal pleasure, his mockery and carelessness of the ideals of Christian life and service, his futile life that would be bounded only by the dates carved on his tomb. He had been good to her in his way; what money could bring was hers, and a sort of love; but—the narrow meanness of it all! She was hungry for the wide spaces of achievement, to do something, to amount to something, to work side by side with those who were making the world and men better, hungry for a great and noble love, touched with the passion of earth, but glorified with the spirituality of heaven. She did not see, only darkly, before; now she saw clearly. Her efforts to make her life of use had met with angry condemnation from her husband, laughter and ridicule from her friends, and ambition and effort had been stifled.

The chimes of the clock in the great hall struck the half-hour. As the low, lingering notes hung mellowly in the silent rooms, she shivered with the sudden resolve that formed in her mind; she would hear Brownell—perhaps see him—speak with him! Hurriedly she gathered her wraps.

She turned to the telephone and called Seyton's club. The smooth voice of the

attendant answered: "Mr. Seyton is busy; he suggests that you give me the message."

She started as she always did, though she had grown used to that request. Seyton disliked to leave his game of billiards. "Tell him I am going to hear Richard Brownell speak at the First Church."

With a swift word to her maid and the nurse, she went out, boarding a car at the foot of the house grounds for the first time in years; she wished to go and return unseen.

Her heart was beating a little more rapidly than usual still; the thought fairly sang through her mind that she was going to see him, beloved and honored of thousands, and that he had once loved her. She wondered if he had changed; if the years of toil had bent the strong erect figure; she wondered if his voice had the clear sweet ring as of old, if his eyes still glowed as they used to when he spoke of his hopes and his dreams.

Busy with her thoughts, it seemed but a few moments before the church appeared. Already the broad steps were black with people going in. Inside, the pews were rapidly filling up; the music was sounding softly in the prelude. Swiftly she sought a corner that gave her a clear, unobstructed view of the platform.

Around her she recognized many of the leaders for good in the city, toilers in the vineyard where the reward is not in coin of the realm, but in the imperishable treasure of grateful hearts and the consciousness of a Master's "Well done!"

The music died to a low chord and ceased; the great audience rustled as it turned, and a ripple of soft whispering went over it like winds over wide meadows. He was coming.

Out of the small side door came the white-haired pastor of the church and, after him, Brownell.

She leaned forward for an intense moment. In front of her a woman whispered to a friend, "What a wonderful face!" The years had brought changes, and she noted them, secure in her sense of her insignificance in the great audience. Tall and strong he looked as years ago; but his thick dark hair was threaded with shining strands of silver; and his face—there had been the change. It was the face of a man who had sacrificed much, and had found the peace which has no name; it was a face to hold men silent, a face to love; on it was written the nobility, the glad service, the quenchless hope and faith of a great heart and an unconquered soul; on every feature lay the gentle beauty that brightens the face of one who follows the gleam.

The brief introduction over, he began to speak. The tones of his voice held the same gentleness as of old, the same

sharp insistence when high pitched, the deep significance when low. The rustling audience grew quiet as a restive child under a mother's lullabye.

She in turn felt her own tumultuous thoughts calmed and quieted. Easily, using the simple language such as a greater One than he found meet for all needs, he told of his work among the crude rough men of his country, his efforts to let into their lives the light of a great faith and hope, of the methods he had originated which were reaching out into far corners of the earth to heal and save.

As he went on speaking, and the human sea about her with its tremendous potentialities of storm and unrest became utterly still beneath the rehearsal of a wonderful life, her own life came before her more vividly than ever before, with its round of gayeties, its futility, its wasted years, its fruitlessness, and its unhappiness; keenly followed the picture of the man to whom she must return, living a life that no true man respected, no true man honored, useless as a worker in a vineyard where there was so much to be done, an idle dreamer through an idle day, carelessly watching the years speed beyond recalling, and holding her to him with the vise of law and honor, yet unfeeling, unheeding.

Penetrating the turmoil of her consciousness came Brownell's serene voice: "If we have a cross to bear, we should bear it for the sake of others; for he who takes upon himself a cross and seeks to lay it aside, but lays it upon another. Some paths of life are not easy to tread, but the valley paths never reach the heights; it is the mountain path that leads to the sunrise! If I say to you, 'Follow me—'

Sharply the phrase cut into her heart—"Follow me." If she had, she thought, what life it would have brought! The wonderful love, the deep satisfactions, the full sweet years, the mountain path and—the sunrise! But now—the past and future shot before her like dancing figures in a dream; the climax of half-formed thoughts and the undefined yearnings of the years came.

With the agony in her heart, the hot tears were born. She knew now the bitterness of regret as she had never known it. At the moment of her decision she had put aside forever—the word stung. Forever—it must not be! She would go to him; he had never married, and she knew the reason. Would he take her? The years—how rich they would be! Otherwise—how empty! He had loved her; she had seen the love in his eyes. He would forget and forgive; she knew it; she would speak with him, look into his eyes and—see!

The audience stirred; the speakers were leaving the platform. She touched a woman near her who turned a shining

face to her. "Will there be an opportunity to speak with him?"

"Yes, in the assembly room, it was just announced," the woman answered; "and it is a priceless privilege. Come with me if you are a stranger. I know a way by which we can reach him quickly."

The woman took her to a little side room and opened the door into the assembly room where he was already the center of an increasing group. The woman paused a moment—"Doesn't he look just what he is? How proud a wife would be of him! Come—"

She started, then hesitated, for she knew she could not trust herself. "No—there are too many; you go—I'll speak with him later."

The glad faces pressed around him; hands eager for his clasp reached to his, and satisfied with sight and touch the crowd slowly dwindled; but still she watched, trying to decide whether she would speak, wondering if she did whether he would answer and how. Would his eyes light as of old, telling her in the silent language of the heart what she knew must still be true—that he loved her? But her heart failed her; she could not bring herself to look into his gray eyes then; later she would seek him—somewhere—alone.

Swiftly she hurried from the church; soon the rumbling car left her at the foot of her grounds and she hastened up the long driveway to the great house, gloomy before her save for the soft lights burning in a few rooms.

Draping herself in a soft, loose gown, she sat near the window, letting the cool breath of the evening touch soothingly her face, giving her thoughts free rein. She must see him, she told herself, and tell him that he must call her to him; it was not right that her life should grow gray and empty with the years. Beside him life would mean love, hope, glorious service, and happiness. She had decided wrongly once; she would not suffer for that wrong decision always.

A stumbling step in the hall aroused her; slowly it climbed, with erratic pauses, to her corridor, then turned into her room. The light was turned on. Her husband blinked unsteadily at her, the glow from the lamp throwing into strong relief the shadowy hollows that dissipation leaves on the face.

"Hullo Bess," he said a little thickly, "waiting for me? That's mighty good of you. I'm about all in—pretty good time tonight at the club. How'd you like the parson's sermon?" he rambled on, yawning and rubbing his puffed face. "S'pose you'll be wanting to join the missionaries now?" A very slight sneer echoed in his tone. "Well, I'm pretty much all in."

As he came to take her in his arms her whole soul rose in revolt and she slipped from his grasp. He looked at her oddly a moment, muttered something to himself, and loafed out of the room.

Sitting still and rigid in her room she listened to him preparing to retire, swearing once gutterally at his man. Then she drew her fingers tight about the sudden ache in her throat; for him to touch her would have been sacrilege. The forces that had been rending her converged, and she was at the crossroad in the valley whence the mountain path and the valley road start.

"I will go," she half sobbed, half whispered to herself. "I will go to him, and he shall take me—forgive—take me back—I want to be happy again—" Then she paused under the shock of a thought she had never permitted herself to consider—"If he won't, I shall free myself."

It was almost a cry of triumphant sounding in her heart, but it was sharply stilled as from the cot near her bed came the soft long-drawn, sleepy sigh of her child. A heavy stillness fell upon her. Her mind dropped from its high pitch of intense thought.

The girl's dark head moved on the pillow and came under the mellow reflection of the low burning night lamp.

She clenched her hands in anguish. From over the years memory came with dreams; in swift procession the days of her girlhood sped before her; the time of the making of the great decision, and the results that followed. Dimly in her mind formed the vow that she would live to teach her child, speeding to womanhood with swift feet, to make her decision rightly; she would live her life as she must for the sake of her little one; to do so would mean for her the silent enduring of things against which she revolted, the relinquishment of the happiness that might be hers; she would face

(Continued on page 381).

## Beginning Again.

By Mrs. Walter Jackson.

We sometimes wish that we could just begin  
Again, perhaps, in some fair land where all  
Our sad mistakes, and all our willful sin,  
Might be cast off, outside the city's wall;  
That we could always follow duty's call  
Where'er it led; and keep a smiling face  
When things go wrong and seem all out of place.

Our God has set an open door before  
Each one, which none may shut. We may begin  
Again—each day, each hour—but how much more  
'Twould mean if we would keep right on and win.  
Yet we give up, despairing, when within  
Our reach is strength sufficient for the fight,  
If we would trust in God—not our own might.

We have not learned pain's lessons yet, and so  
We miss the way, because we do not hear  
His voice and keep in step with Him. We go  
Alone upon life's way when He is near  
And waits to lead us safely on. We fear  
We know not what because our sight is dim  
And what we need is faith to lean on Him.

Salvation is the gift of Christ, who came,  
A child, to show us how to live, and died  
To buy us back from sin. He took the shame,  
And sorrow, too, and now He walks beside  
His friends, to aid, to comfort and to guide.  
O wondrous love! We pray, God take our days  
For service; fill our hearts with grateful praise.

## THE COUNTRY AND THE PEOPLE OF THE PHILIPPINES.

(Continued from page 375).

right to their lands; nearly all of the tenants work the land on shares, only about two per cent paying cash rent.

**Rice Growing.**

San Mateo is the center of the valley, which is almost exclusively a rice growing section. However, more or less rice—known by the natives as Palay or Bigas—is grown in practically every agricultural section from the lowlands to the mountain terraces. The principal rice-growing provinces are Pangasinan, Tarlac, and Nueva Ecija north of Manila and Capiz in northern Panay. There are

with banners on them to indicate their fields; the harvesters take their guitars and mandolins with them to their work and one plays while the others work; occasionally they all sing, and the moonlit evenings are always filled with music, dancing and good cheer. The time and number of harvests vary with the seasons and in different parts of the Islands. The farmers beat the grain from the stalks or tread it out with horses or carabao; threshed rice is cleaned by passing it to and fro from one basket to another in a breeze, or sometimes with a crude sort of fanning mill. Average

which are more profitable has increased. During the fiscal year 1912 the Islands imported over 286,000 tons, valued at \$10,570,000.

**Corn Growing.**

Corn and rice are the great food crops of the Islands. Corn is not raised for feeding live stock as in the United States, and none is exported. The principal corn growing provinces are Cebu, Bohol, Leyte, Occidental Negros and Pangasinan. In 1902 the area planted to corn was more than three times that planted to tobacco, 50 per cent more than that planted to sugar cane, and in twenty provinces corn was the second crop. In Cebu, Bohol and Leyte corn is preferred

are grown every year and often a third. There are only four varieties of white corn and one of yellow, while the dark colored varieties represent all shades between red and black. All may be classed as "nubbins" and the best yields are 25 bushels per acre, while the average is less than half that amount.

**Coconuts.**

Next to rice and corn the most common agricultural product is coconuts. The principal coconut-producing province is Tyabas on the east coast of Luzon; following it are Laguna, Capiz, Samar, Cebu and southern Mindanao. The number of trees reported in 1910 was 32,800,000 with 22,000,000 in bearing. From San



"On either side we see men cutting Zacate, which is the principal forage crop for both horses and cattle."

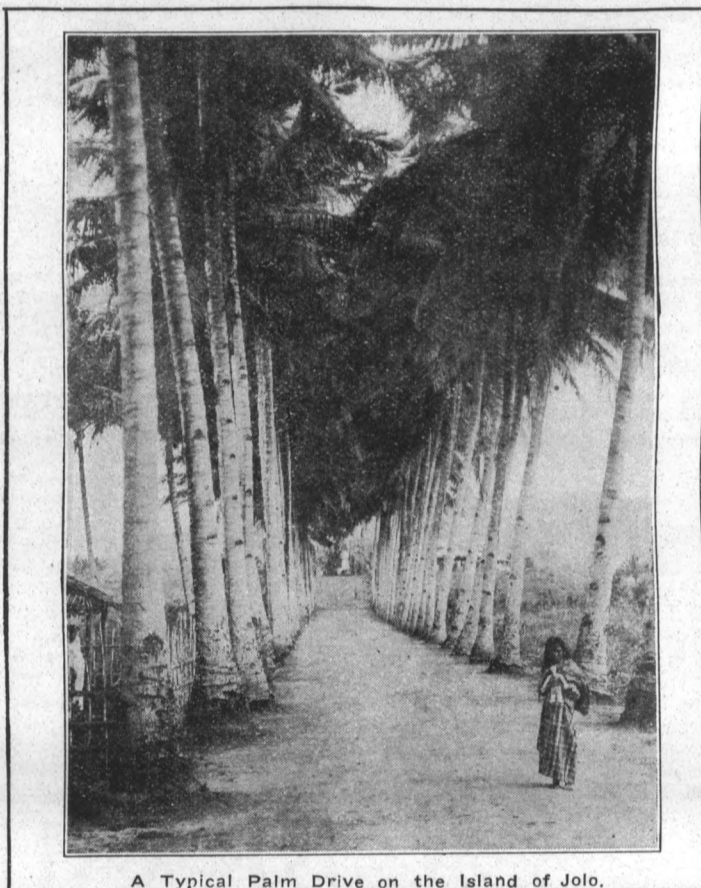
many varieties of both lowland and highland rice, awned and awnless. An investigation in Nueva Ecija showed that over 90 varieties were grown in that province; it is difficult to say how many varieties there are, for when the names have been scientifically classified the number will be greatly reduced.

On the lowlands where the water is under control semillero or seed beds are prepared at the beginning of the rainy season; they are usually made in strips eight to nine feet in width; when the plants are about 18 inches high they are pulled, the earth washed out of them, and they are tied into bundles about the size of one's wrist. While these have been growing, in July or August, the farmer with his Chinese plow plows the field two or three times and then turns on the water; the fields are surrounded with pilapiles—small dikes or banks to hold the water; after the water has been turned on the fields are harrowed two or three times with a wooden harrow, very much resembling a Michigan corn marker with about twice as many teeth, which mixes the soil with the water. When ready for planting the farmer's whole family goes into the field, the bundles of plants are scattered broadcast, each one taking a bundle and, one by one, setting the plants in the moist earth from four to six inches apart.

Again in October or November, depending upon the season, the farmer's family goes into the field; each carries a short blade attached to a small piece of wood about the size of a husking peg, with which from one to four stalks are



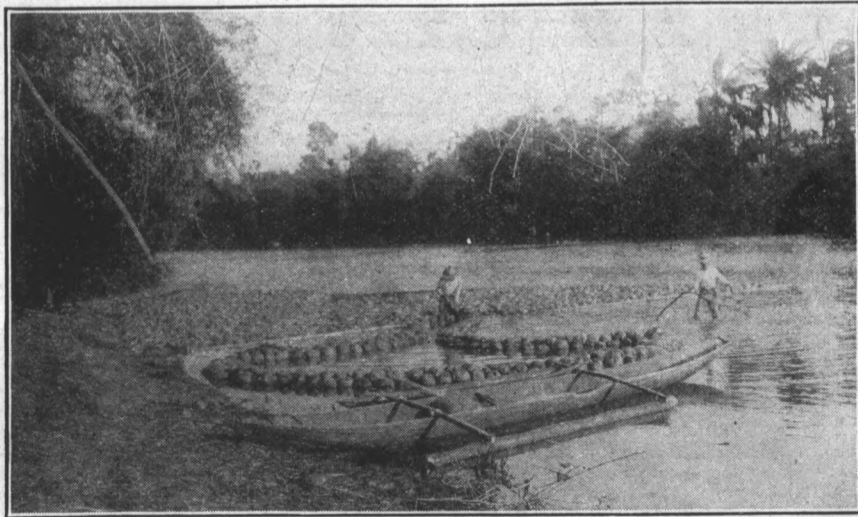
"In the north, rice cures in small stacks until time for threshing."



A Typical Palm Drive on the Island of Jolo.

Mateo we return to Pasig on the railroad, take one of the lake steamers to Santa Cruz, the provincial capital of Laguna province, then go on horseback to Magdalen, Lilio and San Pablo, a town of about 25,000 inhabitants which derives practically all of its wealth from the surrounding coconut groves.

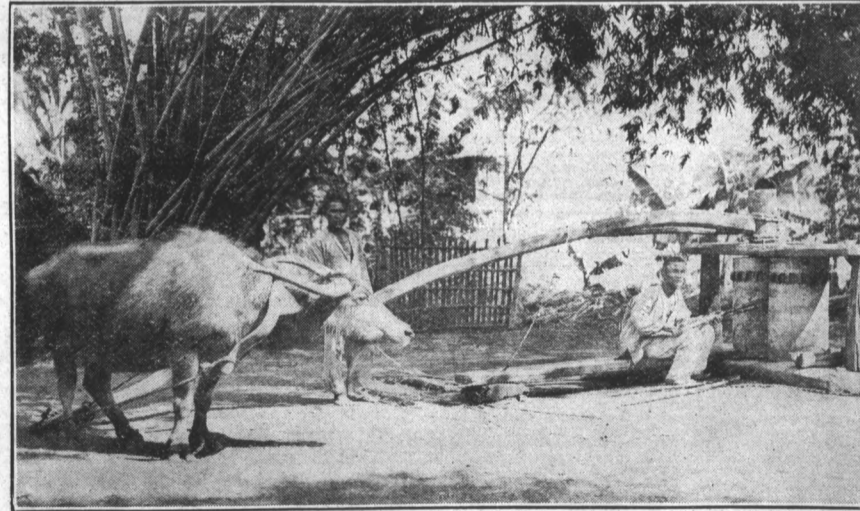
Coconut trees begin to bear when they are seven years old. The nuts are not harvested at stated seasons but every three or four months; the harvesting is done with a sharp hooked knife attached to a long slender bamboo pole, or by a man who climbs the trees and cuts the fruit stalks with a sharp knife; the nuts are collected in piles under the trees and sometimes husked before being taken from the groves; they are carried by pack-horses, sleds or carts to the small factories on the hills, or floated down the rivers in rafts. The nuts are husked by means of a pointed iron instrument, usually a plow-point fixed to a three-legged stand; they are then easily halved by a quick blow with a dull bolo. For drying, a shelter is built over a rectangular hole from three to seven feet wide, about three feet deep, and as long as desired; small poles are laid parallel to each other across the shelter, leaving small spaces between them; the nuts are placed on these poles and it takes about two days to dry them. Once dried the meat is easily removed with a thin, chisel-shaped curved knife projecting from the front of a seat; after a little more drying the copra is ready for sacking and to be sent to market. Any day hundreds of pack-horses, loaded with sacks of copra,



Preparing to Float Coconuts down the Rivers in Rafts.

gathered at a time. These are tied into small bundles and thrown in piles, to be gathered later in a canga or sled. In the south the crop is stored in the houses or set in small shocks, while in the north it cures in small stacks until time for threshing. Harvesting is usually done on shares, about one-fifth going to the harvester; it is therefore a time of joy and plenty; different families put up poles

rice land in Pangasinan produces from 15 to 20 bushels per acre. There are several kinds of dry-season rice which are usually planted early in February and harvested in May; the yield of this is rarely more than five to 10 bushels per acre. Formerly the Philippines exported rice, but as it is raised almost everywhere in the Far East its production has decreased as the production of crops



Typical Mill for Crushing Sugar Cane used by Small Farmer.

to rice for food, and in other provinces it takes the place of rice in years when that crop is short. The farmers plant corn anywhere—on the hillsides or in dry river bottoms. They know nothing of seed selection, seed testing or crop rotation, and much less about preparation of the soil, too close planting, cultivation and care of the crop. In Cebu, the largest corn-producing province, two crops

it may be seen coming into town from all directions; it is sold to dealers, who in turn load it into carabao carts which take it to Laguna de Bay where it is transferred to steamers for Manila. Most of the Philippine copra is shipped to Marseilles for the European market.

An expert from the Bureau of Agriculture visited this section in 1911 and after a careful investigation stated that



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the planters were getting only 30 to 40 per cent of what the income should be from their plantations. The principal reasons are too close planting, improper care of the plantations, and not mulching the trees; the smoke to which the meat is exposed while drying starts a mould which spoils considerable of the copra while in transit and before it is converted in the factories. The copra exports for 1912 were over 186,000 tons, valued at over \$16,500,000.

### Manila Hemp.

From San Pablo we continue with our horses to Lucena on the south coast of Luzon and take a steamer to Sorsogon and the hemp country. Sorsogon is typically tropical; there is no finer drive than that from Sorsogon to Bacon through tropical forests and hemp fields, where the giant hardwoods are hung with aeroids, ferns, moss and orchids which sway in the sea breezes. The crop by which the Philippines are best known in this country is Manila hemp—known by the natives as Abaca. Exports of hemp have made the Islands known the world over. The largest producer of hemp in 1910 was the island of Leyte; it amounted to about 42,000 tons; it was followed closely by the provinces of southeastern Luzon, Masbate, Samar, Oriental Negros and southern Mindanao. The banana so closely resembles the abaca plant that it is difficult to tell them apart except when they are in fruit; strictly speaking, abaca does not belong to the hemp family. While there are about 14 different varieties, only about five of them can be considered desirable for the hemp planter to raise. The plant requires a soil of rich mellow loam, preferably of volcanic origin, containing a large amount of decayed vegetable matter which is cool and moist, abundant rainfall and good drainage. The plants are propagated by rootstocks and shoots or suckers planted 10 to 12 feet apart, allowing 350 to 500 plants per acre. The stalks are from seven to 20 feet tall and vary from six to 16 inches in circumference at the base.

Only two to four stalks can be harvested at a time, and the young stalks are not cut until they are from two to two and a half years old; after the first harvest subsequent cuttings may be made every four to six months; the leaves are first trimmed off at the top, then the stalk is cut with a bolt or knife with a sharp blade, close to the ground and at an angle so that the water will not collect and rot the stump. After the stalks have been felled they are carried to the shed where the sheaths are stripped off, split in halves or quarters and laid in piles ready for the stripper to extract the fiber. Stripping is the crudest sort of process; a strip is simply drawn under a dull knife which operates like a lever under the tension of a spring, holding the pulp and waste back while the stripper pulls the fiber out by hand.

The fiber increases in whiteness and softness from the outside to the inside sheaths; a stalk produces two and one-half to five pounds of dry fiber, from seven to 18 feet in length. The average yield per acre does not exceed 350 pounds, while a good yield should give the planter from 800 to 1,200 pounds; in some instances double this amount can be obtained. Softness, color and strength are the qualities usually considered in grading, and there are more than a dozen grades of fiber on the market. The best fiber is silver white and soft; the most of it is shipped to Europe while the remainder is used to make native cloths known as sinamay and tinampipi from which the jackets of the men and the waists of the women are made. The colored fiber which we see in this country is the result of incomplete or poor stripping, when some of the pulp adheres to the fiber, or it has been exposed to rain and the elements, or treated with oil. At least five or six grades should not exist, as they are the result of the shiftless work of the planters or the money-making efforts of the dealers. Four or five stripping machines have been placed on the market but none of them are in general use and practically all of the fiber is extracted by hand. Nearly one-third of all the money that came into the Islands during the last fiscal year was in payment for Abaca or Manila hemp.

### Sugar Cane.

Recently the question of the production and the free admission of Philippine sugar to the markets of this country has attracted considerable attention. From Sorsogon we take a Coast Guard steamer to Cebu, and Iloilo, which is the sugar center of the Islands. From Iloilo we will take one of the small sugar steamers or launches to Bacolod, or Silay, the prin-

cipal ports of western Negros. The comparatively level lands on the west side of this island, like those in northern Nueva Ecija, remind us of the prairies in the Mississippi river valley. Sugar cane was probably introduced into the Philippines from Java or China. There are many varieties of cane but very few are grown on the haciendas, the latter are commonly known as purple, red, white and striped. Planting takes place in November, December and January, at the same time as the harvesting and crushing. In Pampanga planting takes place every year, but in Negros only once in five, six, seven or even ten years; each year a ratoon crop, which grows from the underground stems of the cut cane, is harvested. It takes the first planting 14 months and sometimes more to mature, but the ratoon crops usually mature within a year. The province of Occidental Negros leads in the production of sugar, with over 67,700 tons in 1910; following it are the southeastern half of Panay, Batangas north of Mindoro in Luzon, Bulacan, Pampanga and Tarlac north of Manila, and the northwest coast of Luzon; considerable sugar is produced in Oriental Negros, Cebu and on the west coast of Panay; some cane is raised for home consumption in almost every province. In 1908 the declarations of the sugar growers to government agents showed that the area of land planted to sugar cane was 168,362 acres, and the land adapted to sugar growing and not planted was 250,290 acres. The superintendent of the San Jose Estate, which has the only up-to-date sugar mill and refinery in the Islands, has observed that Philippine planters do not plow deep enough; they plant the cane too close, give insufficient attention to cultivating the growing crop, and over-crop the land; Philippine mills extract only about 60 per cent of the juice from the cane; the juice is boiled down in the open instead of under a vacuum, and the recovery is probably much less than 75 per cent, while in modern mills 90 per cent of the sucrose contained in the juice is obtained. The sugar and hemp industries have been developed largely by English and American capital. The exports of raw sugar for the fiscal year 1912 amounted to over 204,600 tons, or nearly 21 per cent of the total exports of the Islands.

### Tobacco Growing.

The other great crop of the islands is tobacco. The Philippines are well known in Europe for their coconut, hemp and tobacco products. To understand this latter industry we must return by steamer to Manila; from Manila we can travel on the railroad through the Pampanga and Agno river valleys to Dagupan and then on horseback up the coast to Laoag where we can take a steamer; or take a steamer direct from Manila to Aparri, and visit the Cagayan valley. The tobacco belt forms a sort of ribbon along both sides of the Cagayan river. The development of tobacco growing is due largely to the efforts of the Spanish government; from 1781 to 1882 tobacco growing and selling was a government monopoly.

The principal tobacco-producing province is Isabela, the south end of the Cagayan valley, which in 1910 produced nearly 9,000 tons; it is followed by Cagayan, the north end of the valley, Pangasinan and Cebu; considerable tobacco is raised on the islands of Negros and Panay and along the northwestern slopes of Luzon. There are several types of tobacco grown, and from eight to 12 are frequently found in a single field; the more common ones are known as Espada, Americano or Habana and Isabela. The seed beds are usually sown in July and August, and transplanting takes place in September and October, after from 45 to 60 days; in about 10 weeks the tobacco should be ready for harvest; after this the curing takes from 15 to 30 days, depending on the place and the weather; very few of the native farmers have curing sheds. In 1910 the area cultivated was about 134,000 acres, and the average production per acre in the best provinces ranged from 300 to 570 pounds, while the total production of the islands was about 29,600 tons.

### Lesser Crops.

Beside the crops for which the islands are known the world over, there is a great variety of products of which little is known abroad but which add greatly to the pleasure of living in the country. Maguay, the century plant, which is second to abaca for its fiber, is raised in many provinces; it is more hardy than hemp and will grow on hillsides and well drained places. Kapok (tree cotton), resembling sea island but of much shorter staple, grows in all parts of the country; it is used for pillows and cushions, and much of it is shipped to Holland. Cacao, a small tree which is scattered over the southern islands, bears large pods, the seeds or beans of which are used to make our chocolate and cocoa. Cassava, known as Camoting cahoy, grows mostly in the southern islands and its roots furnish the starch from which our tapioca puddings and desserts are made. Coffee, Arabian and Liberian, is raised; it is found in the provinces of Lepanto-Bontoc, Cavite, Batangas, Negros and Mindanao. Peanuts are grown in different parts of the country as a forage. In Negros and Pangasinan some attention has been given to raising silkworms. Rubber has been planted, especially in those districts parallel to the great rubber plantations of the Malay Peninsula. The Ilang ilang tree, which grows in the provinces around Manila, bears flowers from which a popular perfume is distilled. Cloves and spices are found in Mindanao in the neighborhood of the spice islands of the Dutch East Indies. Tropical fruits, in abundance, are found in almost all parts of the country. Bananas grow everywhere in great variety; the principal orange orchards are between Laguna de Bay and Taal volcano; pineapples are grown in several provinces near Manila Bay; breadfruit, mangoes, guavas, papayas and chicos grow everywhere, and guava jelly is as common as apple jelly at home; lemons, limes, and

(Continued on page 387).

# BRAMBLE HILL

By ROBERT CARLTON BROWN.

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Sid had arrived. He had won the town's respect by his deal with the railroad. He had even conquered Sam Dunlap and commanded his respect. Ed's reference to the Bramble Hill offer was not spontaneous; it had been used as an illustration in Turtle Creek for some time past. With Sam Dunlap won over, it didn't take Aloisius Stimpson long to realize that Sid was becoming an important factor in the town and that it would be foolish not to support him, in view of what he had achieved. So he was next after Dunlap to admit openly that Sid Edgeworth had proved himself to be worth while.

Sid had fought for every inch of success he had gained. He was so sooner home from Chicago with his large check than he went over to Bayview and had a long conference with the cashier of the principal bank there.

In that interview the cashier happened to speak casually of the fact that farmers in Dakota were paying ten per cent interest on mortgages. He said the mortgages were hard to get in the middle west, but Sid determined to find out about that for himself. He wasn't satisfied with five per cent investments and yet he was wise enough not to be inter-

ested in oil wells or mines. He liked the sound of that Dakota mortgage proposition. If there were any loans to be made at ten per cent he wanted to know about it.

So two days later he left Doodle and took a train from Chicago to Sioux Falls. He was back in Turtle Creek six days later, with just a day's margin left from his two weeks' absence allowed for that year. He had managed to invest his entire fifty thousand dollars in mortgages at ten per cent and considered it had been a good stroke of business. He had looked over the land himself and was certain that the investment was sound, the only cause for such a high rate of interest being the scarcity of money in the Dakotas and the number of poor farmers whose only prospects were the season's crops.

Sid went to the cashier of the bank at Bayview and convinced him that the land mortgages were safe investments which other banks were buying. As a result a small company was formed to handle additional mortgages of the same nature. Sid was made vice-president of the company and he worked hard with the rest in selling the mortgages on commission. As a result of that idea he cleared eight

hundred dollars from commissions in the first year and five thousand dollars interest on his fifty thousand.

Not bad for a year's work! But that wasn't all. Sid had blossomed into a business man. He wasn't satisfied with one line of work. One day in winter a friend of Doodle's motored out from Chicago to see them, for Doodle had stayed right on with Sid. To a casual observer it looked very much as though he stayed because Susan Dunlap was there.

As a result of this friend's visit Sid got a second idea.

"You've enough limestone here to make calcium for all the acetylene lamps in existence," remarked the friend, as he made a tour of inspection of the farm.

That served as a suggestion to Sid. He asked a few questions and sent Doodle to Chicago to make further inquiries. Each time Doodle suggested returning to New York Sid begged him to stay and be his business messenger, for it was impossible for Sid to leave Turtle Creek again that year, having used up the last day of his vacation allowance fixed by the will.

Doodle came back with the data Sid desired and, as soon as spring allowed, Sid built a plant on his land and began turning out calcium carbide by the barrel. He had interested the Bayview bank cashier in the scheme and the cashier had interested Sam Dunlap. So when the company was finally formed Dunlap was a member. Through their association in business Dunlap came to respect Sid and it was at this time he made the sensational offer that he would give Bramble Hill to the man who married his adopted daughter. Of course, he didn't make the offer publicly; Stimpson and Lefe Turner attended to that.

The manufacture of calcium carbide proving a success, Sid turned his thoughts to something new.

At about this time he wrote Jerusha, who hadn't been back to Turtle Creek since her father's death and was then traveling in the south with Auntie Ralmer, "I think I've been inoculated with the virus of action by you. Since I got into the habit of thinking straight ahead, and since I've learned how much I love money I've been working every minute. Everything seems to turn to money when I touch it. I'm not a Midas yet and I never will be if I succeed in satisfying the terms of that will. Just think! It's three years that have slipped by since I have been here. I had only about six thousand dollars from farm rents to show for the first two years. Then that blessed railroad came through, and luck and bluff brought me the fifty thousand. That will earn ten thousand by itself in two years at the amount of interest I had sense enough to go after and get. That's sixty-six thousand toward the will. Figure another thousand from what rents we still get from the farm and the profits Hornbill will make, then a thousand from the investment company the cashier in Bayview started, and—"

At that point in the letter Sid's pen stumbled in its eagerness and left an unsightly blot. In searching for a blotter he found a cheap magazine on his desk and, in the absence of anything better, tore out several of the pages, hoping to soak up the blot with the rough edges of the cheap porous paper. As he tore it off his eye caught an advertisement, "Money in Concrete Blocks."

There was the idea he had wanted for a great while. The chemist hired to run the factory for turning out calcium carbide had tested the limestone rock on the farm, Bramble Hill, and many surrounding out-croppings, and had found deposits that would make good cement. It contained just the right amount of lime and other materials and closely resembled Portland cement rock. Sid had thought much about the discovery and had sent Doodle again to Chicago to find out something about the business. Doodle had learned that the first thing necessary would be a great firing kiln that would cost several thousand dollars. Sid figured that he would have to organize a company with large capital to handle such a deal, for a big factory would have to be built.

Now the thought of concrete blocks came to him forcibly. That was a bigger business with less competition and he could make a good profit by making his own cement. He hurried over to Bayview and talked about the new idea at great length with the bank cashier. As a result a big company was formed to build a factory on the Edgeworth farm and buy the ground containing the limestone and Bramble Hill.

As soon as the company was organ-

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At the New York Show, nearly half the show cars had Goodyear equipment.

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### What Led to This Condition?

It is well to ask what led to this condition.

There must lie, somewhere, some immense economy. For men in these days keep good track of tire mileage.

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That 10% oversize, under average

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Then we invented a Non-Skid tread which excels every other non-skid.

It's a double-thick tread, made of very tough rubber, filled with deep-cut blocks. It grasps the road-surface with a bull-dog grip.

This thick, tough tread is immensely enduring. And the blocks spread out so the strains are distributed just as with smooth-tread tires.

This long-lived Non-Skid became at once the favorite Winter Tire.

#### Any Man Can See

Any man at one glance can see these advantages.

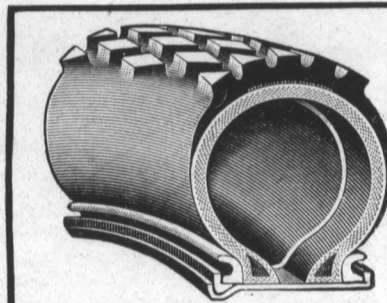
You can see why these tires can't rim-cut. You can see the oversize. And you know without telling that these things save money.

Then this tire, remember, is the final result of 14 years spent in tire building. For 14 years the ablest of experts have here worked to solve your tire problems.

About 2,000,000 Goodyear tires have now been tested out. As a result, these tires far outsell any other tire in the world.

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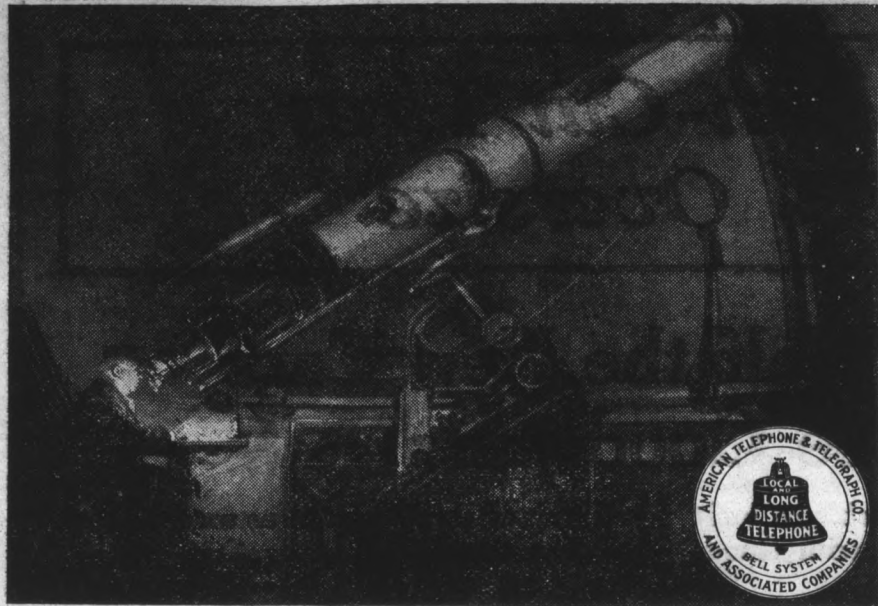
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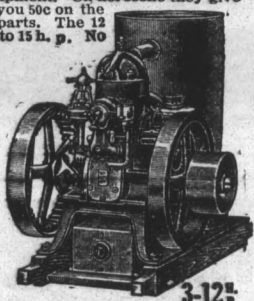
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ized Sid started building the factory. He was business manager for the new company and had invested some of his earnings in it, beside the price he received from the company for the land.

This was the factory to which Stimpson referred that crisp fall morning when Sid ran up the steps to Niles Pash's store to lay in provisions for his workmen.

The concrete block company was sure to succeed. They had the stone for the cement, a railroad siding already built to their factory, and influential backers, including Sam Dunlap, the Bayview bank and Mr. Hartley, the new railroad president, whom Sid had interested personally in the proposed company.

A month before Sid's four years in Turtle Creek were to end, Jerusha Wattles came back with Auntie Raimor to visit Turtle Creek and view the marvels about which Sid and Doodle had written. She hadn't been in town three hours before Doodle had found a minute with her alone and taken advantage of his opportunity to propose. She refused him, though she did compliment him on his physical and mental improvement. As messenger for Sid he had been quite active, and it showed in his face.

Doodle was horribly disappointed at being turned down. He felt so badly about it that he hurried over to Susan Dunlap that evening and asked for sympathy. She was ready with it and Doodle was so charmed with her condolence that he began to believe it was Susan herself he really loved. During the following two weeks he saw very little of Sid and Jerusha, who were constantly together. He had gone to Susan Dunlap in despair and stayed to be overjoyed shortly by the great good news that she loved him and not Harold Ewer; that she had never loved Harold, and how could he have imagined it!

Doodle had invested some of his own money in the cement block manufacturing business and was beginning to consider himself a resident of Turtle Creek. His good nature and foolishness had won a place for him with the young people and he had grown to like the town and even to take a sneaking interest in working in the office of the factory for two or three hours four days a week.

Jerusha had opened up the little cottage and she and Auntie Raimor were staying together there. When she had first returned, Jim Rogers had written her a long letter telling her that he loved a certain girl, whom he described rather minutely, and asking her advice as to whether he should propose to this girl by mail or not. Jerusha advised him that distance lent enchantment and he had better wait until he saw the certain girl again before he made sure that he did want to marry her. She positively refused to note the similarity between Jim's description of the certain girl and the facts which her own mirror pointed out to her. The next time Jim saw Jerusha there were certain reasons why he didn't refer to this certain girl he had been in love with. It is not recorded who the girl was, for Jim was never wedded to anybody, though he and business were always seen together.

As for Sid. Just the evening before his four years in Turtle Creek were to end he hurried over to the Wattles cottage with a neat slip of paper in his hand. He had snatched it up unblotted from the table where he had been figuring and rushed off to find Jerusha. She was hoeing a rank patch in the weed-choked garden. Sid took the hoe from her hands and placed the slip of paper in its place. Then he drew her toward the old well and they sat down together on the damp boards.

Her eyes shone as she scanned the sheet before her.

"It's my account to show Newt Plum tomorrow," said Sid proudly. "I've never been happier."

She read the figures:

Profits from Edgeworth Farm during the four years ending August tenth.	
Rentals, produce, profit on Old Settlers' reunions, etc.	\$ 9,814.75
Price paid by railroad for right of way, land for siding, and injunction idea	50,000.00
Interest on same \$50,000 at 10 per cent for 22 months	8,333.33
Profit paid first year by mortgage handling company organized	800.00
Profit from mortgage company, second year	1,045.00
Profits from calcium carbide company for 18 months, to date	2,287.00
Value of stock held by Edgeworth Estate in calcium carbide company, stock interest given in exchange for land and services in organizing and	

management	8,000.00
Value of stock held by Edgeworth Estate in cement block factory, stock interest given in quarry, organizing services, water power from creek, etc.	20,000.00
exchange for factory site.	

Total .....\$100,280.08

"Splendid!" cried Jerusha.

"And I owe it all to you," said Sid earnestly.

"Nonsense."

"I do," he went on in an even tone.

"You did it all. You made me realize that the chief joy in life is found in accomplishing things—first with that Old Settlers' Reunion and finally with the dam. It all dates from that."

"But you're so silly," she protested. "You did it all yourself. I won't have you talking like this; why I never even heard of these calcium and cement factories until I came home."

"But you inspired them. You showed me the joy of doing." He threw back his shoulders and drew a deep breath, turning his full, firm, tanned face to her. "Do you notice any change in me?"

"Since I was back before. Oh, yes!" she cried.

"But not only then. Since I came here?"

She laughed. "Why, you're a different man altogether."

"You don't think I look too weak and helpless to carry a milk pail or handle a saw?" he grinned.

"Oh, no. You're so different now. You look so confident."

"But I'm not," his tone lowered unconsciously.

"Not confident of what? The future?"

"Yes."

"You're going back to New York, of course?"

He looked long and directly into her eyes, then began slowly to speak. "No, I don't think I shall go back to New York. I haven't any wish to sit in a steam-heated office all day and inhale Turkish cigarettes. I don't think I could smoke them again. I couldn't go out with the fellows for a cocktail before dinner. I'm afraid I've become dowdy and steady and old maidish. But, you know," he drew in another deep breath and his eyes drifted hazily, wistfully, across the mist-filling meadows. "You know, at this time of day, when the sun is going down and the whole world is sinking with a satisfied sigh into sound content, I always feel—" his eyes glistened brighter during a short pause. "Well," he laughed sharply, "I may be silly and sentimental, but I always feel like when I was a little boy going to bed and this whole earth is my bed," he swept his arm toward the horizon, "and God is tucking me in with the blanket of night."

"Yes, I know what you mean," Jerusha caught her breath and gazed, fascinated, into the soft-stealing dusk. She went on with an effort. "But you've so much money now. You can see so much and learn so much."

"I know," Sid answered thoughtfully. "But that's not my dream. I can do as much good—more—with that money right here. I don't know—I seem to belong here now. Hornbill'd miss me. The bees would get lonesome. I couldn't go back—"

"Oh, I'm so glad to hear you say that!" Jerusha cried. "Don't you remember when you used to rant about your four-year 'sentence'; you said you would be 'warped, narrow-minded, like the rest.'"

"Yes, and how," he cut in with wistful intonation, "how I worried so much about the terms of that will and abhorred the thought of looking forward to a quiet married life in Turtle Creek. And now," he paused consciously and asked abruptly, "I suppose you'll be going off again soon with Auntie Raimor."

"There is nothing much to keep me here—now," she inclined her head toward the humble cottage.

"I hate to think of your going," he went on with an effort. "I don't suppose you care, but I'm going to be mighty lonesome without you this time."

"But you have your business. We shall always be great friends."

"I know, but 'friends' doesn't mean much. I don't suppose you care, but I wish you'd stay in Turtle Creek and help me just once more. You've done so much for me already I've begun to need you."

"Come!" she cried briskly, starting from the dreamy mood she had slipped into. "The soft sunset has made you sentimental. You're successful. You've achieved. Now you can have everything you want. You mustn't weaken now."

Stay here and be satisfied. You said you could be."

"But not alone," he had leaned forward eagerly and caught her hands as she started to rise. "Jerry! Just a minute! You know what I mean. You must listen. Don't pretend you don't understand that—I—"

Both looked up with startled abruptness as the "honk" of an auto horn warned them of the approach of a certain well-known bow-window automobile through the Edgeworth private road, starting a chicken from the road at the edge of the thin grove.

It was already growing dark, but the twilight did not conceal the identity of the occupants of that proud car. They were Doodle and Susan. The twilight also dimly disclosed the fact that there was a black patch on the off hind tire, and the further fact that Doodle had his arm deliberately draped about Susan Dunlap's waist and that her golden head rested on his shoulder as he steered the gasping, grunting vehicle with one hand, to the terror of all the chickens in the country 'round.

Jerusha nodded toward the auto and asked Sid, "Are you certain? Have you forgotten that you thought this same thing before?"

"Oh, it's different!" he cried harshly, crushing her hands fervently. "It is so different with you. I know I love you. I know I can't have any real happiness until you consent to marry me and stay right here on the old farm. We'll build a new house, a garage and—"

"But are you sure?" she cried in a frightened tone, staring through the evening mist after the auto. "You thought you were in love before."

"I know it's the real thing now," he cried. "You must see it. I told you I doubted my feelings for Susan because I couldn't propose to her. I can tell you a thousand, a hundred thousand times, it will always be the same story. You must marry me. You do believe me. You will marry me?"

She didn't answer. He released the pressure on her hand and her fingers trembled ever so slightly, like the fronds of a quivering fern.

"You do understand that I love you," he cried. "You must! There's a certain language of the heart, you taught me that yourself—an esperanto of the eyes. The vocabulary is limited to three words. Look into my eyes. Can't you read those words?"

Jerusha looked, Sid clasped her in his arms and gazed into her fond eyes, reading there the reflection of those three words which form the limited vocabulary of the esperanto of the eyes.

THE END.

#### THE MOUNTAIN PATH.

(Continued from page 376).

a future without hope, a night without stars.

When the revulsion came, she sprang from her chair. No! she could not! she could not!

Hardly had the wild thought formed itself in her tortured consciousness when softly, as though from a great distance, she heard a wonderfully sweet voice, rich and deep with the serenity of a great and sure faith speaking—

"If we have a cross to bear, we should bear it for the sake of others, for he who takes upon himself a cross and seeks to lay it aside but lays it upon another. Some paths of life are not easy to tread, but the valley paths never reach the heights; it is the mountain path that leads to the sunrise!"

She did not stir; so clear, so distinct the tones came that it seemed he must be speaking to her. Her vision cleared, and she saw the truth no longer darkly. He would never forgive though she beg with the pleadings of an anguished heart. She had taken upon her her cross, when for wealth and what it would bring she had given up the priceless things it could not bring.

The years stretched desolate before her; she seemed to be looking down a vista of unending twilight; then again, softly insistent, came his words:—"It is the mountain path that leads to the sunrise!"

"Sunrise!" She started and clasped her hands. Yes—she would take the mountain path—the path of sacrifice and patient suffering for the sake of another. At the end would be the Sunrise—and he there!

She buried her face in the downy robe that covered the sleeping girl, and the last bitterness went from her heart with her wistful, sobbing cry: "Richard, Richard! I hear! I will bear my cross!"

#### TO A LITTLE DRESSMAKER.

BY ALONZO RICE.

This book will tell you how to make  
And fashion dolly's clothes,  
So she a walk or drive can take  
In finest furbelows.

The fashion changes; best decide  
She surely knows all that,  
And will expect at Easter-tide  
A dainty Easter hat.

Remember youth's the time to learn  
Good manners to the young;  
So teach her to speak proper, Fern,  
Or else to hold her tongue.

And these directions follow quick  
In springtime or in fall:  
When peevish rap her with a stick;  
When chilly with a shawl.

And mind her health! I miss my guess,  
You'll worry quite a bit  
To find, when you have made her dress,  
That she has a bad "fit!"

#### LITTLE FARM FABLES.

BY AUNT QUILLIA.

A Clever Doft.

A boiling-pot hanging in an old-fashioned fire place once kept a housewife so busy pouring in water that, quite exhausted, she at last sat down to rest, whereupon it began saying that when steam escaped in such quantities that it was a sure sign of rain, and advised her to get in a rack of apples that she had set out to dry in the sun.

"Yes, rain is coming," chirped red-breast from a tree near the window, "not because the pot says so but because the robins had a grand concert last evening, and it is an old saying that when robins sing at sundown it is a sign of rain. Better see to your apples, Madam."

"What does a smutty old pot or a trifling bird know about the weather?" quoth Tretoad who had hopped up from his vine over the spring-house. "I not only predict storms but I make discoveries. My last is that thunder will sour milk. A thunder-shower is brewing, good wife. Attend to your apples at once and if you have any use for sweet cream you should skim your milk."

Just here a straw that had blown in from the barnyard whimpered: "I am the only true meteorologist among you. I study the currents of air as well as the clouds, and it has passed into a proverb that straws show which way the wind blows. It comes from the east this morning and a cold miserable storm is due. Never mind your milk, mistress, but don't neglect your apples."

A field mouse, hearing the controversy, now dropped in on his way to the meadow and put in a word. "It doesn't take much knowledge to foretell rain," squeaked he, "and any idiot knows which way the wind blows, but it takes a profound scientist to predict cold or heat for months ahead. I can read corn husks and they tell me that a severe winter is approaching. You will need those apples, Madam, when those in the cellar are frozen."

"Just so," confirmed a caterpillar crawling over the hearth. "As a scientist I am rated ahead of the field mouse, even." The dark streak on my back is so long and unbroken this fall that arctic weather will prevail. You will not only need those apples but as many more as you can dry."

Lastly a jackass thrust his head in at the door and startled all by a loud bray. "While nibbling the grass under the clothes-line," bawled he, "I heard all of your claims to wisdom and more than ever do I feel my ignorance. I know nothing of the laws that govern cold, heat, or the winds, and as for rain a hired man where I once lived said I didn't know enough to come in out of it. Another declared I never knew whether my place was the pasture or the parlor. As for the apples and milk I have no advice to offer."

"Ha! ha!" shrieked Poll, convulsed with laughter, "ha! ha! ha! The ass is the cleverest one among you. While listening to your foolish wrangling the mistress has allowed the pot to boil dry and spoil her dinner, whereas Jack has had a choice one on her apples and, finding the spring-house open, he has helped himself to the cream. Besides that, he has acknowledged his ignorance and established a claim to wisdom for, as the master was reading last night, 'An ignorant man who knows his ignorance knows a great deal.'"

Newed—"Did the grocer have the nerve to tell you these eggs were fresh?"

Mrs. Newed—"Yes, dear! I understood him to say they were right from the incubator."



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**The Marlin Firearms Co.,**  
127 Willow St., New Haven, Conn.



# Woman and Her Needs

## At Home and Elsewhere



### Some New Domestic Croquet.

By Geneva M. Sewell.

In these days of Irish, Macrame and Fillet crochet, everything is trimmed with some sort of crochet, from hats to hosiery. Many women are making money by doing crochet for others. Of course, there is a special thread for each sort of crochet, and each use it is to be put to, but for one's own use you may use any sort of thread you happen to fancy, as it is often difficult to get the special threads. If the article is to be made for sale it would be better to get the special thread from some large city store if your own home shop does not handle it and is disinclined to order it for you. Some pretty domestic crochet patterns follow:

#### Crochet Medallion.

Ch 6, close in a ring.

First row—Ch 2, put 35 dc in the ring, fasten with a slip st.

Second Row.—Ch 3, 1 dc in dc of last row, ch 2, skip 1, 2 dc in next 2 sts, repeat all around, fasten with slip st.

Third Row.—Ch 6, fasten back with slip st in 4th ch 1 dc, fasten in top of 2d dc, of last round, ch 3, fasten with slip st in top of dc just made, ch 4 fasten with slip st in 1st st of ch 4, \* 1 dc in top of next dc, 3 ch, fasten with slip st in top of dc just made, 1 dc in top of next dc, 3 ch fasten with slip st in top of dc just made, 4 ch fasten with slip st in 1st st of ch just made, \* repeat between \* clear around.

This Irish medallion can be used for trimming a waist, several may be fastened together into a collar, or for a bag, or they may be used for towels or pillow cases.

#### Diamond Fluted Lace.

Ch 30, turn.

First Row.—10 dc in 10 ch beginning at the 7th from the hook, ch 5, skip 5, fasten with slip st, ch 5, 5 dc in last 5 of chain 30.

Second Row.—3 ch, 4 dc in top of 3 dc of last row, ch 5, fasten in center of ch 5 of last row, ch 5, fasten in center of ch 5, ch 5, skip 1st dc and make 9 dc in top of 9 dc, 2 ch, 1 dc in top of 5 ch, turn.

Third Row.—5 ch, 8 dc in top of 8 dc ch 5 fasten in center of ch 5, ch 5, 5 dc in 5 dc, ch 5, fasten, ch 5, skip 1 dc, 5 dc in top of dc, turn.

Fourth Row.—3 ch, 4 dc in top of dc, 5 ch fasten in 5 ch, 5 ch fasten in 1st dc, 5 ch fasten in last dc, 5 ch fasten in

ch, fasten in last dc, 5 ch, fasten in 5 ch, 5 ch, skip 1 dc, 5 dc in dc, 2 ch, 1 dc in ch 5.

Seventh Row.—5 ch, 4 dc in dc, 5 ch, fasten in 5 ch, 5 dc around 5 ch, 5 ch fasten in 5 ch, 5 ch, 5 dc around 5 ch of last row, 5 ch, fasten in 5 ch, 5 ch, skip 1 dc, 5 dc in dc, turn.

Eighth Row.—3 ch, 3 dc in dc, and 1 dc in ch, 5 ch, fasten in top of 1st dc, 5 ch, fasten in last dc, 5 ch, fasten in 5 ch, 5 ch, fasten in 1st dc, 5 ch, fasten in last dc, 5 ch, fasten in 5 ch, 5 ch, 1 dc in ch and 4 dc in dc, 2 ch, 1 dc in 5 ch, turn.

Ninth Row.—5 ch, 6 dc in dc and ch, 5 ch, fasten in 5 ch, 5 ch, 5 dc, fasten around 5 ch, 5 ch, fasten in 5 ch, 5 ch, 5 dc around 5 ch, 5 ch, 5 dc in ch and dc, turn.

Tenth Row.—3 ch, 4 dc in dc and ch, 5 ch, fasten in 1st dc, 5 ch, fasten in last dc, 5 ch fasten in 1st dc, 5 ch fasten in last dc, 5 ch, 7 dc in 1 ch and dc, turn.

Eleventh Row.—5 ch, 8 dc in dc and

5 dc on dc and ch, 5 ch, fasten in center of 5 dc, 3 5 ch, fasten in 5 ch, \* repeat twice, 2 ch, 1 dc in end st.

Third Row.—7 ch, fasten in 5 ch, \* 5 ch, fasten in 5 ch \*, repeat, 5 ch, 5 dc, 5 ch, 6 dc, turn.

Fourth Row.—3 ch, 8 dc, 5 ch, 5 dc, \* 5 ch, fasten in 5 ch \*, repeat twice, 2 ch 1 dc in end st.

Fifth Row.—7 ch, fasten, 5 ch, fasten, 5 ch, 5 dc, 5 ch, 10 dc.

Sixth Row.—3 ch, 12 dc, 5 ch, 5 dc, 5 ch, fasten, 5 ch, fasten, 2 ch, 1 dc in end st, turn.

Seventh Row.—7 ch fasten, 5 ch, fasten, 5 ch, skip 2 dc, 5 dc, 5 ch, skip 2 dc, 10 dc, turn.

Eighth Row.—3 ch, 8 dc, 5 ch, 5 dc, \*

5 ch, fasten \*, repeat twice, 2 ch, 1 dc in end st, turn.

Ninth Row.—7 ch, fasten, \* 5 ch, fasten \*, repeat, 5 ch, 5 dc, 5 ch, 4 dc, and then turn.

Tenth Row.—3 ch, 1 dc, 5 ch, 5 dc, \* 5 ch, fasten \*, repeat 3 times 2 ch, 1 dc in end st.

Eleventh Row.—7 ch, fasten, \* 5 ch, fasten \*, repeat, 5 ch, 5 dc, 5 ch, 4 dc, turn.

Repeat from second row.

When the lace is long enough put the edge on by fastening the thread at one end, \* 1 sc, 1 dc, 1 tr, 1 dc, 1 sc, in the 3 ch at the end, fastening with slip st between each scallop \*. Repeat for the whole length of the lace.

### When You Select Your Hat.

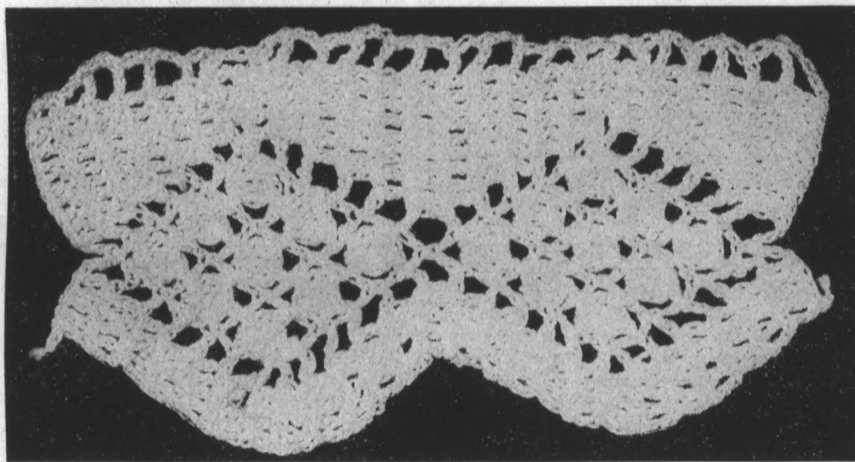
VARIOUS stories have been advanced as the motive which prompted Burns to pen those immortal words, "O, wad some power the giftie gie us, To see ourself as ithers see us,"

and many of the yarns seem plausible enough. But I have a theory all my own which I feel sure is the right one. Burns

hat. They suggest youthful, cherubic countenances. Yet how often we see a tired, faded, listless face, surmounted by a hat with a turned-up brim. And to further accentuate the plainness of the face, the hat is not infrequently pushed far back on the head. If the same woman wore a small hat which fitted closely down to her head, and then took time to pull her hair out in soft fluffs about her face, it would take off 15 years from her looks.

Remember, too, that small hats are best for small women, and large hats for large women. The woman with a small, pinched face may just dote on picture hats, but they are not for her. Beneath them her face looks smaller and thinner. Let her choose a small hat, and rely on the color and trimming to make it attractive. Huge hats with large brims are only for the girl who is large enough to complete the picture.

The hats this season are unusually sensible, and there is no reason why everyone should not be well suited. There are multitudes of tailored hats in fancy braids and crepe for early wear, and fine straws in every shape and color for the real summer wear. Melrose, that beautiful tint of red which made its appearance in the winter, is much in evidence in the fine straws, and if the under side of the brim is faced with black velvet, or some other good complementary color, every woman with a fresh face ought to be



Diamond Fluted Lace.

5 ch, 5 ch, fasten in 5 ch, 5 ch, 5 dc around 5 ch, 5 ch, fasten in 5 ch, 5 ch, 5 dc in ch and dc.

Twelfth Row.—3 ch, 4 dc in dc and ch, 5 ch, fasten in 1st dc, 5 ch, fasten in last dc, 5 ch, 9 dc in ch and dc, 2 ch, 1 dc in 5 ch.

Repeat from first row.

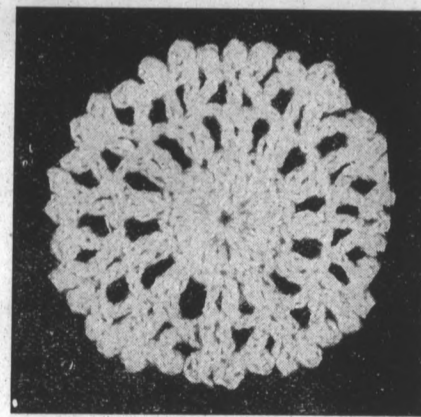
This is a beautiful lace for any pur-

penned those words after he had been to a millinery store with his wife to help her select a hat!

For if there is one place more than another where a woman needs to see herself in the right perspective and fails it is when picking out a hat. Otherwise our eyes would not be pained by the sights we witness when women are out on dress parade in all the glory of recently acquired headgear. Such monstrosities as some women purchase could only be selected by a woman totally blind to what she really looks like with the thing on her head.

Her hat, every woman will tell you, is the hardest thing she has to pick out. A dress or a suit doesn't give her half the bother, she can almost always quickly pick out something she likes and that is becoming. But when it comes to a chapeaux, there's the rub. Color, shape, material, trimming, not to mention price, must all be considered, so it is no wonder the average woman is bewildered.

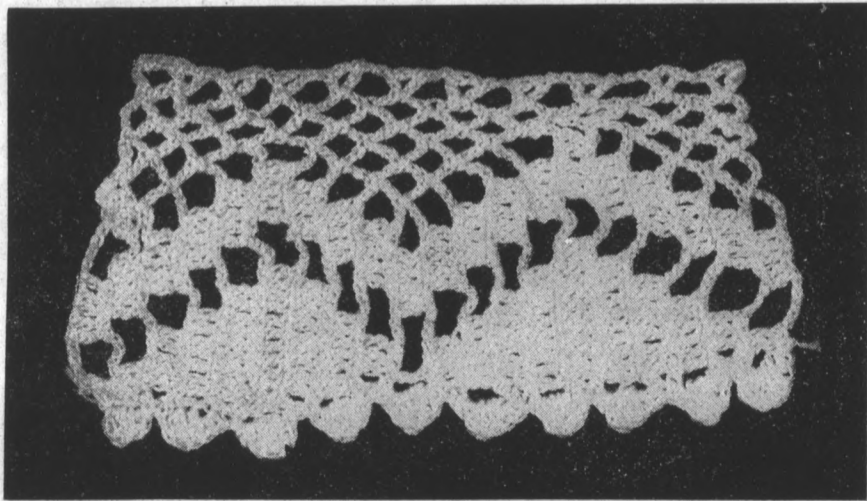
Let the woman who is going to buy a hat think well on this. Her hat and hair are the frame for a picture, her face. In her face her eyes are the determining factor. Nature usually is kind enough to see that her hair and eyes go well together, and when selecting her hat she must carry out nature's plan and see that the hat does not war with the color scheme. Then, as the hat is to be a frame, let her consider that a frame which fits well about the face is far more apt to be becoming than one which flares back from it. A hat with a brim turning off the face is rarely becoming to anyone, while one that fits down snugly, even shades the face a bit on one side, at least, can be worn by nearly every woman. Turned-up brims are only for those whose face is prettier than the



Crochet Medallion.

able to wear it. There are black straws, too, in Milan, chip and hemp, though the clerks say black will not be as good as it has been. Navy blues are good, and browns in every shade. A beautiful color for the woman who can stand it is the new dove gray. This has a hint of lavender, and is just the color of the gray dove's feathers. To wear it, though, a woman needs some color of her own. Let the fallow, faded woman beware of it. It is the ideal color for the old lady with fresh cheeks and ought to be extremely popular with them.

Tams in straw are very good, and many are shown in black straw, with folds of ribbon about the band and one of those bows which stick out at the side like a shaving brush. Green, blue and



Torchon Lace.

5 ch, 5 ch skip 1st dc, 7 dc in top of 7 pose. If insertion is wished, make both edges like the top one.

Fifth Row.—5 ch, 6 dc in dc, 5 ch, fasten in 5 ch, 5 ch, 5 dc around 5 ch, 5 ch fasten in 5 ch, 5 ch, 5 dc around 5 ch, 5 ch fasten in 5 ch, 5 ch, skip 1st dc, 5 dc in dc, turn.

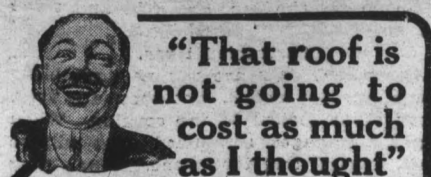
Sixth Row.—3 ch, 4 dc in dc, 5 ch, fasten in 5 ch, 5 ch, fasten in 1st dc of last row, 5 ch, fasten in last dc, 5 ch, fasten in 5 ch, 5 ch, fasten in 1st dc, 5 last row and 2 on 5 ch, 5 ch, skip 2 dc,

#### Torchon Lace.

Chain 40.

First Row.—Turn, fasten in 10th ch with slip st, 5 ch, fasten in 5th beyond, 5 ch, fasten in 5th beyond, 3 ch, 5 dc in 3 d \* beyond, 5 ch, 5 dc in next 5 ch, 5 ch, 2 dc in last st of ch, turn.

Second Row.—3 ch, 4 dc 9 2 on dc of last row and 2 on 5 ch, 5 ch, skip 2 dc,



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Melrose ribbon are much used in trimming the tams. Melrose appears in everything, ribbons, feathers, velvet and straw, and one can scarcely turn without seeing a touch of it. In most cases it adds to the hat, but when a milliner combines it with purple, American Beauty and green, as some of them do, the effect is nothing short of savage.

A mode of trimming which is extremely popular and most unbecoming to 99 out of 100 women is that which sticks a feather, bunch of tips, aigrette, or "question mark," as one girl put it, straight up in front of the hat. There are few women who can stand it to have a feather ten inches high waving above their head straight in a line with their nose. Yet because it is "the thing," multitudes of women are letting the milliners make them look ridiculous. The style is not pretty nor is it becoming, so why women accept it is beyond me. One hat that I saw was shaped like the ships you see in pictures in ancient history. The front of the hat ran up to a point like the prow of one of those old

boats, and was in fancy braid which actually suggested one of those old heads which in ye olden times adorned the prow of the boat. Waving above this sharp point was a single lone feather. Nine chances to one that hat will be bought by a woman with a sharp nose.

The Bulgarian silks, so popular in dress accessories and for waists, will be much used in hats. Many smart hats have crowns of the silk draped with chiffon or net to tone down the bright colors. Bulgarian silk is also used in bands, and bows on straw hats, and livens up many an otherwise plain chapeaux.

Milans are very good, and there is no better investment than in a good white Milan. The initial cost of the hat is heavy, perhaps, from \$7.50 up to \$15 and more. But when you stop to consider what you can do with it, \$10 or \$12 in a white Milan is cheap. You can wear it one season, then have it cleaned and reshaped for a second. Then dyed black for a third, reshaped for a fourth, and, if you want, have it dyed another color a fifth season.

## Modern Methods In Teaching.

THERE has been considerable scepticism in one household in Michigan about the beauties of the new method of education. Father and I learned our lessons in the old school, conducted strictly on the principle, "There is no royal road to learning." No teacher ever played games with us during school hours, or let us play games with each other. There was no talk about the "little letter that grew up into a big letter," nor a picture of a rabbit drawn to help us remember the word. The alphabet was the alphabet, a thing to be learned, not played with, and we learned the names of the letters by the painful process, "A" was "A," not "ah," nor was "L" "ull." In short, there were "no flowery beds of ease" for us during school days, and we looked with considerable disfavor on the new method of making study play.

In February the six-year-old started to "really" school, having got beyond kindergarten age. In a week's time he came proudly home to tell us he had learned "walk" and "run" and "jump" and "put." The family gathered proudly round while father wrote, "Walk to the table and put the book on it," and then asked son to point out "walk" and "put." A blank expression came over the small face, but he was game. After studying the board for several minutes he pointed to "table" and said "walk." Consternation! After two more attempts he broke forth into howls and declared that father didn't make 'em like teacher. Then father printed the words, and confusion was ten times confounded. Printing was worse than writing. Father finally gave up in despair.

A day's visit to the school cleared away many things about the method. First I learned that the teachers do not choose this way of teaching because it is easier for them. No farmer's wife with threshers coming tomorrow and the washing for a family of six to do today, worked harder than that first grade teacher did from 8:30 to 11:30. If you do not believe it just try some day to teach 50 children something and not tire them of it. Every 15 minutes the work was changed. Can you think of enough things for children to do to change their task every 15 minutes? Yet our teachers are expected to do this so that the small children will not become restless and dull.

The reading lesson was the point of interest to me. "The boy can walk," "The rabbit can hop," "The dog can run," were the sentences. Any ordinarily bright child could remember those sentences with once hearing them. And most of those youngsters were bright enough for that.

"Who can read the first story?" asked teacher. Up hopped three or four little girls, hands waving and feet prancing. Girls are always precocious. One young miss with perky brows read the story proudly, and after that of course the rest could read it if they listened. Be it said to the credit of the method, they all listened. The lesson was interesting enough to hold them. Other stories were read in turn and then the kiddies were all lined up around the room.

"Now I'm going to write a word on the board, and you do what I write," said teacher. Down went the word "walk," and the half dozen who had grasped the work started moving. Of course the rest followed. I should like to believe that they all knew it, but I can't. Most of

them looked too bewildered until the ones behind began to shove. "Stop," said teacher, and the line halted. "Run," was the next written command, and the faithful half dozen started the column on a little canter. So it went on, until the end of 15 minutes, when the children went to their seats and the other section were called for their reading lesson. Like the famous Dicken's school, "Dotheboys Hall," the youngsters first learned the word, then went and did it. It wasn't the way I was taught, but I believe it will be just as successful, and it's a lot more fun for the children.

Other "stories" were written on the board and the children requested to point out the words they knew. Sometimes they were allowed to draw lines under them, sometimes to erase them altogether. There was constant change so that they never lost interest as the poor victims did when we were little and had to sit and look at the same stupid old letter for hours and hours and days and days, or so it seemed to us. The alphabet was taught by giving the sound of the letter, not the name, so that the child is able to pronounce the word because he knows how the letters sound.

A device for impressing the looks of the letters on the childish mind was most diverting to them. The teacher drew a large circle on the board and marked it in sections and told the children she was going to give them some pie. In each section she printed and wrote a letter, the sound of which they were supposed to know. Then the children were given turns at the board to "eat a piece of pie," which they did by erasing a section. Then they had to tell the name of the pie they erased, and if they failed, teacher asked if they couldn't tell at home whether they ate apple or berry pie. Only one or two failed to give correctly the name of his "pie." On the board she then printed three letters, giving the sound, and passed to the children boxes of cut out letters. She told the children to pick out all the letters like those they could find, and at the end of ten minutes all but two or three of the 50 children had found the letters.

In between, to rest the kiddies, there were breathing exercises, bean bag, stories told or read by the teacher, and one or two told by the children themselves, and, of course, there was recess. There was no lack of interest on the part of the children, except in the case of one or two hopelessly dull, and no question of discipline. The children were busy and happy, and had no time to be in mischief.

But the teacher! She confessed when it was over that she was tired, and she really seemed ashamed of it. One convert to the new idea she had made that morning. The children are learning unconsciously to read, learning by constant repetition, but it is repetition broken by merciful spells of rest. Every generation does better than the one before. We think we know more about cooking than our mothers, our husbands are better farmers, our doctors know more of medicine than their predecessors. We are willing to grant these things. It is only in school that we resent these advances. What did for us is good enough for our children, we argue. However, if childhood can be made a little sweeter for our children than it was for us, and that without detriment to their schooling, let us be glad.

DEBORAH.

## IN A SHADOW

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"No end of sleepless nights—would have spells at night when my right side would get numb and tingle like a thousand needles were pricking my flesh. At times I could hardly put my tongue out of my mouth and my right eye and ear were affected.

"The doctors told me I was liable to become paralyzed at any time, so I was in constant dread. I took no end of medicine—all to no good.

"The doctors told me to quit using tea, but I thought I could not live without it—that it was my only stay. I had been a tea drinker for twenty-five years; was under the doctor's care for fifteen.

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## EDGING FOR A HANDKERCHIEF.

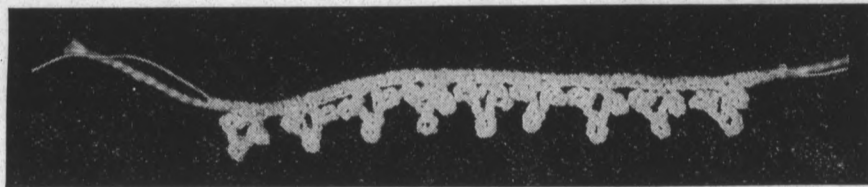
BY MAE Y. MAHAFFY.

A handkerchief made from fine linen, with a rolled hem finished with a crocheted edge like that shown in the illustration, provides one of the daintiest possible additions to the toilet. The work is done right over the rolled hem, with fine crochet cotton, the sample being made of coarser material simply that the details may be more distinct.

Single crochet four times over the rolled hem between each little leaf-like scallop. Each of these scallops is made in this manner: After making the fourth of the single crochets over the hem make one chain stitch. Then chain three more for a picot, and slip stitch into the one previously chained. Chain one stitch again, then chain three for the second picot, and slip stitch into the chain stitch. Again chain one, then three for a picot, and slip stitch into the chain stitch made

ing strange why this should be true, yet true it is.

Too great a degree of intimacy may lead to a rupture between the best of friends. Indeed, two friends of the same sex who become inseparable usually have a falling out sooner or later, particularly if they are women. Why women more than men? Do not ask me for I cannot say. I only know that women frequently do rupture such friendship by a quarrel, usually over some trifling matter, too. I know one instance where it was the baby of one of the parties which was the innocent cause of a most violent quarrel. The affair was after a while patched up and placed on an outwardly respectable basis but the original degree of friendliness could not be regained. The one who confessed to be the prime offender went to her friend and said, "Forgive and forget and henceforth let everything be as it was before my stupid blunder." Forgiveness was straightway



Handkerchief Edging.

before. This completes the trio of picots, and the single crocheting is again taken up over the hem, just where it was left off. This process is followed for the required distance.

By using somewhat heavier thread this edging will answer nicely for collars and cuffs, underwear, etc.

## THE FARM WOMAN'S SHARE IN IMPROVED AGRICULTURE.

Miss Bailey's talk at the recent Round-Up Institute presented the following points:

"Women were the first farmers, it being their duty to hoe the corn, gather the nuts and otherwise to prepare the food. Some of the primitive industries have now gone out of the home and the average woman is glad of it. In this age of specialization, such work as the laundry and baking have gone from the home and this gives women a chance to do some real work along the lines of investigation and study.

"In no walk of life is the work of a man and his wife so closely allied as that of the farmer and his wife. Their work is very closely related and the farm and home are inseparable.

"The agricultural colleges are doing their share for the farm women with their domestic science and home economics courses, but at present there is a need for short courses in home economics work. Is it any more essential for the boys to take short courses in general farming than that the girls be offered the same opportunities for instruction in household management? We now have traveling libraries containing books pertaining to rural women and their problems. Altogether the work of women is progressing and they are admitted to more occupations than formerly. There is now a new line of work being carried on, that of rural nursing. Many young women are now taking up this line of work. In the past, the custom has been for those who were studying for nurses to go to the city and do their work there but now they are coming back to the country, realizing that their services are needed there."

Some very interesting slides were thrown on the curtain, pertaining to Miss Bailey's investigations.

## FORGIVE AND FORGET.

BY ELLA E. ROCKWOOD.

It seems by some persons to be understood that forgiving and forgetting are one and the same thing. At least that is the attitude they assume when they confess to having said or done something which has wounded the heart of a friend.

"We may forgive fully and freely but no power on earth can blot out from our memory reflections stamped thereon. Indelible certain incidents, possibly light in themselves, are recorded there. The passage of years makes not the slightest difference. How, with the clearness of a lightning shaft they flash out as we recall them. Incidents of childhood long since passed away are as fresh as if it were yesterday. Others of more importance, less firmly fixed on the retina of the mind, are lost beyond recall. Pass-

ing strange why this should be true, yet true it is.

Too great a degree of intimacy may lead to a rupture between the best of friends. Indeed, two friends of the same sex who become inseparable usually have a falling out sooner or later, particularly if they are women. Why women more than men? Do not ask me for I cannot say. I only know that women frequently do rupture such friendship by a quarrel, usually over some trifling matter, too. I know one instance where it was the baby of one of the parties which was the innocent cause of a most violent quarrel. The affair was after a while patched up and placed on an outwardly respectable basis but the original degree of friendliness could not be regained. The one who confessed to be the prime offender went to her friend and said, "Forgive and forget and henceforth let everything be as it was before my stupid blunder." Forgiveness was straightway

oven to set the top, and fold and serve at once.

## Scrambled Eggs.

Scrambled eggs are not new combinations by any means, but they are very, very often spoiled in the cooking. When rightly managed scrambled eggs will be soft, creamy and toothsome. When they are wrongly managed they will be tough and stringy.

Allow for each egg a tablespoonful of milk, a speck of salt and pepper, and a small bit of butter, say one-half teaspoon to a teaspoon. Beat the eggs slightly, add the milk and salt and stir together. Melt the butter in a frying pan and turn in the mixture. Cook only till creamy, stirring very gently, only enough to cook evenly. Take from the fire before the eggs become set, and pour over squares of golden brown buttered toast, serve at once.

If in poaching eggs, a teaspoon of vinegar is added to the water, the flavor will be improved. Avoid rapid boiling in poaching eggs. Muffin rings can be set in the pan in which they are cooked and will improve the shape of the eggs.

## HOME QUERIES.

Household Editor:—Would like to know what to do with shoes when the sole cracks. Have tried setting them in a basin of water, and oiled them, and have also hammered some nails in them.—Mrs. J. J.

The soles undoubtedly crack because the leather is poor. Take them back and see if your merchant will not exchange them for better ones.

Household Editor:—Do you think a child is ever downright ugly and cross without some reason? I mean, is it just its nature to be cross. My little girl is unbearable sometimes.—Mother.

I do not think a perfectly well, normal child is cross. Healthy children are mischievous, but it is always good-natured mischief and a laugh is oftener on their lips than a whine. If your little girl is fretful, she is not well, and several things might be wrong. It may be indigestion, constipation, adenoids, catarrh, some ear trouble, or some other thing easily remedied. The most common cause of fretful children is wrong feeding. Give the child something to thoroughly cleanse the bowels, and then feed her a plain cereal and milk, eggs, good bread and butter, either brown or white, crackers, toast, rice, baked potatoes, bacon, beef and mutton. Avoid pork, pie, cake, rich puddings, etc. Plenty of milk and eggs may be allowed, and simple sweets, a little honey or jam, but not free access to candy. If this treatment does not make an improvement take her to a good doctor for a thorough examination.

Household Editor:—Can you suggest a change in diet for the spring months?—Cook.

One change which should be made now is to eliminate part of the fat. As the warm days are coming on the body does not require so much heat, and as fat is heat-making food it is well to reduce the amount. Of course we all long for "greens" at this time of year. If you are one of those fore-handed women who has a kitchen window garden where salad vegetables are grown, you can gratify this longing. If not, utilize our friend the apple. Serve it fried, baked, scalloped, in sauce, Brown Betty, with tapioca, and raw. Oranges, too, satisfy the craving for something fresh, and you can buy canned spinach, if your store can not supply fresh. In nearly every community, now, someone will have lettuce, and this makes a welcome change. Serve eggs at least once a day in place of meat.

Household Editor:—How can I clean aluminum ware which has become tarnished?—D. J.

The rule which comes with much of the ware is to boil one even tablespoonful of oxalic acid crystals in one quart of water in the dish.

## WHAT SHALL WE READ?

BY HILDA RICHMOND.

In these busy days people do not read books as they once did, and the cry now is for something short. Even the farmers and their families, who are popularly supposed to find time dragging on their hands all winter, scarcely know what it is to sit down by the fireside and enjoy a good book, for the country is getting to be almost as gay as the city, at least as the city used to be.

But there is still time for reading even during harvest, and most farmers take at least one agricultural weekly, one city daily, and the local newspaper, all of which are carefully and intelligently read. But these are not enough for various reasons, and the farmer who reads only

## EASTER EGGS.

BY E. J. LYNCH.

Of course, you can boil them or fry the Easter eggs as you do everyday eggs, but when there are so many other ways of cooking eggs why not try a few of them for a change? There are over 500 ways of cooking eggs and a new way once in a while is worth trying, especially about Easter time.

## Ox Eyes.

Take two slices of bread, one inch thick, cut in rounds and cut a circle about one and one-half inches in diameter out of the center with a sharp tin cutter; spread lightly with butter, place in well-buttered baking pan, break a fresh egg into each circle, put little bits of butter over the egg and season with salt and pepper. Moisten with a tablespoon of sweet cream or rich milk and put into the oven till the eggs are lightly set.

## Scalloped Eggs.

For each person take one egg, two tablespoons of cream, two tablespoons of bread crumbs, quarter teaspoon of salt. Mix the cream, breadcrumbs and salt. Butter an egg cup, put one-half the mixture in the cup, then the egg, cover with the remainder of the mixture, bake five or six minutes in a moderate oven. Bake in individual baking dishes if possible, and serve at once in the dish used for baking.

## Poached Eggs in Milk.

Take as many eggs as desired and allow about three-fourths of a cup of sweet milk, a speck of salt and a slice of toast cut in rounds, squares or triangles. Heat the milk. Add salt and drop egg, being careful not to break the yolk. Cook gently (do not boil), for five minutes. Have the bread toasted a golden brown and buttered. Place an egg carefully on each piece of toast; pour remainder of milk over, garnish with parsley and serve at once.

## Rice Omelet.

For each egg allow one-third cup of cold boiled rice, one-third cup of milk, one teaspoonful melted butter, and salt as needed. Warm the cold boiled rice in the milk and add the melted butter. Beat the yolk and whites of egg separately, stir the yolk into the other ingredients and last, fold in stiffly beaten whites; pour into a very hot, well-buttered frying pan, let it brown on the bottom for a few minutes, keeping it where it will not burn. Put it in the top of the



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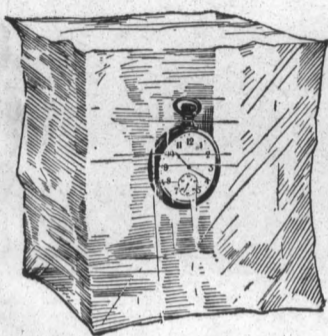
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these will soon find himself behind the times.

The ladies of the family need a good fashion or housekeeping journal while the whole family needs a religious paper, and in addition to these the farmer ought to be a student of books in his line. To be sure, he can not afford to read a book on strawberry culture if he has a dozen vines in his garden, however interesting and instructive the book may be, but he must know something of live stock if he is in the live stock business and of soil fertility and drainage if he is raising crops for market. And often the lack of such reading means a loss of dollars and cents to him, as well as a means of hurrying the boys from the farm.

So we need not only the newspapers and magazines interested in farming, but we need some books on this important subject as well. The whole family will be helped by reading a thoroughly good book on poultry, and a volume on landscape gardening will not only prove pleasant reading, but it will help the sale of the farm. A young man who had become interested in this kind of reading, bought a run-down farm and in his leisure moments began to lay out the grounds according to ideas absorbed from the fascinating book. As a result he sold the farm at a good profit and tried the same scheme all over again. Now he does it as a money-making venture, picking up a farm for a low price and by good taste and skill making it so attractive that he soon disposes of it at a handsome profit. That one volume was worth a little fortune to him because it interested him in a very pleasant and profitable life task.

When work presses very hard in the spring the papers and books should be placed in handy locations so that the resting time may be filled with pleasure. And there are always stormy days with hours of leisure so that no one need be ignorant. If anyone wants to read he will find time for it, and not only will he find time but his mind will develop and grow to such an extent that he can absorb ideas twice as quickly as his neighbor who does not believe in wasting time on reading. Truly, the farmer of the present must be a student if he is to keep abreast of the times, and there is no better way to begin than to invest in some good magazines and papers and books at once.

## SOME LAUNDRY HINTS.

BY MRS. F. NISEWANGER.

Half a cup of gasoline added to your boiler of water, when water is cold to prevent accident, will whiten clothes and make washing easier.

Paraffine, also, is good for this. Half a cup of it shaved, with a bar of laundry soap, into two quarts of water and dissolved, then added to the boiling water, will prove wonderfully cleansing to the clothes boiled in it.

To prevent any shade of blue fading, soak the cloth for a couple of hours in a pail of water to which an ounce of sugar of lead has been added. Dry thoroughly before washing and ironing.

A cup of salt in the rinse water will keep the clothes from freezing so stiff in very cold weather.

After the starch is made cover the vessel tightly and no scum will form.

To remove tar from clothing, cover the spot with lard. Let it soak in thoroughly, then pour boiling water on it. Wash as usual. Lard will also "cut" all kinds of machine grease and oil, but boiling water is not needed afterwards with these.

When ironing clothes, hang those that need no mending, not even a button, on one side of the bars and those that need mending on the other. It will save time and annoyance later when sorting the clothes for mending and putting away.

To prevent unused white clothes becoming yellow, starch them; and this in defiance of mother's and grandmother's warning that this very thing will make them yellow. Recently, upon bringing forth my own doll's clothes for my little girl to use, I found that the starched white garments were snowy white, and they had lain nearly 20 years, while the others were so yellow as to defy all attempts at bleaching. It is often very convenient to have some of the light dresses and white skirts laundered and all ready for use when the first warm, busy days of spring come.

An excellent home-made soap. Put one can of lye into a stone jar. Pour over it three pints of cold soft water and stir often until cold. To this add one-half cup ammonia, and fill cup up with wat-

er, one heaping tablespoon of pulverized borax and stir until dissolved. Then add five pounds of grease, melted and strained, and stir until like honey. Have ready a large dripper with cloth in it, over which put a greased paper, and pour the soap in it to set. It makes 21 cakes.

## RAISING ONE'S OWN PERFUMES.

BY CHARLOTTE BIRD.

With lavender we think of fine home-woven linens and choice laces, lovely silks and pretty handkerchiefs. It summons up colonial days with our grandmothers always busy but who yet had time to be sweet and dainty. The scent of lavender blossoms is so refined, so delightful, so delicate and yet so pervasive. In our American life, where it has been crowded out by less delicate scents, lavender is not as well known by any means as it deserves to be. But by refined English ladies it is still held in honorable esteem and constant use.

And there is no reason why we may not enjoy this perfume to our heart's content, because it is perfectly easy to raise in our own gardens. The seeds which are easily obtained from good florists should be sown about the time the apple trees are in bloom. They should be sown in a sheltered bed of prepared soil, whose surface has been sifted and made firm and level by being pressed down with a narrow board.

Then the bed should be covered with a sifted mixture of sand and leaf mould and again pressed down. Then water with a fine spray, after which cover with bits of moss to keep the ground moist till the seeds germinate. After the plants appear, keep the soil moist but not wet and protect from the sun and storm till the plants are strong enough to take care of themselves. Care must be taken not to sow the seeds too deep or they will not germinate. The plants will not bloom till the second season. It is in the small purple flowers that the perfume resides and these are used in the way of sachets.

Orris root makes another refined scent which we may all have for the trouble of raising it. What is known in commerce as orris root is the rhizome of Iris Florentina. The plant is a native of southern Europe and there it is cultivated.

In the spring the roots are taken up and divested of the brown skin and fibers and then dried. The plant is largely grown in and about Florence, Italy, and is exported from Leghorn in large casks.

At one time orris root was largely used as a medicine, especially, as a cathartic and an emetic. But at this time it is valued chiefly on account of its agreeable, violet-like perfume as given out in its dried form. It is brittle and easily pulverized and is popular as used in tooth powders. The oil is extracted by distillation and, greatly diluted with alcohol, is used as a perfume, for the violet perfume is pronounced and lasting.

Even as far north as Canada orris root is perfectly hardy. In May its rank growth bears profusely its large blue and white flowers and it is a fine addition to the garden. The roots are easily obtained. They should be planted in the spring or fall and they make a very rapid growth into a beautiful cluster.

They like a damp, rich soil and they should be set about 18 inches apart. To keep in good condition the clusters of roots should be divided and reset every two or three years. To bring into use, the roots, of course, must be dried and then pulverized, all of which is quite easy for the amateur. Orris is almost or quite as delightful as lavender, though not so rich with endearing associations.

## BOOK NOTICES.

Aus Vergangener Zeit. Edited by Arnold Werner-Spanhoofd, Director of German, High Schools, Washington, D. C. A collection of 30 sketches, describing the great events, the religion, and life of the Germans from the time of Tacitus to the present day. Cloth, 16mo, 278 pages, illustrated, with notes, conversational questions and vocabulary. Price, 50c. American Book Co., Chicago.

Hannah of Kentucky. By James Otis. This supplementary reader for the third, fourth and fifth grades tells of the adventures of a little girl in the migration from North Carolina to Kentucky, and of the settlement of Boonesborough. Cloth, 12mo, 149 pages with illustrations. Price, 35c. American Book Co., Chicago.

Schrakamp's Deutsche Heimat. Edited by Josefa Schrakamp. This work gives in short compass, and simply, a general survey of the German nation, which will be of value to the student in his subsequent reading. Cloth, 16mo, 404 pages, illustrated; with notes, conversational questions, and vocabulary. Price, 80c. American Book Co., Chicago.

## THE PHILIPPINES.

(Continued from page 378).

pomelos are found, while mangosteans and durians grow only in Mindanao and the Sulu Archipelago.

## Stock Raising.

Stock raising was an important industry in Spanish times but the number of domestic animals at present is comparatively small. There are immense grazing tracts where grass grows almost continually throughout the year, the area of which is estimated at 48,000 square miles. The carabao (water buffalo), the draft animal of the islands, is slow but strong and he can go almost anywhere in the mud and across the streams; over 10,000 are imported annually. The neat cattle are principally the red cattle from China, and a black-and-white variety imported by the Spaniards. The horses are of the pony type, from Sulu and China in the southern islands, while in the north most of them are of the mustang class from Mexico. A few well-fed hogs are raised in the provinces near Manila and shipped to its market. Goats, sheep and poultry receive little or no attention, and no attention is given to breeding. Soon after American occupation, rinderpest, surra, and foot-and-mouth disease became rampant among the domestic animals, and stock raisers and farmers suffered great losses. Quarantine stations have been established at Manila, Iloilo and Cebu; very stringent laws and regulations regarding the importation of cattle have been adopted; efforts are being made to introduce cattle from India and other countries that are immune to these diseases. The imports of cattle, meat and dairy products amount to about \$8,600,000 annually.

## Agricultural Bank.

The Agricultural Bank of the Philippines was created by the Philippine Legislature June 18, 1908, to enable the farmers to borrow money at a reasonable rate of interest for the purpose of redeeming lands from present incumbrances, to construct drainage works, irrigation ditches and dams, to buy fertilizers, seeds, farm machinery and work animals; in return the bank is required to take first mortgages on urban property, agricultural land, or gathered and stored crops. The bank was opened October 1, 1908, with a capital of \$500,000; however, as many of the Spanish surveys and titles were inaccurate, and many of the farmers have only squatter or prescriptive rights to their lands, about 80 per cent of the applications for loans have been denied. The land is now being re-surveyed and the expense divided between the owners, the municipalities and the Insular government. As fast as this work is completed the farmers are given true titles to their lands.

## "Dios Cuidado."

"Dios cuidado" (God take care of it) is a common Filipino saying which epitomizes the attitude of the common people in many things toward what seems to them extraordinary concern regarding the blessings of Providence. The farmer looks upon it as his duty to plant the seed and harvest whatever crop is given. If it is a good one he says, "Buena suerte," or I have good luck; if a poor one, he shrugs his shoulders, throws up his hands and says, "Mala suerte," or I have bad luck. He can not understand the necessity of studying the conditions under which plants thrive and then complying with them; it is almost beyond him to observe and keep exact data. While the soil is naturally rich, containing decayed volcanic and vegetable matter and alluvium carried by the streams to the lowlands, abundant rainfall and rapid decay are important items which the farmer must bear in mind when planting, cultivating and harvesting his crops. The labor problem is an important one, as it is out of the question for Americans or Europeans to undertake progressive methods of agriculture without first learning to get on with and handle Filipino laborers; failing in this they fail in all. The Chinese are the most efficient laborers, but notwithstanding they are in Asiatic territory the United States exclusion laws are applied and they are not allowed to come in, even in limited numbers or for limited periods, thus making natural conditions more difficult. There are no drainage systems of any importance, but there are many very crude irrigation work, especially in Luzon. The water of many rivers which, at comparatively little expense, could be used to irrigate hundreds of thousands of acres, is now going to waste. One-crop farming is a great drawback to the agricultural progress of the country; in the great hemp, sugar,

coconut and tobacco districts the farmers rarely raise more than one crop; if they have a good one they buy their rice, corn and sugar, and if a poor one the hacendero borrows and gets on the best he can while his dependents starve. American agricultural machinery has been exhibited and some has been sold, but much of it is not adapted to the lands in the Islands, and such of it as is requires a higher standard of intelligence to operate it successfully than that of the average Filipino farm hand or hacendero. In comparing the Philippines, Porto Rico and Hawaii the Governor-General has stated that in 1907 Porto Rico produced six times as much, and Hawaii 36 times as much per capita as the Philippines. He explained that Hawaii has abundance of capital, employs modern methods of cultivation and manufacture, and modern facilities for transportation.

## Carnivals and Expositions.

One of the most important efforts for stimulating agricultural development has been the Philippine carnivals and expositions; they have attracted the attention of all parts of the Far East; Japan, China and the Dutch East Indies have participated in them; recently fairs or expositions have been held in Zamboanga, Iloilo, Negros, Cebu and other provinces which have inspired a competitive spirit among the agriculturists and created a friendly interest in the Philippines by the other nations.

Note.—Readers can rarely mispronounce Filipino names if they allow one vowel to each syllable and give a the sound in father, and sound j and g the same as h.—The Author.

## FARMERS' INSTITUTES IN MICHIGAN'S UPPER PENINSULA.

Arrangements have been made for a number of combined Farmers' Institute and Grange meetings to be held in the Upper Peninsula during March and April.

Prof. Leo M. Geismar, of Marquette, in charge of the extension work of the Agricultural College in that part of the state, and Roswell G. Carr, superintendent of the State Experiment Station at Chatham, will attend these meetings as representatives of the Farmers' Institute Department of the Agricultural College, and W. F. Taylor, of Shelby, will be the speaker furnished by the State Grange. The meetings will be held as follows:

Chippewa Co., Stalwart, March 19; Pickford, March 20; Rosedale, March 21; Sault Ste. Marie, March 22; Brimley, March 24; Rudyard, March 25. Mackinac Co., Allenville, March 26. Luce Co., Newberry, March 27. Alger Co., Wetmore, March 28. Alger Co., County Grange, Chatham, March 29. Marquette Co., Marquette Normal School, March 29. Baraga Co., Baraga, March 31, (afternoon); L'Anse, (evening). Ontonagon Co., Ewen, April 1; Haight township, April 2. Gogebic Co., Ironwood, April 3. Iron Co., Iron River, April 5. Menominee Co., Daggett, April 8. Dickinson Co., Vulcan, April 9. Delta Co., Bark River, April 10. Schoolcraft Co., Manistique, April 11. A splendid program has been prepared for each place and the sessions will be open to all. Farmers and their families, in particular, are urged to attend.

## CATALOG NOTICES.

"It Skims while you Milk," is the legend on the title page of the art catalog published by the Standard Separator Co., of Milwaukee, Wis. In the catalog the Automatic Cream Separator manufactured by this company is fully illustrated and described. This is a "self-powered" machine, the bowl being driven by a gasoline engine mounted on the separator base. All mechanical details of this automatic machine are fully illustrated and described in this booklet, which will be sent to Michigan Farmer readers upon request.

Stewart Horse Clipping and Sheep Shearing Machines, manufactured by Chicago Flexible Shaft Co., Chicago, Ill., are fully described in catalog No. 40 just issued by that company. It is a 40-page booklet with many fine half-tone engravings illustrating in detail the several styles of machines built by this well known company.

Those who are interested in the type of low-down wide-tired farm wagons, or Saginaw Silos, should write the McClure Co., Saginaw, Mich., by which title the Farmers' Handy Wagon Co., of Saginaw, will be known in the future.

The Emerson-Brantingham Implement Co., of Rockford, Ill., illustrates and describes the Big Four farm tractor which, in the fine half-tone engraving is shown in action in the field, doing all kinds of farm work from plowing to seeding and threshing. Mention the Michigan Farmer when writing for this booklet.

Kitselman Fence, catalog No. 33, published by Kitselman Bros., Muncie, Ind., lists many sizes and types of the Kitselman Fence, fence machinery for field fence building, ornamental fences and gates, fencing tools, barbed wire, etc. Write for a copy of this catalog mentioning the Michigan Farmer.

"Why Horses Should be Clipped," is the title of a booklet published by the Chicago Flexible Shaft Co., Chicago, Ill. It contains contributions from 16 veterinary surgeons on this most timely topic. Mention the Michigan Farmer when writing for a copy.

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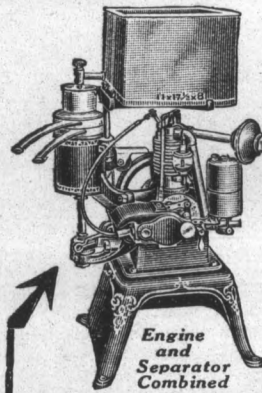
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# Making Bordeaux Mixture.

While the lime-sulphur sprays have substituted to quite an extent the old Bordeaux mixture, this latter preparation is a very important one to the farmer and fruit grower. It has been in use in the United States for over a quarter of a century, having been introduced in 1887 by the United States Department of Agriculture, and in that time through its variety of uses in keeping fungus diseases in check it has won its way into the general culture scheme of growers of fruits and vegetables so that it will be displaced with difficulty by other sprays that may even be better adapted to the purpose than is Bordeaux.

As suggested above, Bordeaux mixture is used for fighting fungus diseases only. Insects are not affected at all when the trees or plants upon which they feed are sprayed with this mixture, but it is used in the fight against such fungous growths as apple scab, pear scab, leaf spots, mildews of grapes, grape rot, potato blight, bitter blight, cherry leaf, etc.

### What it Consists Of.

There are but three things used in the preparation of Bordeaux mixture; they are water, lime, and copper sulphate. The important constituent is copper sul-

phate. This chemical prevents the growth of spores of the different diseases mentioned. But copper sulphate itself has a caustic action and something must be used to overcome this or the foliage of the plants on which the preparation is used will be damaged, so the lime is employed to neutralize this action of the copper sulphate. Not only does the lime do this, but it also gives the mixture a sticky effect, which causes it to adhere more closely to the plant. The water is used to facilitate the distribution of the other elements. By diluting in water it is possible to distribute the materials evenly over the surface of the foliage and branches, and yet not have it so abundant in any place that damage will result.

### The Amounts to Use.

The proportion of these three elements required will vary with the purpose for which the preparation is to be used. The mixture is usually compounded by using four pounds of copper sulphate, four pounds of lime and 50 gallons of water, usually designated by the formula 4-4-50. This strength can be used on apples, cherries, pears and all kinds of plums except the Japanese varieties. For spraying potatoes for blight the strength is usually increased so as to use six pounds of copper sulphate, six pounds of lime and 50 gallons of water, being indicated by the formula 6-6-50. To reduce the russeting of apples which is frequently caused by using the Bordeaux too strong at the July and August sprayings, the strength is usually reduced to three pounds of copper sulphate, three pounds of lime and 50 gallons of water. For spraying Japanese plums the strength generally used is two pounds of copper sulphate, two pounds of lime and 50 gallons of water. From this it would appear important that the grower know to what use he intends putting the mixture when he is compounding it. The first combination mentioned above, is called the standard strength and whenever Bordeaux mixture is spoken of this formula is the one commonly meant.

### Equipment Needed and How to Mix Small Quantities.

The equipment required for mixing this material where only a small quantity is needed, as in the home orchard consisting of a few trees, can usually be provided from material at hand around the



The One-man Spraying Outfit of C. E. Rowley, of Ingham County.

average homestead. There will be required a 50-gallon barrel, two tubs that will hold at least 25 gallons, two wooden buckets and a long-handled wooden paddle for stirring the solution. On either side of the barrel place one of the tubs and in one of these pour 25 gallons of water. In this water dissolve four pounds of copper sulphate by suspending it in a coarse sack, watching that the chemical is entirely below the surface of the water. This will require from one to two hours to dissolve. (Should one be in a hurry the copper sulphate could first be placed in a bucket and covered with a quantity of warm water which would dissolve it in much less time, when it could then be transferred to the tub and diluted to 25 gallons with cold water). In the other tub slake four pounds of fresh stone lime. Do this carefully by adding a small amount of hot water frequently enough to keep the lime from burning and have it so that when the slaking is completed the material will be in the form of thick paste. In this condition it should be allowed to cool, when it should be diluted to 25 gallons with water. This is called milk of lime. Now the diluted copper sulphate solution and the

### How to Compound Large Quantities.

When commercial orchards are being treated, it is desirable to mix Bordeaux in such large quantities that the above method is not expedient, and the plan of using stock solutions is followed. This method avoids delay in reloading the spray tank and enables the grower to cover a much larger area of the orchard than would be possible by the above plan.

**Stock Solution of Lime.**—In order to follow this method it is essential to have a stock solution of lime and this should be prepared with some care. Weigh out 50 pounds of fresh stone lime and slake in a box or barrel. About eight gallons of water will be needed to start this action. Continually stir the lime while it is slaking and add water as needed from time to time to prevent the temperature becoming too high and burning the material. On the other hand too much water should not be used as it, too, will prevent a complete slaking of the lime. After this work is completely done and the lime is in the condition of a thick paste, it should be permitted to cool, as indicated above, where small quantities of Bordeaux are being made. When this lime is cold, if the slaking has been done in a box, it should be transferred to the stock solution barrel and sufficient water added to make 50 gallons. When this material is well mixed each gallon of solution will contain one pound of lime, which will enable one to get the proper proportion in his final mixture.

**Copper Sulphate Solution.**—A stock solution of copper sulphate is easily made. Take a 50-gallon barrel and fill it nearly full of water. Suspend in a coarse sack

50 pounds of copper sulphate so that it will be just immersed in the water. It will require several hours for this material to dissolve and when it is, add sufficient water to bring the total volume up to 50 gallons, which, when well stirred, will make each gallon of liquid hold one pound of the copper sulphate.

### Keeping the Solution.

Since these stock solutions are frequently held over from one spray time to another, it is important to note the exact quantity remaining at the end of each spraying in each of the containers, and this should be marked down so that when the materials are again used sufficient water can be added to each solution to make up for the evaporation that has occurred since the materials were last used. One can easily understand the necessity for doing this since by evaporation the strength of the two solutions would be increased. By adding an amount of water equal to that evaporated the solutions will continue to hold one pound of chemical to each gallon of water, making it possible to compound the Bordeaux accurately.

### Equipment for Making Large Batches.

To save labor and expedite the mixing operations certain equipment is necessary. Water should be supplied in ample quantities, either by an elevated tank or by some water pressure system. A platform should be provided with two levels, one from four to six feet higher than the other and the lowest sufficiently high so that the mixture can run by gravity from it into the spray tank. On the upper platform there should be two barrels for holding the stock solutions mentioned above and two other dilution tanks of a capacity not less than 100 gallons. There should also be room on this platform for the operator to work. On the lower platform there should be a mixing tank having a capacity equal to the spray tank being used. If the water supply is from an elevated tank that tank should be sufficiently high to deliver water into the dilution tank on the higher part of this platform, or if pressure system is provided the water should be of sufficient pressure to deliver the water at the same point. Another method of bringing the water up to the required level is to use a pump, many large growers using gasoline power for doing the work, and pump the water directly into the dilution tanks.

### The Process of Mixing.

Supposing, now, we desired to make 100 gallons of Bordeaux mixture after the 4-4-50 formula. According to the formula it would need eight gallons of stock solution of lime and eight gallons of stock solution of copper sulphate, since these amounts would contain eight pounds of lime and eight pounds of copper sulphate respectively. The eight gallons of milk of lime is placed in one of the dilution tanks and the eight gallons of copper sulphate in the other dilution tank. To each one of these mixtures is added 42 gallons of water. This will reduce both the milk of lime and the copper sulphate solutions to 50 gallons each. These materials can now be drawn off into the mixing tank below. To do this streams of equal size should be allowed to run from each of these dilution tanks through a brass wire strainer into the mixing tank. Here the material is held until the spray tank comes for its supply, when the finished Bordeaux is permitted to run directly from this mixing tank into the spray tank.

### Testing the Mixture.

Should there be present a too small amount of lime to overcome the caustic action of the copper sulphate damage is certain to result to the foliage sprayed, and it is therefore desirable to test the material to know whether it has been compounded properly. This is usually done by using ferrocyanide of potassium. Procure ten cents worth of this chemical from your druggist and dissolve in a pint of water. Take a sample of the Bordeaux mixture and drop a very little of the ferrocyanide of potassium into it. If a reddish brown color appears more lime is needed in the mixture. If, on the other hand, there is no discoloration caused by the addition of the ferrocyanide of potassium then there is sufficient lime and no damage will result from the use of the mixture.

### Use Wooden Vessels.

It is absolutely essential that wooden vessels be used in the compounding of this mixture. Where iron receptacles are employed they will be acted upon by the copper sulphate, which will not only spoil the vessels themselves, but will also render the chemical useless as a spray mixture. By using wooden tanks, wooden

buckets, and wooden containers, of all kinds, disappointment from the above source will be avoided. It is equally desirable, where it can be done, to have the hoops on the barrels and tanks of wood as the splashing of the copper sulphate solution upon these naturally corrodes them.

#### Conclusion.

In making this material the following points should be kept clearly in mind: That pure lime, free from air-slaked particles be employed; that the slaking be done thoroughly; that the mixing of the dilute solutions of the milk of lime and the copper sulphate be done carefully; that accurate weights and measurements be made, and finally, that the test be given in order that the operator may know that his work has been properly done.

#### HOW TO SPRAY APPLES.

From the results that we got from spraying apples during the past season a great many of us have, or ought to have, realized that we do not know how to spray. The poor results so general were usually due to two things, the lack of thoroughness, and not spraying at the right time. For any season these two things are important but they were emphasized by the peculiar season of 1912. The season, being wet and cold, encouraged the development of fungous diseases and, being cold, checked the development of the codling moth so that it did not appear until about two weeks after the normal time in the case of the second brood of the moth. The first brood was nearly a week late.

#### The First Spray.

In scale infected districts the annual application of lime-sulphur for scale is important and necessary. Even where it is not absolutely necessary the added invigoration and cleaning up that the trees get would make this dormant application profitable.

To get the most good out of this scale spray it should be applied in spring on days when it is not freezing. When the leaf buds are swelling is a very good time. When applied at this time the lime-sulphur, besides controlling the scale, does much good by killing the winter spores of scab and other fungous diseases.

#### The Second Spray.

The next spraying is principally important as a fungicide. But, even so, it will be profitable to add the poison to this spray. While we may spray for several seasons without the poison and get good results, we can never tell when the bud moth or the spring canker-worm will trouble us. If the summer strength of lime-sulphur is used at this time it will pay us to use the arsenate of lead with it for just the added fungicidal value we get out of the spray. Arsenate of lead has only very slight value as a fungicide but when added to the lime-sulphur will increase its value almost 50 per cent.

The spraying before the blossoms should be put on within ten days or two weeks before the blossoming time. Before that time the blossom clusters have not developed and spread out so as to make it possible to thoroughly cover the stems with spray. This covering of the blossom stems with spray material is important, as often we have a fungus which attacks the stems shortly after blossoming time and this will cause the dropping of well fertilized blossoms which would have otherwise developed into fruit.

#### The Third Spray.

The next application of spray is undoubtedly the most important one for the control of the insect pests of the apple. It is especially important in the control of the codling moth which is the greatest insect foe. A great many western people have found a thorough application at this time so efficient that they did not need to spray again that season for the codling moth. Conditions here, however, are different and, while this spraying controls the moth quite well, we have never found it quite efficient enough to neglect the sprayings.

About three-fourths of the first brood of the codling moth enter the apple at the blossom end. Therefore, it is very important to fill this blossom or calyx end with poison. To get the best results the spraying should be started when about one-half of the blossom petals have fallen. At this time practically all of the calyx cups are open. If we wait until about all of the petals are off many of the calyx cups of the earlier formed fruits will have closed and our spraying so far as those individual fruits are concerned will be of very little value.

#### The Fourth Spray.

Many authorities consider this next spraying mainly for its fungicidal value. It has, however, considerable value as an insecticide. Most all of the eggs of the codling moth are laid on the upper side of the leaves. These eggs do not hatch until about three or four weeks after blossoming time. The newly hatched worm will often feed a little on the foliage before it gets to the apple. Therefore, if we can have the foliage well covered with spray we will check the work before it gets to the fruit.

Our spray bulletins tell us that we should apply this spray about two weeks after the one put on at blossoming time. Usually this is the right time. Sometimes we have unusually cold weather for that time of the year when better results could be had if the spraying had not been done until three weeks after instead of two. The past season was one of these exceptions to the rule.

Regardless of how thoroughly the spraying at blossoming was done it is most essential to make this application to get the best results. At this time of the year there is so much growth and expansion of the foliage that there will be a lot of leaf surface which has no spray on and which ought to be covered to control either insect or fungous troubles.

#### The Fifth Spray.

The next and the last spraying is for the control of the second brood of the codling moth. The usual normal time for making this application is about the first of August. There are, however, such variations in the seasons that we have to use some method of determining more accurately, the proper time for each season to get the best results. Banding the trees and determining the time by the study of the habits of the codling moth is a simple and valuable method for this purpose. This will be explained in another article in the near future.

#### Lime-Sulphur a Good All-around Spray.

During the past few years lime-sulphur has firmly established itself as a worthy successor of Bordeaux mixture as a summer fungicide. Practically all of our best fruit growers are now using it. A few still have the inclination to use Bordeaux mixture before the blossoms and then use lime-sulphur for the other sprayings. We are just as likely to have Bordeaux injury (russetting of the fruit) from this one application before the blossoms as we are if we used it after. We may use it for several years without any apparent injury, but it is liable to appear in any season and do considerable damage. Tests have shown that lime-sulphur will give just as good results as Bordeaux when used at this time.

One to forty is the best strength of the commercial lime-sulphur to use for the summer sprayings, and one to eight or one to nine for the scale spray. Arsenate of lead is the only poison we can add safely to lime-sulphur. It is the most expensive poison in common use but it is worth its extra cost. Two pounds to 50 gallons of spray is sufficient for good results.

The combination of lime-sulphur and arsenate of lead increases the efficiency of both ingredients. For economy, efficiency, and ease of application we have nothing to equal it for spraying the apple. When lime-sulphur is used the fruit has greater glossiness and vastly better color than when Bordeaux mixture is the summer fungicide.

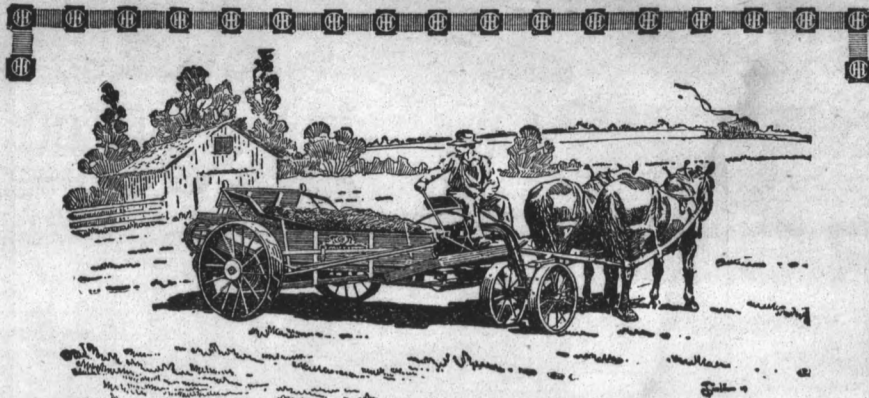
Van Buren Co. F. A. WILKEN.

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There is usually a choice in the manure produced about the farm buildings and when the manure is being put upon the land the husbandman who has the interest of the home garden at heart will see to it that the best of this manure, (that which has had chance to decay making the plant food contained in it quickly available for the plants and destroying the weed seeds that it might contain) is put upon the garden plot.

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### USING COAL ASHES ON CLAYEY LAND.

Is there any value in hard coal and soft coal ashes for heavy, clayey land? One has advised plowing them in to soften up the land. Would black raspberry bushes do well on such soil? In rainy weather it sometimes remains wet for several days and then again is very hard.

Shiawassee Co. SUBSCRIBER.

From the description given of this land we are of the opinion that it would be benefited by applying the coal ashes as suggested. The mechanical condition of this soil, it seems certain, would be improved since the coarse ashes would open up the soil to a freer action of the air, thus encouraging a more active bacterial life and consequently the more rapid preparation of plant food, and would increase its moisture holding capacity and also reduce the rate of evaporation of capillary moisture.

While black raspberries do best in a rich, deep, moist soil there may be a question on the advisability of planting the fruit in the inquirer's land because of the lack of proper drainage. If the land can be tilled to rapidly carry away surplus water, and if the clay is loosened up by the use of coal ashes and the addition of vegetable matter, then this soil should give satisfaction as a black raspberry plantation, providing of course, that proper cultural methods be followed.

### CULTIVATION OF THE SMALL FRUIT.

Cultivation of small fruit should immediately follow planting, and should be repeated at frequent intervals during the spring and summer. The appearance of weeds should not be waited for, as the cultivation is for the crop rather than for the destruction of weeds. In general it should be shallow rather than deep, though when the soil becomes hardened by the impact of heavy rainfall or the tramping of berry pickers the grower should not hesitate to break it up by running a sharp cultivator, or even a light one-horse plow, to the depth of three or four inches between the rows. If the soil is properly prepared and the cultivation regularly kept up, this tearing up will rarely be necessary except after the harvesting of a crop of fruit. Provided the soil is in condition to work, once a week is not too frequent for the shallow cultivation of the small fruits during the growing season, and during the July and August drought that frequently prevails the surface soil should rarely remain unstirred longer than four or five days. Toward the end of summer, particularly on rich and moist soils, cultivation of the bush fruits should be less frequent, and it should entirely cease some time before the first frosts occur. The use of the hoe in small-fruit plantations should be avoided as far as possible, but when needed hoeing should be promptly done. With land in good tilth and clean at the start, with fertilizers free from grass and weed seeds, the necessity of the hoe as formerly practiced is greatly reduced.

New York. T. A. TEFFT.

### FLOWER FOOD.

All plant life requires certain elements to flourish, and principal among those is nitrogen, phosphoric acid and potash, all of which are supplied naturally and in sufficient amounts for grass and trees, but not enough where the same crop is raised on a certain limited piece of ground.

Flowers are generally restricted to the house pots or the small beds out of doors, and the food elements are rapidly exhausted, with the result that the flowers are weak and small, the stems frail and the leaves of a pale color, all of which can be remedied by home-made fertilizers which, applied judiciously, will benefit all vegetation to which they are fed.

One of the very best preparations for the flower raiser is a mixture of bones and lye which, allowed to stand a few weeks will become converted into a jelly-like mass. This contains plant food elements, as nitrogen, potash, phosphoric acid and lime, and they are all available, that is, they will be taken by the plants in the form in which they are here found. To use this preparation, put about a tablespoonful into four or five quarts of water and use this to wet the earth, but it should be used with extreme caution, as too much will do harm by forcing plant growth. Once weekly will probably be enough.

If one does not care to go to the trouble to make the bone-mixture, super-

phosphate of lime and salt peter equal parts, ground and carefully-mixed, will furnish lime, nitrogen and phosphoric acid, while wood ashes will give potash and a teaspoonful of hartshorn, or ammonia to the water will give the ammonia.

All soil must have humus, and the best way to get this easily and quickly is to get leaf mold from the timber, the fine decayed leaves. This, mixed with common soil, will make it porous, a very necessary condition to plant life.

Iowa.

A. F. BONNEY.

### SPRING WORK IN THE STRAWBERRY BED.

In case a liberal winter mulch was supplied it will be necessary to loosen the material directly above the crowns of many of the plants, to permit the new leaves and the fruit buds to push up unobstructed, and this should be done as soon as there is any indication of growth in the plants. In this connection I will say that under certain conditions, plants will start growth more quickly under a mulch than without it. Under a condition of deeply frozen soil and heavy mulch, frost in the ground may be conserved and plant growth delayed; but with an unfrozen ground and a light mulch, heat from the sun will penetrate to the soil, imparting warmth thereto in no small measure, the mulch acting as a blanket to retain the heat during the night; but growth made under these conditions will not be normal. If the material is not too heavy, the new growth will work up through the mulch and, after a time, apparently recover in strength and vigor.

In loosening the mulching, it is best not to remove it from over the plant more than is necessary to admit light to the crown and permit the new leaves to grow up through it, for this mulch will render invaluable service as a moisture conserver, and, to possess the greatest efficiency, it should cover the entire surface and lie close to the ground as packed by snow, rain and time.

Notwithstanding all due vigilance and care in tillage and weeding during the active summer growth of the plants, the writer has always found it necessary to do a greater or less amount of spring weeding in the fruiting bed. Some of this noxious plant growth is introduced with the application of the mulch, but no matter how it gets there it must be removed if the grower does not wish to let these useless plants share with the strawberries in the sunshine, and moisture and plant food in the soil.

Treatment for fungous diseases, and insect pests should begin with spring growth, and continue till the appearance of bloom. This work has not been made a regular feature in strawberry growing to the extent that it has with tree fruits; however, conditions will change for the better, as growers come to understand more fully the nature of the plant and realize that it has enemies in the nature of fungous diseases and insect pests, and that it is highly profitable for the grower to assist nature in combating them.

Emmet Co.

M. N. EDGERTON.

### TO SAVE GIRDLED TREES.

While the method described is not new, it is well enough to remind fruit growers of a good thing. Mice and rabbits have been busy through the winter, and there may be young apple trees that have had every vestige of bark removed near the ground. If it has been only part way around, it will have a chance to heal over, but where no bark is left it will be necessary to bridge over the injured part with scions. To do this cut several smooth limbs or small shoots about the size of a lead pencil, before the sap begins to rise in the spring, and put them away where they will not freeze, but be kept moist. In early spring just before the buds begin to swell, take some of these scions and cut them a little longer than the wound on the tree. Trim each end in the form of a wedge, and after splitting the bark of the injured tree just above and below the wound push in the wedge ends of the scion and wax with grafting wax. A tree less than two inches in diameter will require two of these, one on each side, while larger trees will need three or more. When growth starts in the spring, these scions will carry the sap across the barked space, hence the name of bridge grafts. The bark will begin to grow from above and below, and will soon cover all exposed wood as well as the bridges, so that the injury will hardly be discerned.

Missouri.

H. F. GRINSTEAD.

# TIME TO SPRAY THE DIFFERENT FRUITS AND THE MATERIALS USED.

The spraying calendar, like Easter, is not absolutely fixed and unalterable, but, like Easter, can be definitely determined, and only by working strictly by the calendar can fruit growing be successfully carried on. The time was, and not so very long ago, when it was not unusual for men after their corn and potatoes were planted and there was a lull in the general farm work, to go out and spray their apple orchards once and imagine they had done all that was necessary in that line. And the next spring when the topic of spraying was mentioned they usually were ready to declare with a good deal of emphasis and some embellishments that "I sprayed last year and sprayed thorough, and I know that spraying don't amount to a d—n." From some observations I have been able to make it would appear that some men with orchards are not entirely beyond such a conception of spraying yet, after all that has been written and said on the subject.

## Spray Calendar for Peaches.

In the season's program the first to receive the spray are the peach orchards. The purpose of this is two-fold, to control the scale and the curl leaf, and the lime-sulphur solution is used at a strength of 1 to 9. We are particular to put this on during the first few warm days after snow has disappeared. The curl can only be controlled by applying the spray before any growth has taken place, and a few warm days, even in March, are enough to start the sap flowing so that spraying after that is not effective for the purpose. There is perhaps little danger so long as there is freezing nights, but a very few days when mercury rises to 70 during the day and does not go below 40 at night will be sufficient to go advance the buds that spraying after that will not hold the curl in check. The only subsequent spraying we give the peach is an application of self-boiled lime-sulphur when the little peaches are the size of peas and again about a month in advance of ripening. This is to control the "smut" and brown rot where either of these is feared. Should there be danger of curculio arsenate of lead may be added to the first of these.

## For Cherries.

The next to receive attention are the cherries. These are sprayed first with the lime-sulphur, winter strength, for the scale at any time before the buds start. Some advise another application of weak lime-sulphur or Bordeaux just before the blossoms open for rot and leaf spot on varieties susceptible to these diseases, but we have not found this necessary. The strong wash of lime-sulphur may be put on so near that time that we have not made another until after the petals have fallen. Just after blossoming a weak spray of lime-sulphur, 1 to 35 or 40, for rot and leaf spot, and with two pounds of arsenate of lead to 50 gallons of spray for curculio, is made. Where these diseases are bad it is well to repeat this same application two weeks later.

## For Pears.

The pears are sprayed the first time just about as the buds are swelling, using the strong lime-sulphur for the scale, and put on late like this it serves to destroy the pear psylla as well. We have even applied this spray when the leaves were out a quarter of an inch and no apparent injury resulted. The tips of the leaves were burned a little, but in a very short time this was not noticeable. It is of course, not advisable to wait so long, but where we have been caught and were a little late we put on the spray, and we should not hesitate to do so again, either with pears or apples. After the blossoms have fallen the pears are again sprayed with lime-sulphur, 1 to 45 or 50, and arsenate of lead two pounds to 50 gallons of spray. This is all the spraying we have found necessary on varieties that hold their leaves, but with Anjou and perhaps a few other kinds a fungus attacks the foliage causing it to fall, sometimes in September, and such are benefited with one or two subsequent sprayings at intervals of two weeks.

## For Apples.

Apples are sprayed first before growth starts with the strong lime-sulphur for scale. Just as the blossoms are "in the pink" they are again sprayed with the weak lime-sulphur, 1 to 35 or 40, for scab. We never have found it necessary to use an arsenate in this spray, though if there were canker worms in the orchards it would be wise to put in arsenate of lead. Within a week or ten

days at the longest another spraying is made the same as the former, only arsenate of lead is added. In making this, as well as the former, application, it is well to note that some varieties open their blossoms later than others, particularly Spies and Tallmans, and these should be sprayed a little later. This simply lengthens out the season a little, giving that much more time for the work. Two weeks later the apples are again sprayed with this same mixture. About August 1 they are again sprayed, this time with the usual amount of arsenate of lead for the later brood of codling moth. The season of scab is about over by this time, but as there may be some danger of its growth we always put in some lime-sulphur, about 1 to 50, as it costs but little, as long as the spraying must be done anyway.

## For Plums.

For plums the treatment is very similar to that of cherries, only it is well to use arsenate of lead for curculio just as the buds begin to swell. We always give the Lombards, Rein Claude and other varieties that are especially subject to shot-hole fungus an application of the dilute lime-sulphur about the first of July.

In all of the spraying operations some allowance must be made for weather vicissitudes, so it is well to commence as early as conditions of growth will permit. Where scale is at all abundant it is necessary to spray thoroughly on all sides of the trees, and this cannot always be done at one application, especially if the wind is blowing, while the trees are dormant. It is wise to begin in time, therefore, so that advantage may be taken of changes of the wind in order to cover the opposite sides of the trees. Again, some of the later sprayings must be done in a very short time and it is not wise to depend on winds from different directions. This is particularly the case with the spraying just before and after blossoming. At such times it is well to be provided with nozzles that carry well, and as the foliage is then sufficiently advanced to check the force of the wind somewhat, a more thorough job can be done while going over the trees but once.

Allegan Co. EDWARD HUTCHINS.

## CATALOG NOTICES.

"1913 Strawberries and Other Fruit Plants," is the title of the new catalog published by L. J. Farmer, Pulaski, N. Y.. In this book a number of specialties are listed which will be of interest to every commercial fruit grower.

The Year-Book of Stark Bros.' Nurseries and Orchards Co., of Louisiana, Mo., is a booklet of 64 pages, fully illustrating and describing a complete line of orchard fruit trees, small fruits and ornamental trees and shrubs. It also contains interesting information on how to plant and care for trees. Write for a copy, mentioning this paper.

The 1913 Catalog of the Griswold Seed Co., of Griswold, Neb., is an 80-page illustrated booklet, describing a full line of garden and flower seeds and ornamental shrubs as well as nursery stock and small fruits.

The 1913 catalog of the Peerless Fence Co., of Adrian, Mich., is a 72-page booklet illustrating and describing the many types and styles of fence manufactured by this company for as many different needs of the farm. In addition service gates, as well as ornamental gates and fencing, are listed, as well as fencing tools, barb wire, etc.

Stewart Sheep Shearing Machines, manufactured by the Chicago Flexible Shaft Co., La Salle avenue and Ontario street, Chicago, Ill., are fully illustrated and described in Catalog No. 44 issued by this company. This is an 80-page booklet showing the details of installation and running of sheep-shearing machines, as well as describing the machines themselves.

Catalog H, issued by Eureka Mower Co., Utica, N. Y., is a 40-page booklet illustrating and describing a full line of Eureka goods, including corn and potato planters, surface cultivators, harrows and other specialties, as well as the well-known Eureka Center Draft Mower. Mention the Michigan Farmer when writing for this catalog.

Newton Wagons for all purposes are fully illustrated and described in a 46-page catalog (No. 21), published by the Emerson-Brantingham Implement Co., of Rockford, Ill. This catalog is fully illustrated with fine half-tone engravings and all styles of wagons and wagon equipment are listed therein. Mention the Michigan Farmer when writing for same.

"Profitable Poultry and Egg Production," is the title of a complete catalog for 1913, just issued by the Cyphers Incubator Co., of Buffalo, N. Y. This is a large-size 244-page book illustrating and describing a complete line of incubators, brooders, poultry appliances, foods and standard supplies manufactured by this well known company. In addition it contains much information of value and is indexed for the convenience of users. When writing for a copy of this most complete catalog, mention the Michigan Farmer.

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Sired by Johanna Concordia Champion, whose sire's dam and dam's dam average 34.06 lbs. butter in 7 days, average fat 4.67%. Also cows and heifers bred to him. I can offer you bulls at bargain prices. Try me and see, and do it quick.

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Have for sale several fine young bulls out of cows with high official butter and milk records.

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WORLD RECORD STOCK, from \$75 to \$250. Augusta, (Kalamazoo Co.) Mich., F. S. Kenfield, Prop.

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**Holstein Friesian Cattle**—young bulls out of A. R. O. dams and sired by a bull with a 31 lb. dam. W. B. JONES, Oak Grove, Michigan.

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**Dairy Shorthorns**—Large Cattle—Heavy Milkers. Milk Records of all cows kept. No stock for sale at present. W. W. KNAPP, R. No. 4, Watervliet, Mich.

**Scotch Shorthorn Bulls and Heifers For Sale.** W. W. KNAPP, Howell, Michigan.

**2 YEARLING SHORTHORN BULLS** from good milking dams for sale. W. C. OSIUS, Hillsdale, Michigan.

# Farm Commerce.

## Observation on Co-operation.

Mr. Charles E. Bassett, of Allegan county, Michigan, who has made a very thorough study of co-operative companies for marketing fruit, both in the east and west and has worked out some very practical ideas on the subject, presented a very able address before the fruit growers at the recent Round-Up Institute. The following is a brief gist of his talk.

**How Shall we Market our Fruit?**

This is a very pertinent question and one of the leading issues of the day among farmers. The farmer is dissatisfied with the prices he has been accustomed to receiving for his products while, on the other hand, the consumer who lives in the city and small town, is equally dissatisfied, for he claims that the prices he pays for the products of the farm are exorbitant. In the past, the consumer has blamed the farmer for the present high prices but now, both the consumer and the farmer have awakened to the fact that the middleman is the one who is raising the price of products. A recent investigation by a committee appointed by the legislature of New York revealed the fact that out of every dollar paid to the merchant by the consumer, only 35 cents goes to the man who produced the food. Surely a co-operative company could eliminate this grievance for, by its selling direct to the consumer, nearly all of this extra 65 cents would be saved; the farmer would get a better price for his fruit while the consumer would get better fruit at a much reduced cost. The business of the co-operative fruit marketing association is to remove the useless middleman from the deal and force him to do something else. The question naturally arises, when is the middleman useless? If he has done anything to add to the market value of the fruit, such as sorting, packing, or polishing, then he is entitled to a fair compensation for his work, but the middleman who does nothing to advance the value of the fruit, excepting to hold it in his storehouse until the demand has become greater, is useless and should be eliminated.

**Requirements of Co-operative Companies.**

The main essential of the co-operative organization is to have its members bound by an iron-clad contract to give, all the fruit they produce, over to the company to be marketed by it. If the company is loosely organized, in such a year as the last when apples were plentiful, all the patrons will bring their fruit to be marketed by the company because the markets are poor, but in a year when the crop is small, the producer has no trouble in finding a ready market for his fruit and does not need the aid of the organization. It is then necessary to form a company with strong contracts between the individual growers and the company. In order to be a success, the fruit company must know that it has something to sell every year. In a recent case, one of the co-operative fruit marketing companies of Michigan had a call for a large order of fruit. At first they thought they would be able to get the fruit all right but later it developed that the contracts were weak and the members had marketed their fruit elsewhere, hence the order could not be filled.

Next to strong contracts and a good administrative board, the co-operative association must have a good manager, a man with a wide range of experience and possessing tact and ability to deal with men. A first-class manager cannot be had for a song and companies should not discriminate on a matter of a few dollars. One of the fruit selling companies of the west turned off their manager and procured the services of another man, simply because they could get him a few dollars cheaper. In the course of a season, the producers found that they would have been money ahead, had they retained their first manager at an advance of salary. All the individual members should give this manager their hearty support, if he is to give them his best services and have its work count for the most.

**Results of Co-operation.**

In general, the results of co-operative

efforts at fruit selling may be classified under three divisions, namely, the price of the fruit may be maintained, the company can establish confidence in its products which in turn will result in larger orders and an increase in production.

It is the business of all such concerns to watch the markets and see that they are not glutted. The reason for such low prices at times is not because there is an over production but rather that there is too much fruit on the market at one time. By careful observation a company can hold its products until a time when the markets are not full, when they will command reasonable prices. It should be distinctly understood that the purpose of such an organization is not to restrain trade and thus force up the price of the goods it handles but rather to increase the demand for its products which will indirectly increase production; to equalize distribution which will preserve a fairly uniform price; and to give the people who actually eat the fruit better quality at a much lower price than they have been accustomed to paying.

If a certain concern always has good reliable fruit to sell, and a label which aptly designates that fruit, it will not be long before it has the confidence of the consuming public. Even if the foreigners who buy the fruit cannot read the name, they can see the label and are not slow in finding out that that particular label always means "quality" fruit. Confidence in the company means that it will receive larger orders and this means that freight rates will be lower and that fruit cars will receive more attention by the railroad which is always glad to cater to companies who ship large amounts.

**A Grower Should Not Pack His Own Fruit.**

Whatever co-operative plan is used the company should insist upon it that no grower pack his own fruit, for shipment. There are few men who can overlook personal desire for gain to such an extent that enables them to make up a package of fruit in such a way that it will represent the quality of product for which the company must stand, if the organization is a success. The success of a co-operative fruit marketing association, or in fact, any other company organized on the co-operative plan, lies in the quality of the product which it offers to the buyer. It is necessary that every package which goes out under the name of the company should be carefully sized and packed, and should contain no fruit which is diseased or worm eaten. In order to be sure that all fruit will come up to the standard, it should be packed by packers who are hired by the company and are responsible only to the administrative committee. Of course, their pay will come out of the man for whom they are grading and packing the fruit, but it should not be in the grower's power to dismiss them if they throw out fruit which he thinks should be packed. The concern gives directions as to the grade of fruit it wants packed and then the packer is responsible to it and conforms to its rules, as far as is possible.

In order to be a success, a co-operative association must have strong contracts with the growers, an efficient central administration headed by a careful and competent manager, and every package must contain "quality" fruit and that kind of fruit only.

**MARKETING PROBLEM AGAIN.**

Many farmers with good apples to sell and willing to sell them at a reasonable price, have been unable to dispose of this fruit this winter. Thousands of consumers in the cities who like good apples and who are willing to pay a reasonable price are unable to obtain them. What is the trouble? A glance at the following figures may throw some light on this problem. A member of the faculty of the College of Agriculture, Ohio State University, desirous of obtaining some apples for demonstration work, went to a retailer in the city and was obliged to pay the following exorbitant prices for them: Delicious, 60 cents per dozen;

Spitzenburg, 50 cents; Rome Beauty, 40 cents; Jonathan, 35 cents; Grimes Golden, 25 cents. Very few of these were perfect, many being blemished by disease, bruise or storage scald, and some were so off color as to be hardly recognizable. With such conditions prevailing, it is not to be wondered at that fruit growers are complaining because of poor sales. People cannot pay such impossible prices and consequently apples are moving slowly. "There surely must be some means by which the grower and the consumer can get nearer each other," says this college man. "Certain communities have found a way out of their trouble and others will have to do so sooner or later. Co-operation is in the air and many are beginning to realize that some form is necessary if the farmer is to get his proper reward."

**OVERCOMING DIFFICULTIES IN THE PATH OF SUCCESSFUL CO-OPERATION.**

Ten years of successful co-operative effort in the handling and selling of fruit through associations in the different provinces of Canada has revealed certain impediments that at times threaten the very existence of these mutual institutions. Two obstacles have forced themselves upon the attention of the men having in charge the 86 co-operative fruit growers' associations of the Dominion. What these obstacles are and the usual methods of combatting them are outlined in a report of the Fruit Division of the Dominion Department of Agriculture as follows:

"For the last ten years, co-operative fruit selling associations have been organized in Ontario. The success of these associations has been beyond question since their first organization. Nevertheless, their growth and influence upon the apple industry had been comparatively slight until the seasons of 1909, 1910 and 1911. There were several reasons for this, chief of which was the lack of co-operative sentiment among fruit growers and farmers generally. The individualistic idea and mode of working had become so ingrained that any thought of working in groups was received with suspicion. In any particular farming neighborhood in Ontario, members of the community are of many nationalities and religions. The effect of this is to prevent a feeling of confidence without which there can be no real co-operation. This difference of nationalities and social instincts, so noticeable in farming communities, is an undoubted evil that stands seriously in the way of progress. There is no cure for it, except through the slow process of education. Any movement that will cause the people to work together for any purpose, no matter how trivial, will have its effect in helping to make the individual members of the community better acquainted with each other and will help to show that though there may be differences upon many points, the people generally are inclined to be fairly honest and public-spirited and anxious for the betterment of the community. Once this sentiment has gained a certain foothold, it will be possible to secure co-operative associations.

"Another serious obstacle, opposing the formation of co-operative associations, has been the efforts of a certain class of apple dealers, who have been making a living by standing between the fruit grower and the regular fruit merchants in the various markets. The effect of co-operation is undoubtedly to cut out these useless middlemen. These middlemen, however, do not relinquish their hold upon the trade without making a vigorous opposition, and in some cases they have succeeded in delaying the formation of co-operative associations, and in a few cases have disrupted them after they were formed. This particular opposition was strongly felt in Nova Scotia and consequently, the first co-operative associations there were formed and maintained under very great difficulties; and, had it not been for the public-spirited conduct of several pioneer co-operators in Nova Scotia, it is doubtful whether the local apple operators might not have permanently maintained their position. They had a strong hold upon the transportation and storage facilities, and their profits were large, so that the business was well worth fighting for. However, after a certain number of local associations had been formed, a central association was organized that proved altogether more than a match for all the opposing forces, and during 1910 and 1911 about twenty-three local societies were organized in that province."

# THE NOMID SYSTEM—A PLAN FOR DISTRIBUTING FARM PRODUCTS.

## Chapter VIII.—(Continued). Meats.

During the colder months of the year it is possible and profitable to send different kinds of meats direct to the consumer. One farmer has sent lamb, beef and pork direct to city parties 110 miles away. The consignments arrived in excellent condition and proved a great saving over the purchases made in the city markets. Of course, where the farmer holds much stock and disposes of a large amount at one time comparatively little attention could be given to a trade where small shipments are to be made, but with the majority of farmers this is not the case, and if one understands what margin can be secured over the prices that are being paid by the local stock buyers and butchers, he is likely to be encouraged to develop such a trade. The arrangement will consist in part in having stock to butcher at different times during the winter season. If he can plan to do this and has a half dozen families on his list he will be surprised how much of his offerings can be disposed of to them at prices that will amply pay for trouble and leave a good margin.

### Amounts Ordered.

The amounts of meat that can be sent depend, of course, entirely upon the consumer. There are city families who purchase an entire carcass of hog or sheep and many times a quarter of beef, but such families are the exception rather than the rule and most consumers will wish for much smaller quantities. But even shipments amounting to from 20 to 30 pounds can be made with profit to both the consumer and producer.

The method of preparing for shipment is dependent upon the amount ordered. Where an entire carcass is sent it should be carefully dressed, and the most satisfaction will follow wrapping in cotton cloth to keep the carcass clean and present a neat and attractive appearance upon arrival. If only a part of a carcass is sent it should be packed in a suitable box, care being taken to have the meat wrapped in clean paper, or cloth. Pack firmly in the box, seal and address properly. This method of shipment can be followed only during the cold months, icing being necessary in warm weather.

### Making Composite Shipments.

The most economic way of handling a product of this kind, especially where small quantities are sold, is to sell and ship in connection with other products. The meat can be easily crated with a shipment of butter and eggs and when two or three of such products are combined and sent to a single family the transportation charges are reduced to a minimum, making the dealing much less expensive and at the same time furnishing the consumer with products that will be used up in a short period, thus keeping them fresher and giving the greatest possible satisfaction. If one has already established a trade in some other product, he could correspond with his customers looking toward the introduction of meat products in the list of sales.

### Small Fruit.—The Demand.

Small fruits have their special season and during that season they are required by the people of our cities, towns and even country places, in large quantities. Because of their perishable nature they must be harvested and marketed in a short period of time. The rush makes these crops valuable for the fruit speculator to deal in and enables him to secure a wide margin between buying and selling prices; hence, they become attractive products to sell direct to the consumer. This one can do, providing he ascertains beforehand the quantities wanted by each of his customers.

### Obtaining Orders.

Getting in touch with one's customers early in the season is an essential feature if dealing direct in small fruits. The rush of work at harvesting time is so great that every duty that can be done earlier or later should be. The locating of customers and securing orders is one that needs to be done earlier. The grower ought not to be devoting time to hunting a market when caring for the crop, but with his orders at hand he should be able to hurry shipments off with the least possible delay for the greatest satisfaction will result where the consumer receives the products at the earliest moment after harvesting. The usual and most commendable practice is to write prospective customers about two weeks before picking season begins, stating the kinds of fruits that can be provided and enclosing an order blank upon which the party is asked to give the

kind and quantity of fruits he desires, and mail should be chosen to order.

### Packing the Fruit.

The most satisfactory way of transporting small fruit is in the common quart berry boxes enclosed in crates. Such a pack keeps the fruit so divided that very little pressure is upon any part of the shipment thus preserving the individual specimens of fruit in their natural shape. In making local delivery the crates should be strong since they can be used again and again but in delivering by common carrier cheaper and lighter crates that are sold with the berries, will suffice. In packing one should take particular pains to have the boxes fit snugly in the crate that jamming of fruit may not result.

### Handle these Fruits with Dispatch.

Every precaution should be taken to hurry the fruits to the consumer. The practice followed by the most careful growers is to pick and pack late in the afternoon and then forward the fruit on an evening express so it will travel during the night and be delivered, under most circumstances, to the consumer the following morning. Small fruits will stand but little hot sunshine after they have been taken from the bush or vine and the above practice enables one to reduce this exposure to a minimum. Another precaution is to have everything in readiness that there may be no delay in looking for boxes or crates, but that the work may be rushed from the minute packing begins until delivery is made at the express station.

### Neatness.

The exercising of a little care will add to the selling qualities of these fruits. Two things especially should be watched; one is to grade the fruit as far as it is possible to do so with the rush of the work and the other is to keep out all leaves, briars and dirt that naturally gets into the fruit during picking. Picking should also be done frequently so that fruit gathered at any time may be in good shipping condition. It, of course, is generally better to have the fruit a little too green than over-ripe, as the over-ripe specimens are apt to spoil and give the whole consignment a bad appearance.

Vigilance should be exercised in every operation and the producer should be attentive to the demands of the consumer and seek wherever possible to satisfy them, constantly looking toward the establishment of a reputation for delivering goods of quality that measure up to his claims in every regard.

### ON HANDLING MARKET APPLES.

Demonstrations illustrating some of the problems of marketing apples were given at the recent Round-Up Institute held at the Agricultural College under the direction of Prof. Eustace and his assistants. Their first act was to show

### How Storage Apples are Examined.

Three barrels of storage apples had been bought in Lansing and sent out to the College about 10:00 a. m. These were rolled into the lecture room and Mr. Schuyler, one of the Senior Horts, was detailed by Prof. Eustace to show the audience how storage apples are examined by the buyer. This he did by lifting the top hoop on the barrel and then putting it down again so that all of the staves, but one, were inside the hoop. Now this top hoop will hold the barrel together and the two middle ones may be removed and the one stave which has been left on the outside may be turned back exposing the apples the whole length of the barrel.

The apples in the barrels were turned out onto tables and students sorted them, throwing out the rotten ones and culls, and packed the saleable apples in small market baskets, making them about as full as the baskets which are offered for sale by the average retailer. Two of the barrels contained 12 baskets of good marketable apples while the other barrel contained about 11½ baskets. These apples cost \$3 per barrel at the Lansing storage house and if the baskets were sold at 25 cents per, the dealer would just get his money back, to say nothing of the cost of cartage, sorting and packing. When all these charges are added in, we see that the retailer cannot afford to sell the baskets for less than 40 cents. The producer probably received about \$2.50 for his fruit, the storage charges were 40 cents per barrel, 20 cents for cartage, etc. When we go to town and see small baskets of apples priced at 40 cents each, we think this is an exorbitant price but a careful consideration of the costs involved, shows

us very plainly that such is not the case. "Don'ts" for Amateur Apple Packers.

1. Don't pack apples of uneven size together. The apples for packing should be carefully graded and sized previous to placing in the barrels or boxes. Aside from the fact that apples of about the same size will be easier to pack, the main reason for having the fruit of uniform size is to keep the confidence of the consumer. Few consumers object to a package of small apples, provided they are all of uniform size, but they do not like to buy a barrel of apples and find some small ones in among the large ones. To the man who uses the apples, the presence of the small ones seems to convey the idea that he has been cheated and has not gotten his money's worth.

2. Don't pack the small apples in the center of the barrel or crate and the large ones on the top, for this also leads the consumer to believe he has been cheated.

3. Don't forge the eleventh commandment which is: "Thou shalt pack no wormy or diseased apples." In this connection it might be well to mention that apples with no stem should never be packed, for the pulling out of the stem leaves a raw spot in the apple and the spores of rots may enter and grow, eventually destroying the fruit. We have no fungous or bacterial diseases in Michigan which are able to burrow their way through the skin of a perfectly sound apple, hence it is imperative we pack only those apples which have uninjured skins. Examine an apple which has rotted in storage and in 99 cases out of every hundred, we will find a small hole in the skin of the apple at about the center of the rotten spot.

### NOTICE TO FARMERS WANTING CITY CONSUMERS.

Some of our subscribers who have written to parties in Detroit looking toward an arrangement for selling farm products direct, may be getting anxious about replies. Because of the large number of requests coming to us pursuant to the notices run in these columns early in January, for lists of parties wanting to secure produce from the farmers direct, it became necessary to accept the services of the Detroit Housewives' League to locate a number of families to satisfy the great demand, and to facilitate matters, the names of several of the secretaries of different chapters of the organization were included in the lists sent out. These secretaries have received some of the letters and are laboring faithfully to place every inquiry in the hands of an appreciative party, but they have requested that the farmers be notified through these columns that in case they do not get immediate replies, to be patient, since most of the assigning is done at the regular meetings of the chapters, which occur but once every two weeks. They assure us that all will be properly cared for and that later more producers' names will be wanted.

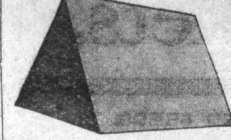
### CROP AND MARKET NOTES.

Gratiot Co., March 14.—We have had a week of real spring-like weather. From good sleighing the 8th we have almost impassable roads. Wheeling was excellent all through February until sleighing came the last week of February and lasted two weeks. The ice harvest was short, but those who took time by the forelock have their houses filled. Butter, 22¢; eggs, 16¢; hogs, 8¢; beans, \$1.60 @ 1.70.

Newaygo Co., March 10.—February was the coldest month of the winter, with lots of snow. Lots of logs being brought to mills. Nothing doing on the farm at present except by farmers who have logs to haul. A good many horses for sale, but they are high in price. All fall grain looks good so far. A good bit of rough feed in the country, with hay at \$10. Not much demand for potatoes yet, with lots in storage waiting for a better price. Not as much gravel hauled as last winter. Potatoes, 32¢; beans, \$1.70; veal, 3¢5/4; sheep, 2¢3/4; beef, live, 2¢4; chickens, 11¢; pork, dressed, 10¢; butter, 28¢; butter-fat, 36¢; eggs, 18¢; rye, 50¢; corn, shelled, 50¢ per bu.

Ottawa Co., March 15.—The snow went off with some rain, leaving the roads in an almost impassable condition, so that business as far as farmers are concerned, is at a standstill. There has been so little snow protection for wheat during the winter, that the plant does not look very good at present writing. A small amount of maple syrup has been made, but this will soon be a thing of the past, as there is but few maple trees left in this section. There are the usual number of auctions. Horses are selling for \$150 up to \$250 each, and cows from \$50 to \$75 for only ordinary breeds. Brood sows and spring pigs are very scarce and prices are correspondingly high. There is no shipping demand for hay, and for this reason the price is only a little more than half what it was last year at this time. The prospect for fruit is very favorable.

## Save the Pigs By using The ECONOMY Portable KNOCK DOWN BROOD SOW PEN



Patent groove locking device and swinging door. Can be taken down and set up in five minutes. First order secures agency. Write for prices and territory.  
The Economy Metal Building Co.  
Sta. A. Columbus, Ohio.

### Breeders' Directory—Continued.

**FOR SALE**—7 Reg. S. H. Bulls from 8 to 14 months by Victor Robin, sired by International Winners. JOHN SCHMIDT, Reed City, Michigan.

### SHEEP.

**"BREED UP YOUR SHEEP"** Article sent free to any address.  
**PARSONS**, "The Sheep Man of the East," K. No. 1, Grand Lodge, Mich.

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**BERKSHIRES** Choice spring boars and gilts, priced to move quick. Farmers stock. ELMHURST STOCK FARM, Almont, Mich.

THIS

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**SOW WEIGHED 932 LBS.  
AT 23 MONTHS OLD**

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

**O. I. C. SWINE** Write me for price on Spring Pigs, pairs and trios, not akin. Have a number of service males of good type. Write me describing of your wants. A. J. GORDEN, R. No. 2 Dor, Mich.

**O. I. C.** Swine, both sexes. Males weighing 100 to 225 lbs. Herd registered in O. I. C. Association.  
GEO. P. ANDREWS, Dansville, Ingham Co., Mich.

**O. I. C.** Extra choice bred gilts, service boars and spring pigs, not akin from State Fair winners. Avondale Stock Farm, Wayne, Mich.

**O. I. C's**—all sold. Orders booked for April and May pigs of the choicest breeding.  
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**O. I. C's**—Eight young sows to farrow in June, spring pigs pairs and trios not akin.  
FRED NICKEL R. 1, Monroe, Michigan.

**O. I. C. Pigs** of September and October farrow for sale cheap. JOHN BERNER & SON, Grand Lodge, Mich.

**O. I. C's**—All sold, will book orders for March pigs.  
ALBERT NEWMAN, Marlette, Michigan.

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

**O. I. C.**—1 extra quality last March gilt Wt. 395 lbs. due to farrow April 14th, price \$125. Brod to Scott No. 1, Grand Champion. If interested write, Otto B. Schulze, ½ mile west of depot, Nashville, Mich.

**DUROC-JERSEYS**—Fall and Spring boars from prize-winning strains. Sows all ages. SPECIAL BARGAIN in summer pigs. Brookwater Farm, R. F. D. No. 7, Ann Arbor, Mich.

**Duroc Jerseys** For sale—A few first class fall pigs of both sexes, weight 150 lbs. to 200 lbs., price \$25 each. M. A. BRAY, Okemos, Michigan.

**Duroc Jerseys**—for sale: 20 fine service boars of fancy breeding and individual quality. Prices reasonable. John McNicoll, North Star, Mich.

**Reg. Durocs**—Bred sows \$20 to \$50. Boars \$20 to \$25. Pigs old enough to wean \$8 to \$12 satisfaction guaranteed. F. B. Cook, R. R. 2, Stanwood, Mich.

**DUROC-JERSEYS**—Nothing For Sale at Present.  
CAREY U. EDMONDS, Hastings, Michigan.

**Duroc Jersey SWINE**. Spring and summer pigs for sale, both sexes, 1 pig 1 year experience. 25 years experience. J. H. BANGHART, Lansing, Mich.

**POLAND CHINAS**—Both Western and Home Bred. Either sex, all ages. Prices right. W. J. HAGELSHAW, Augusta, Mich.

**Large Type P. C.**—Largest in Michigan. Bred gilts and Oct. pigs that have size, bone and quality. Write your wants or come and see. Expenses paid if not as represented. Free delivery. W. E. Livingston, Parma, Mich.

**A BIG TYPE POLAND CHINA BOAR**—Cheap or will exchange for sow. A few light weight gilts left. ROBERT NEVE, Persimmon, Michigan.

**POLAND CHINAS**—Either sex, all ages. Something good at a low price.  
P. D. LONG, R. No. 8, Grand Rapids, Michigan.

**P. C. BOARS AND SOWS**—large type, sired by Expansion.  
A. A. WOOD & SON, Salline, Michigan.

**LARGE** Yorkshires—Choice breeding stock, all ages, not akin, from State Fair prize-winners. Pedigrees furnished. W. C. COOK, R. 42, Box 22, Ada, Mich.

**Yorkshire Swine**—Aug. farrowed gilts for sale. Weanling pigs ready May 1st, not akin to Champion York and 2nd best carcass at I. L. S. Breeders' Swine Show at E. Lansing, Jan., 1913.  
GEO. McMULLEN, Grand Lodge, Michigan.

**Lillie Farmstead YORKSHIRES**  
Spring bred gilts all sold. Gilts bred for next August farrow. September pigs either sex, pairs and trios not akin. Orders booked for spring pigs.  
COLON C. LILLIE, Coopersville, Mich

# Markets.

## GRAINS AND SEEDS.

March 19, 1913.

**Wheat.**—The wheat market continues to hold steady at former values, notwithstanding the prevalence of bearish news and conditions. The lower price the first of the week stimulated a little export business but did not start any general buying movement. Experts point out that with the large reserve in this country we could export 70,000,000 bu. of wheat more than last year and still have enough for home consumption. It is believed our market will be a more active one at something under the present price level as soon as the rush of Argentine selling for export is over. On the other hand, with the large stocks of wheat available it is thought that a large volume of foreign buying would be necessary to bring about this result. At the present time with the winter wheat prospects, which are favorable, and the heavy run of spring wheat, while the cash and milling demands are limited, conditions favor transactions on the selling side of the speculative market. Foreign cables fluctuated somewhat but closed higher on Tuesday. The increase in the world's visible supply was 2,500,000 bu., but considering bearish news the market has been maintained on a satisfactory basis. One year ago No. 2 red wheat sold on this market at 98½¢. Quotations for the week are:

	No. 2	No. 1	Red.	White.	May.	July.
Thursday	1.06	1.05	1.06½	93		
Friday	1.06	1.05	1.06½	93		
Saturday	1.05½	1.04½	1.05½	92¾		
Monday	1.05½	1.04½	1.05½	92¾		
Tuesday	1.06	1.05	1.06½	92¾		
Wednesday	1.06	1.05	1.06½	92¾		

Chicago, (March 18).—No. 2 red wheat, 99½¢@1.04; May, 88½¢; July, 88½¢ per bushel.

New York, (March 18).—No. 2 red wheat, \$1.09½ at elevator and \$1.11 f. o. b. afloat; May, 95½¢; July, 95½¢ per bu.

**Corn.**—This market declined a fraction at the close of the week in sympathy with the wheat market but rallied again on Tuesday to the level of one week ago due to the expectations of light receipts because of the approach of milder weather which will mark the opening of spring operations on the farms. Reports were current that selling had largely been stopped at country points, which also had a strengthening tendency on the market. No. 3 corn sold on this market one year ago at 69¢ per bu. Quotations for the week are as follows:

	No. 3	No. 3	Yellow.
Thursday	50½	51½	
Friday	50½	51½	
Saturday	50	51	
Monday	50	51	
Tuesday	50½	51½	
Wednesday	51	52	

Chicago, (March 18).—No. 2 corn, 50½¢; May, 52½¢@52½¢; July, 53½¢ per bu.

**Oats.**—This market was relatively firmer during the general slump of the past week, due to influential buying of oats against sales of corn, although the market did not rally to quite the point of one week ago. One year ago standard oats sold on this market at 57¢ per bu. Quotations for the week are:

	Standard.	No. 3	White.
Thursday	35	34	
Friday	35	34	
Saturday	34½	33½	
Monday	34½	33½	
Tuesday	34½	33½	
Wednesday	35	34	

Chicago, (March 18).—No. 2 white, 33½¢@34½¢; May, 32½¢; July, 32½¢ per bu.

**Beans.**—This market remains inactive with a loss in the nominal quotations of 10¢ for both cash and future dealing, from the quotations of last week. Present quotations for prompt and immediate shipment are \$1.80 per bu; May, \$1.90 per bu. at country leading points.

Chicago, (March 18).—Market quiet with no new developments. There is a small business in pea beans, those of fine color, of which there are only a few, ruling steady. Stained beans are easy; other beans slow and very quiet. Pea beans handpicked, \$2.05@2.10; prime, \$1.95@2; red kidneys, choice, \$2.25@2.30; prime, \$2.10@2.15.

**Clover Seed.**—This market made a gain of 30¢ during the past week, transactions for prime spot now being made at \$11.60 per bu. Alsike sold a point lower than last week, prime stock being quoted at \$12.60 per bu.

Toledo, (March 18).—This market made a little stronger advance than the Detroit market during the week, prime spot now selling at \$11.80 per bu; prime alsike, \$12.35.

**Timothy Seed.**—A fractional gain was noted in this market over last week, a sale of 100 bags of prime spot timothy seed having been made at \$1.70 per bu., which is 5¢ over last week's market.

Toledo, (March 18).—This market advanced 10¢ during the week, cash timothy now being quoted at \$1.75 per bu.

**Rye.**—The market is nominal at last week's values. Cash No. 2 rye is quoted at 62¢ per bu.

Chicago, (March 18).—Cash No. 2 rye sold at 60¢@61½¢ per bu., which is a fractional loss over last week's values. Trading nominal.

**Barley.**—Chicago, (March 18).—This market is unchanged with malting grades ranging from 49¢@55¢ per bu; feeding grades, 45¢@47¢ per bu.

## FLOUR AND FEEDS.

**Flour.**—Jobbing lots in ½ paper sacks are selling on the Detroit market per 196 prices, but their weight made them much cheaper per head than the heavy feeders of similar grading.

Flour, as follows: Best patent, \$5.50; second, \$5.20; straight, \$5; spring patent, \$5.10; rye flour, \$4.60 per bbl.

**Feed.**—Detroit jobbing prices in 100-lb. sacks are as follows: Bran, \$23; coarse middlings, \$23; fine middlings, \$27; cracked corn, \$25; coarse corn meal, \$22.50; corn and oat chop, \$21 per ton.

**Hay.**—While quotations remain unchanged, the market is oversupplied and demand is sluggish. Carlots on track at Detroit, No. 1 timothy, \$13.50@14; No. 2, \$11@12; light mixed, \$12.50@13; No. 1 mixed, \$11@12 per ton.

Chicago, (March 18).—All kinds and grades unchanged. Choice timothy, \$16@17 per ton; No. 1, \$14@15; No. 2 and No. 1 mixed, \$12@13; No. 3 and No. 2 mixed, \$6@10; clover, \$6@11; alfalfa, choice, \$17@18; do. No. 1, \$15@16.50 per ton.

**Straw.**—Steady. Carlot prices on wheat and oat straw on Detroit market are \$8@8.50 per ton; rye straw, \$9@10 per ton.

Chicago, (March 18).—All kinds steady at last week's revised figures. Rye, \$7@7.50; wheat straw, \$5@5.50; oat straw, \$5.50@6 per ton.

## DAIRY AND POULTRY PRODUCTS.

**Butter.**—The nearness of the season when lower values may reasonably be expected is affecting the demand and the trend is downward in all markets. Elgin declined a cent on Monday, but local dealers have thus far succeeded in maintaining former values. Detroit jobbing prices ruling as follows: Fancy creamery, 35¢ per lb; firsts, 33½¢; dairy, 22¢; packing stock, 20¢.

Elgin.—Market firm at 34¢.

Chicago, (March 18).—All kinds lower, dairy goods suffering most. Demand for fancy stock reported slow. Quotations are: Extra creamery, 35¢@35½¢; extra firsts, 33¢@34¢; firsts, 31¢@32¢; seconds, 28¢; dairy extras, 27¢@28¢; firsts, 25¢; seconds, 22¢; packing 12¢@21¢ as to quality.

New York.—Creameries are off a full cent, while packing stock has lost a fraction of last week's advance; dairies unchanged. Market reasonably steady. Creamery extras, 35½¢@36¢; firsts, 34½¢@35¢; seconds, 33½¢@34¢; thirds, 31¢@32¢; state dairy, best, 34¢@35¢; good to prime, 30¢@33¢; common to fair, 25¢@29¢; packing, 18¢@22¢ as to quality.

**Eggs.**—This is the big week of the season for eggs and the demand is taking care of the enormous receipts very satisfactorily. Locally prices are fractionally higher than at this time last week. At Detroit current offerings, candled, and cases included, are quoted at 18½¢ per dozen.

Chicago, (March 18).—Rather disappointing receipts early in the week were attributed to bad roads and flood conditions. Trade good at strong last week's figures. Miscellaneous receipts, cases included, are quoted at 17½¢@17¾¢; do. cases returned, 16½¢@17¼¢; ordinary firsts, 16½¢@17¼¢; firsts, 17¢@18¢.

New York.—This market is firmer, last week's outside figures being well maintained. Fresh gathered extras, 20¢; firsts, 18¢@19¢; seconds and lower grades 17½¢@18½¢ per dozen.

**Poultry.**—Chickens and ducks continue scarce and the record-breaking values recently established are still in force. Ducks on a par with turkeys and even outselling them in some markets. Quotations: Live—Spring chickens, 17¢@17½¢; hens, 17¢@17½¢; No. 2 hens, 15¢; old roosters, 12¢; turkeys, 19¢@20¢; geese, 15¢@15½¢; ducks, 19¢@20¢ per lb.

Chicago, (March 18).—Offerings moderate and demand good. Stock of desirable quality selling readily at outside figures. The quotations on live are: Turkeys, good weight, 15¢; others, 10¢; fowls, good, 17¢; spring chickens, 17¢; ducks, large, fat, 17¢; do. thin, ordinary, 15¢@16¢; geese, full feathered, 12¢; do., plucked, 8¢@10¢ per lb.

New York.—Dressed stock quiet with practically no change in values. Fresh killed western chickens, 15¢; fowls, 14¢@17¢; turkeys, 14¢@24¢ per lb.

**Cheese.**—Wholesale lots, Michigan flats new, 15¢@15½¢; old, 17¢@17½¢; New York flats, 18½¢@19¢; brick cream, 16¢@16½¢; limburger, 18½¢@19½¢.

**Veal.**—Detroit.—Scarce and higher. Fancy, 14¢@15¢; common, 12¢@13¢.

Chicago, (March 18).—Fair to choice, 80¢@110 lbs., 14½¢@15¢; extra fancy stock, 15½¢; fair to good chunky, 13¢@14½¢.

## FRUITS AND VEGETABLES.

**Apples.**—Low prices encourage good movement for this season, but heavy offerings prevent advances. The Detroit quotations now are: Fancy, per bbl., \$2.50@3.50; ordinary, \$1@1.25 per bbl.

Chicago, (March 18).—Market easy. Stocks are so plentiful that holders are doing all they can to reduce them and a fair volume of business is being done. Standard winter varieties, \$2@4 per bbl. Lower grades at buyers' prices.

**Potatoes.**—Movements a little more free than last week but at the same range of prices. Michigan stock in car lots, 40¢@45¢ per bu.

Chicago, (March 18).—Market steady and fractionally higher than last week. Fancy Michigan stock, 45¢@48¢ per bu; best Wisconsin, 42¢@50¢; Minnesota, 43¢@48¢.

New York.—Plentiful and easy. Western stock, \$1.70@1.75 per 180-lb. bag.

**Cabbage.**—The local market is still flooded with offerings and prices remain at the low point occupied this winter, \$1@1.25 per bbl. In New York the finest offerings free from frost are lower at \$8@10 per ton. The market at Chicago is without life and Holland is going at \$6@6.50 per ton.

**Onions.**—Market continues depressed with prices unchanged. Local sales are for 45¢@50¢ per bu. for good stock.

## MISCELLANEOUS.

### Wool.

Boston.—March 18.—The wool market is devoid of any feature of special interest at this time. The London sales continue at unchanged prices. The leading domestic quotations on the market are: Ohio and Pennsylvania fleeces, delaine washed, 30¢@31¢; XX, 29¢@30¢; ½-blood combed, 28½¢@29¢; ¾-blood combed, 29½¢@30½¢; ¼-blood combed, 29½¢@30½¢; delaine unwashed, 26¢@26½¢; fine unwashed, 23½¢@24¢. Michigan and New York fleeces—Fine unwashed, 22¢; delaine unwashed, 24¢@24½¢; ½-blood unwashed, 27¢@28¢; ¾-blood unwashed, 28½¢@29¢. Wisconsin and Missouri—¾-blood, 28½¢@29¢; ¼-blood, 28½¢@29¢. Kentucky and similar—½-blood unwashed, 27¢@28¢; ¾-blood unwashed, 30¢@31¢.

**Provisions.**—Mess pork, \$21.50; family pork, \$23@24; clear backs, \$21@23.50; hams, 17¢@18¢; briskets, 12¢@13½¢; bacon, 16¢@18¢; shoulders, 13¢; picnic hams, 12½¢@13¢; pure lard in tiers, 12¢; kettle rendered lard, 13¢ per lb.

### DETROIT RETAIL PRICES.

Western Market.—Vegetables constituted the bulk of the offerings on Tuesday morning. No fruit worth mentioning. Grains, eggs, and dressed pork about completed the list. Potatoes were offered rather freely and sold at 45¢@50¢ per bu. for nice stock. Carrots and beets of better than medium quality brought 30¢@35¢ per bu. Cabbage plentiful, selling at 25¢@30¢ per bu; parsnips, 30¢@35¢. The few eggs on sale were moving slowly at 27¢ per dozen. Dressed hogs were sold at 12¢@12½¢ per lb. There was a good demand for shelled corn at 60¢ per bu. and for wheat at \$1@1.10.

### THE LIVE STOCK MARKETS.

#### Buffalo.

March 17, 1913.

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

Receipts of stock here today as follows: Cattle, 145 cars; hogs, 70 double decks; sheep and lambs, 70 double decks; calves 1300 head.

With 145 cars of cattle on our market here today, and this being the last week in Lent, the cattle all sold from 10¢@15¢ below last week's prices, and some of the in between kinds, weighing from 1150 to 1225 lbs., sold in a good many instances full 20¢ per cwt. lower than last week.

We quote: Best 1350 to 1500-lb. steers \$8.65@8.90; good to prime 1200 to 1300-lb. do., \$8.35@8.60; good to prime 1100 to 1200-lb. do., \$8@8.25; coarse, plainish 1100 to 1200-lb. steers, \$7.50@7.85; medium butcher steers, 1000 to 1100, \$7.50@8; butcher steers, 950 to 1000, \$7@7.50; light butcher steers, \$6.50@7.25; best fat cows, \$6.75@7.25; butcher cows, \$5.25@6.25; light butcher cows, \$4.50@5.25; cutters, \$4.25@4.75; trimmers, \$3.25@3.75; best fat heifers, \$7.25@8; medium butcher heifers \$6.75@7.25; light do., \$6@6.25; stock heifers, \$5@6; best feeding steers, dehorned, \$7@7.50; light common stockers, \$6.50@6.75; prime export bulls, \$7@7.25; best butcher bulls, \$6.50@7; bologna bulls, \$5.75@6.25; stock bulls, \$5@5.50; best milkers and springers, \$6.50@8; common to fair kind do., \$4@5.50.

Our hog market today was a considerable higher on a light supply; all grades selling from 15¢@25¢ higher than Saturday. Big advance on the good weights. Close-sorted light weights sold from \$9.70@9.75, but the bulk of the mixed and medium grades changed hands around \$9.65; pigs and lights generally at \$9.75; roughs \$8.50@8.75; stags, \$7@8. Trade closed a little quiet, and late sales 5¢@10¢ lower than the opening.

The sheep and lamb market was slow today, with prices about the same as the close of last week. Most of the choice lambs selling from \$9@9.20; few at \$9.25 yearlings from \$7.50@8.50. Heavy lambs, very slow sale, lambs weighing over 85 lbs. very little demand. Look for about steady prices the balance of the week with moderate receipts.

We quote: Choice lambs, \$9@9.25; cull to fair do., \$6@9; yearling wethers, \$8@8.50; yearling ewes, \$7@7.50; wethers, \$7@7.35; handy ewes, \$6.50@6.75; heavy do., \$6@6.25; cull sheep, \$3.50@5.50; bucks \$4@5; veals, choice to extra, \$12.50@13; fair to good, \$9@12; heavy calves, \$4.50@6.

#### Chicago.

March 17, 1913.

Cattle. Hogs. Sheep. Received today ..... 16,000 30,000 17,000 Same day last year, 27,240 50,031 14,848 Received last week, 48,250 152,065 82,960 Same week last year, 52,908 153,330 88,147

This is Holy Week, and the demand for live stock, hogs excepted, is slow today, with no animation in the cattle trade, aside from butcher stock, which is selling rather freely at firm prices. Steers were slow up to a late hour at steady prices. Hogs advanced a dime or more, with a light run for Monday and a strong demand from all classes of buyers. Some sales were made at \$8.55@9.25, the top marking still another high record for the year. Hogs marketed last week averaged 238 lbs., being heavier than a month ago, and comparing with 220 lbs. a year ago and 215 lbs. three years ago. Provisions advanced sharply today in sympathy with hogs. Sheep and yearlings are selling more readily than lambs, and buyers are bidding lower for lambs, but shippers are refusing to make cuts in prices, as the receipts are very light. Some prime wethers of two years of age sold at \$7.10. There was a sale of part of a car load of spring lambs at 15¢ per lb for the Easter trade, the first of the year, their average weight being 40 lbs.

Cattle opened largely 10¢@15¢ lower on Monday last week, with a run of 26,107 head, which was unusually large for these times of moderate requirements.

By Wednesday the break was largely recovered, although buyers still discriminated strongly against common, light, short-fed steers, which, they claim, have cost dearer in the beef than a better class selling above \$8. The bulk of the steers sold during the week went at \$7.90 @8.85, with the better class of long-fed, heavy cattle going at \$8.80@9.15 and the commoner to fair class of light-weight, warmed-up steers taken at \$7@8.25. A desirable kind of corn-fed steers brought \$8.50 and over, and butchering cows and heifers had a good sale, as usual, buyers paying \$5.10@8.50, although very few sold close to the top price. Cutters old at \$4.60@5, canners at \$3.25@4.55 and bulls at \$5.25@7.30. Stockers and feeders sold at such extremely high figures that numerous intending buyers failed to make purchases. Stockers sold for \$6.25@7.90 for ordinary to strictly prime kinds, and sales of feeders carrying much weight were made at \$7.30@8.30 for common to fancy lots, an Indiana man paying \$8.30 for a car load of 18 head of 1,190-lb. Shorthorns. For the best of the regulation strong weight feeders \$8 was near the market limit, but extra choice lots brought above that figure to a limited extent. There were numerous instances where sales were made of plain to good stock and feeding steers at reduced prices, but anything prime was sure to go high, and killers secured many of the heaviest lots, outbidding country buyers. On some warm days the cattle marketed drank water unusually freely, and this caused buyers to defer buying in some instances. On Wednesday the average quality of the cattle received was decidedly off, and many of the offerings were sadly deficient in flesh. Calves of the best grade made record prices, selling at \$11@12 per 100 lbs., the lower grade heavy lots fetching down to \$5@7. Milch cows were taken at \$45@90 each, with slim offerings of the best.

Hogs keep on making fresh high records for the year every few days, and downward turns are followed by quick rallies as a rule, receipts here and at other important markets falling far short of trade requirements. The shortage is now thought to be even greater than was at first reported, and then farmers in many sections are short of breeding sows. A short spring pig crop is almost certain, and it will take a considerable period to bring up the hog supply of the country to suitable proportions, so as to correspond with the great increase in the population. The character of the trade does not show any particular change, and eastern shippers are still purchasing a liberal proportion of the daily offerings, prime light hogs being mainly called for. This creates competition between buyers and sustains sellers in their efforts to hold up prices. There is a large consumption of fresh pork, and this uses up the light hogs and the strong-weight pigs and results in light hogs selling higher than other kinds. The average weight of the receipts has undergone a marked increase in recent weeks, and extremely heavy hogs are cheaper of all, although even these sell far higher than in other years. While the cattle market at the close of the week was bad and largely 15¢@25¢ lower than a week earlier, hogs closed at the highest prices of the year, sales ranging at \$8.40@9.15, compared with \$8.35@9 a week earlier. Pigs closed at \$7.65@9 and heavy packing hogs at \$8.50@8.85. Best heavy butchers brought \$8.95.

Sheep and lambs have been quick to rise in prices as a rule of late after downward turns, as the fast decreasing offerings have placed sellers in a position to dictate terms. Colorado lambs have comprised an extremely large proportion of the receipts, and owners have followed a conservative policy in marketing them, feeding them out to the market only as fast as they could be sold advantageously without weakening values. Some clipped lambs have arrived and sold to poorer advantage than woolled stock, and there were fair offerings of feeding lambs that brought high figures, Michigan buyers securing a large share of them. As is the case with cattle and hogs, the indications for the sheep market look very bright for owners. As usual, handy-weight lambs and yearlings sell much better than heavy lots. Lambs of the best grade sold up to \$9.15 last week, but at the close sales were at \$8@9, while yearlings brought \$7.10@8.25, wethers \$5.75@7, ewes \$4@6.85 and bucks \$4.50@5.50. Feeder and shearer ewes sold at \$7.50@8.40, and some prime shearers were actually purchased from packers at \$8.70 and shipped to Michigan for a short finish. The best heavy lambs brought \$8.65 and the best heavy yearlings \$7.50.

Horses are becoming rather more active as the spring advances, and it is probable that before long trade will be at its best. Farm chunks are the most active, selling usually at \$135@215 per head, with mares adapted for breeding as well as for workers the most active and the highest sellers. Pairs of good farm horses bring \$360@400. The trade in draft horses of medium weight is fairly large at \$175@225 per head, with heavier drafters selling at \$250@300 or even higher, but not many are marketed prime enough to bring \$275. Feeders are in demand to send to eastern Ohio and Pennsylvania. Inferior to fair horses sell at \$75@150.

Recent reports from Texas speak of a growing interest shown in developing the baby beef industry. Mrs. King, of that state, who is the owner of one of the biggest ranches in the world, is getting ready to build 45 silos this year on her lands to receive the crops that will be raised. She proposes to feed 5,000 young cattle the next season from her crops grown on 500 acres of land. In years long past 25,000 acres of land would have been required to provide grass for so many cattle, and even then not all of the cattle would have been made fat enough to market.

## THIS IS THE FIRST EDITION.

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

## DETROIT LIVE STOCK MARKETS.

## Thursday's Market.

March 13, 1913.

## Cattle.

Receipts, 1418. Market strong at last week's prices on all grades.

We quote: Best steers and heifers, \$8 @ \$8.25; steers and heifers, 1000 to 1200, \$7.25 @ \$7.75; do. 800 to 1000, \$7 @ \$7.50; do. that are fat, 500 to 700, \$6 @ \$7; choice fat cows, \$6 @ \$6.50; good do., \$5 @ \$5.50; common do., \$4.25 @ \$4.75; canners, \$3.50 @ \$4.25; choice heavy bulls, \$6 @ \$7; fair to good bolognas, bulls, \$5.75 @ \$6.25; stock bulls, \$3.50 @ \$4; choice feeding steers, 800 to 1000, \$6.50 @ \$7; fair do., 800 to 1000, \$6 @ \$6.25; choice stockers, 500 to 700, \$6 @ \$6.25; fair do., 500 to 700, \$5.75 @ \$6; stock heifers, \$5 @ \$5.50; milkers, large, young, medium age, \$5 @ \$7; common milkers, \$3 @ \$4.50.

Bishop, B. & H. sold Sullivan P. Co. 1 bull weighing 1960 at \$6.40, 2 cows at \$6.55 at \$4.50, 2 do av 910 at \$5.25, 4 do av 907 at \$5, 2 do av 960 at \$5, 13 steers av 915 at \$7.40; to Parker, W. & Co. 7 do av 900 at \$7.70, 1 cow weighing 1030 at \$5, 1 heifer weighing 730 at \$6.50; to Newton B. Co. 17 cows av 1076 at \$6; to Sullivan P. Co. 1 bull weighing 1170 at \$6.50; to Nagle P. Co. 5 steers av 1040 at \$7.90; to Hammond, S. & Co. 4 do av 992 at \$8, 3 cows av 873 at \$5.25, 4 butchers av 437 at \$5.75, 11 do av 776 at \$7; to Goose 12 cows av 913 at \$5.35; to Mich. B. Co. 2 bulls av 1130 at \$6.40, 2 do av 1295 at \$6.35, 16 butchers av 700 at \$5.90, 20 do av 797 at \$6.35, 3 cows av 955 at \$4, 3 steers av 687 at \$7.25, 2 bulls av 785 at \$6.25; to Hammond, S. & Co. 1 bull weighing 1660 at \$6.25, 4 cows av 1042 at \$6, 2 do av 940 at \$5, 2 steers av 815 at \$7, 2 canners av 875 at \$4.25, 3 cows av 1037 at \$6, 8 butchers av 645 at \$6.50, 13 steers av 940 at \$7.60, 5 do av 660 at \$7, 1 cow weighing 1080 at \$6.50, 3 do av 940 at \$5.25, 3 steers av 1016 at \$7.50; to Newton B. Co. 20 steers av 1044 at \$7.55.

Spicer & R. sold Sullivan P. Co. 1 cow weighing 1130 at \$5.65, 1 bull weighing 1240 at \$6.35, 2 do av 1465 at \$6.35, 1 do weighing 1780 at \$6.50, 10 steers av 892 at \$7.25; to Rattkowsky 6 do av 1010 at \$7.50, 2 cows av 890 at \$4.75, 1 do weighing 900 at \$5, 1 do weighing 1160 at \$7; to Kamman B. Co. 11 butchers av 790 at \$6.75, 5 do av 928 at \$6.50; to Mich. B. Co. 5 cows and bulls av 1028 at \$6.50, 7 steers av 943 at \$7.40; to Sullivan P. Co. 2 bulls av 1235 at \$6.35; to Hammond, S. & Co. 4 steers av 1027 at \$7.50, 9 do av 801 at \$7, 3 cows av 893 at \$5.75; to Heinrich 23 steers av 754 at \$7; to Hammond, S. & Co. 1 cow weighing 980 at \$4.50, 3 do av 1077 at \$5.25.

Haley & M. sold Kamman B. Co. 9 steers av 562 at \$6, 14 do av 786 at \$7; to Thompson Bros. 7 cows av 993 at \$5.40, 3 do av 1000 at \$6.25, 2 do av 885 at \$4.25, 1 bull weighing 1280 at \$6.25; to Sullivan P. Co. 2 oxen av 1145 at \$6.65, 4 cows av 870 at \$4, 14 butchers av 993 at \$6.10, 12 steers av 730 at \$7.25, 4 cows av 1085 at \$6.25, 4 butchers av 660 at \$6.50, 2 bulls av 1290 at \$6.50; to Rattkowsky 8 butchers av 404 at \$5.25; to Marx 5 do av 772 at \$7, 4 do av 675 at \$6.35, 3 do av 843 at \$7.10; to Bresnahan 6 do av 460 at \$5.50; to Breitenbeck 3 cows av 1013 at \$5.75, 2 do av 860 at \$5.50, 2 do av 875 at \$6, 8 butchers av 791 at \$7; to Kull 1 bull weighing 1120 at \$6, 1 steer weighing 800 at \$7, 3 cows av 850 at \$4.70; to Heinrich 4 steers av 947 at \$7.50.

Roe Com. Co. sold Newton B. Co. 25 steers av 1021 at \$7.65; to Sullivan P. Co. 2 cows av 765 at \$5.25, 2 heifers av 790 at \$6.75, 3 steers av 970 at \$7.50, 6 butchers av 796 at \$5.60, 1 bull weighing 1270 at \$6.40, 3 steers av 833 at \$7.25; to Mich. B. Co. 23 steers av 1031 at \$7.80; to Breitenbeck 7 cows av 1014 at \$5.40; to Hammond, S. & Co. 1 bull weighing 1050 at \$7, 2 cows av 990 at \$5.50, 2 heifers av 640 at \$4.50, 1 bull weighing 1150 at \$6.50, 2 cows av 790 at \$4, 1 do weighing 1020 at \$4.75; to Parker, W. & Co. 18 butchers av 590 at \$6.50, 15 do av 737 at \$7; to Goose 10 cows av 1000 at \$5.35, 2 do av 780 at \$4; to Newton B. Co. 16 do av 948 at \$5.25, 6 steers av 737 at \$7.50, 12 do av 1090 at \$8, 8 do av 1137 at \$8, 12 do av 950 at \$7.60; to Hammond, S. & Co. 1 bull weighing 1150 at \$6.50; to Newton B. Co. 16 steers av 846 at \$7.40; to Rattkowsky 4 cows av 760 at \$5.50.

## Veal Calves.

Receipts, 648. Market active at last week's prices; few extra fancy a trifle higher. Choice, \$11.50; good, \$9.50 @ \$11; common, \$5 @ \$8.50; milch cows and springers steady.

Haley & M. sold Nagle P. Co. 8 av 130 at \$11, 1 weighing 120 at \$11, 26 av 140 at \$10.50, 12 av 135 at \$10, 1 weighing 100 at \$10, 1 weighing 280 at \$5, 6 av 120 at \$10.50, 4 av 155 at \$11; to Mich. B. Co. 4 av 150 at \$10.50, 1 weighing 200 at \$8, 2 av 270 at \$6, 10 av 138 at \$10; to Nagle P. Co. 3 av 140 at \$10.50, 3 av 100 at \$9, 8 av 140 at \$10.50.

## Sheep and Lambs.

Receipts, 3585. Market strong at last week's prices; few choice lambs a trifle higher. Best lambs, \$8.75 @ \$8.85; good do. \$8.25 @ \$8.50; light to common lambs, \$7 @ \$8; yearlings, \$7 @ \$7.50; fair to good sheep, \$5 @ \$5.75; culs and common, \$4 @ \$4.75.

Roe Com. Co. sold Nagle P. Co. 38 lambs av 80 at \$8.75.

Haley & M. sold Nagle P. Co. 27

lambs av 75 at \$8; to Parker, W. & Co. 27 do av 80 at \$8.50; to Goose 7 yearlings av 125 at \$6; to Nagle P. Co. 20 do av 110 at \$6; to Mich. B. Co. 15 sheep av 90 at \$5.50, 20 lambs av 50 at \$7.25, 9 do av 68 at \$8.25, 21 do av 55 at \$8.25.

Bishop, B. & H. sold Hayes 23 sheep av 70 at \$5.50; to Nagle P. Co. 47 lambs av 75 at \$5.50, 229 do av 88 at \$8.80, 24 do av 85 at \$8.75, 64 do av 75 at \$8.75, 55 do av 85 at \$5.50; to Sullivan P. Co. 17 do av 55 at \$5.50; to Parker, W. & Co. 10 yearlings av 100 at \$6.50; to Sullivan P. Co. 55 sheep av 95 at \$5.75, 13 do av 65 at \$3, 35 lambs av 58 at \$5.75, 9 do av 50 at \$6.50, 7 do av 45 at \$6.50; to Thompson Bros. 12 yearlings av 100 at \$6.50, 10 sheep av 105 at \$4.50, 10 lambs av 47 at \$7, 19 do av 60 at \$8; to Hayes 23 sheep av 70 at \$5.50.

## Hogs.

Receipts, 3379. Market 5 @ 10c higher than on Wednesday; 20 @ 25c higher than last week.

Range of prices: Light to good butchers, \$9.15 @ \$9.20; pigs, \$9.15; light yorkers, \$9.10 @ \$9.15; stags one-third off.

Roe Com. Co. sold Sullivan P. Co. 62 av 190 at \$9.20.

Bishop, B. & H. sold same 329 av 150 at \$9.20.

Same sold Hammond, S. & Co. 350 av 150 at \$9.20, 210 av 220 at \$9.10, 1450 av 180 at \$9.15.

Haley & M. sold Parker, W. & Co. 217 av 180 at \$9.20.

Spicer & R. sold same 175 av 180 at \$9.20.

## Friday's Market.

March 14, 1913.

## Cattle.

Receipts this week, 1695; last week, 1567. Market strong at Thursday's prices; run light. We quote: Best steers \$8 @ \$8.50; steers and heifers, 1,000 to 1200, \$7.25 @ \$7.75; steers and heifers, 800 to 1000, \$7 @ \$7.50; do. that are fat, 500 to 700, \$6 @ \$7; choice fat cows, \$6 @ \$6.75; good do., \$5 @ \$5.50; common cows, \$4.50 @ \$4.75; canners, \$4 @ \$4.50; choice heavy bulls, \$6.50 @ \$7; fair to good bologna bulls, \$5.75 @ \$6.25; stock bulls, \$5 @ \$5.50; choice feeding steers 800 to 1000, \$6.50 @ \$7.25; fair do. 800 to 1000, \$6 @ \$6.25; choice stockers, 500 to 700, \$6 @ \$6.50; fair do., 500 to 700, \$5.50 @ \$6; stock heifers, \$5 @ \$5.50; milkers, large, young, medium age, \$5 @ \$7; common milkers, \$3 @ \$5.

## Veal Calves.

Receipts this week, 342; last week, 705. Market \$1 higher than on Thursday on account of very light receipts. Best, \$11 @ \$12.50; others, \$8 @ \$10.50.

Milch cows and springers steady.

## Sheep and Lambs.

Receipts this week, 4338; last week, 3978. Market steady at Thursday's prices. Best lambs, \$8.75 @ \$8.90; fair to good do., \$8 @ \$8.50; light to common do., \$6.50 @ \$7.50; yearlings, \$7.50; fair to good sheep, \$5.25 @ \$5.75; culs and common, \$4 @ \$4.50.

## Hogs.

Receipts this week, 4448; last week, 4373. Market steady at Thursday's prices. Range of prices: Light to good butchers, \$9.20; pigs, \$9.20; light yorkers, \$9.20; heavy, \$9 @ \$9.15; stage one-third off.

## LIVE STOCK NOTES.

Iowa sheep feeding districts have marketed the greater part of the sheep and lambs held there, mild weather during most of the winter having facilitated feeding operations, assisted by generous feeding of corn and other feeds. Just now Colorado is taking a prominent position in marketing fat lambs and yearlings, but owners are acting conservatively in avoiding glutting the market. The marketing of Colorado flocks is expected to be carried up to the close of May.

The live stock commission of Alberta estimates that more than 100,000 cattle were taken by Alberta farmers from Montana to that Canadian province during 1912 for breeding purposes and for fattening. He expects a still larger movement during the present year, if the stock is available. The commissioner adds that very many small farmers are ready to engage more extensively in the stock industry, provided they can get suitable leases on grazing lands. Last year numerous large shipments of choice, fat Canadian range cattle were received in the Chicago stock yards and sold at such high prices that after paying the high duty levied on them, the owners obtained substantial profits.

Farmers of southern Ohio are in numerous instances owners of from 15 to 20 brood sows, and one wealthy farmer is the fortunate owner of 500 fine brood sows. Cattle are scarce.

E. E. Baldrige, of Texas, has bought 10,000 cows and heifers from a ranch down in Mexico, and delivery of the cattle has begun, the fat cattle to be sold for beef and the remainder to be placed on pastures in the southwest. The same Mexican ranch has sold to another Texas firm 2,500 heifer calves for May and June delivery, and were it not for the revolution in the southern republic, far more cattle would be imported into the United States.

A recent report made by S. W. McClure, secretary of the National Wool Growers' Association, who has been carefully investigating shearing prospects on the western ranges, contains much interesting information for sheepmen generally throughout the country. He is informed by sheepmen of long experience that for a period of 25 years there has been no winter during which the growing clip of wool was so promising. All over the range country the winter season has been so favorable that the early spring finds the wool cleaner, brighter and lighter than for many years. The flocks entered the winter period in unusually good condition, and unusually good feed has helped to produce a much greater length of wool fiber than in former winters. It is too early to speak conclusively regarding the wool clip, but prospects were

never brighter, except in the states comprising the southwest. The flocks generally summered well, and during the winter the range carried plenty of grass, as abundant rainfalls promoted the heaviest growth seen in many years. Since last November no heavy storms have prevailed to weaken the flocks and injure the wool fibre.

Some weeks ago prime fat handy-weight lambs offered in the Chicago market had a wild boom in prices that carried them up to \$9.50 per 100 lbs., and choice yearlings, wethers and ewes also sold at materially advanced values, although undergoing smaller advances than lambs. Since then lambs have moved up and down, always selling at very much better figures than in past years at corresponding dates, but whenever the \$9 figure was attained a reaction was sure to set in that forced values lower. Meanwhile yearlings and fat sheep have come to the front as favorites once more, and they have advanced sharply on several days, bringing the highest prices recorded in a long period. The owner of a big string of Kansas-fed ewes was greatly elated when his commission firm sold them for him at \$6.40 per 100 lbs., which was 40c higher than any previous sale of ewes this year. Fewer yearlings have been coming to market than heretofore, and the receipts have run very largely to lambs, as usual, with a fair showing of wethers and ewes. The Chicago sheep and lamb market depends largely upon conditions existing throughout the eastern markets, and the weather has a great deal to do with trade. When the weather turns cold much more mutton is consumed than during the spells of mild weather, and the winter has been unusually warm in the east, as well as in other parts of the country. Furthermore, ice is scarce in the east, and it sells at high prices. Then prices for lamb and mutton are very high, and this checks consumption, sheep prices having come nearer those for lambs than for a long period.

Western packers are slaughtering far less hogs in the aggregate than a year ago, and accumulating stocks of lard and cured meats, such as hams, bacon, pork, etc., is a matter of extreme difficulty, with the enormous call for fresh pork absorbing so large a percentage of the hogs. Our foreign exports are a small affair compared to what they used to be, and the packers are likely to find it not easy to feed the people of this country. The largest year of exports of hams and bacon was the 12 months ending June 30, 1898, when we exported 850,295,000 lbs. of these two important hog products, while for the last year these exports aggregated only 356,735,529 lbs. The lard exports reached their maximum in the 12 months ending June 30, 1906, when they aggregated 741,500,000 lbs., but during the last calendar year lard exports were only 470,850,000 lbs. Our exports of cattle and sheep products are also diminishing materially in volume, and our old-time principal customer, John Bull, is now obtaining his meat supplies very largely from Argentina and Australia, scarcely any exports of fresh beef having been made from the United States since last May.

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"Queen"

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### FEEDING LAMBS ON COW'S MILK.

(Continued from page 371).

the top off milk that has stood half an hour or more. Jersey milk should be rich enough, anyhow. If scours result from using cow's milk scald the milk before feeding, and as soon as possible change to a fresh cow. I have never been troubled with scours in cosset lambs, except when the cow used had been in milk for several months and when the lambs had been weakened before birth by improper feeding of the ewes.

In ordinary cases two or three teaspoonfuls of warm milk, well peppered, just before the first meal, will be sufficient. It may safely be repeated several times, however, if appetite seems poor. If a lamb is badly chilled when found, wrap an old woolen shirt around it and, after giving a strong dose of peppered milk, lay it on a warm soapstone. Repeat the pepper at frequent intervals until the patient begins to sit up and take notice, then give all the warm milk it will take from the bottle. I have seen a half-teaspoonful of pepper put into a badly chilled lamb with good results. It is much better than whiskey.

Improper feeding and handling of ewes will sometimes produce lambs that seem resolutely determined to die, and occasionally a lamb is so deformed at birth that the bowels cannot move. I have never known the pepper treatment to fail on a healthy lamb, and have seen it succeed in many cases on small, weak lambs so thoroughly chilled that life seemed almost extinct. Don't use the wrong kind of pepper though—black pepper will do more harm than good. Also don't try to give peppered milk from the bottle—you might succeed once but the lamb would probably acquire a strong prejudice against rubber nipples.

Ionia Co.

STACY BROWN.

### REMEDIES FOR THE PIG-EATING HABIT.

I have noticed in the columns of your paper, several requests for a remedy to stop brood sows from eating their pigs. Here is one which, I think, will be found satisfactory. Dampen a woolen rag with kerosene oil and rub over each pig's back, lightly, do not use too much oil or it will blister. This will not prevent the sow from owning pigs.

Calhoun Co.

M. L. LITTEBRANT.

I have noticed twice of late, people have asked for a remedy for sows eating their pigs. As I have one I thought I would write. I used to have trouble nearly every year with sows, and once had a sow eat her pigs when they were two weeks old. About ten years ago one of my neighbors told me to feed my sows oil meal or linseed meal and a small piece of salt, about the size of a hen's egg, every day for a couple of weeks before they farrowed. I have never had a sow eat pigs since I tried it.

Wayne Co.

A. KINGON.

### FEEDERS' PROBLEMS.

#### Musty Rye for Hogs.

Would musty rye be a safe feed for hogs if cooked and mixed with corn and oats, the mixture to be ground before cooking? Would add that rye is not badly damaged. Would it be practical to sow rape with clover, using a disc drill on corn stubble seeded to rye? Would the rape protect the young clover through the hot weather and make fall pasture for lambs?

Cass Co.

A. R.

Musty feed of any kind is not a wholesome feed for live stock, although if too much of it is not fed and the feed is cooked before using, the danger in its use would be considerably lessened. In a recent issue of the Michigan Farmer a subscriber gave a warning against the use of musty rye and stated his experience in feeding same to hogs with the result that some were lost and the balance were unthrifty. Very much would depend upon the extent of damage to the grain and the amount which is fed.

#### Seeding Rape for Summer Pasture.

I have a piece of black sand land that I seeded to timothy last fall and I did not get a catch. I used 200 lbs. of fertilizer to the acre. I want to pasture this field this summer. Would it be all right to go on with a disc drill and use oats and rape? Does rape make good pasture for milch cows and horses?

Monroe Co.

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This soil should be thoroughly disced or plowed and fitted in order to get a good seed bed for the rape. Simply sowing it on this ground with a drill will not insure a growth of pasture. Rape is not

a suitable pasture for milch cows as it taints the milk in a very disagreeable manner.

### LIVE STOCK NEWS.

Recent receipts of cattle in Chicago and other leading markets of the country have fallen off materially, and the decreased offerings have given rise to a wide-spread belief that supplies of cattle that are nearing maturity are fast petering out. This condition of things was freely predicted by the best informed men interested in the cattle trade several months ago, and there is nothing to indicate that marketings for some time ahead will come anywhere near approaching the normal. Further advances in taken place, even prime heavy beefs nearly all descriptions of beef cattle have participated at last in the upward movement, and obviously at such a time the many inquiries for well-bred feeders and stockers met with the response that these cattle were up too. About the only unpleasant feature of the cattle market from the stockman's standpoint seems to be the strange persistence of some men in hastening their warmed-up cattle to market instead of holding them up to full maturity. Regarding this feature, a cattle trader remarked the other day: "These half-fat cattle of decent quality should be kept off the market. They cannot be replaced advantageously, and while they are selling relatively well, they can be made so much better in a few weeks that their selling value will be materially increased. At present they merely furnish killers with a weapon to hold down values of good steers."

A mammoth Texas ranch produced last year 5,500 calves, and the manager said that with the scarcity of beef cattle everywhere throughout the country, he found raising the calves an extremely important source of profit. Part were sold and part raised, and in both cases profits were found to be proportionately very much greater than for any other class of cattle. Too few stockmen are raising calves, and those who are doing so are not likely to regret it in the future. It is a great pity to see so many first-rate beef calves, as well as good breeder cows and heifers, offered on the markets of the country at such a time of beef scarcity and unprecedentedly high prices.

A prominent live stock commission firm at Chicago sends out the following advice to cattle owners: "With a decrease of upward of 92,000 cattle at the six leading western markets thus far this year, plus the high prices for hogs and lambs, there is good reason for the better trade in cattle. Current prices are unwarranted. People who have cattle on feed are justified in taking a more hopeful view of the future trade prospects. They are also warranted in holding back the partly-fat cattle of good quality for longer feeding. However, holding back cattle in good fat condition for the express purpose of marketing them at higher prices is attended with much risk."

Hog owners these times are extremely fortunate men, and it is a pretty good indication of the prevailing sentiment throughout feeding districts that marketings of swine become small after every considerable break in prices. Owners some time ago fixed upon \$8 per 100 lbs. on the farm as a minimum price, and since then there has been no weakening on their part. The plainly evident serious great shortage in the country's hog crop makes the packers eager to secure their full supplies of hogs for meeting the enormous requirements of the fresh meat trade, as well as for increasing the greatly depleted stocks of provisions in western warehouses. With hogs soaring in prices fully \$2 per 100 lbs. over the figures that prevailed a year ago, cured hog products have not been slow to pursue the same course, and within a short time May pork has sold on the Chicago Board of Trade around \$4.60 per barrel higher than a year earlier, with lard and other products showing similar advances. The consumption of provisions is on a much larger scale than might be expected with the prevailing high prices, as the high prices for beef and mutton are helping the pork consumption. This is especially true of the cheaper kinds of hog meats, and the southern demand looms up more conspicuously as the year advances. The general expectation now is that the advent of spring will bring about reduced marketings of hogs, this being the usual thing about the time that the farmers begin to devote their time to plowing and seeding, instead of hauling hogs to market.

The appearance of lamby ewes in western markets is deprecated and should be stopped. This is of all years the very worst for adopting such a short-sighted policy.

The number of cattle imported into the United States has grown from 93,000 head in 1902 to 325,000 in 1912, while the number exported has fallen from 327,000 in 1902 to 46,000 last year.

Wisconsin has begun shipping its dairy calves to the Chicago market, and probably before long there will be the usual liberal spring offerings and breaks in prices.

Sheepmen have been endeavoring to buy feeder stock in the Chicago market for several weeks, and shearing and feeding lambs of high grade have brought extremely high prices, few being available. The best class of lambs, requiring only a short feed have sold at \$8.25@8.50 per 100 lbs., and within a short time sales have been reported of several lots of Montana and Idaho alfalfa hay-fed lambs for finishing purposes. Hundreds of former sheep and lamb feeders are deeply regretting that they were kept out of the industry this season by the dearth of feeder stock during the past autumn months.

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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 someone else. When reply by mail is requested, it becomes private practice, and a fee of \$1.00 must accompany the letter.

**Cough.**—I brought some horses from the western states and part of them have a bad cough. Also one of them stocks. J. J. S., Scottville, Mich.—Give each horse 1 dr. gualacal at a dose in 1 oz. of olive oil, three or four times a day. For the horse that stocks, give him a teaspoonful of powdered nitrate potash at a dose in feed two or three times a day until the desired results are obtained.

**Lumpjaw.**—I have a cow that has a hard bunch on upper jaw about three inches in diameter with soft spot in center. J. F. Z., St. Louis, Mich.—Open bunch and allow pus to escape, then apply iodoform twice a day. Give 2 drs. of potassium iodide at a dose in feed or water three times a day.

**Feeding Silage to Herd Bull.**—Do you know of bad results from feeding herd bull silage? H. L. M., Hemlock, Mich.—I do not regard silage a proper and balanced ration for stock bull. Feed some grain, roots and good mixed hay.

**Cattle Cough.**—Nearly all our cattle are troubled with a cough and I am fearful they may have tuberculosis. How can I tell if they have tuberculosis? A. G. Forsythe, Mich.—Have your Vet. test them with tuberculin and he can tell quite accurately whether they have tuberculosis or not. A cough is not always a symptom of tubercular trouble. I believe if you will give your cattle two tablespoonfuls of equal parts ginger and licorice in feed three times a day they will get well. Be sure and feed them well, also avoid exposure.

**Hide-bound.**—I have a two-year-old heifer that is fed ground corn, oats, wheat bran, oil meal and plenty of cornstalks, but she remains hide-bound. Mrs. W. T., Kalamazoo, Mich.—Give her ½ oz. of Fowler's solution at a dose in feed three times a day. Her food supply should be increased and her body groomed twice daily. Keep her in a warm, well-ventilated stable.

**Bog Spavin.**—I would like to know how to remove a soft puffy bunch from hock of horse. Horse is not lame and bunch is situated on fore and inside of joint. H. F. S., Munith, Mich.—You will obtain fairly good results by applying equal parts of spirits of camphor and tincture of iodine every day or two, or apply one part red iodine mercury and eight parts cerate of cantharides to bunch once a week. No matter what I have applied to such bunches the results were never very satisfactory; therefore don't expect quick results.

**J. S., Onondaga, Mich.**—Cows that are troubled with clinging afterbirth generally suffer from infectious abortion or have aborted the result of accident. Your local Vet. was right in taking it away, but when it is necessary to remove them the cow should follow up treatment or she will give less milk for some time and perhaps less milk all season. Give each cow 1 oz. gentian, 1 oz. ginger and 1 oz. bicarbonate soda at a dose in feed three times a day.

**Barren Cow.**—We had to take calf away from cow, it was dead; this cow comes in heat regularly, but fails to get with calf. I examined her and found os closed. Last fall I used a wash on her every other day for a month. W. A. B., Ithaca, Mich.—The opening leading into uterus should be almost closed, not large enough to admit a finger. Better fatten your barren cows.

**Indigestion—Liver Disease.**—When my sow took sick her pigs were six weeks old and I weaned them. The pigs have thrived but sow has poor appetite and has been ailing for a few weeks. A. J. T. Samaria, Mich.—Give her 1 gr. of calomel and 20 grs. bicarbonate soda at a dose daily for a week. Also give her 2 grs. quinine at a dose five times a day.

**Bursal Swelling—Worms.**—Have a colt eight months old that has bunch size of a hen egg situated two inches below stifle joint, but it is not causing lameness and this colt is also troubled with long white worms. J. R. D., Lucas, Mich.—Apply one part iodine and 8 parts fresh lard to bunch three times a week. Give colt ½ oz. ground gentian and a dessertspoonful of salt at a dose in feed twice a day.

**Stifle Lameness—Canine Distemper.**—I bought an eight-year-old mare the other day that had been stifled. She travels with a hitch and as this trouble has lasted for the past two months I would like to have her cured. I would also like to know of a remedy for dog distemper. D. F., Ellsworth, Mich.—Apply one part red iodine mercury and ten parts cerate of cantharides to stifle once a week. Give your dog 2 grs. of quinine, one-sixtieth of a grain of strychnine and a teaspoonful of whiskey at a dose three times a day. The vaccine treatment has given me very good results in the treatment of canine distemper.

**Hide-bound.**—I have a nine-year-old horse that is not doing well; is thin, hair long and shaggy and hide is quite tight. G. H. J., Clarion, Mich.—Give her a dessertspoonful of Fowler's solution, a ta-

blespoonful of fluid extract of cinchona, a tablespoonful of fluid extract gentian and a teaspoonful of salt at a dose in feed three times a day. You should increase her grain supply, feed her some roots and groom her twice a day.

**Incipient Bone Spavin.**—Have a ten-year-old mare that shows lameness when first taken out of stable or after she is allowed to stand a few minutes and I am inclined to believe that lameness is in muscles near stifle joint. J. P. G., Shebbona, Mich.—Mix together equal parts of trpentine, aqua ammonia and raw linseed oil and apply to hock and stifle every two or three days.

**Enlarged Glands—Bursal Bunches.**—I have a stallion that has a few small bunches on hind legs about the size of a marble; some of them are located under fetlock joint and I would like to know what would remove them. F. L. M., West Branch, Mich.—Apply tincture of iodine to bunches once a day.

**Bursal Bunches in Hock.**—My three-year-old mare has bunches on her hocks; I think they came on her from rubbing herself in stable. How can I remove bunches of this kind? J. M. B., Milford, Mich.—Apply equal parts spirits of camphor and tincture iodine to bunches every day or two.

**Scours—Bog Spavin.**—I am feeding my colts clover hay and cornstalks for roughage, oats and bran for grain ration. One of these colts scours and they are all inclined to be too loose in bowels. I have also a colt that has a puffy bunch in fore part of hock joint, but is not lame. G. B., Vassar, Mich.—Feed your yearling colt oats and timothy and give him a ½ oz. of ground ginger and 2 drs. of Dover's powder at a dose in feed three times a day. Apply equal parts tincture iodine, spirits of camphor to bunch every day or two.

**Sitfast.**—My five-year-old horse has a hard bunch on shoulder under skin where collar rests; this bunch must be painful for when pinched he pulls away. W. V. H., Grand Rapids, Mich.—A bunch of this kind should always be cut out for they cannot be dissolved or absorbed with drugs. Apply one part iodoform and ten parts boric acid to wound twice a day.

**Sprained Hock.**—My mare injured hock causing leg to swell to body, but she is not much lame and all the swelling has left except that in hock joint. D. A., Montague, Mich.—Apply one part turpentine, one part aqua ammonia and four parts raw linseed oil to hock every day or two.

**Wart on Eyelid.**—I have a valuable yearling heifer that has a large wart growing on upper eyelid. How can I remove it without injury to eye? W. L. H., Kewadin, Mich.—Warts are only skin deep, therefore it should be cut out and boric acid applied to wound once or twice a day.

**Enlarged Glands.**—I have a cow that has some small bunches in her bag, and would like to have you prescribe for her. N. S., Columbiaville, Mich.—Apply one part iodine and 16 parts lard to bunches in bag every day or two. Give her 2 drs. potassium iodide at a dose in feed two or three times a day.

**Abscess.**—I have a heifer that has a bunch on neck the size of a small bowl; it is soft and not painful. She seems to be well, has good appetite and was all right ten days ago. R. C. V., Alamo, Mich.—I am inclined to believe bunch contains either blood or pus. Open it with a small clean penknife and allow its contents to escape then inject with one part coal tar disinfectant and 20 parts water twice daily.

**Infected Udder.**—Six weeks ago a bunch came in my cow's udder which was movable and about the size of my thumb; now she gives bloody milk and a second quarter seems to be diseased. Her bag at no time has been much inflamed, but her milk yield lessens and I would like to know what can be done for her. L. C. B., Munith, Mich.—Give her ½ oz. of hyposulphite of soda at a dose in feed three times a day and apply one part iodine and 20 parts lard to diseased quarters three times a week; it will help her.

**Kernel in Teat.**—High up in my cow's teat is a kernel which interferes with milk flow and after using milking tube for a time she acted as if it pained her, for she kicked when we tried to use it. I had to tie hind legs together before we could milk her, but she enjoyed to let us milk other three quarters of bag empty. D. A. B., Portland, Mich.—Apply one part iodine and ten parts lard three times a week. Give her 2 drs. potassium iodide at a dose once a day.

**Impaction—Nodular Disease.**—I would like to know what ails my sheep. One of them died showing the following symptoms: Loss of appetite, resting head on fence, shaking of head, followed by convulsions and death. I opened dead one and found bunches in fat close to bowels. I feed them bean straw, clover hay and oat straw. H. P., Gaines, Mich.—Their bowels are constive and they die the result of impaction and nodular disease. Keep their bowels open and give each sheep 10 grs. of powdered sulphate of iron at a dose in feed three times a day.

**Tuberculosis.**—When I opened a chicken last week I found a tumor-shaped bunch the size of a small tea cup and I am at a loss to know what ailed this chicken. I did not use him for food. M. R., Grosse Ile, Mich.—Your chicken suffered from either an abdominal tumor or had tuberculosis. He was not fit to eat.

**Ulcerated Cornea.**—I have some young lambs that are having trouble with their eyes. A sort of blister comes on eye ball, breaks and then they are blind. This disease lasts about a week before vision is lost. T. L. S., Lennon, Mich.—Give each sheep five drops of Fowler's solution at a dose three times a day, also apply the following eye medicine three times a day: Borate of soda, boric acid, each 40 grs. in 4 ozs. of water. A bright light always irritates a sore eye.

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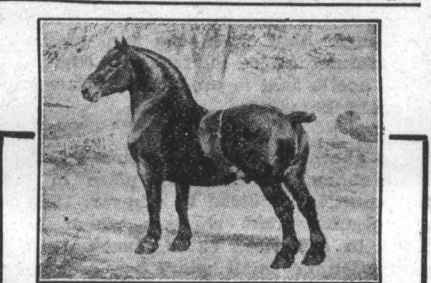
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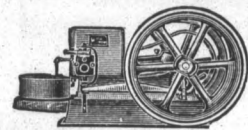
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# Practical Science.

## FOODS AND ACCESSORIES.

BY FLOYD W. ROBISON.  
Discussion on Vinegar.

Vinegar, as the term etymologically is defined, means literally sour wine. It seems that in older times the product consisted principally of actual wine coming through a process of fermentation, at times accidentally and at other times purposely, from waste wines. During late years, however, the product has come to be understood, especially in the United States, as the fermented product derived from the juice of apples, so that at the present time when the term "vinegar" is used it has been conceded that it means vinegar produced from apples.

### The Process of Manufacture.

Technically and briefly the process is as follows: The juice pressed from apples is allowed or encouraged to ferment whereby the sugar is changed to alcohol and the product then assumes a stage whereby it is known as hard cider. Following the more or less complete alcoholic fermentation of the sugar in the apple juice the subsequent acetous fermentation springs up. This acetous or secondary fermentation ordinarily takes a considerably longer period of time for its accomplishment. Speaking chemically the process of this fermentation may be represented as follows:

The cane sugar which may be present in the juice is first inverted by which process the sugar takes up a molecule of water and simultaneously splits or divides itself into two molecules of invert sugar. This process is represented chemically as follows:

$C_{12}H_{22}O_{11} + H_2O = 2(C_6H_{12}O_6)$   
The invert sugar which is represented by the formula  $C_6H_{12}O_6$  as above is now by alcoholic fermentation converted into alcohol and carbon dioxide gas. The reaction is as follows:  $C_6H_{12}O_6 + \text{fermentation} = 2(C_2H_6O) + 2(CO_2)$

Following the production of alcohol which is represented by the technical formula  $(C_2H_6O)$ , what is known as the acetous fermentation takes place by means of which this alcohol is oxidized through fermentation to acetic acid. This may be represented by the formula  $C_2H_6O + O_2 + \text{fermentation} = C_2H_4O_2 + H_2O$   $C_2H_4O_2$  represents acetic acid. A molecule of water or  $H_2O$  is given off during this fermentation. It may now be observed that while it was necessary for the molecule of cane sugar to take up water before it could be changed to invert sugar that when the final stage in this fermentation is reached (that is, when acetic acid is produced), this water is again liberated.

### Other Changes.

The above formulas represent the principal change which takes place in the fermentation of cider to vinegar. There are certain other changes which take place to a limited extent, such as the production of small quantities of higher organic acids and ethers, and incidentally the production of varying small quantities of glycerine.

### Necessity for Standardizing Vinegar.

With the progress of food manufacture in this country quite a large number of varieties of vinegar have been placed upon the market. Some forms are much cheaper to produce than others and of a consequence certain manufacturers have been very prone to substitute the cheaper articles of commerce for the more expensive in order that a greater margin of profit may accrue to them. This has made it necessary that executive officials entrusted with the enforcement of food laws should carefully inquire into these various practices, and at the same time study methods by which such forms of adulteration may be detected. Not only is this necessary from the standpoint of food officials but there are certain manufacturing concerns who have been strenuously striving to place upon the markets products of undoubted purity. Their market has been disturbed by the sophisticated articles which, because of cheapened manufacture may under-bid the genuine article in the market, hence the consumers and the executive officials' interest in this respect lie in common with those of the honest manufacturer. The Board of Food and Drug Inspection has passed upon the question of the labeling of vinegars and Food Inspection Decision No. 140, which is quoted in full

herewith, covers these points in detail. Issued February 27, 1912.

F. I. D. 140.

United States Department of Agriculture.  
Office of the Secretary.

Food Inspection Decision 140.

Labeling of Vinegars.

The Board of Food and Drug Inspection has given this question much consideration. A public hearing was given, a series of questions submitted to the various state food commissioners, interested manufacturers, wholesalers, retailers, and consumers, and a study of the various state laws and regulations was made, believing that these represent the general misunderstanding of the terms by the people of those states. From the information thus obtained the board has reached the conclusion that the definitions given in Circular No. 19, Office of the Secretary, are in accordance with the facts. These are as follows:

1. Vinegar, cider vinegar, apple vinegar, is the product made from alcoholic and subsequent acetous fermentations of the expressed juice of apples.
2. Wine vinegar, grape vinegar, is the product made by the alcoholic and subsequent acetous fermentations of the juice of grapes.
3. Malt vinegar is the product made by the alcoholic and subsequent acetous fermentations, without distillation, of an infusion of barley malt or cereals whose starch has been converted by malt.
4. Sugar vinegar is the product made by the alcoholic and subsequent acetous fermentations of solutions of sugar, syrup, molasses, or refiner's syrup.
5. Glucose vinegar is the product made by the alcoholic and subsequent acetous fermentations of solutions of starch or glucose.
6. Spirit vinegar, distilled vinegar, grain vinegar, is the product made by the acetous fermentation of dilute distilled alcohol.

Several questions regarding these definitions have been raised and after investigation the board has reached the following conclusions:

Meaning of the Term "Vinegar."—While the term "vinegar" in its etymological significance suggests only sour wine, it has come to have a broader significance in English-speaking countries. In the United States it has lost entirely its original meaning and when used without a qualifying word designates only the product secured by the alcoholic and subsequent acetous fermentation of apple juice.

"Second Pressings."—It is held that the number of pressings used in preparing the juice is immaterial so long as the pomace is fresh and not decomposed. The practice of allowing the pomace from the presses to stand in piles or in vats for a number of days, during which time it becomes heated and decomposed, and then pressing, securing what is ordinarily called "second pressing," in the opinion of the board produces a product which consists in whole or in part of a filthy and decomposed material and is therefore adulterated.

Vinegar from Dried-apple Products.—The product made from dried apple skins, cores, and chops, by the process of soaking, with subsequent alcoholic and acetous fermentations of the solution thus obtained, is not entitled to be called vinegar without further designation, but must be plainly marked to show the material from which it is produced. The dried stock from which the product is prepared must be clean and made from sound material.

Addition of Water.—When natural vinegars made from cider, wine, or the juice of other fruits are diluted with water, the label must plainly indicate this fact; as, for example, "diluted to — per cent acid strength." When water is added to pomace in the process of manufacture, the fact that the product is diluted must be plainly shown on the label in a similar manner. Dilution of vinegar naturally reduces, not only the acid strength, but the amount of other ingredients in proportion to the dilution, so that reduced vinegars will not comply with the analytical constants for undiluted products; but the relations existing between these various ingredients will remain the same. Diluted vinegars must have an acid strength of at least four grains acetic acid per 100 cubic centimeters.

Mixtures of Vinegars.—As different kinds of vinegar differ in source, flavor, and chemical composition, mixtures thereof are compounds within the meaning of the Food and Drugs Act, and if they contain no added poisonous or other added deleterious ingredients, will not be held to be misbranded if plainly labeled with the word "compound," together with the names and proportions of the various ingredients.

Addition of Boiled Cider and Coloring Matter.—The Food and Drugs Act provides that a product shall be deemed to be adulterated if it be mixed, colored, coated, or stained in a manner whereby damage or inferiority is concealed; and, in the opinion of the board, the addition of coloring matters, boiled cider, etc., to vinegar, wine vinegar, and the other types of vinegar, or mixtures thereof, is for the purpose of concealing damage or inferiority or producing an imitation product. In the first instance, the use of such products is an adulteration and therefore prohibited. Products artificially colored or flavored with harmless ingredients in imitation of some particular kind of vinegar will not be held to be misbranded if plainly labeled "Imitation Vinegar," in accordance with the provisions of the law.

Mixture of Distilled and Sugar Vinegars.—The product prepared by submitting to acetous fermentation a mixture of dilute alcohol (obtained, for example, from molasses by alcoholic fermentation and subsequent distillation), and dilute molasses, which has undergone alcoholic fermentation, is not "molasses vinegar" but a compound of distilled vinegar and molasses vinegar; such mixtures, however, must contain a substantial amount of molasses vinegar and not a small amount for the purpose of coloring the distilled vinegar. The molasses must be fit for food purposes and free from any added deleterious substances.

Acetic Acid Diluted.—The product made by diluting acetic acid is not vinegar and when intended for food purposes must be free from harmful impurities and sold under its own name.

Product Obtained by Distilling Wood.—The impure product made by destructive distillation of wood, known as "pyroligneous acid," is not vinegar nor suitable for food purposes.

Acid Strength.—All of the products described above should contain not less than four (4) grams of acetic per one hundred (100) cubic centimeters.

H. W. WILEY,

R. E. DOOLITTLE,

Board of Food and Drug Inspection.

Approved:

JAMES WILSON,

Secretary of Agriculture.

Washington, D. C., February 12, 1912.

## LABORATORY REPORT.

### Vulcanizing Rubber.

Will you kindly tell me what substance or liquids will cause melted rubber to harden after the boiling or melting point is reached, while in the process of cooling. I have been experimenting some along this line to apply on automobile tires so it will be hard enough to stand usual wear.

Kent Co.

F. A. W.

The exact technique of repairing automobile tires is a hard thing to describe. It is done usually by a process known as "Vulcanizing," whereby sulphur is incorporated into the product under definite conditions, altering the structure and composition of the rubber by which it becomes hardened. The form of sulphur usually used is a liquid called sulphur chloride, but the work has to be performed under very exacting conditions and requires special apparatus. The operation is so entirely technical that it does not seem that it would be especially desirable to go into it in these columns.

### Coal Ashes Not a Fertilizer.

I have a neighbor who says, "Don't throw away your coal ashes, they make the best kind of manure on the garden." All I supposed they were good for was for road purposes.

St. Joseph Co.

G. C. T.

Regarding the question of G. C. T. above, would say that this question has been answered previously, through the columns of this paper, but we will briefly reply again.

Coal ashes are not of very great value as fertilizer. In fact, we think it would be almost a waste of time to gather them for this purpose. They may be good, however, as a mulch under grape vines or raspberry bushes, etc., and to help keep down the weeds, but in determining just how much one can afford to spend for this purpose no credit should be given from a fertilizer point of view.

## Grange.

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

### THE MARCH PROGRAMS.

#### Suggestions for Second Meeting.

Music.  
Roll call, responded to by each member giving a bad roads experience.  
What do good roads mean to girls and women on the farm? by one of them.  
Echoes from a sermon heard or read recently.  
Recitation.  
What can this Grange do to promote co-operative producing, buying and selling?  
State and city milk inspection regulations.  
Discussion.  
Irish story tellers' half hour.

### A TIME FOR ACTION.

As was to be expected, the Grange is again squarely facing forward in the suffrage campaign. Although this organization has sometimes been called slow and extremely conservative, it must be admitted that it also has a reputation for standing by whatsoever public measure it once espouses. This is not due to a blind regard for consistency, but rather to extreme care and deliberation in arriving at conclusions, its aim, invariably, being to canvass each and every such measure thoroughly from all viewpoints before taking its stand.

The very recent decision of the legislature to re-submit woman's suffrage to the voters this spring naturally means that a sharp, vigorous campaign will be waged by the Grange and the other farmers' organizations of the state during the few weeks remaining. Fortunately there is no hesitation on the part of the Grange, since the organization itself has practiced equal suffrage for nearly half a century—from its very beginning, in fact. Aided by the experience gained through last year's magnificent effort, every Grange in the state can do effective work between now and April 7 if its leaders will but act promptly. As to the proper line of action we would call attention to suggestions offered by the State Lecturer in a supplement to the Lecturer's Bulletin just issued. The time is short and action in all cases should not await the convening of the Grange in regular session. Officers should call special meetings or, as individuals, shoulder the responsibility of getting the campaign under way at once. The State Lecturer's suggestions are the following:

1. Immediately, appoint a Grange Suffrage committee and report to Ida L. Chittenden, Manager, Lansing, Mich.
2. Organize to urge all voters to vote "Yes" on April 7. This is the big work of this short campaign.
3. Co-operate with other organizations in the campaign, financially and otherwise.
4. Order literature from Grange Suffrage Headquarters, Lansing, for use in your locality. (15c per hundred).
5. Have school contests, getting children to write prize essays on "Why women should vote." Have these essays read at Grange.
6. Get suffrage speakers and hold open meetings at school houses and halls.
7. Have debates at open meetings, anywhere, everywhere, upon "Shall women vote?" This may be made one of the most effective ways of helping if enthusiasm is aroused in the outcome of the debate. Send to Miss Chittenden for helps, if you need more than you have at hand.
8. Urge voters to help destroy the influence of private interests in Michigan public affairs.

### AMONG THE LIVE GRANGES.

Co-operation was the main topic at the last February meeting of Cohoctah Grange, of Livingston county. The meeting occurred at the home of Mr. and Mrs. Fred Smith, and the first topic, "The essentials of co-operation in business," brought out a lively discussion. The master told of a visit to one of the meetings of the housewives' league in Detroit. In his opinion they were doing things in the way of co-operating. The work of the Right Relationship League was explained by the lecturer, it being asserted that the league has 15,000 members represented by 150 stores. It was further stated that the Hon. Wm. Maxwell, of Glasgow, Scotland, is president of the International Alliance, a co-operative organization in which 17 different nationalities are represented. Great Britain has 2675 societies with over \$263,000,000 capital and profits of \$55,000,000. Essentials in the formation of co-operative enterprises were enumerated as fol-

lows: The limiting of votes to individual members, irrespective of holdings, and abolishing the proxy. The limiting of interest on capital to the prevailing rates of interest. The return of surplus profits according to patronage, also where practicable, according to service. Among the visitors at this meeting was a graduate of Cornell Agricultural College who gave an interesting talk on the above topic. The talk of Dr. Giltner, State Veterinarian, on hog cholera was discussed, also that of President Snyder of the M. A. C., on "The need of an agricultural expert."

A Cherry Tree was the feature of the last meeting of Nunica Grange, of Ottawa county. This meeting had been planned for Washington's birthday but bad weather made a postponement necessary. After a program of music, recitations and songs the members listened to the reading of the Declaration of Purposes of the Grange. Then the cherry tree feature was introduced. As each member picked a cherry from the tree it was opened and found to contain a number which entitled the owner to some article at the booth, causing much merriment, as some of the ladies drew corn-cob pipes and cigars. The Grange will dispose of a quilt at an entertainment in the near future. At the meeting of March 22 Dr. N. H. Kassabian, of Coopersville, will be present and will give a lecture on his native country, Armenia.

Agricultural Credit and Co-operation were discussed by Ottawa county patrons at a comparatively recent meeting of Western Pomona. One speaker thought the question of securing better agricultural credit a deep one and held that while in some parts of the country there might be need of a lower rate of interest, in his section the farmers do not have much cause for complaint. Others were of the opinion that to the young man buying a farm for a home a lower rate of interest would be of great advantage, and that "Uncle Sam" is the man who should provide the money. In the matter of securing closer relations between the producer and consumer, it was conceded that it would be difficult to dispense with the middleman in all cases. However, it was believed that where a farmer lived within hauling distance he could, if so inclined, probably build up quite a retail trade with people living in the cities. A talk on "Organization and Co-operation" was given by H. F. Baker, member of the State Grange executive committee, in which was emphasized the necessity of greater unity of action among the farmers in obtaining legislation that is of interest to them, also in advancing social and educational matters in rural communities.

Chatham Grange, of Alger county, is one of the Upper Peninsula's live subordinates. At one of its early winter meetings the young people presented a pantomime entitled "Wanted, a Wife," revealing a diversity of talent which augurs well for the future of the organization. The officers installed by this Grange at the beginning of the year are: Master, Andrew Johnson; overseer, Knute Lindquist; lecturer, Mrs. C. C. Brown; steward, Mr. R. Carr; assistant steward, John Lagergren; chaplain, Mrs. Andrew Johnson; treasurer, Mrs. M. Lagergren; secretary, Mrs. Wm. Mead; gatekeeper, Willie Johnson; Ceres, Ellen Johnson; Pomona, Mrs. Frank Hill; Flora, Mollie Christofferson; lady assistant steward, Alice Johnson.

New Hall in Eaton County.—At a meeting of Eaton Pomona, early in the year, it was announced that West Benton Grange, one of that county's hustling subordinates, will own and occupy a fine new hall before the year's close.

### THE GRANGE IN OTHER STATES.

Pennsylvania Farm Cadets.—The Pennsylvania state lecturer, in his annual report, recommended that the boy students in the 300 high schools of the state giving agricultural instruction, be organized into a company of farm cadets and sent in squads to farms near their schools to assist in farm work.

New Jersey Patrons are on the lookout for the alleged "dangerous discrimination" against the rural school. In its report at the last State Grange meeting the committee on education gave an instance in one agricultural township where \$4,448 was allowed by the state for the education of 355 pupils, while a neighboring high school had \$3,421.30 to be expended on 38 pupils.

Growth in New York.—The secretary's report, submitted at the meeting of New York State Grange last month, showed 815 subordinate Granges in the state, a net increase of 31 since the last annual meeting. In the 781 Granges from which reports were received prior to Oct. 1, 1912, there were 103,665 paid up members, but including members in arrears total membership on Oct. 1 was 104,683. Among the largest Grange counties of the state, counting paid up members to Oct. 1, 1912, are Jefferson with 7,715 members; Chautauqua with 7,486; Monroe with 5,292; St. Lawrence with 5,206 and Wayne with 5,192. There is no county in the 4,000 list, three in the 3,000 list, viz.: Herkimer, Ontario and Steuben, while there are 13 in the 2,000 list and the balance have less than 2,000 each. There are only four dormant Granges in the state. The total number of Pomona or county Granges is 49. The total receipts of the secretary's office for the past year were \$30,202.97.

### COMING EVENTS.

#### Pomona Meetings.

Genesee Co., with Davison Grange, at Davison, Friday, March 21.  
Ionia Co., with Portland Grange, Friday, March 21.  
Ingham Co., with Williamston Grange, Friday, March 28.

## Farmers' Clubs

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

President—Jas. N. McBride, Burton.  
Vice-President—C. B. Scully, Almont.  
Secretary-Treasurer—Mrs. C. P. Johnson, Metamora.  
Directors—C. P. Johnson, Metamora; H. W. Chamberlain, White Lake; Wm. T. Hill, Carson City; Jerry Spaulding, Belding; R. J. Robb, Mason; J. F. Reiman, Flint.

#### 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.

### WHAT THE LOCAL CLUBS ARE DOING.

The Norvell Club, of Jackson County.—This Club was represented by Mr. A. R. Palmer, who stated that the Club was in a rather weak condition, due to the fact that the young people had not been sufficiently interested in its work. He drew from this fact a lesson for other Clubs to make use of their young people as in this way they will interest them in and identify them with the organization in a manner which will insure its perpetuity and prosperity. This Club uses monthly programs instead of a yearly program believing it better to take up the topics in the public mind at the monthly discussions than to assign subjects a considerable time in advance. The president and secretary act with the program committee in making an interesting program for the monthly meetings.

Washington Center Club, of Gratiot County.—This Club has a membership of 80 and holds 12 meetings during the year, six of which are special feature meetings. Included in the latter are a Temperance meeting, a Mothers' meeting, a Children's meeting, a Musical meeting, a summer picnic and a Club Fair. From October to May all day meetings are held and during the balance of the season afternoon meetings are the rule. The hostess serves light refreshments at each meeting. This Club has been organized nearly 14 years and only one meeting has been missed in that time. For 11 years the Club has used yearly printed programs. The Club Fair is a special feature and a chicken-pie dinner is served on this occasion. A flower committee is maintained in the Club.

The Saline Farmers' Club, of Washtenaw County.—The delegate from this Club stated that yearly programs were used, but that the executive committee is empowered to change the monthly program to suit the occasion. This Club, while in a prosperous condition, is one of the smallest in the state, having a membership of only 12 families. The membership fee is \$1 per year.

The Eckford Farmers' Club, of Calhoun County.—This Club was organized in 1895 and holds nine meetings during the year. One hundred members are included on the roll. The membership dues are 25 cents and an additional 20 cents for the flower fund. The Club uses yearly printed programs. At the June meeting exercises are held by the eighth grade graduates of the Eckford township public schools.

The Hillsdale-Lenawee Farmers' Club holds nine meetings during the season, skipping the months of May, July and August. The membership consists of 35 families which are scattered over considerable territory. early programs are used. The Club owns its own lapboards, each family bringing its own dinner, coffee being furnished by the hostess. A memorial meeting is held in May, which is quite a special feature of the Club.

Orleans Farmers' Club, of Ionia County.—This Club holds its meetings in a hall and keeps dishes on tables there. The floors are occupied and 100 to 150 people are entertained at each meeting. The members like this plan better than holding the meetings at the homes. They rent the hall and hire people to come in and do up the dishes and keep the tables in order. Eight regular meetings and a picnic are held during the season. The membership dues are 50 cents per person. Monthly programs are used and a good dinner is considered an important feature of the meetings.

### FROM THE ASSOCIATIONAL OFFICERS.

To the Farmers' Clubs of Michigan:  
By a unanimous vote of the State As-

sociation at Lansing the following resolutions were adopted:

Resolved, That the apparent defeat of the constitutional amendment granting woman's suffrage demands the attention of the public, to the situation whereby a "special interest" attempts to deprive the elective franchise of a great moral force. We ask that the power of the state be used to determine that an honest count be made and that if the record is so clouded that the true will of the people be obtained by the legislature resubmitting the question of woman's suffrage at the next election.

Resolved, That in case of the resubmission of the woman suffrage amendment to the state constitution at the spring election, we, the State Association of Farmers' Clubs, recommend that an address to the voters be prepared and each Club member be made to feel that the necessity of securing the largest possible vote and that the local Clubs be made centers of work for securing an affirmative vote.

In pursuance of the above resolutions the State Association by its officers consider it not only a duty but a pleasure to ask all of the Club members to use every rightful means to secure a favorable action of Clubs at their meetings preceding election and also the individual members to get voters at the polls. We believe that as a power for righteousness in government that woman suffrage will be effective.

There is no organized opposition to woman suffrage except from the liquor interests. This opposition is really complimentary to women and the question is whether the men of Michigan are chivalric or will recognize woman as an economic factor in citizenship and moral progress or will rally to the support of the "wet" interests.

JAS. N. McBRIDE, Pres.

MRS. C. P. JOHNSON, Sec.

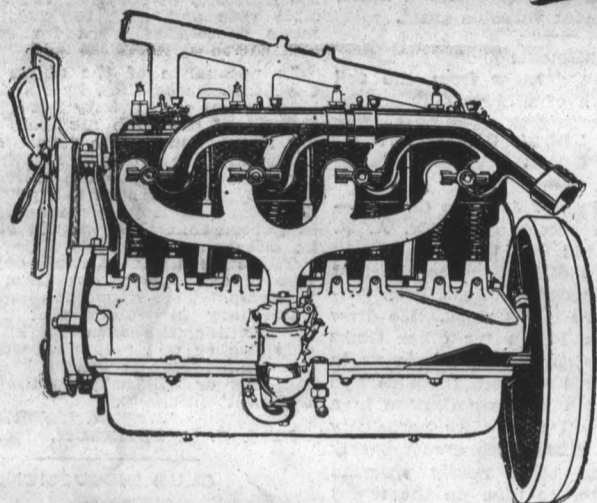
### CLUB DISCUSSIONS.

An Enjoyable Session.—One of the most enjoyable social sessions in the history of the Hadley and Elba Farmers' Club occurred at the home of Mr. and Mrs. Frank Jones, February 20. After a bountiful dinner Vice-President C. A. Davenport called the meeting to order. Rev. Ehrhart offered the invocation and was followed by an instrumental solo by Ruth Jones. The minutes of the last meeting were approved as read, and W. E. Ivory gave a report of the meeting with the Flint parties. Owing to a misunderstanding Mrs. Mott was not prepared with the Club history, so Messrs. A. M. Bullock and C. P. Johnson gave impromptu talks on the culture and disposal of the apple crop. Several selections were very effectively rendered by the male quartette, Messrs. Phelps, Hartwig, Johnson and Ivory, and the Club adjourned.—Mrs. C. P. Johnson, Sec.

Record Breaking Meeting.—The March meeting of the Ingham County Farmers' Club was attended by over 100 members and friends who gathered at the home of Mr. and Mrs. J. M. Thorburn. The meeting was called to order by President Ives, and resolutions deploring the recent attack on President Snyder, of M. A. C., and its possible effect on the needed appropriation for the college were passed and ordered sent to the senator and representatives from Ingham county. A resolution on woman's suffrage passed by the State Association of Farmers' Clubs was also read, and a similar resolution urging every Club member to do his part toward the passage of the constitutional amendment this spring was adopted.

"Birds of Michigan" was the subject of the day. A. M. Chapin, who, by the way, is the third generation of one of the charter members of this Club, opened the discussion. He stated that aside from these that naturally find their homes in Michigan, there are many that are here for a short time, in all 236 varieties, and there are 800 different species in North America. As a boy he liked to gather eggs, and had a collection of 136 varieties. He was more anxious for the eggs then, now he would pay more attention to the birds and their habits. When in college and going out for a morning stroll, it was not uncommon to see 50 different kinds of birds. He spoke of the Bobolink being a forerunner of spring, that he left the south just as they were planting the rice, and when it was ready to harvest in August they were back south ready for their share. Birds are a great benefit to agriculture. The quail lives on the seeds of weeds. Of the many kinds of hawks and owls all do good, unless it be the chicken hawk and the woodpeckers are also useful. He thought the federal government should pass laws to protect the birds. The northern states have fairly good laws, but the southern states have none, and many thousands of our useful birds are killed annually. He referred to the bulletins published at Washington that were free and gave much valuable information. Sydney Taylor followed and availed himself of the chance to correct a mistake made in the report. Of the 55 varieties of hawks only one was injurious, so one must not condemn the hawk family. The bluejay eats the brown moth. The field mice that do so much damage are kept in check by the hawks and owls. It was not uncommon for a bird to destroy 200 field mice, so it was not hard to tell which side of the ledger his credit would be. Mr. Webb told a pioneer story of the screech owl, Mrs. Bush told of the wholesale destruction of the birds in the south. Miss Whitmer spoke of the king bird eating bees, but investigation has proven that the bees were the drones, and that birds were especially fond of the mulberry, and if one would plant a tree it would be a protection to our cherry crop and other small fruit, and several others had a good word for our little feathered friends.

# Overland



## How Overland motors are made

All Overland motors are designed by Overland men—made by Overland men—and made in Overland factories. We will build 40,000 motors this year. No other automobile manufacturer will build as many of this type. That is why we can build them better, and for less cost. We employ the most skilled motor builders in America.

Following are a few of the most important facts about the Overland motor.

Cylinders have large water-jackets and are cast singly, increasing cooling efficiency with the advantage of being able to replace a single cylinder at low cost should an accident occur. The crank shaft and connecting rods and all other forgings are of high carbon manganese steel.

All bearings, cylinders, pistons and rings are ground to accurate and tested smoothness, insuring long life, freedom from wear and positive compression.

All the wearing surfaces of the valves are ground to a one-thousandth part of an inch. Owing to their peculiar design and large size they enable the motor to develop at least fifteen per cent more horsepower than any other motor of the same bore and stroke.

The cam shafts are drop-forged (in our own drop-forge plant, which is the largest in the industry) oil-treated and case-hardened. They are ground and machined automatically, insuring positive accuracy in the relative position of one cam to another.

This is the only car of its class provided with a five-bearing crank shaft. This crank shaft is drop-forged from one piece of carbon manganese steel and rotates in five bearings of unusually liberal size insuring quietness and extreme long life.

The crank cases are cast in two sections, of the finest grade of aluminum alloy attainable—and cast in our own foundry.

No other motor in the world is given a more severe test and thorough inspection. The engine is belted up for two hours, and driven by other than its own power to limber it up so that it will start easily. Then it is put onto the block and run from 8 to 16 hours under its own power.

## The Importance of a Powerful Motor

**A**S the motor is the most important part of a car, it is safe to assume that you can judge a car by the performance of its motor. Therefore, be guided and informed by the following information.

Every practical farmer knows the value of a good motor in an automobile. He knows, too, from experience, what constitutes a good motor and what is expected of it. He wants power, economy and silence.

The motor is the most expensive single unit of the Overland car. It has a 4" bore and a 4½" stroke. It is the most efficient 30 horsepower motor made. We say efficient for it has, by demonstration in tens of thousands of cars, proven to be the best for your specific purposes.

It is exceptionally economical to operate—using less fuel per mile than any other motor of equal size.

It is remarkably powerful, developing forty to fifty miles an hour with ease; and over your kind of roads, without eating up an unnecessary and costly quantity of gasoline.

It is the only motor of its size made with a five bearing crankshaft which makes for real smoothness, silence and ease when in operation. This feature is only found on very high priced cars.

It is remarkably simple. It is practically frictionless. Requires no coaxing or continual adjusting. In fact, you seldom have to lift the hood. Is always obedient.

And the self-starting feature adds the final touch of perfection. Just throw a little lever and you're off. Your daughter can start, operate and drive an Overland as well and as easily as you can. It will always start in bitter cold and freezing weather as quickly as in the summer—by just switching the little lever on the dash.

So we ask you to judge the exceptional value of this car by the exceptional efficiency of its motor.

This big, powerful, comfortable touring car costs you 30% less than any other similar car made.

We have some very interesting books we would like to send you. They are free. Write us for a set today.

Please address Dept. 86

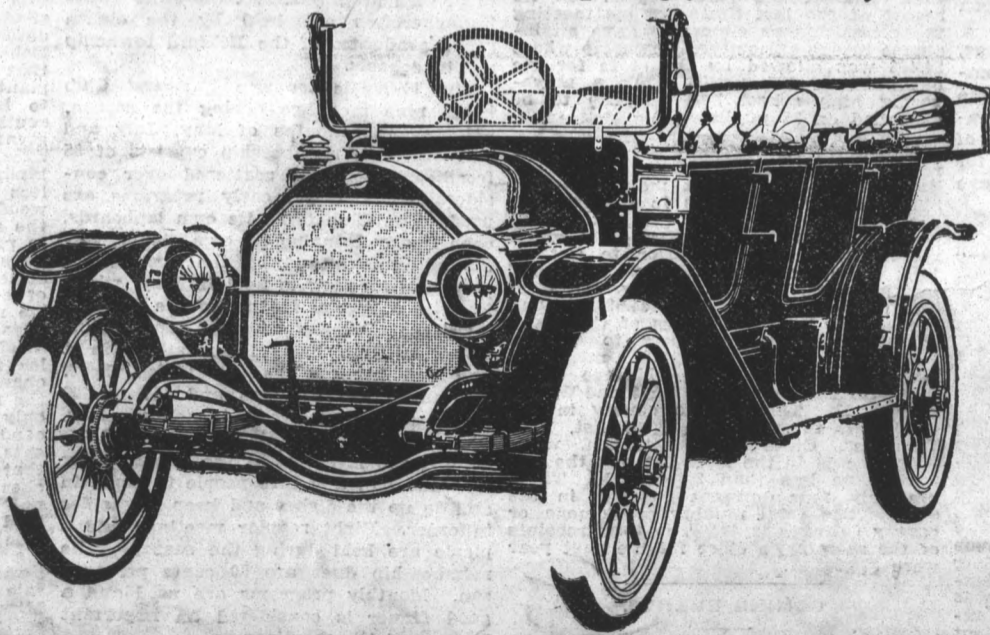
## The Willys-Overland Company, Toledo, Ohio

### \$985

F. O. B. Toledo

**Completely Equipped**

Self-starter  
30 Horsepower  
5-Passenger  
Touring Car  
110-inch Wheel  
Base  
Timken Bearings  
Center Control



### \$985

F. O. B. Toledo

**Completely Equipped**

Remy Magneto  
Warner  
Speedometer  
Mohair Top and  
Boot  
Clear Vision, Rain  
Vision Wind Shield  
Presto-O-Lite Tank