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Efficiency on the Farm.

SPEAK of business efficiency in connection with the management of a farm and many worthy persons think immediately of sensational modern methods. A few farmers believe efficiency is the solution of all farm problems, whereas others are just as certain it is a passing fad. In some of the counties where experts have been employed wonder is expressed that so much fuss should be made over something that is not even new. Some of the more progressive farmers point to the methods of efficiency on their own farms, where they have been in operation for years. So with all the explanation and discussion, the whole subject of efficiency is still surrounded by rather a dense fog.

Today the business farmer is at sea to know just what to do to put this efficiency idea into successful operation on his farm. He has read the better class of agricultural publications since the idea became prominent. He has followed the editorials and articles, and knows instances where it has proved beneficial or to the contrary. Now he would like to know what it can do in his own business. Also, he wants to know if he employs an expert that he is securing one who is efficient.

The farm is no different from any other kind of business in the management of its everyday affairs, and in the general readjustment of farming going on today better efficiency methods are being put into practice. The man accustomed to fighting waste and lost motion in his business finds plenty of it to be eliminated on the farm. If a farm is showing an annual deficit, declining in productivity and falling behind, the difficulty is usually to be found in what might be called, with all respect, its efficient administration. In some way it is not producing enough good things for market, or is not selling them skillfully, or the operating charges are too great. This view of efficiency shocks the mind that thinks growing big crops and selling them to the first buyer constitutes the sum-total of efficient management; but a good many farmers are coming round to the opinion that poor business methods have no place on the farm.

The Functions of a Farm.

Poor business methods often begin with limited ideas about the functions of a farm. Even the owners themselves may get into the rut of thinking it is the hardest business on earth and regard it only as a place where they can work and live, provided opportunity never knocks at their door and calls them in some more profitable direction; but the farm has much more than that to offer. Its business, moral, social and educational phases are very diversified. Moreover, efficiency is just as necessary on the farm, and pays as large returns, as in any other line of business.

Where Efficiency was Applied.

Not long ago failing health prompted a city man to retire to the country. He had a good business training—a partner in a large iron foundry in the city—and he went about it in a thorough business way. He sat down with his foreman and compiled a list of everything needed on the farm for the first year; opposite each item he set down a definite sum. It was a long list and he began to get prices from dealers and manufacturers. By paying cash and ordering from only a few dealers he saved more than 20 per cent on local dealers' prices. Right at the very beginning he discovered that by paying cash and dealing direct with manufacturers and large city dealers he could save 20 per cent. All of the feeds and fertilizers are purchased at times when the markets are favorable and when the men and teams are not busy on the farm. This

means low prices and minimum charges for hauling and storing.

His way of managing the labor and team work problem was simple enough. On the principle that idle men and work horses are two things that a successful farmer must cut away from, he worked out a system of keeping account of the labor charges against each crop and branch of his farming. The system was gradually changed until a high standard of execution was set and a big saving made in men and teams. The account sheet showed that the men and teams only reached maximum efficiency for a few weeks during the spring. Each crop seemed to demand attention at that time and considerable had been lost by not being able to give them all proper attention. This necessarily cut down the yields and consumed what otherwise would have been a profit. So in a short time he substituted fall sown wheat and rye in place of oats in his crop rotation, and by doing considerable fall plowing disposed of one work team and an extra hired hand for several months during the rush season. Soon more of the land was drained, and a larger area kept in hay and pasture. This enabled him to sell two more work horses and keep the farm work going with one less man. A still further saving was made by purchasing a one-half interest in a farm tractor and using it for plowing and heavy hauling about the farm. The use of the tractor makes it possible to do the farm work with brood mares and raise five or six colts each year. This adds a tidy sum to his net income and the horses are in still better shape to do a maximum season's work than when they had to do the plowing and heavy hauling. For the past two years the cost of operating the farm has been cut down more than 30 per cent and the gross sales have increased 25 per cent. During this time there have been no changes in the labor force, and each man's work is done easier than before the changes were introduced. Labor troubles are reduced almost to zero by furnishing steady work and furnishing neat cottage homes for married men. Plenty of men are always waiting to fill in any vacancy, for the discipline, strengthened by a bonus system, is an attractive proposition to the thoughtful worker.

Paying a Bonus for Efficiency.

In discussing his bonus system the owner said: "After making market milk for about two years I decided to overhaul my buildings, have my herd tuberculin tested and produce certified milk. The first few months things went along smoothly, but eventually some of the men became careless in their work and at times the bacterial count would go as high as 50,000 per c. c. I tried every scheme I could think of for several months, and I came near abandoning the business in disgust. Finally I concluded that some particular employe was careless in his work, but to discover the guilty party was quite another question. After studying the situation from several angles I called the boys into the dairy house and told them that although they might have the best intentions in the world, that somebody was careless in his work, and that I proposed to find out who it was if I had to hire new men in every one of their places. I promised them a bonus of \$15 per month for each milker and \$20 to the man who had charge of the milk room and bottling if they kept the number of bacteria below 10,000 every day in the month. They soon discovered the guilty parties and every man has received his bonus every month, except two, for the past two years. It did not take them long to trace the source of trouble when it reflected on their monthly pay checks. Every man is

working for his \$15 bonus and keeps watch of the other fellows and quickly discovers if they become slovenly in their work. By putting a premium on cleanliness and thoughtful work, a complicated problem was solved in a practical way."

Proper Adjustment a Factor in Efficiency.

Until recent years it seems as though even farmers of sound business judgment have hesitated to tackle efficiency problems on everyday business lines. Many of the farmers look upon farming as labor rather than business, and they work for years and never get anywhere—or get the farm anywhere, either. There are too many farms that are being operated with no definite aim in view for the work and capital expended. Farm efficiency calls for a careful adjustment between the different branches, such as are necessary in the factory where the business is carried out with plain common sense.

When a trained business man looks over his farm with an idea of developing its latent resources he finds it necessary to make ample provisions for maintaining its productivity. Good live stock is full of possibilities, both from the efficiency and from the fertility side. It helps to distribute the labor evenly throughout the year and helps to provide a steady income; it leaves a valuable by-product to keep up soil fertility and encourages the growth of crops which improve the physical, chemical and biological conditions of the soil. The growing of clover, grass and forage crops and feeding them out to live stock enables the farmer to derive two profits, one from his farming and one from his feeding, and leaves two-thirds of the plant food on the farm. In order to make stock farming profitable one must have efficient animals that are adapted to his business. Some of the inefficiencies in herds and flocks emphasize beyond any question of argument the necessity for better and constant selection of animals that are adapted to the farms and branches of feeding that are being practiced. The feeder should produce such food for his stock as it is possible to grow on his farm, rather than pay one or several prices to feed jobbers. He should bear in mind that the indirect benefit of stock feeding is to maintain soil productivity and furnish a market for his crops and he should cash in the latter by raising his own feed and feeding it to animals that are capable of returning more than the market prices for his feeding materials.

New York. W. MILTON KELLY.

This is the third of the 52 special articles announced for the year from November 1. Other articles on this special topic will appear in future issues. The special article for next week will be "Peppermint in Relation to Soil Fertility."

THE VALUE OF THE FARMER'S TIME.

Everyone who works day after day should establish a standard of value for his labor, whether he be doing office work in the city or merely plowing his own corn field where he begins work when he chooses and quits at night when he sees fit to do so. Perhaps it may not be an easy thing to establish this standard with accuracy but the worker usually knows pretty well what he can accomplish in a day and then it is an easy matter to compare with what others are doing and the prices that they are receiving.

I am very well acquainted with a farmer whose motto is: save everything, even though it may take considerable work. He has plenty to live on comfortably for the rest of his days without having to worry much about his present crop prospects and attributes his good fortunes all to this one characteristic of saving, but is he right? I have seen him spend hour after hour with a hoe trying to kill weeds that had gotten ahead of a cer-

tain crop due to bad weather conditions when he knew at the time that his labors would not yield returns sufficient to pay him seventy cents a day for his trouble. The only excuse offered was that the crop was nearly grown and he couldn't afford to see it wasted entirely, for want of care.

Again, I have seen other farmers who never seemed content unless they were busy at something during every hour of the day, whether the work done was likely to yield a profit or be a loss if judged from the standpoint of the value of labor. It may be that some men can work thirteen or fourteen hours each day on the farm and do just as much per hour as if they worked only ten hours, but such persons are certainly exceptions, for ordinarily overwork means decreased efficiency until very little can be done in the longer than in the shorter time. Even should this not be the case, wouldn't it be better in the average case to work a little less each day and spend the rest of the time learning more about the business that is being conducted, or else merely enjoying the fruits of labors already done?

We read quite a good deal at present about the tendency for the farmer to go to the city in order to try to find a business that will require less work, and at the same time yield larger profits. To what can this sad condition of affairs be attributed? For the most part I would say that it is because the farmer has failed to look far enough ahead and plan so as to be able to maintain the soil fertility. He has worked hard but he hasn't placed a value on his time and tried earnestly to live up to the standard set. It may be best in a few instances to do work that will not yield a money value equal to the value of the laborer's time, but in such cases the returns are ultimately received through the increased beauty of the farm or by way of other channels. Make every day's work pay and yield a profit in addition. Farm life will then seem easier and a real pleasure when it may have seemed a drudgery before.

Iowa.

F. E. ALLISON.

STATE POTATO SHOW AND MEETING.

The Michigan State Potato Association will hold its annual meeting at Kalamazoo, December 3 to 5. This meeting will follow immediately after that of the State Horticultural Society. The first session of the Potato Meeting will be held Thursday evening at eight o'clock. There will be a session Friday morning and afternoon with a banquet Friday evening. The last session will be held Saturday forenoon. A good program has been arranged and everyone interested in the potato crop is invited to attend this important meeting. Write to C. W. Waid, Secretary, East Lansing, for a copy of the program.

Liberal premiums have been provided through the courtesy of the Kalamazoo Commercial Club and others, amounting to about \$150. Premiums are offered on peck entries of six types, Early Ohio, Early Rose, Irish Cobbler, Rural New Yorker, Green Mountain and Russet Rural. The first premium in each case is \$5, with from four to seven additional premiums for each type.

Premiums of \$15, \$10, \$5, and ten of \$2 each are offered for the best 10-peck display of any one variety included in the six types named in the variety type exhibit.

Suitable ribbons will be given to the three counties making the best showing and also to exhibits made by boys and girls' clubs. Some special premiums will also be offered. Write the secretary at East Lansing, Mich., for the premium list and send in an exhibit that will take some of the prizes.

C. W. WAID, Secretary.

The Shape of Fields.

IN laying out a new piece of land into fields, or in replacing the old fences with new, one frequently has a chance to make the shape of the field as he wishes it. Shall it be square, or shall it be rectangular, and why?

Suppose for convenience in discussion, that a quarter-section is to be subdivided into four fields, and a four-year rotation carried out. Each field will then contain forty acres. The first way of laying out the fields that suggests itself is that of four squares, made by running fencing so as to bisect the quarter-section in each direction.

Such an arrangement would accomplish the desired distribution of the holdings into fields with the least possible outlay for fencing. There are other factors to be considered, however, besides that of the initial cost of fencing. Among these might be mentioned the accessibility of the fields without the building of lanes. In this respect, it will readily be seen that the square field arrangement is at a disadvantage, since it will be impossible to pasture stock in one of the fields without stopping the rotation or else running an extra line of fencing down the center of the farm and so making a lane.

Now if this is done, nearly as much fencing material will be required as would be the case if the farm were laid out into four fields measuring 40 by 160 rods, with one end of each field abutting the highway nearest the buildings. And how will it then be as to accessibility of the fields? With an arrangement of the gates along the road, it is apparent that the operations in each field could very conveniently be conducted from the road as an avenue of approach, rather than a lane built for that purpose. And since the lane would never be placed under rotation, but rather lie as a comparatively useless pasture strip of half an acre or more, it is evident that a greater amount of land will be utilized if the fields are laid out according to the long, narrow idea.

Long, narrow fields also have an advantage over square ones, when it comes to plowing, dragging, mowing, and the like. Take plowing, for instance; if each field is plowed in lands the furrows will be half a mile long in the narrow field, and one-fourth of a mile long in the square field. Then there will be just twice as many stops to turn the horses and jerk the plow around at the end of the row in the square field as in the long one. Usually one wants to stop a minute and rest at the end of the row, and doubtless better work is done, both by man and team, if a brief rest is taken in this way, but a man who plows two acres a day will, with a 14-inch furrow slice, reach the end of the field 54 times during the day with the long, narrow field, and 108 times with the square field. Allowing a minute to rest and turn the team in each case, it will be seen that the long, narrow field will save an hour a day, nearly, over the square one, in which a man is compelled to make 54 extra turns at the end of the field.

The same reasoning should apply to planting corn, drilling grain, mowing, cultivating, etc. Furthermore, it would seem that in marking out for planting, one could do better work in a long narrow field where the fence serves as a close guide, than in a square one where the fence is at a distance.

When it comes to orcharding, there is again an argument in favor of a long narrow block of trees of a given variety rather than a square block. It is in regard to cross-pollination, and applies especially to many varieties of plums, apples, pears, and grapes. It is a generally accepted fact that the

interplanting of varieties with fruits is advisable to secure the cross-pollination at blossoming time which leads to the best results. In the long, narrow block of trees, another variety is bound to be adjacent, while in a square block, the central trees are not so subject to cross pollination as they might be.

On the whole, the advantages of the long, narrow field, garden, or orchard over the square-shaped plot seem to commend themselves very favorably to the thinking farmer, and wherever it is possible to choose between the two methods of management, one should have little difficulty in reaching a decision as to the more practical arrangement.

Benzie Co.

E. H. BROWN.

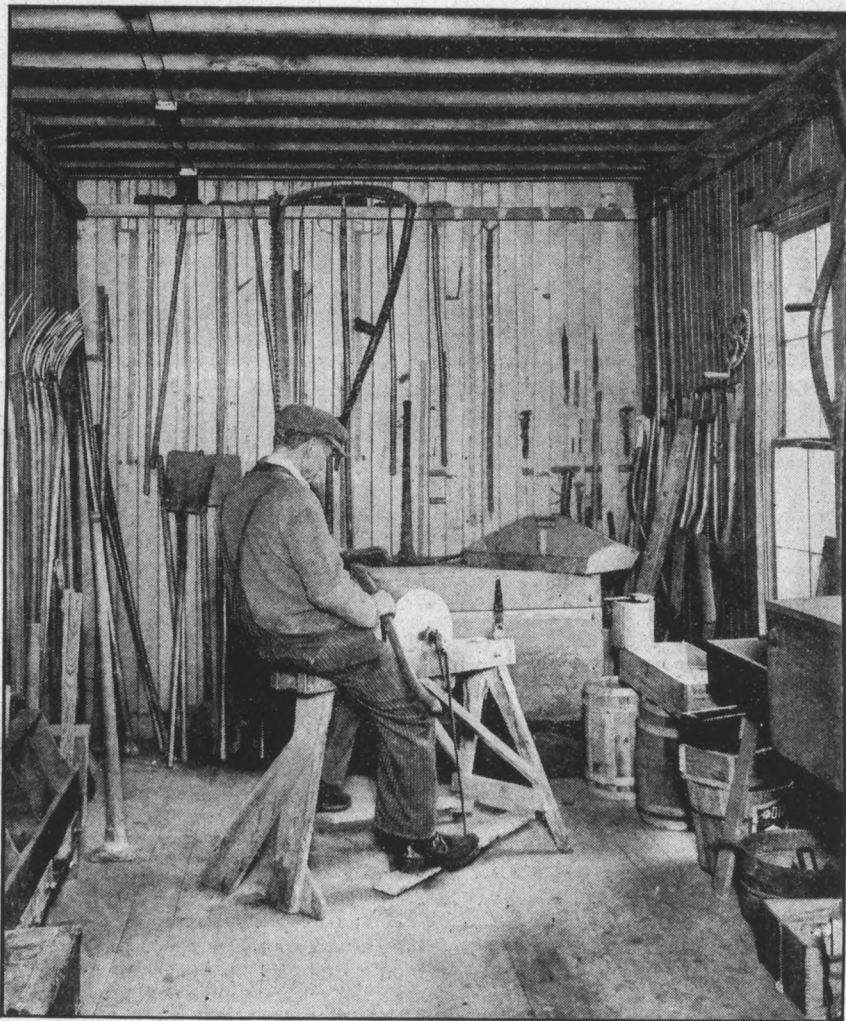
WHY SOILS BECOME SOUR.

Throughout large portions of the United States, especially in the eastern and southern states and in the corn belt along the Ohio river, there exists at present large areas of soils that are now sour and have been in this condition for several years. In

areas. There are a few agencies that constantly return slight amounts of lime to the soil in either case but the quantity is too small under ordinary farming conditions to equal the amounts removed annually.

The principal loss of lime is by leaching as an indirect result of bacterial action in the soil constantly changing the insoluble material to the soluble form. It is necessary that bacteria live and multiply so it is not possible to control this loss to any extent without also causing a decrease in crop production. For most crops very little lime is required for actual use by the plant as food. Alfalfa may be considered as an exception since for every ton of hay produced about fifty pounds of lime are incorporated into the plants as a vital part of their make-up and as a very essential material for proper growth.

Organic matter must be constantly supplied to the soil which is of no use to the plant until it undergoes a certain amount of decay, but in this very process acids are formed which are quickly neutralized by the lime present but this means that the time when acidity will finally show itself is constantly approaching. Here, again, it is not possible to do more than partially control the losses by keeping



Making Use of the Farm Workshop on a Stormy November Day.

other portions of the country acid soils are found in many local areas and nearby soils are now just on the verge of developing this condition. The question naturally presents itself, why is this sourness continually increasing and is there any way to guard against it?

The natural growth on uncultivated soils does not seem to deplete the soils of lime to any extent, but it is the soils that have been under cultivation for several years that are showing the loss of basic materials and the resulting increase in acidity. This may be attributed to two factors; first, the direct loss of lime through the drainage water and through its use as plant food; and second, the production of acids from the decomposition of material in the soil with the consequent destruction of basic material present. It is true that the same actions occur in soils that have never been plowed but not to such an extent as in cultivated

the soil in a good state of tilth, insuring proper bacterial action.

On the whole, we see that the development of acidity is not always the result of bad farming practices, but rather a natural outcome of essential actions going on in the soil all the time. However, if this sourness is not corrected, then we certainly have a strong indication that the farmer is a rather poor one. Applications of various kinds of fertilizers will influence to a certain extent the loss of lime, as will also the use of manures. Likewise the kind of green manures turned under and the time at which this is done will have different effects but in any case a certain amount of acids will be produced and ultimately lime in some form, preferably in the form of ground limestone, must be applied. The cost is not great but the benefits derived will certainly be large if the soil is at all sour at present.

F. E. ALLISON.

UTILIZING THE LEAVES.

The odor of burning leaves so characteristic of late autumn, indicates one of the methods of waste in this country. Farmers and gardeners seem to forget that the leaf mould which made the new land so fertile, is excellent to restore fertility to the old, worn-out soil. In nine cases out of ten, the leaves from the lawn and door-yard are raked to the roadside or other convenient place and consigned to the flames. Doubtless the man with a hundred-acre farm considers this leaf crop too insignificant to bother with, if, indeed, he takes any thought at all about the matter. Owners of gardens and small truck farms burn the leaves and buy fertilizer instead. The waste of these leaves is a factor in the condition of land impoverishment for which America is famous. In the old world where each acre of ground is kept fertile century after century, nothing is wasted, and foreign truck gardeners in this country, do not burn the leaves, but gather them carefully to enrich the land.

In considering the question of utilizing the leaves, it is not difficult to point out ways in which they can be used to advantage by anyone who owns a garden. Leaves make excellent mulch for strawberries, raspberries, grape vines, or any other small fruit. Small fruit trees may be mulched with leaves, and the asparagus bed may be enriched from the same source. Leaves afford excellent material for use in the scratching rooms of poultry houses. When the houses are cleaned, these leaves mixed with the droppings, afford a garden fertilizer that will bring back the fertility to any garden spot. If the leaves are not needed for any of these uses, they may be spread over the garden in the fall and covered with enough soil to keep them from blowing away. In these ways, the annual leaf-crop may be used to advantage by all who possess a berry patch, a flock of chickens, or a garden spot.

In considering the question of leaf utilization, it ought to be borne in mind that the leaves from a few trees are worth saving, even though the patch of ground they will fertilize is relatively small. When other fertilizers seem of little avail on land that has been cropped to excess, the leaves which gave to the land its virgin fertility, may prove the best means of restoring its fruitfulness. At any rate, what seems in an individual case, so slight a thing, amounts in the aggregate, to a great deal. Save your leaves and utilize them. The extra labor is small, and the influence on land fertility is sufficient to make the saving worth while. Help to set the example of thrift in this regard. The waste which characterizes farming and gardening in this country, may be counteracted and checked by the use of the resources which remain. Save the leaves, and you will find the trouble worth while.

Hillsdale Co.

J. A. KAISER.

WE HAVEN'T TIME TO "MAKE PATHS."

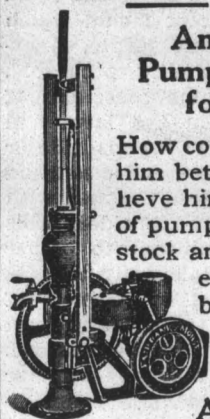
Was it Emerson who said that if a man makes but a mousetrap better than anyone else, the world will make a path to his door, though it be in the midst of a wilderness?

That may have been true when the world was within walking distance of each man's door, and people had time to go out and seek the things they needed.

Today most of us are too busy with our own work to make a path to any man's door. We expect the man who has something to sell which we should have, to let us know about it, and to see that it is placed within our reach.

One of the purposes of the Michigan Farmer is to carry such merchandising messages. Are you reading them?

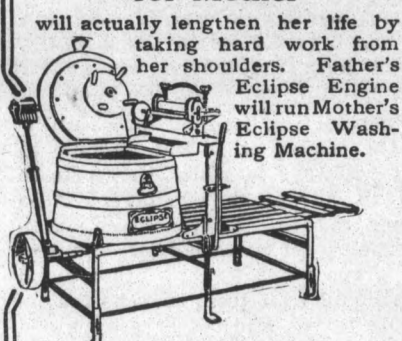
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Horticulture.

GARDENING IN THE CELLAR.

It is not generally known that the cellar can furnish a pleasing supply of green products for the table during the cold months, yet such is the case. These things are also doubly precious in the winter when supplies are limited. Few farmers and fruit growers have the facilities or time for greenhouse vegetable growing, but the green things I am writing of are grown without artificial heat of any sort. Rhubarb is so commonly forced in market garden centers that it is not necessary to dwell on its possibilities to any extent. It is something everybody should grow, for home use, at least. I take up the roots just before the final freeze-up of the ground and set them in the bottoms of barrels and cover with ordinary garden soil, packing the roots in closely with earth. Manure is unnecessary, as the plant grows from stored-up vitality in the roots and not from outside fertility. These barrels are left on the north side of a building and roots and soil are frozen solid. In this condition they may be left as long as desired. When ready, take them into the cellar and let them thaw out gradually. Cover the barrels with something to exclude every ray of light. Total darkness is needed for the best product.

A Winter Supply of Asparagus.

Asparagus is sometimes forced in the same way, except that plants should be set in boxes of earth and allowed some light. Where rhubarb will do well at a comparatively low temperature, 40 or less, asparagus will not grow much in a temperature of less than 50 degrees. In a cellar, heated by a furnace, asparagus may be grown to perfection. Even in the ordinary cellar temperature it will grow and thrive quite beyond expectation. Experiments with French artichokes have also proven that this delicious vegetable can be forced in the same manner.

Aside from the plants that are forced from dormant roots, a number of vegetables may be grown in the cellar windows. Make boxes to fit the windows which face the east and south. These should be about three inches in depth and six inches in width. Boxes of zinc will last a number of years and may be removed to the kitchen in case of a severely cold day.

Growing Lettuce in the Kitchen Window.

Lettuce that was planted late in the summer or in the early fall, and has made a good growth, may be transplanted to such boxes and kept growing for two or three months. Leaves may be removed as desired for salads and others will enlarge to take their place. I have never had any success with sowing lettuce seed in cellar boxes, but in the kitchen window it will sprout and grow into good-sized plants in a few weeks. There is no reason why a supply of lettuce should not be available at all seasons of the year on the farm.

Radish seed sown in cellar boxes will grow readily and furnish a bountiful supply in a few weeks. If something with an onion flavor is desired for winter salads, there is nothing better than the old-fashioned chives. Take up a few clumps and set them in the cellar boxes, wetting the soil thoroughly, as these plants grow naturally in a moist location. After remaining for some time in the cellar, where they will make a slow growth, take them into the kitchen and a rapid growth will result. Spearmint may be treated in the same way with the result that a supply of mint for delicious sauces will always be avail-

able. The fresh green leaves are much better than the crisp dried ones, usually the only thing to be had in the winter.

Parsley Easily Grown Indoors.

One of the most satisfactory plants to grow in the cellar is parsley. None is more welcome in the winter salads and it is so easy to keep a supply that everybody should have it. Simply take up the plants from the garden rows and set them in boxes, keeping the soil only slightly moist. Parsley will thrive even though the earth in the boxes may chill at night. A sprig of parsley, fresh and green, will add a bit of life to the mid-winter dinner that is quite worth the small effort needed to grow it.

The kitchen windows are valuable as auxiliaries to the cellar windows, as has been stated. They are also of value to grow other plants that require more heat than is obtained in the cellar. I take up a few pepper plants and egg plants, which have not fruited heavily, and, after considerable pruning, set them out in eight-inch pots. They are then put by an open window in an unused room upstairs, where they are allowed to grow until severe weather comes on, when they are removed to the kitchen. It is surprising what a number of fruits even two or three pots will furnish. The pepper plants, with bright green leaves and white flowers, are also of considerable decorative value; while an egg plant with large purple leaves and ripe fruit is something that will attract a lot of attention. Cuttings may be taken from tomato plants and rooted, and make pretty window plants, but not much in the way of fruit from them can be expected before the following spring.

N. H. CHAS. H. CHESLEY.

PROGRAM OF ANNUAL MEETING OF STATE HORTICULTURAL SOCIETY.

Kalamazoo, the "Celery City," is the city selected for holding the forty-fourth annual meeting of the Michigan State Horticultural Society, which will be held in the Auditorium of the Knights of Pythias Temple, on December 1-2-3, 1914. The display of spray machinery and materials will be made in the spacious basement, where ample room is provided for everything. A good display of fruit is also provided for.

It has been the desire of the executive board to place upon the program topics of vital interest, especially fitting the present needs, and the speakers have been selected with that in view—good "live men," all of them.

A Woman's Session.

As a special feature this season, a session for the ladies will be held on Wednesday afternoon, December 2, in a room adjoining the auditorium, where they can meet in an intimate way and discuss matters pertaining to farm life. Mrs. Munson, wife of President Munson, will preside.

At the annual business meeting held in Traverse City in December, 1913, it was decided that hereafter every person attending these meetings be required to pay either the life membership fee (\$5.00), or the annual membership fee, (\$1.00), by virtue of which each person is entitled to a copy of the annual report and admission to all sessions of the society. Families of members admitted free of charge.

Through the withdrawal of the state appropriation, it became necessary to raise funds in another way, and the above plan was devised. If the society is to be a force in progressive horticulture, it must have the support

annually of its members. Contributions from auxiliary societies have been so small that it was deemed wiser for them to retain their own dues, thereby allowing them larger funds to conduct their own work, and pay the expenses of their own delegates to the State Society meetings.

Changes in the Constitution and By-laws.

At the mid-summer meetings, notice was given of the necessity for various changes in the constitution and by-laws. These were prepared many years ago, and in some respects are not adequate for the present needs of the State Society. This matter will be brought up at the annual business meeting and all members are urged to attend the session and participate in the discussion.

The annual banquet will be held on the evening of the second day, in charge of one of the ladies' societies of Kalamazoo. The fact that the Hon. Charles Garfield, of Grand Rapids, will act as toastmaster, is an assurance of a most delightful affair. The rate is 50 cents per plate.

Potato Growers' Meeting.

The convention of the Michigan State Potato Association follows immediately after these sessions and the display of potatoes and potato growing machinery will be made in the exhibit hall of the same building.

This has been a prosperous year for the horticulturist and this meeting should be attended by every up-to-date grower. "Come and bring the boys who are to be the future farmers of our state. Likewise bring the wife, who has worked so hard and patiently for the success of the farm and family. Get away from home and enjoy a friendly exchange of ideas with your Brotherhood of Fruit Growers; it will give you fresh enthusiasm and interest for your own work.

Tuesday, December 1, 10:00 a. m.
"Ten years of fruit growing in Kalamazoo County," Mr. E. F. Stoddard.
"Co-operation that co-operates," Mr. Geo. Myhan.
"Growing Small Fruits," Mr. Henry Smith.

Tuesday, 1:30 p. m.

"My experience with many kinds of fruit on a small farm," Mr. T. A. Farland.

"Planning the work on a 200-acre fruit farm," Mr. Clark Allis, of New York.

"The marketing problem," Mr. Roland Morrill.

Tuesday, 8:00 p. m.

Music.
"Community planting and parks," Mrs. Henry Hulst.

Music.
"Sights and scenes of the Michigan fruit industry," Prof. H. J. Eustace.

Wednesday, December 2, 9:30 a. m.
Students' speaking contest, Senior Class in Horticulture, M. A. C.

Annual business meeting.

Wednesday, 1:30 p. m.

"Did it pay to plant forty acres of Northern Spies when I was fifty-two years old?" Mr. Nathan B. Hayes.

"Laws controlling the fruit industry," J. N. Stearns.

"New points in horticulture," Prof. H. J. Eustace.

Women's Session.

"A woman's life on a farm," Mrs. R. Ballard.

"How I run the farm," Mrs. C. B. Cook.

"My share of work in handling the orchard," Mrs. J. O. Fraleigh.

Wednesday, 7:00 p. m.

Annual banquet, toastmaster, Hon. Chas. W. Garfield.

Thursday, December 3, 9:30 a. m.

"A woman farmer," Miss Addie Sly.

"The army worm, cutworm, red bug and a few others," Prof. Pettit.

"Pointers on modern spraying," Mr. O. K. White.

Thursday, 1:30 p. m.

"Value of and experiences with a cold storage on the farm," Mr. Clark Allis.

"The Grape Outlook," Mr. Hale Tennant.

"Pickles and melons," Mr. C. W. Waid.

R. A. SMYTHE, Sec.

Use lime-sulphur at one to eight this fall if the infestation of scale is serious.

Don't forget to drain your spray outfit of water before freezing does serious damage.

Management of the Brood Sow.

THERE is a larger proportion of losses caused by bad management of the brood sow than with any other kind of breeding stock kept on the farm. Many farmers seem very indifferent toward the brood sow, while they bestow a great deal of attention and care on other breeding animals kept by them.

The management of the brood sow should be systematized and carefully planned to secure the best possible results. The income and the profits depend largely upon the management of the brood sow previous to breeding and during the period of gestation. To neglect to give the proper attention at this important period is to invite failure and losses.

The time of year when the sows should be bred to farrow is of prime importance. Heavy losses very often come from too early farrowing in the winter and early spring. In this climate it is not safe to plan for arrival of pigs before March. The season should extend from March to June for spring litters and from August to November for fall litters.

It is a great mistake to breed young sows too young, and it is another mistake to plan to have them farrow early in the spring, or during cold weather. On account of the lack of size and lack of quiet disposition usually possessed by mature animals, the young sow is likely to be uneasy and cause the loss of many small pigs. They should not be bred before they are eight months old, and ten months is better, and it is best to encourage the development of bone and muscle before they are bred at all, because they have a double office to perform, that of maintaining themselves and keeping up the growth of their own bodies at the same time they are carrying the young. Breeding sows too young tends to early maturity and reducing the number of pigs in the litter and the size of the animals themselves. To breed sows on the fourth day after farrowing does not generally bring satisfactory results, and we do not therefore recommend farmers to experiment in that direction.

Diet for Brood Sows.

The brood sow should have a variety of feeds and should be in good condition at breeding time. Sows when gaining at breeding time will produce large litters, healthier and stronger pigs. They should be kept gaining from time of breeding to time of farrowing. This is an important suggestion too often overlooked by the average individual who has not had the experience necessary to prove what is required of the breeding animal during this critical period. While we urge the importance of feeding and feeding well during the period of gestation, we wish to caution against heavy feeding of feeds that tend to fatten instead of promoting health, strength and growth. To get the sows fat during that period is to invite disaster, because they will become clumsy and lazy, which is pretty sure to bring about disastrous results.

Some succulent feed should be given during the whole period of gestation; also some laxative feed like wheat bran should constitute part of the ration. Constipation is the cause of more loss at farrowing time from a fevered condition, which induces delirium and the sow to eat her pigs, than any other one thing we can mention. A small amount of roots can be fed with safety, but do not feed heavily on roots during severely cold weather, as it will chill the sow and often induce premature delivery.

Forage feeds of some kind should be furnished during the winter. We know of nothing better than alfalfa and clover hay, and if it can be steamed and mixed with a sloppy feed, all the better.

While it may seem to some a large

amount of trouble to keep records of the breeding animals in the herd, the careful breeder finds it an absolute necessity. Designation marks can be made upon the ear and a record kept in the record book as to time of breeding and the time when the pigs are expected. Previous to the time of the arrival the sow should be given a comfortable pen by herself, in which there is a reasonable amount of fine, dry litter, but avoid a large amount of litter, as the pigs are likely to get entangled in it and laid upon. A record of the feed given during the period of gestation and during the first three weeks after the pigs are farrowed will enable one to refer back and find which methods, if more than one are adopted, have succeeded best in former use.

Exercise.

Exercise is of prime importance with the brood sow, as she cannot be maintained in a healthy condition without an abundance of exercise previous to breeding and during the period of gestation. Exercise enables the sow to keep control of herself, and if not overloaded with flesh, they will be nimble, active and strong. Sows of the improved breeds that are inclined to take on flesh readily are inclined to remain in the nest too much. In order to encourage and enforce the proper amount of exercise it is a good



Feeding the "Mortgage Lifters," on the Farm of John D. Heer, Monroe Co.

plan to allow the sow to either follow cattle, or to travel some little distance to the feeding place at least twice a day. Exercise is one of the best preventatives of many diseases that overtake the brood sow and her pigs. While we suggest the importance of exercise and the use of certain kinds of feeds, especially those that are rich in protein, we will caution against the use of highly concentrated feeds and too much tankage, which tends to cause the pigs to be limp and lifeless while young.

Mineral matter of some kind should be kept where the sow can help herself, and we suggest the following combination of feeds that will serve as a corrective of many difficulties, especially internal parasites:

Two bushels of bone meal; three bushels of wood charcoal; one bushel of wood ashes; eight pounds of salt; two quarts of air-slaked lime; half a pound of copperas, thoroughly mixed.

The Sire.

With every breeder of hogs on the farm the sire should be given a great degree of consideration. As an almost invariable rule, the mature sire gives better results than the immature sire. Sows bred to mature sires of good form, strong, healthy, and of prolific families, will give much better results than when coupled with young, immature sires, no matter how well bred. The practice of allowing the sire to run with the herd of breeding sows we would discourage for several reasons. First, they are an annoyance. Second, they are likely to do much

harm during the period of gestation; and thirdly, it is injurious to the sire. Then by all means breed the sow at the proper time and keep her by herself during the period of gestation, or with a herd of sows, and make the quarters comfortable at all times. The matter of comfort during this period has much to do with the disposition of the progeny.

(Excerpts from an address by Prof. George A. Brown, at the Michigan State Round-up Institute).

Wayne Co.

N. A. CLAPP.

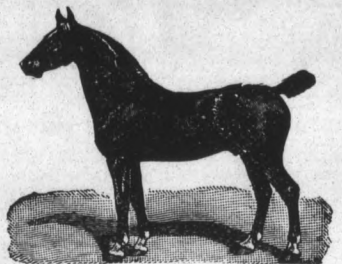
WINTER FEEDING OF HORSES.

On many farms, after the active working season is over, the horses are made to rough it, that is, they are made to eke out their entire livelihood from straw, corn fodder, or any other waste food that may be about the place. While horses not engaged in active work require less food, the quality of food supplied should be kept up, if the horses are to keep in good order, and be ready for the hard work expected of them in the spring.

According to the information gathered by the experiment stations, a horse of ordinary size, at rest, or doing light work, will require about 25 pounds of food a day. To keep the animal well nourished this food should contain two pounds of digestible protein and about 12 or 14 pounds of carbohydrates. An analysis of corn fodder shows that each 100 pounds of

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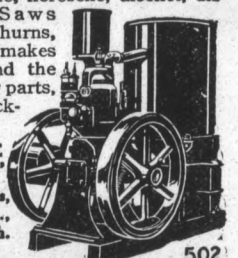
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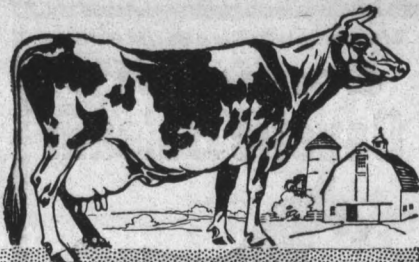
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Dehorned cows give more milk; take less room; are gentle and easily handled. Dehorned steers fatten quicker and are not dangerous. Horns cost money; remove them with the new **Improved Keystone Dehorner** quickest, cleanest, strongest and most satisfactory. Clean, shear and sliding cut; no crushing; no bruising. Money back guarantee. Send for booklet. **M. T. Phillips, Box 126 Pomeroy, Pa.**

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WHAT IS MEANT BY REGISTER OF MERIT RECORDS?

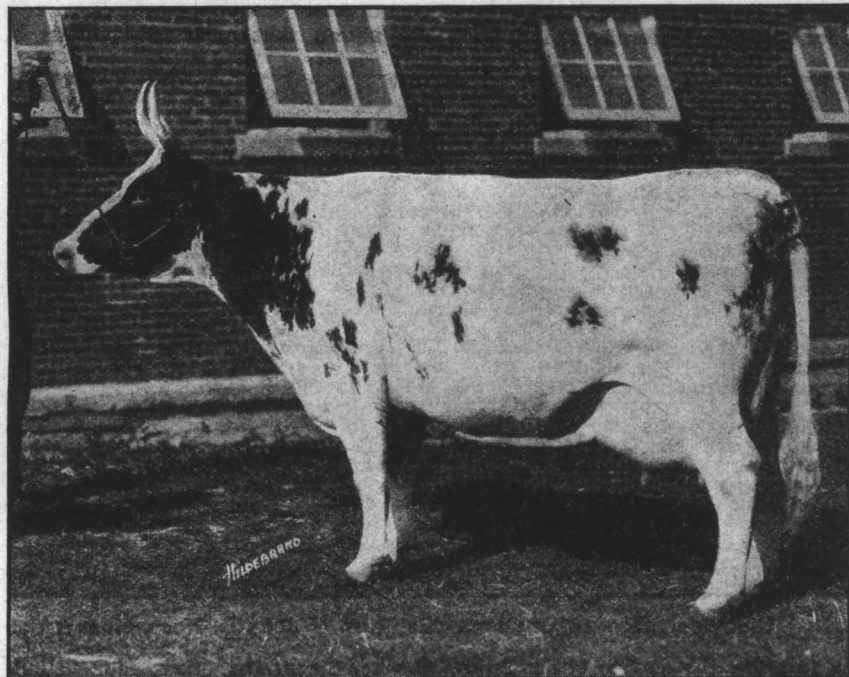
You have spoken several times in your dairy notes of the "Register of Merit class." I would be interested to know just what that is. We are interested in large producers ourselves. We have a cow that in just 12 months after her second calf, gave 12,047 lbs. of milk. She has recently closed just six months since her third calf and in that time gave 9,381 lbs. of milk. We have never had her milk tested but have saved a day's milk and churned the cream, and get just five per cent butter. Do not know the exact per cent of butter-fat in butter but suppose her milk is somewhere near four and a half per cent milk. The largest mess of milk she ever gave in one day was 74 pounds. H. W. T.

Register of merit records are simply tests of Jersey cows under the supervision of the American Jersey Cattle Club. Other breeds have similar supervised records, but they are known by different names. Years ago all we had was private tests; when these tests proved to be unusually large, some people would not believe them. They said that the owner of cows padded the returns, because the cows

farmer simply has to pay the tester for one day extra that is required to make the test, and does not have to pay the traveling expenses to and from the experiment station each month.

The requirements for authentic tests are different for the different breeds, according to the ruling of the particular breed association. Mature Jersey cows must produce 360 pounds of butter-fat in one year to be eligible to the Register of Merit. If they produce that much fat, they can be entered or registered in the R. of M. by paying a fee of \$2.00.

Of course, these R. of M. records are no better than private records, but they are above suspicion. This system of testing is doing very much for the various breeds. It encourages testing, and testing is bound to develop the cows. Since the system became operative, more than 3,000 Jersey cows in Class A have made the record. Several hundred of them have produced above 500 pounds of fat, and as is well known, some have produced 1,000 pounds of fat in one year. Authentic testing is becoming more and more popular with all the breeds. It pays, for a cow that will produce 360 pounds or above of fat in a year is a profitable cow. Her heifer calf is worth more for a future cow, and her bull calf is also worth more. Testing cows places dairying on a business



Kilnford Bell 3d., Grand Champion Ayrshire Cow, and Champion over all Breeds at the National Dairy Show. Exhibited by Adam Seitz.

could not produce such phenomenal yields. Therefore, breed associations were compelled to devise some system so their cows could be tested and the results be beyond dispute. At first the A. J. C. C. required that a representative of the club give personal supervision to the test to make it authentic. This proved so expensive to the farmer that he could not test his cows. Finally the club delegated the supervisor of tests to the various state experiment stations. This lessens the expense of testing very much and puts the cost so that more can afford it. The farmer must keep a record of each milking, both night and morning, and at noon or midnight if the cow is milked more than twice daily. Then a representative of the state experiment station visits the herd each month and supervises the test for two consecutive days. Of course, if the yield of milk each day did not compare favorably, suspicion would be aroused and the test rejected. The station representative samples and tests the milk produced while he is present, and the butter-fat for the whole month is estimated from that.

In communities where there are cow testing associations in operation, the experiment station makes the cow tester their representative and this lessens the expense still more. The

basis. You know what your cows are doing, and by selecting the calves from the best cows the production of the breed will slowly but surely improve.

APPLES AND POTATOES FOR THE COWS.

I have a lot of potatoes and apples that I would like to feed to the milch cows. Will they decrease the milk supply?

J. S.
Apples and potatoes are both good succulent foods for cows if fed properly. When these products are fed to cows they are usually very cheap, and people feed them too liberally. They should be fed in about the same amounts as turnips or beets. Start in with a small amount, just a few, and eating a peck at a feed. You could gradually increase till each cow is fed them twice a day if desired, but don't feed more than half a bushel daily.

Fed in this way they will not dry up your cows, but will tend to increase the flow. Where people have had trouble is by feeding entirely too many apples or potatoes at a feed. This gets the cow out of condition and, of course, decreases the flow of milk. Care must be taken in feeding apples or potatoes, or the cows are liable to choke. There is little danger when fed in their stalls, but if fed in the

lot, one cow drives another, causing her to swallow the apple before she chews it.

WILL IT PAY TO SELL RYE AND BUY SALVAGE BARLEY?

Will it pay to sell rye for 78 cents per bushel and buy salvage barley at \$1.46 per hundred, mixing it half and half with rye?

Ogemaw Co.

C. W. W.

Salvage barley, or salvage grain of any kind for that matter, varies so much in quality that one could not give an intelligent opinion of its value unless a sample could be seen and examined, and even then one can hardly tell what it is worth compared to first-class grain. Live stock will eat the salvage grain if they can get no other, but the question is, how much better would they have done had they been fed first-class grain? It is not entirely the cost of the feed; quality must be taken into consideration. The better the quality, the more appetizing the feed, and the more appetizing, the more the animals will eat and the faster will be the gains, or in the case of dairy cows, the more milk they will produce. If one had very poor, unwholesome feed it would be possible that stock would only eat enough of it to keep them alive. That is, they will make but little or no gain, or would produce a very small yield of milk. In such a case we would get practically nothing for the feed, for feed must keep the animal alive and also make growth, or there is no chance for gain or profit. A farmer once boasted to me how cheaply he had wintered a bunch of fall pigs, the pigs, however, had made no growth; they did not look to me as if they weighed as much in the spring as they did in the fall. Now, in this case, the farmer lost practically all the feed he had fed to them during the winter, for he had no increased weight in his pigs to show for it.

In the same way, if we feed salvage grain that our animals do not like, they will not eat enough to produce milk or to make good growths and we have little to show for the feed we have fed. The feed may seem to be cheap, yet considering the results, it is very dear in price, and results are the only correct standard to judge by.

All salvage grain that I ever saw is smoky and dirty, it is not very appetizing, and must be purchased very cheaply to make it profitable. The price named, \$1.40 per 100 pounds for salvage barley is very high; I never supposed salvage grain sold as high as that. I don't believe it is worth this money. Prime wheat bran can be bought for \$23 to \$25 per ton in car lots, and I believe it to be worth more than salvage barley for cow feed. I am sure it is worth more to mix with rye than the salvage barley for cow feed. For hog feed the barley might be worth the most. Having no opportunity to inspect the barley, but simply judging it by samples I have seen of other salvage grain, I do not hesitate to say that in my judgment it will not pay to sell the rye and buy salvage barley at \$28 per ton. I would recommend selling some of the rye and purchasing some wheat bran to mix with ground rye for cows, or wheat middlings to mix with ground rye for hogs; \$28 per ton is entirely too much for any salvage barley I ever saw, when other feed is the price it is at present.

SUCCESSFUL HOLSTEIN SALE.

The sale of registered Holsteins at Howell, Friday, October 23, called out a large attendance, probably the largest crowd that ever attended an auction in Livingston county. The sale began promptly at 12 o'clock and it was dark when the 106th cow went under the hammer. The average per head for 98 females sold was \$226.63. Albin Pfau topped the sale at \$450 for a cow.

San Diego Panama California Exposition

The business of farming

FARMING as a business calls for efficiency methods just as much as any other business, and pays more than usual returns for care in such matters.

The Panama-California Exposition at San Diego, which opens January 1st and closes December 31st, 1915, is going to give more valuable information to people interested in farming than was ever before given by any undertaking in the world.

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The Southwest has 44,000,000 acres of land ready and waiting for development. If you go to the San Diego Exposition you will be able to see the very latest methods of farming on a large scale, or the intensive farming of a small tract.

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This Exposition is to show what people are doing, what they can do, what you can do to increase your earnings and lessen your arduous labors. It isn't just an Exposition to show things that big manufacturers with modern plants of machinery have made.

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All
the
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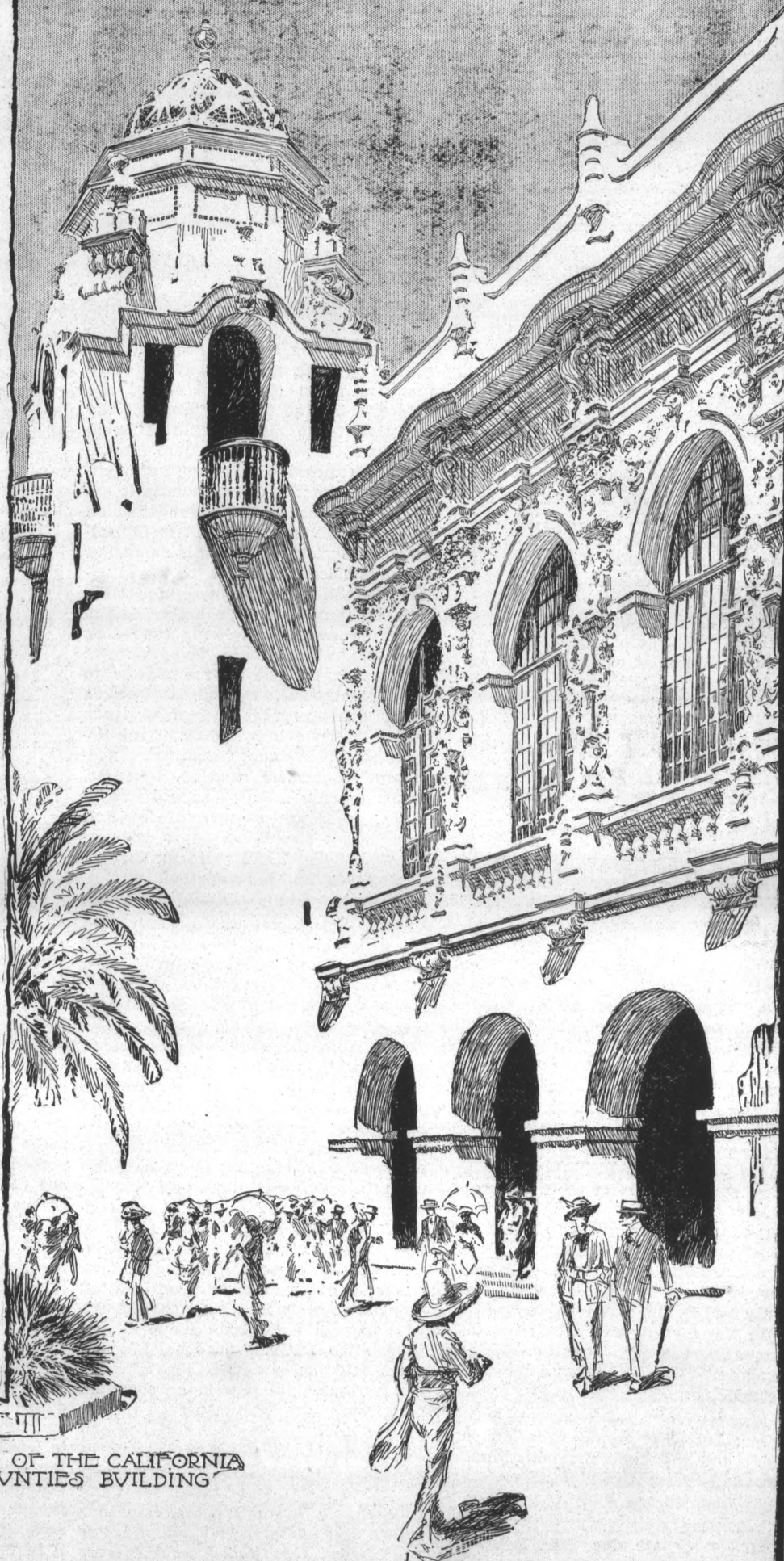
—De "Numancia"—Cervantes.

"I see them come, the peoples from afar
Who on thy gentle breast will seek to
dwell."

—From "Numancia"—Cervantes.

1915
All
the
year

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DETROIT, NOV. 21, 1914.

A FEW LEADING ARTICLES OF THE WEEK.

- Efficiency on the Farm.**—The third in our series of 52 special articles to be published in consecutive issues446
- The Shape of Fields.**—An argument for rectangular, instead of square fields for economy in farm work447
- Management of the Brood Sow.**—Essential points in management which make for success with the pig crop449
- Gardening in the Cellar.**—How many table delicacies may be grown at small expense during the winter season.....448
- Michigan Farmers are Co-operating.**—A survey of the efforts of farmers in Michigan to solve their marketing problems.....461
- The Contributions of Poultry to Food and Diet.**—Dietary considerations of eggs, composition, quality, preservation, etc.....464

IN AMERICA PEACE.

For a Thanksgiving cover design our artist very reluctantly abandoned at the last moment, a sketch he had carefully developed in the expectation born of fervent hope that peace would certainly, ere this date, have halted the unspeakable horrors of the war that is soaking the soil of Europe with the blood of its best, its most promising, manhood and ruthlessly destroying the products of centuries of civilization's toilsome progress.

"The light of love is quenched with hate:
Robbery, fire, murder, rule the state,
Blind crazy, weltering in their gore,
Men see the light of truth no more."

Peace has not come and the extending conflict seems about to involve the Moslem hordes of Turkey, the Orient, and Northern Africa, to be followed in turn perhaps by the Balkans, Greece, Italy and Spain.

In the tragedy of Rienzi, the hero, lamenting the decadence of the times, exclaims, "Why! In that elder day, to be a Roman was greater than a King."

May we now, not in sorrow and despair: but in joy and exultation, with pride and thanksgiving, with kindling eye and warm throbbing hearts, rejoice that we are Americans?

We may well rejoice that peace reigns over all our fair land that stretches from ocean to ocean, unceasing its song of industry except while

"Sleep, tired nature's sweet restorer
Gathers up the raveled sleeve of care,"
and bountifully spread with the riches

of intelligent husbandry, labor and commerce.

On our cover design the Goddess of the Republic stands majestic and serene, holding aloft in one hand the globe surmounted by the eagle, in all ages the symbol of the lofty and noble in human thought and inspiration; while the other hand holds upright the more modern symbol of liberty.

To the people of the old world our hearts go out in sympathy for the tax-grinding militarism and its logical sequel of cruel, decimating war and weakened crippled future centuries.

Far sweeter is the picture in our own land of "armies" of a different kind—

"I see in tasseled rank and file the regiments of corn:
Their bending sabres, billions strong,
salute the summer morn.

The harvest fields as round and red as full grown harvest moon,
That fill the broad horizons up with mimic good of noon:

I count a thousand villages like flocks in pastures grand,
I hear the roar of caravans through all the blessed land.

The country grasps the ripened year and holds it in her hand,
For daily bread the earth lifts up a plaintive daily prayer,

America with open palm makes answer everywhere."

CURRENT COMMENT.

The campaign The Foot and Mouth being waged Disease Campaign. against the foot and mouth disease,

which has been vigorously prosecuted by both federal and state authorities since the outbreak of the epidemic is, due to the spread of the infection to so many localities in so many states, proving far more strenuous and expensive than was anticipated. From recent developments it appears that the available funds which can now be used by the U. S. Department of Agriculture for this campaign are insufficient to cope with the situation on the plan originally followed, and the issuing of new orders to the effect that no infected herds exceeding \$200 in value should be destroyed without first referring the matter to the Department, caused a fear in many quarters that a less vigorous policy in the extermination of the disease might become temporarily necessary. Later information, however, seems to insure that this will not be the case, if the owners of infected herds show a willingness to co-operate with federal and state authorities in stamping out the infection.

It appears that under the law no federal department has authority to create a deficit, and that the funds of the Department of Agriculture which are available for this work are insufficient to more than pay the salaries and expenses of the agents of the Department in the work of suppressing the epidemic. Under the plan which has been followed in the suppression of other similar epidemics and which has been the understanding in the present campaign, one-half of the expense of compensating the owners for the utility value of the stock destroyed is borne by the federal government and one-half by the state in which the owner resides. The solution of the present dilemma lies in the willingness of owners of infected animals to wait for compensation until Congress can make a special appropriation for this purpose, late advices being to the effect that affected stock owners are now being asked to sign such an agreement. This all should be willing to do, as there can be no doubt of the co-operation of Congress in providing the funds necessary to exterminate this disease and thus save the country the enormous future loss to its live stock industry which any other policy would surely entail. In any event the owner's loss is certain to be greater from any attempt to save his infected animals.

It is indeed unfortunate that the outbreak of foot and mouth disease

was not discovered and its extermination undertaken before the infection became so widely scattered. But the discussion of this phase of the situation at this time is not pertinent. After the disease has been eradicated the responsibility for its spread over such a wide area may be investigated and definitely fixed, but just now the important work in hand is the eradication of the disease, which good authorities agree must be accomplished within a year if at all. An investigation of its origin is, however, a matter of more immediate concern which should be determined as quickly as possible to the end that further danger from a similar source may be eliminated. The last outbreak of the disease in this country, which occurred in 1908, is now generally conceded to have been due to the importation of vaccine virus from Japan, which was used on heifers in the commercial production of vaccine virus and later spread to other stock through the medium of these animals which were thus accidentally infected. The present outbreak is thought by some who have been in close touch with the situation to have been caused by the importation of hides, either from the Philippines or from South America. This is a matter which should be thoroughly investigated at once, and upon which Congress should act without delay as soon as possible after it convenes next month.

In the meantime it is obviously the duty of every farmer to use every precaution to prevent the further spread of the infection and to co-operate willingly with the federal and state authorities in the quick location and prompt destruction of infected herds. This can best be accomplished by observing quarantine rules to the letter and by promptly reporting any suspected appearance of the disease.

Something of the importance of eradicating this disease before it becomes general will be appreciated by a consideration of the annual losses to the farmers of the country from hog cholera, to which foot and mouth disease is comparable in its infectious character, especially when it is remembered that foot and mouth disease is a far greater menace to the live stock industry from the fact that it infects both cattle and sheep, and other stock and humans to some extent, as well as hogs. Unquestionably the policy of extermination should be continued to a successful consummation, and with the active support of every live stock owner in the country.

The regularity with which The Fall the general "houseclean- Clean-up. ing" comes twice a year is sometimes trying to the man of the house, but it holds a valuable lesson for him in the matter of method if he would but apply it. The farm is in just as great need of a good "cleaning" as is the house, at least the average farm. Some farmers make a hobby of keeping everything picked up about the farm at all times, but the average farmer, even though he may appreciate the importance of a neat appearance about the farm, finds it impossible to keep all his premises in "show" condition during the rush season. And it must be conceded that from the practical standpoint there is a "happy medium" beyond which it may not pay to go at all seasons of the year in the matter of tidying up the premises. The real danger in following this practical course is that one gets so accustomed to letting the little things which make for neatness go undone during the rush season that he becomes accustomed to a somewhat untidy appearance of the farm and neglects to place it in "ship-shape" condition at regular intervals. Thus the habit of making a regular fall clean-up is a good one to get. With the fall crops secured, this is a good time to begin to fix the habit.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—In the western theatre of the great war no general operations have been reported but the violent fighting at the extreme west end of the line of battle near the North Sea and on the banks of the river Yser has indicated a weakening of the German position and advantages gained by the Allies. The invaders have abandoned the west bank of the river and the Allies have gained a small wood south of Bixchoote. Dixmude, which was taken by the Germans last week, is stated to be again in the hands of the defenders. Nothing of import has been reported to the outside world as occurring along the remainder of the western line of operations. In the east the Russians have been gaining ground. They have driven the invaders practically out of Russian Poland and have again invested Posen and portions of Prussia. The latest news from there states that seven Russian armies are now marching on Cracow, the total number of men aggregating 2,400,000. Japanese and English fleets are now moving toward the south Pacific Ocean to engage the German fleet believed to be in that quarter of the world.

Field Marshal Earl Roberts, the famous English general, died last week in a British camp in France. He had just arrived on French soil a few days before, and had reviewed some of the Indian troops and conferred with the British officers on the night before he passed away.

The British dreadnaught "Audacious" is reported to have been sent to the bottom by a mine off the coast of Ireland. The entire crew of the battleship was saved.

Reports from Mexico indicate that the prospects for peace between Carranza and the Aguascalientes convention are brighter than they have been at any previous time. The announcement that the American troops would be withdrawn from Vera Cruz has brought protests from Villa and his followers as such withdrawal would throw the port into the hands of Carranza. Villa is reported ready to attack Tampico.

Up to the end of October, over 15,000,000 bushels more grain had been carried through the Lachine Canal in the St. Lawrence River than to the same date last year. Besides the amount of flour going through had nearly doubled. This increase is due almost entirely to the heavy demand for wheat and flour abroad and for the large amount harvested in America last fall.

National.

The situation of the foot and mouth disease epidemic is about the same as a week ago. Farmers and stockmen are still anxious about the outcome. The Chicago stock yards have been cleaned up and were reopened Monday. The yards at Detroit will probably be opened for shipments this week. The authorities state that if the disease is not completely wiped out within a year that the country can never expect to be freed from it and that the detriment coming to those who raise and sell stock will be enormous. For this reason every effort is being made to locate suspicious animals and the co-operation of those who own stock is necessary in the fight.

It is announced that an effort will be made at the next session of Congress to take the rural free delivery carriers out of the civil service classification and open the various routes to competitive bidding. Postmaster Burleson favors the change because he believes it will result in a saving to the government of from \$12,000,000 to \$20,000,000 annually, and in better service the country over.

The campaign in the interest of the proposed amendment to the federal constitution prohibiting forever the sale and manufacture, importation and exportation and transportation of intoxicating liquors was started in Michigan last Sunday, with addresses given at Detroit by men of national reputation.

For the purpose of bringing the bankers of the state into closer touch with each other a plan of the state association to hold sectional meetings, is now being carried out. It is believed that the new arrangement will give the financiers a better knowledge of the wants and strength of their respective sections of the state.

Effort is already being made by Congressional committees to speed the business of the coming session in order to avoid the necessity of having another special session after March 4. Hurrying the appropriation bills will be significant in this program.

The United States industrial commission has made known its purpose of investigating the causes of the Colorado miners' strike.

During September there were 195 persons killed in coal mines in the United States. For the same month in 1913 there were 173 killed.

Magazine Section

LITERATURE
POETRY
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MICHIGAN FARMER
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PUBLISHED WEEKLY. ESTABLISHED 1843.

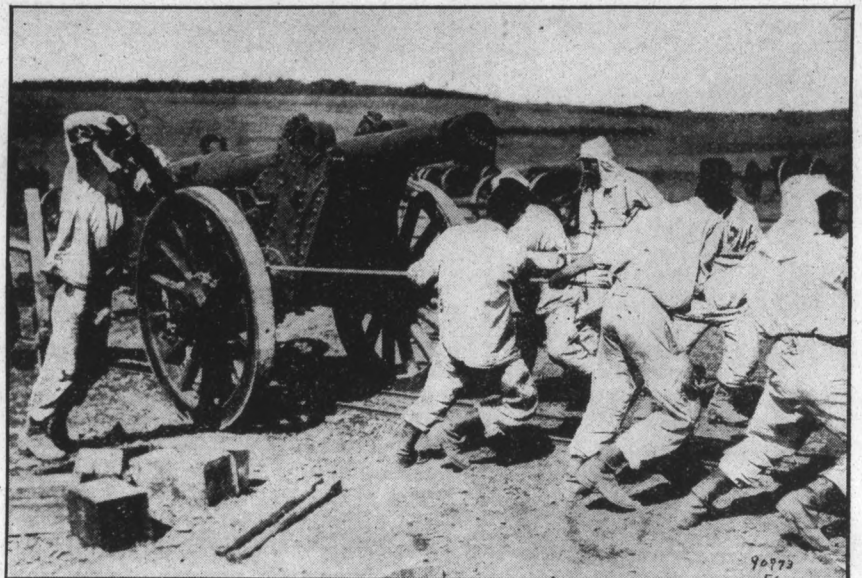
The FARM BOY
and GIRL
SCIENTIFIC and
MECHANICAL

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

WORLD EVENTS IN PICTURES.



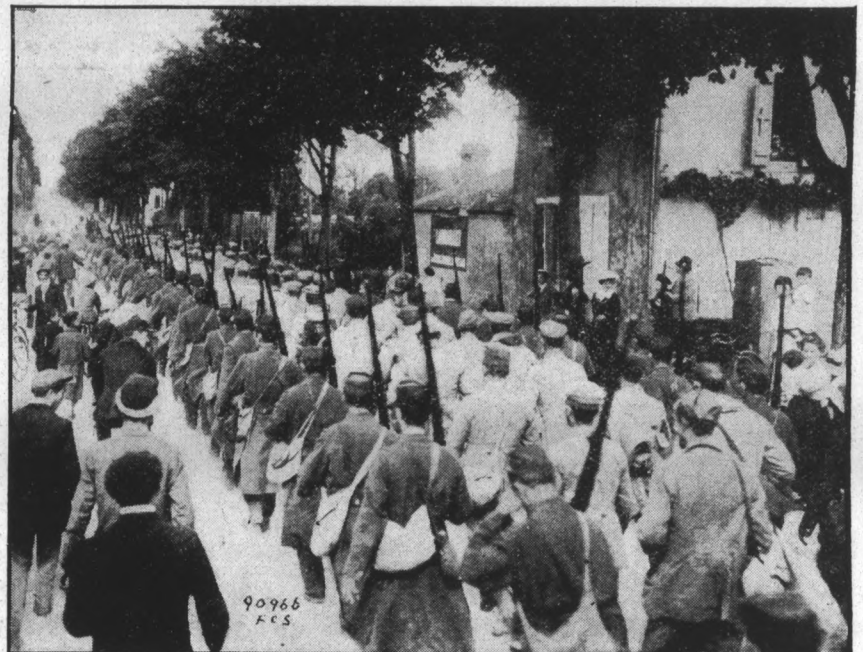
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German Engineers Clearing Railway Tunnel Blown up by Belgians.



JIMMY JINGLE, Jimmy Jingle, why are you crying?

Jimmy Jingle took his hands from his eyes and looked about. He was in a strange place. Everything was snowy white about him. In fact, it looked like he was inside of a great snow drift, but he wasn't cold. In fact, he was rather warm.

He looked for the fairy whom he knew must have called to him, but he saw no one in sight. He couldn't look very far for the white stuff, whatever it was, walled him in on all sides. Very soon, he saw the white material bulging out in front of him. There seemed to be something within that was trying to get out.

It reminded him of the dirt being forced up by a mole as it made its burrow just beneath the surface.

Jimmy Jingle watched with interest and soon he saw a tiny head appear. It was the head of the fairy who had called to him.

By this time, Jimmy Jingle had forgotten all about crying because of the strangeness of his new surroundings. He gazed at the fairy for a long time for something about the fairy's appearance seemed to attract him. He had seen fairies before, but never one just like this one.

The fairy's head was very thin but beautiful, and the top of it was covered with long graceful horns. The horns were not hard like the horns of a cow, but they were soft and were constantly in motion. Although there were a great many of them, and they were close together, they did not interfere with each other in their motions. It was the constant and graceful motion of these horns that attracted Jimmy Jingle.

Finally the fairy spoke. "Jimmy Jingle, Jimmy Jingle, would you know how the wheat grows?"

"Oh, may I really know how the wheat grows?" questioned Jimmy Jingle eagerly. "I have always wished that I could make a visit into the wheat plant and see just how the wheat from which the flour is made is produced. I would just love to see all this, Good Fairy. But when may I start?"

"You are already in a kernel of wheat, Jimmy Jingle. This is the immense storehouse where all of the food is kept. If you will come with me, I will take you to where the fairies are working and we will remain in this kernel of wheat until it has grown into a plant, and you shall see every process of growth."

The fairy led the way through a burrow he had made in the food and Jimmy Jingle, crawling on his hands and knees soon came into a larger room.

There were immense piles of white food extending to the roof on all sides except one. There Jimmy Jingle saw an opening through which a fairy occasionally passed with a load of food.

These fairies had the most curious little baskets which they carried on their heads. When they came to the piles of food, they would hold the bas-

ket against the pile with one knee, and scoop the food in with both hands. When the basket was filled, the fairies disappeared through the opening at the farther side of the room.

"Where are the fairy workmen going with those baskets of food, Good Fairy?" inquired Jimmy Jingle.

"They are taking the food to the germ of life, Jimmy Jingle," explained the fairy guide, "and we must go now and see this germ life, for before long there will be so many fairies working in this room that we will hardly have a space in which to stand. The fairies you see working now are only a very small part of those employed in the wheat kernel, and this is not the busy season."

"These fairies carry only enough food to keep the germ life living. He won't really begin to grow until a little later. Then it will tax the efforts of every fairy who can get into this room to keep him supplied with food. The germ life is the most greedy creature you can imagine when he really begins to grow."

They stepped over to where the fairies were going out through the entrance and Jimmy Jingle then saw that the fairies were moving along without moving their tiny legs. When he stepped into the path used by the workmen he felt himself being carried along by some force which he could not understand.

"Good fairy, what is making us move along?" he asked.

"We are on the life railway, Jimmy Jingle. This is what carries the workmen fairies to the place where the germ life receives the food. You have noticed that the fairies move rapidly, but do not use their legs. It is this moving sidewalk that they are standing upon. In the rush season, this travels much faster, and it is loaded with fairies just as thickly as they can stand."

"You will see just beside it that there is another which is moving in the opposite direction. That carries the fairies back with their empty baskets."

Soon they found themselves in a glittering chamber which received its light through thick amber windows in the top. Jimmy Jingle saw a large slowly moving mass at one side and the fairy guide explained that it was the germ life.

Jimmy Jingle was pulled aside into a crevice, and the fairy guide told him to make himself comfortable for they should wait there a long time.

Very soon Jimmy Jingle heard a rushing sound, and he saw a great stream of water at the opposite side of the chamber. It appeared to be flowing into the germ life and around about it.

Then the fairy workmen began to travel faster, and there were more of them, each with his tiny basket well filled with the snowy white food.

The chamber seemed to be growing larger, the walls were certainly bulging out. The germ life was swelling

and growing, and Jimmy Jingle realized that growth had really begun.

As the fairy workmen brought their baskets of food, they emptied them into the folds of the germ life which were ever opening and closing and enfolding the food with an endless appetite. At first it seemed like the germ life would get so full that it could not hold more food, and Jimmy Jingle became frightened as he saw the great writhing body working its way in the direction of the crevice where he sat.

Finally, however, just as the germ life seemed to have reached the limit of its expansion, Jimmy Jingle heard a loud, long ripping noise. The germ life moved away from the crevice. The workmen redoubled their efforts. More of them brought baskets, and the sidewalk on which the rode moved faster.

Jimmy Jingle turned to the fairy with inquiring eyes and the fairy guide explained.

"The germ life has broken through its coating. It has swelled so much and the coat has been softened by the moisture without and within and now the germ life has broken through. It is now beginning to send out roots and a shoot. If you like, we will go to the front of this chamber and see the roots grow."

"Oh, my, yes, I want to see that. Let's hurry, Good Fairy."

The fairy guide led the way around the great heaving body of germ life and they stopped at the opening which had been made in the roof. There they saw three tiny rootlets just beginning to assume a form. Their building resembled very much the building of a concrete building which Jimmy Jingle had watched only a few days before.

Long tubes extended from some where inside of the germ life and emptied a continuous stream of materials into the rootlets. The covering of these root tubes seemed to grow or expand as the amount of the materials increased, and as Jimmy Jingle watched, the rootlets grew to be quite a length. The skin was transparent so that he could see the flowing stream within.

Suddenly, he noticed that there was a stream within the transparent tubes that was traveling in the opposite direction.

"Oh, Good Fairy," he cried, "See, part of the materials is flowing back into the germ life."

"No, Jimmy Jingle, you are mistaken. All of the food which comes into the rootlets from germ life stays there but the stream you see is really flowing back to germ life. It, however, is

how growth is accomplished there?"

"Oh, yes, Good Fairy. I would like very much to go into the roots, but how can we get inside, I don't see any opening."

"There is no opening, Jimmy Jingle, and if we cut an opening, the food would all run out and the root would die. So we must use a fairy means to get within. Just close your eyes and hold my hand and—now open your eyes. You see, we are inside of the roots."

"Oh, how wonderful," exclaimed Jimmy Jingle, as he gazed about him. The walls were of the purest crystal and everything within was sparkling. There was a restful, subdued light that came through the walls of the roots from all sides.

This light rather puzzled Jimmy Jingle and he asked, "Where does all this light come from, Good Fairy? We are far under the ground, aren't we?"

"Yes, we are far under the ground, Jimmy Jingle, but I have caused this fairy light to appear so that you can see everything about the growth of a kernel of wheat."

"We will now step aboard this stream of food and go to the end of the root to see what we can find there."

They stepped off from the little platform on which they had been standing and were borne quickly along on the top of the column of food materials.

As they proceeded, Jimmy Jingle saw that every now and then some of the material would turn off into the tiniest of openings. Other portions would lodge in spaces in the walls of the canal.

When he inquired about the little openings, the Fairy guide explained that these were the root hairs that wrapped themselves about particles of earth and absorbed the food within these to supply the growing parts of the grain of wheat.

Finally they came to the end of the canal.

"In front of us you will see the guard chamber," explained the guide. "It is made of very strong material and as the root grows this guard chamber protects it. If the root comes in contact with a lump of earth this guard chamber breaks a way through it. If it comes in contact with a rock, it prevents injury to the root. The root finally works its way around the rock."

"Now we shall go back with the returning stream and see where that is going."

So they mounted a small particle of food and were carried rapidly back-



"You see," said the Fairy, "We are now inside of the roots."

made of materials taken up from the soil by these new rootlets.

"The supply of germ food in the big storerooms where we started is becoming exhausted, and germ life is drawing upon the roots now for part of his food. After a while he will get all of his food through the roots, and the storeroom will rot away for it will then have done its duty."

"But come, wouldn't you like to make a trip into the roots and see

toward the germ life. Jimmy Jingle was astonished when they reached the place where the germ life had been, to find that there was no tract of it.

"What has become of germ life, Good Fairy?"

"As you will see, Jimmy Jingle, germ life is no longer here. He has divided himself into a million parts and is distributed all through the living tissues of the roots and stem. In

the kernel germ life is concentrated in one small particle, but as he grows he divides himself and sends a part of the life into every place where life is needed in the new plant.

"Now let us go and see what has been happening above ground."

They continued their journey on the upward moving stream, and soon came into the most beautiful chamber.

It seemed to be coming from everywhere at once. He thought his ears would burst with the noise.

Finally he realized that he could not see. Was he blind? He could move about and feel the things that he had seen near him before this occurred. Then he realized that the noise had stopped. Or else he had grown deaf. Yes, that was it. He



The Fairy Workmen Carried Food to the Germ Life.

It was roofed with emeralds, and the restful green color was very pleasing indeed.

"While we were in the roots, Jimmy Jingle, this shoot was growing rapidly and now you see it has reached the sunlight. This is where all of the food that the roots take up from the soil must come to be prepared for the use of the plant. None of it can be used as food until it has gone through this room. Here the hot sun's rays change the food particles so that they can be used by the plant. This is the leaf and it corresponds to your stomach. Food is digested here."

Suddenly Jimmy Jingle heard a mighty roar that seemed to fill every crevice. He couldn't tell where it came

shouted at the top of his voice but he could not even hear himself.

Jimmy Jingle was very much frightened and began to cry. Then he heard that soft voice he had heard in the beginning.

"Jimmy Jingle, Jimmy Jingle, why are you crying?"

Now he could hear. He looked up and saw through his tears that he was again a big boy and was sitting in the wheat field where he had gone to cry because his mother would not let him go to his grandfather's.

He wiped the tears from his eyes and ran home as fast as he could to tell his mother of the wonderful adventure he had and what he learned about how the wheat grows.

Emily Blackburn's Thanksgiving.

By LUCILE HOWELL.

I WISH you'd let us take you to the station, Rufe. It looks too bad for you to set off a foot."

Rufus Blackburn set down his grip outside the gate and pushed his hat back on his head.

"It's just a mile, Mother o' mine and I need the walk," he laughed, as he kissed her. "I tell you that's not as far as I hike it every morning for my breakfast. Hello, there," he glanced hastily at his watch, "that train's about due right now and it was only reported ten minutes late."

A boy of about sixteen was swinging leisurely on the gate, snapping a switch at the dog that slept at his feet.

"You'd better hump yourself then," he advised his older brother, "You'll have to catch her on the run for she just barely hesitates down there. Nothin' with any life about it stops here any longer than it takes to get away."

Rufus smiled knowingly. "You're not getting infected with the 'Wanderlust' too, are you, Ted. Forget it, old kiddo, there's no place like home. Looks mighty good to me every time I get a day off, I tell you. Well, good-bye, mother. So-long, Dad," he waved to the old man on the porch. Take care of yourselves till I see you again," and he was gone.

Emily Blackburn watched the broad shoulders of the retreating figure with burning eyes. What a change there was in Rufe! This was her boy, this tall, broad, clean specimen of manhood, yet as he swung along so easily down the dusty road there was the elasticity of youth in his step, and that subtle something in the poise of the head, the dark, close-fitting suit, his white, well manicured hands and the neat black grip which he carried, that proclaimed him an alien to the

surroundings of his boyhood. This was her boy, true enough; but how much longer could she claim him.

"Oh, Rufe," the boy at the fence called.

The figure down the road paused and turned back.

"Tell Bruce if he can get me a job I'll come down just as soon as the corn's put away. Tell him any old thing that I can do'll suit me just so it'll pay my board."

The figure down the road waved its approval and went on.

The mother turned back with a heavy heart. She had given up the rest, and now her youngest and the last was tugging restlessly at the restraining hands which held him back. First it had been Bruce, her oldest the one in whom her highest hopes were centered, that had broken the home circle and struck out for himself. He had fought his way through from the bottom until now the world called him a successful man, but still he was gone. And the next year it was laughing, care-free Rufus who had felt the lure of the asphalt and he had left her. And now that awful octopus, The City, was reaching out with its thousands of alluring arms, slowly, insidiously, but surely twining themselves around the last she had to offer. And he was willing and anxious to go for enough to pay his board.

"Ted, why do you want to go off to work? Don't you have all you want here at home?" She put her arm around his shoulder and drew him to him. "Mother'd hate it awfully bad to lose her baby, too."

The boy pulled away from her and wriggled his toes down into the grass.

"In the first place, I ain't no baby," he staunchly asserted without raising his eyes. "I'm sixteen, and by the

time a man gets that old he pretty near knows what he wants to do. If you'd go down there an' see that swell place where Bruce an' Rufe live an' their pretty room with a nice white bath tub where a feller can take a bath 'thout carryin' the water from the spring an' makin' a fire to heat it, an' a big brass bed with the dandiest mattress. Why, mother it's worth workin' all day for nothin' just to get to sleep on it. I wouldn't stay here on this old farm 'til I was an old man an' have my wife live in this old scary lookin' house an' work like you do for a billion dollars!"

Emily Blackburn gasped. Ted's wife! She turned and looked at the "scary lookin' house," as he had termed it, the home which she and the father had builded by hard work and perseverance, and slowly the veil fell from her eyes. Her boys were building futures and that which they saw before them had been anything but tempting. She and the father had started with nothing, but with health, happiness and ambition, they had builded their home and reared their children, and now their craving desire was to save everything for the boys. And while they were doing this they had neglected to make the home more attractive and an unseen foe was enticing her boys from her, an enemy whose alluring bait was a white bath tub and a fluffy mattress.

She went slowly up the path to the front steps. She had never noticed before how narrow and cramped that little porch was and how black and dismal the walls looked. Dan had wanted to paint the house last year but she had hated to waste the money, and they had bought Rufus a watch instead. She paused with her foot on the step and looked upstairs at the little windows, blazing with the reflection of the last slanting rays of the late September sun, and the wealth of purple jaspine that had reached the upper rail of the sagging porch after years of patient climbing; this old scary looking house that Ted's wife should never live in. And she knew every nail, every board and every plank that had gone into its building, knew them and loved them like some living part of the days of her youth.

She went slowly about the simple preparations for supper, silently laying her plans for the future for, to Emily Blackburn, to think was to act. She stood in the back doorway and watched them let the cows in the pasture and finish their work for the night, the father stooped and getting gray, the boy whistling as he put up the bars and raced his dog up the lane. As far as the eye could see, their broad fields stretched to the right and left. Well she knew the sacrifices and labor that expanse of land represented and with what greedy enthusiasm they had added each acre so that they would be plenty for Bruce and Rufus and Ted, for the boys must have a better start than they did. And now as they grew older the land would be all that was left and the boys would be gone in search of more cheerful looking homes.

The supper dishes had been cleared away and she had narrowed off the toe of a stocking before she finally made up her mind as to her course of action.

"Put down your paper a minute, Dan, I want to talk to you," she began, as she slowly wound up her yarn and laid her glasses on the table.

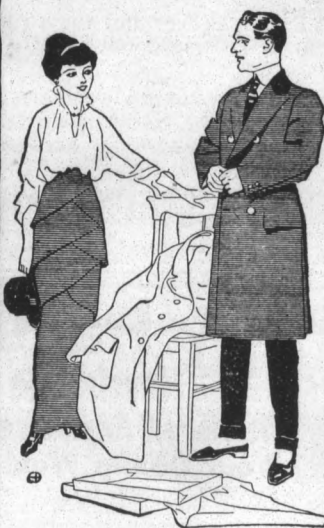
The old man smiled in a cheery way over the top of his paper.

"Why, what's struck you all to once, old woman? I'm glad to have you talk. You've been so down in the mouth ever since Rufe left this afternoon that I've almost wished that the boy hadn't a come home."

He smiled encouragingly at his wife but she continued to slowly wind the (Continued on page 458).



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Winston of the Prairie

BY HAROLD BINDLOSS.

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Synopsis of Previous Chapters.

Farmer Winston, a bankrupt homesteader, accepts a proposal to simulate Lance Courthorne, an adventurer. Courthorne and his pals struggle with the police, kill Trooper Shannon, who leaves evidence pointing to Winston as the murderer, and smuggle through some illegal distillery products. To Silverdale, a settlement founded by Colonel Barrington, Maud Barrington, his niece and ward, has just returned from Montreal. The Colonel is worried over a fall in wheat prices, and also over the coming of Lance Courthorne, Miss Barrington's cousin, to Silverdale to claim a share of his father's estate. Maud Barrington learns more of her cousin's unsavory past. Winston, in the meantime, pushes on to Montana, is held for Courthorne by an officer, who discloses to him the belief that Winston is the murderer of Shannon. Mail for Courthorne is opened by Winston. Complying with instructions in the letter, he meets and confers with a lawyer respecting Courthorne's inheritance at Silverdale, visits the colony. Some of his actions fail to tally with Courthorne's reputation. He wins the good will of Dane, the Colonel's adviser. The real Courthorne, supposed to have been drowned during the smuggling, now reappears in Montana, meets Ailly Blake, whose life he had blighted and who is now engaged to one Potter, rancher. Winston, returning from Winnipeg, finds Miss Barrington at one MacDonald's, and in an attempt to reach Silverdale are caught in a blizzard.

CHAPTER X.—(Concluded).

Winston said nothing, but by and by poured a little of the spirit into a rusty can, and the girl, who understood why he did so, felt that it covered several of his offenses. "Now," she said graciously, "you may smoke if you wish to."

Winston pointed to the few billets left and shook his head. "I'm afraid I must get more wood."

The roar of wind almost drowned his voice, and the birch logs seemed to tremble under the impact of the blast, while Maud Barrington shivered as she asked, "Is it safe?"

"It is necessary," said Winston, with the little laugh she had already found reassuring.

He had gone out in another minute, and the girl felt curiously lonely as she remembered stories of men who had left their homesteads during a blizzard to see to the safety of the horses in a neighboring stable, and were found afterwards as still as the snow that covered them. Maud Barrington was not unduly timorous, but the roar of that awful-icy gale would have stricken dismay into the hearts of most men, and she found herself glancing with feverish impatience at a diminutive gold watch and wondering whether the cold had retarded its progress. Ten minutes passed very slowly, lengthened to twenty more slowly still, and then it flashed upon her that there was at least something she could do, and scraping up a little of the snow that sifted in, she melted it in the can. Then she set the flask upon the stove, and once more listened for the man's footsteps eagerly.

She did not hear them, but at last the door swung open, and carrying a load of birch branches Winston staggered in. He dropped them, strove to close the door and failed, then leaned against it, gasping, with a livid face, for there are few men who can withstand the cold of a snow-laden gale at forty degrees below.

How Maud Barrington closed the door she did not know, but it was with a little imperious gesture she turned to the man.

"Shake those furs at once," she said, and drawing him towards the stove held up the steaming cup. "Now sit there, and drink it."

Winston stooped and reached out for the can, but the girl swept it off the stove. "Oh, I know the silver was for me," she said. "Still, is this a time for such trifles as that?"

Worn out by a very grim struggle, Winston did as he was bidden, and looked up with a twinkle in his eyes, when with the faintest trace of color in her cheeks the girl sat down close to him and drew part of the fur robe about him.

"I really believe you were a little pleased to see me come back just now," he said.

"Was that quite necessary?" asked Maud Barrington. "Still, I was." Winston made a little deprecatory

gesture. "Of course," he said. "Now, we can resume our former footing to-morrow, but in the meanwhile I would like to know why you are so hard upon me, Miss Barrington, because I really have not done much harm to anyone at Silverdale. Your aunt,"—and he made a little respectful inclination of his head which pleased the girl—"is at least giving me a fair trial."

"It is difficult to tell you—but it was your own doing," said Maud Barrington. "At the beginning you prejudiced us when you told us you could only play cards indifferently. It was so unnecessary, and we knew a great deal about you!"

"Well," said Winston quietly, "I have only my word to offer, and I wonder if you will believe me now, but I don't think I ever won five dollars at cards in my life."

Maud Barrington watched him closely, but his tone carried conviction, and again she was glad that he attempted no explanation. "I am quite willing to take it," she said. "Still, you can understand—"

"Yes," said Winston. "It puts a strain upon your faith, but some day I may be able to make a good deal that puzzles you quite clear."

Maud Barrington glanced at the flask. "I wonder if that is connected with the explanation, but I will wait. Now, you have not lighted your cigar."

Winston understood that the topic was dismissed, and sat thoughtfully still while the girl nestled against the birch logs close beside him under the same furs, for the wind went through the building and the cold was unbearable a few feet from the stove. The birch rafters shook above their heads, and every now and then it seemed that a roaring gust would lift the roof from them. Still the stove glowed and snapped, and close in about it there was a drowsy heat, while presently the girl's eyes grew heavy. Finally, for there are few who can resist the desire for sleep in the cold of the Northwest, her head sank back, and Winston, rising very slowly, held his breath as he piled the furs about her.

That done, he stooped and looked down upon her while the blood crept to his face. Maud Barrington lay very still, the long dark lashes resting on her cold tinted cheek, and the patrician serenity of her face was even more marked in her sleep. Then he turned away, feeling like one who had committed a desecration, knowing that he had looked too long already upon the sleeping girl who believed he had been an outcast and yet had taken his word, for it was borne in upon him that a time would come when he would try her faith even more severely. Moving softly, he paced up and down the room.

Winston afterwards wondered how many miles he had walked that night, for though the loghouse was not longer than thirty feet, the cold bit deep;

but at last he heard a sigh as he glanced towards the stove, and immediately swung round again. When he next turned, Miss Barrington stood upright, a little flushed in the face but otherwise very calm, and the man stood still, shivering in spite of his efforts and blue with cold. The wind had fallen, but the sting of the frost that followed it made itself felt beside the stove.

"You had only your deerskin jacket—and you let me sleep under all the furs," she said.

Winston shook his head, and hoped he did not look as guilty as he felt, when he remembered that it must have been evident to his companion that the furs did not get into the position they had occupied themselves.

"I only fancied you were a trifle drowsy and not inclined to talk," he said, with an absence of concern, for which Miss Barrington, who did not believe him, felt grateful. "You see,"—and the inspiration was a trifle too evident—"I was too sleepy to notice anything myself. Still, I am glad you are awake now, because I must make my way to the Grange."

"But the snow will be ever so deep, and I could not come," said Maud Barrington.

Winston shook his head. "I'm afraid you must stay here, but I will be back with Colonel Barrington in a few hours at latest."

The girl deemed it advisable to hide her consternation. "But you might not find the trail," she said. "The ravine would lead you to Graham's homestead."

"Still," said Winston slowly, "I'm going to the Grange."

Then Maud Barrington remembered, and glanced aside from him. It was evident this man thought of everything, and she made no answer when Winston, who thrust more billets into the stove, turned to her with a little smile.

I think we need remember nothing when we meet again, beyond the fact that you will give me a chance of showing that the Lance Courthorne whose fame you know has ceased to exist."

Then he went out, and the girl stood with flushed cheeks looking down at the furs he had left behind him.

CHAPTER XI.

Maud Barrington's Promise.

DAYLIGHT had not yet broken across the prairie when, floundering through a foot of dusty snow, Winston reached the Grange. He was aching from fatigue and cold, and the deerskin jacket stood out from his numbed body stiff with frost, when, leaning heavily on a table, he awaited Colonel Barrington. The latter, on entering, stared at him, and then flung open a cupboard and poured out a glass of wine.

"Drink that before you talk. You look half-dead," he said.

Winston shook his head. "Perhaps you had better hear me first."

Barrington thrust the glass upon him. "I could make nothing of what you told me while you speak like that. Drink it, and then sit still until you get used to the different temperature."

Winston drained his glass, and sank limply into a chair. As yet his face was colorless, though his chilled flesh tingled horribly as the blood once more crept into the surface tissues. Then he fixed his eyes upon his host as he told his story. Barrington stood very straight watching his visitor, but his face was drawn, for the resolution which supported him through the day was less noticeable in the early morning, and it was evident now at least, that he was an old man carrying a heavy load of anxiety. Still, as the story proceeded, a little blood crept into his cheeks, while Winston guessed that he found it difficult to retain his grim immobility.

"I am to understand that an attempt

to reach the Grange through the snow would have been perilous?" he said.

"Yes," said Winston quietly.

The older man stood very still regarding him intently, until he said: "I don't mind admitting that it was distinctly regrettable!"

Winston stopped him with a gesture. "It was at least unavoidable, sir. The team would not face the snow, and no one could have reached the Grange alive."

"No doubt you did your best—and, as a connection of the family, I am glad it was you. Still—and there are cases in which it is desirable to speak plainly—the affair, which you will, of course, dismiss from your recollection, is to be considered as closed now."

Winston smiled, and a trace of irony he could not quite repress was just discernible in his voice. "I scarcely think that was necessary, sir. It is, of course, sufficient for me to have rendered a small service to the distinguished family which has given me an opportunity of proving my right to recognition, and neither you, nor Miss Barrington, need have any apprehension that I will presume upon it!"

Barrington wheeled round. "You have the Courthorne temper, at least, and perhaps I deserved this display of it. You acted with commendable discretion in coming straight to me—and the astonishment I got drove the other aspect of the question out of my head. If it hadn't been for you, my niece would have frozen."

"I'm afraid I spoke unguardedly, sir, but I am very tired. Still, if you will wait a few minutes, I will get the horses out without troubling the hired man."

Barrington made a little gesture of comprehension, and then shook his head. "You are fit for nothing further, and need rest and sleep."

"You will want somebody, sir," said Winston. "The snow is very loose and deep."

He went out, and Barrington, who looked after him with a curious expression in his face, nodded twice as if in approval. Twenty minutes later, he took his place in the sleigh that slid away from the Grange, which lay a league behind it when the sunrise flamed across the prairie. The wind had gone, and there was only a pitiless brightness and a devastating cold, while the snow lay blown in wisps, dried and dusty and fine as flour by the frost. It had no cohesion, the runners sank in it, and Winston was almost waist-deep when he dragged the floundering team through the drifts. A day had passed since he had eaten anything worth mentioning, but he held on with an endurance which his companion, who was incapable of rendering him assistance, wondered at. There were belts of deep snow the almost-buried sleigh must be dragged through, and tracts from which the wind had swept the dusty covering, leaving bare the grasses the runners would not slide over, where the team came to a standstill, and could scarcely be urged to continue the struggle.

At last, however, the loghouse rose, a lonely mound of whiteness, out of the prairie, and Winston drew in a deep breath of contentment when a dusky figure appeared for a moment in the doorway. His weariness seemed to fall from him, and once more his companion wondered at the tirelessness of the man, as floundering on foot beside them he urged the team through the powdery drifts beneath the big birch bluff. Winston did not go in, however, when they reached the house, and when, five minutes later, Maud Barrington came out, she saw him leaning with a drawn face, very wearily against the sleigh. He straightened himself suddenly at the sight of her, but she had seen sufficient, and her heart softened towards him. Whatever the man's history had been, he had borne a good deal for her.

(Continued next week.)



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EMILY BLACKBURN'S THANKS-GIVING.

(Continued from page 455).
yarn. She hardly knew where to begin. Dan would be willing for anything that she wanted but it would be so hard to make him understand where they had erred.

"I'm going to have a Thanksgiving dinner this year and have all my children come home," she finally announced.

The old man looked at her searchingly. He hardly knew what he was expected to say.

"That's the thing to do," he agreed, "that is, if you can get 'em all here. I 'spect Bruce'll be likely to eat his turkey with that Hill gall. You know Rufe says they'll be married in the spring."

Mrs. Blackburn picked up her glasses and started another round on the stocking.

"I'm going to ask her, too."

Ted looked up from his book. "Nell Hill!" he snorted in disgust. "Do you think she'd come out here to this old shanty for Thanksgiving? Well, you're crazy. You ought to see the place she lives in. I went with Bruce to see her when I was down there this summer. Talk about your palaces. Why, this old place would simply fade away at the sight of it."

His mother knit on with provoking serenity.

"I'm not worrying about that," she assured him. "Several things can happen in two months and I don't believe you will be ashamed of the old place. Bruce says she lives in the country."

"Country, yes, but as different from this as black and white. You can go out there on the street car in fifteen minutes an' they've got a great big porch that you could lose this house on, an' a windmill that pumps water all over the house an' a telephone an' their boys don't have to churn either. There's a man lives on the place that don't do nothin but take care of the flowers and milk the cows an' his wife churns down in a little dairy house an' they don't bother about it until they want the butter to eat. Why, I'd about 's soon as the queen to spend a day at the poor house as to 'spect Nell Hill to come out here for Thanksgiving."

"Then you don't think she'd come if I asked her?"

"She might come—once."

"Now listen to me," Mrs. Blackburn laid down her work. "I know, Dan, that you've never refused me anything that you thought would do me or the rest of the family any good. I've made up my mind that it's the best thing for us to make some changes around here and I want you both to promise me to help. First, you must understand that it's going to cost some money—" she paused and looked from one to the other of her listeners.

There was a merry twinkle in Mr. Blackburn's eyes. "About how much do you think you'll need," he bargained. "Would a couple o' dollars or so fix you out?"

She picked up her work again to hide her confusion.

"It'll take nearer a thousand," she confessed, "but, oh, Dan, you don't understand what it means to the boys and us," she hurried on. "It'll be the best investment you ever made."

The old man rubbed his spectacles on the edge of the table cover.

"Well, mother, you've never told us what you wanted done. A thousand dollars'll buy a heap o' things."

"I can tell you some of them right now. I want some new rooms built on upstairs and a great wide porch down here across the front and down the sides; one that you could lose the Hill house in," she smiled at Ted, "and I want the whole house painted. Then we'll have an engine down at the spring that'll pump our water, and a bath tub put in some where. There must be a bath tub, Dan, a white one, and new brass beds with fluffy mattresses, and Ted, we'll not have a woman bothering around with our new things. We'll just send our milk to the creamery and let them make the butter. Now, Dan, that's some of the things."

Father and son both stared at her in astonishment. It was the elder that finally spoke.

"Why, Emily, I've been a wantin' to have the house painted for a long time but you wouldn't hear to me

spendin' the money. What's changed your mind all at once?"

"I've found out I was wrong," she acknowledged. "I've been savin' our money and losing' our boys. I knew there was something wrong that the boys didn't want to stay with us, and this afternoon it come to me that we weren't making their home as attractive as them places in the city. I know it looks like a pile of money to lay out all at once, but think what it means if we can just keep one of them with us."

"It means just this," he answered her thoughtfully. "It means we'll have to sell off the west forty to do it, but I never made a mistake yet by followin' your advice an' if you say so, it's a go. If its got to a point where it's a choice between the boys an' the land, I say sell the whole bloomin' farm."

Mrs. Blackburn hesitated to answer. The west forty; that was to have been Bruce's. There was a pretty shady knoll down there where they had planned since he was a child that some day he might build his house. Ten years ago, with the help of the boys, she had set out a row of maples there. But Bruce was gone now, and the rest were going.

"I'll tell you, Dan," she compromised, "let John Taylor have that patch of timber land he's been after so long. We don't need that an' some way I hate to sell the west forty. It seems so much like part of the family."

"Any way you say," he agreed. "An', if I understand you right, this is all supposed to be done before Thanksgiving. Was that what you was hintin' at?"

Ted was quick to grasp his mother's suggestions. He closed his book and bounced out of his chair.

"Oh, mother," he cried, "we'll have a house just like Nell Hill's. An' I'll have one of those rooms upstairs for my very own, an' oh, can't I have the bicycle? I've wanted one for the longest time."

It was finally agreed that the timber land should be sold and the proceeds used toward repairing the house and adding such improvements as they should decide up. The days which followed were busy ones. First came the carpenters and the old house, which had slept undisturbed for twenty years, echoed with the sound of the hammer. Each new improvement suggested something else. A furnace was installed and a telephone, and when it was finally completed and all the new furniture in place Ted pronounced it perfect.

"It beats the Hill's place a thousand days in the week," he assured everybody. "It's got 'em all skinned a mile."

He was very much interested now in the preparations for the Thanksgiving dinner. As all the invitations had been accepted nothing on the farm was to be spared to make this event a success. Ted worked faithfully at whatever task fell to him, for he felt that the family's reputation was at stake and his greatest ambition was to outclass the Hills in every way.

"If it would only snow," he complained as he viewed the row of edibles set out on the pantry shelf. "Here 'tis Thanksgiving tomorrow an' no snow yet."

But his mother found no fault with the weather. She had accomplished all that she had planned and her children were coming home tomorrow. What more could she wish for?

Ted met the train next morning and his disappointment in the weather was forgotten at the boys' enthusiastic praise of the new surrey which had made its initial appearance in their honor.

"This ain't nothin'," he promised them mysteriously. "Wait 'til you get home," and the proudest moment of his life was when he stopped the team in front of the neat iron fence, and father and mother came running down the front walk to bid them all welcome to the old home, the home that had the Hill's house outclassed "a thousand different ways."

"Well, Ted, old boy, it's a good thing you came for us," Bruce finally confessed after a complete tour of the house had been made and all the improvements commented upon. "If we'd walked we'd've passed right by home sure, and never known we were here. And now, mother, if we've seen it all we're ready for something else. Lead me to the dining-room."

Late that afternoon, after all the good things, which attested to weeks of preparation had been sampled and commented on, Bruce and Miss Hill set out for a walk over the farm. Emily Blackburn stood in the back door and watched them as they went down the lane.

"She's the finest kind of a wife for Bruce," she confided to her husband, who had joined her. "She's got so much good sense. But, Dan, look what they've got to start on and think how we began, and they can't live any happier than we have. I've so much to be thankful for today but it's hard to

think it'll all be over when the sun goes down."

"You mustn't feel that way, Emily," he chided her as he started for the barn. "We've got one of 'em left yet an' maybe we'll keep him."

The boys had finished the work for the night but the old farmer still tarried behind.

"It'll be mighty hard to see 'em all start back tomorrow," he confided to the old white mare as he carefully rubbed her legs. "It wouldn't do, though, to let Emily know that I felt it too." Through the back barn door he could see Bruce and the girl coming up the lane and when they reached the barn Miss Hill went on to the house but Bruce came in.

"Chores all done, father?" he asked. "Just a finishin' up, son. How do you things look?"

"I would never have believed the old place could show off so well, father. What are you going to do with that piece down there on the west end. You know where mother and we kids set out those trees years ago. That's an awfully pretty place for a house."

The old man's heart was beating fast and he knelt under the horse to hide his excitement.

"Your mother has the bossin' of that piece. I wanted to sell it this fall but she wouldn't hear of it."

The boy made no reply but stood tossing grains of corn to a grateful hen.

"I think she's always been a savin' that for you, Bruce," the old man ventured.

The boy continued to feed the hen. "We would've built down there ourselves if we'd owned that piece when we put up the house. Your mother was always mightily taken with that location," he continued.

"I know mother used to say that was mine when I was a kid, and Nell's just crazy about it. I'm getting awfully tired of being shut up in an office, Dad. I wonder what mother would say to my building a house down there for Nell and me next spring."

"Say, boy!" The old man dropped his brush and grabbed his hand. "She'd say to start haulin' your lumber tomorrow. That's what she'd say. Do you mean it, Bruce?"

"Well, Dad, I've got money enough to build me a house and it seems like I'll never be able to buy a place in town. I've wanted to come back for a long time but I never knew how Nell felt about it till this afternoon."

"Three cheers for your mother, Bruce," the old man yelled, dancing up and down the hallway. "If it hadn't been for her you would never have come home today. Let's go an' tell her before that gall changes her mind."

But when they reached the house he knew at the first glance that Emily already knew the plans.

"Dan! Dan," she called excitedly as they entered the kitchen. "Bruce and Nell are comin' back home to live. Think of it Dan, right here where I can see them every day. Oh, how much we have to thank Him for today."

"You're the one, little mother, that's to blame for it all," Rufus asserted himself. "Ted told me all about how you came to build over the old house and all I regret is that I can't stay, too. But never mind, you'll not be rid of me for very long at a time."

While they were all engrossed in the planning Emily slipped out unnoticed, and in the fast falling twilight, she crept up the narrow, dark back stairs. She knew the way well for her feet had climbed this same path many times in the past thirty years and, feeling for the door at the top, she went into the little back bedroom, the last remaining relic of the "old scary lookin' house."

Here she knelt beside the little wooden bedstead, gay with its sunflower quilt, and poured out her earnest thanks to the One who had sent her such a multitudinous blessing. "And I'm grateful, for this fine house and all the rest of the things that my children enjoy," she whispered. "But, Oh Lord, I thank you more for this one little room that is left for me out of my own old house. Don't let me get as tiresome as the house did. Help me to stay young with them so I'll be acceptable even to Ted's wife."

BOOK NOTICE.

"Letters of an Old Farmer to His Son" is the title of an interesting book by Wm. R. Lighton, a newspaper man who practically started the "back to the soil" movement, who here records from the richness of his experience his vision of the dignity, bigness and the happiness of farming told in story form in a series of letters as suggested by the title. Anyone interested in the soil as a present occupation or a future ambition will find inspiration in these letters. The price is \$1.00. Published by the George H. Doran Company, New York City.

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Woman and Her Needs

At Home and Elsewhere

The Domestic Crucible—2.

Wherein Grace Experiences Changed Vision.

By DEBORAH.

I TOLD mother we'd drive around John Ludlow called in from the there for dinner after church," shed where he was briskly polishing his "Sunday" shoes, after the manner of the bootblack he had patronized in the city on his wedding trip. "I'll soon get onto the upper-cut that Greek gave my shoes, and then I'll go in and put him out of business," he added.

Grace, warned by a sinister odor, that she had held the curling iron to her hair a moment too long, darted from the door where she stood watching John, back to the bedroom mirror to examine the maimed locks.

"Your hair is crinkly enough for the job, but you haven't got the right swing yet," she said, as John followed her into the room. "Your elbows are too stiff and you leave out all the dabs he put in for artistic effect." Then as John described a series of curves in the air with an imaginary brush, she added, "Must we go to your mother's today? I thought we'd have our first Sunday dinner alone."

"I'm sorry I promised, then," said John, diving into a chiffonier drawer for the especial tie he wore with the gaily striped socks which adorned his man-sized feet. "Thought you'd be glad not to have to cook dinner today, and mother was so anxious."

"Oh, it's all right, your mother was a dear to ask us," said Grace. "Only," she added under her breath, "we could go there any time, and there'll never be but one first Sunday."

Grace had known comfortable Mrs. Ludlow all her life, and had always enjoyed visits to the old brown farmhouse at the end of the locust lane. But it was with an unexpected and odd little sensation that she held up her face for the accustomed kiss that day. This was no longer Mrs. Ludlow, a quite new being. The older woman had been changed suddenly into a different entity to Grace, and even her well-known features seemed strange, viewed from the standpoint of a daughter-in-law.

Mother Ludlow, apparently, saw no change. She kissed Grace just as she had every week or so for 20 years, scolded John for tossing his hat on the sitting-room table, just as he had done for 20 years, and bustled the whole family out to dinner as unconcerned as if the whole world had not been made over by a marriage a couple of weeks before.

In fact, no one seemed to see that everything was different except Grace. Even John took his mother's scolding as good-naturedly as if he weren't now a married man and company.

The Ludlow dinners were famous and Grace had eaten many a one and called it good. But today she unconsciously criticized. A six-weeks course in domestic science had filled her head with a jumble of proteids, calories, carbohydrates, or hydro-carbates, she wasn't sure which. Her own meals she planned to have properly balanced and she decided that Mother Ludlow ran too heavy to sugar. Why have apple pie, fruit cake, fried cakes, ice cream and fruit jelly all at one meal?

But another survey of the table showed her fried chicken, a roast of lamb and a fish from the brook which ran through the farm, so it seemed there were proteids enough to bal-

ance. Something was wrong—it must be there was too much of everything. They got too many calories.

Father Ludlow interrupted her deductions at this point by putting the entire breast of a chicken on her plate and flanking it with two heaping spoonfuls of mashed potatoes. She just caught the last of Mother Ludlow's remark,

"You never went hungry at home, John, I hope Grace will feed you well."

"He'll get enough," Grace replied, flushing. "There's such a thing as eating too much."

"Not for John," Mother Ludlow said placidly. "Boy and man, I never saw anyone who could beat him. Everything but onions, he won't eat them."

"Well, he has eaten them this week," said Grace, icily. The idea of that woman telling her how to feed her own husband! Why, she didn't know a thing about food values, or anything scientific. She just dumped in eggs, cream, butter, sugar, flour, everything without measuring and stirred things up regardless. The table showed that everything came out right, but Grace overlooked that.

"I'll give him onions every day," she vowed grimly to herself. "They'll be splendid for his nerves."

MICHIGAN'S HAPPY BABIES. No. 2.

IN preparing cow's milk for the infant, the mother must bear in mind that human milk consists of fats, sugars, proteids, salts and water in certain proportions. The amount of fat in both human and cow's milk is practically the same, but human milk contains seven per cent sugar as against four and one-half per cent sugar in cow's milk. As the quality of the sugar is practically the same, this modification is the easiest one made. You have only to add sugar to the milk in sufficient quantities to bring the percentage up to the required amount. For this purpose milk sugar is best, but if you can not get this, granulated sugar will do, but you must use only half as much as of milk sugar.

Fat is a little harder to add, as the quality of the fat in cow's milk differs from that in human milk, and is, consequently harder to digest. The fat is added in the form of cream, and it is for this reason that the mother must work with separated or skim-milk, adding to the skim-milk, which represents the proteids, certain amounts of cream to give the right proportion of fat. To many mothers this first removing the cream and then adding it again seems absurd. She argues that the cream is already in the milk and it is a great deal easier to feed the child whole milk to begin with than to fuss with skimming off the cream and then pouring it back in again. The proportion of fat in milk varies so greatly, however, that there is no way to tell how much the child is getting unless you start with milk from which the fat has been removed and add the fat as directed. With delicate infants, or those who have already been damaged by wrong feeding, this method is absolutely imperative.

The proteids are hardest of all to

modify so that the child can digest them properly. The total proteids in human milk is but one and one-half per cent, while in cow's milk it is three and one-half per cent. The composition, too, is different and therefore more difficult of digestion by a young infant. There are many ways of altering the proteids, but the most common way, and the one that works out in most cases except in especially delicate infants, is to dilute the skim-milk with boiled water, reducing the amount of water and adding skim-milk as rapidly as you see the child can take more milk.

All of these additions must be made in tiny quantities, an ounce a day, or perhaps only a tablespoonful, a teaspoonful or a half teaspoonful at a time. The busy mother finds the work exacting, and sometimes it seems foolish to her to make such tiny changes. She must remember that the baby's stomach is only a tiny affair and a half teaspoonful sometimes means as much to its feeble digestive organs as a cupful would to her. In healthy infants who come straight along from birth changes may be made more rapidly and the increases made larger. But with delicate infants, or those who have been already damaged by wrong feeding, nothing but the most exact measurements and the strictest attention to detail will do.

The formula given below is one that has been most successfully used for newborn infants, that is, infants 24 hours old, and infants who have never taken cow's milk, or who are already suffering from malnutrition. The quantities seem absurdly small, but the only wise way is to begin with a very weak food and bring it up by the addition of the different elements as rapidly as the child can take them. You can tell whether the child is digesting its food properly by his condition. If he sleeps well, is not restless, colicky, or gassy, and if his bowels are normal, the food is agreeing with him. If he cries, but the other conditions are right, he is hungry and you may increase the strength of his food.

Cream, one tablespoonful; lime water, one tablespoonful; milk sugar, one tablespoonful, or granulated sugar, half tablespoonful; boiled water, 16 tablespoonfuls.

The size of the feed for the infant 24 hours old should be one tablespoonful, or one and one-half tablespoonfuls during the day, and two tablespoonfuls at night. These measurements are based on two tablespoonfuls to the ounce. It is safer to buy a tiny medicine glass with the measures marked on the side and use this always in preparing the infant's food. In this way only can you be sure the measurements are the same each day. These can be bought for ten cents.

For the first week the sugar may remain the same, the only addition to the food being made in the form of cream, which may be added to daily a teaspoonful at a time, providing always, the infant can digest the additions. Cream is a laxative, and if the bowels become too loose stop further additions, and if necessary omit the last one.

Skim-milk need not be started until the second week. DEBORAH.

CONTRIBUTED RECIPES.

Pulled Molasses Candy.

One cup of granulated sugar, one-quarter cup of molasses, one-half cup of water, one tablespoon of vinegar,



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butter size of a walnut. When it hardens forming a crisp in cold water, flavor and add one teaspoon of soda, then pour on buttered tins and pull when cold enough. Vanilla or lemon go well with this, and it can be pulled white.

Cream Taffy.

One cup of granulated sugar, one-half cup each of glucose and sweet cream. If you do not have cream use sweet milk, and butter the size of an egg. Boil until it forms a crisp ball in cold water, then pour on a buttered tin, flavor with vanilla if desired.

Peanut Brittle.

One cup of granulated sugar melted and stirred constantly in a clean frying pan. When it is a brown color, stir in a cup of broken peanuts and turn out on a buttered tin, marking off in sticks, as it hardens very quickly.

Cocoanut Dainties.

One-half package of acidulated gelatine moistened in cold water for five minutes, using half a cup of water. Put a cup of granulated sugar and one-half cup of hot water on the stove, and when dissolved add the gelatine and boil for 20 minutes. Then remove from the stove. Let stand ten minutes, pour in two-thirds of a cup of cocoanut, and flavor with vanilla. Pour on buttered tin, mark in squares and roll in white sugar.

Pulled White Candy.

One cup of granulated sugar, one-half cup of cold water. When it commences to boil add one-half teaspoon of cream of tartar. When it hardens and snaps in cold water, pour on buttered tins and pull when cool enough, then flavor with any flavoring. It can be colored also. If you don't have cream of tartar, add two tablespoons of vinegar and butter size of an egg.

Butter Taffy.

One cup of granulated sugar, butter the size of an egg, two tablespoons of hot water. Boil till it spins a thread, forming a crisp ball in cold water, then pour on a buttered tin and mark in squares before cold.

MANY WAYS WITH SWEET POTATOES.—FROM TESTED RECIPES.

BY MRS. JEFF. DAVIS.

While southern housekeepers are generally looked upon as experts in the preparation of a variety of tempting dishes from sweet potatoes, this vegetable is appreciated in every part of the country. Housewives who make a specialty of appetizing forms of sweet potato breads, and desserts of many kinds, find a delightful way of varying the menu of any meal. The plain baked, or roasted potato is always acceptable served with a roast of any kind, and largely takes the place of bread.

For breakfast, or luncheon, nothing is more delicious than rich, sweet potato bread. Take about three large roasted yams, the dry, close-grained potatoes are boiled, or a sufficient amount to make three cups of mashed potato. Remove skins, and while still steaming place in a bowl, and mash very fine. Add, while still hot, half a cup of shortening half lard and half butter, and two cups of fine sifted corn meal. After mixing this thoroughly, add two eggs, beating into mixture with a teaspoonful of salt and just enough sweet milk to make a stiff dough. Form into small loaves, and place in a hot, greased pan, allowing room for slight swelling during the baking. Place immediately in a very hot oven. When crust is a rich brown it is taken out and served at once.

Crackling Potato Bread.

This is prepared the same as above, except instead of shortening, a cupful of dry cracklings, chopped fine, is added. This makes a lighter, richer bread than the former.

Potato Biscuit.

Potato biscuit is another delicious way of cooking potatoes. These are

nice to serve as sweet tea biscuits, or unsweetened, to accompany the meat course. To one pint of mashed potatoes added three eggs, one-half teacupful of lard or butter, one-half teacupful of sugar if desired sweet, a pinch of salt, one pint of sifted flour, and two teaspoonfuls of baking powder. Beat in lard, or butter, while potatoes are still hot. Add sweet milk if needed to make the dough right for rolling out, and cut into shape. Bake in a quick oven and serve hot.

Sweet Potato Ginger Bread.

The potatoes are prepared as for biscuits, with the same preparation of flour, shortening and baking-powder. Then two well-beaten eggs and a cupful of brown sugar is added to each quart of dough, and ginger and cinnamon to taste. The stiff dough is thinned with cane syrup until it can be kneaded and rolled to layer half an inch thick. The cakes are cut in any shape desired, placed close in a greased pan and baked in a hot oven. When half done brush with syrup and water and sprinkle over a little sugar in order to give a sugary crust.

Potato Custard Pie.

Bake or boil potatoes until very tender, peel and mash while hot. To each quart of mashed potatoes add a generous tablespoonful of butter, the grated rind and juice of one lemon, half a teaspoonful of salt, a tablespoonful each of ground ginger, cinnamon and flour. Then beat in the yolks of two eggs, the whites being reserved for the meringue, a half cupful of sugar, and sufficient sweet milk to make the batter the right consistency for baking in custard form without a top crust. When the custard has stiffened in the oven and the under crust is brown, the meringue, made of the stiffly beaten whites of the eggs and powdered sugar, is quickly spread over the custard and it is returned to the oven to brown slightly on top.

Custard Cups.

For baking in custard cups the potato custard is made somewhat richer than for pies. Half a teacupful of butter is mashed through each quart of hot potato with two cups of sugar and two eggs. With these have been beaten smooth the grated peel and juice of two lemons, and a teaspoonful of ground ginger or cinnamon is added. Thin with sweet milk. When meringue is desired use twice amount of eggs, reserving whites.

Potato Pudding.

Pare, and slice raw potatoes. Cream two cupfuls of sugar, half a cupful of butter, add two cupfuls of milk for each pint and half of sliced potatoes. Beat two eggs and stir into mixture, and pour the whole over the potatoes in a buttered baking dish. While baking stir occasionally to keep the potato slices well mixed with the custard. Lemon juice is an addition for flavoring.

Candied Potatoes.

This is a splendid relish to accompany a roast. Cut partly baked potatoes into quarters, and place in a baking pan with a pinch of salt. Coat generously with butter, and cover the whole with a heavy sprinkling of sugar. A very little hot water is added. When the potatoes have finished baking soft they are covered with a sugar coating and there is a rich, sweet sauce in the bottom of the pan to serve with them.

THE LETTER BOX.

A Note of Appreciation.

Dear Deborah:—I have been a silent and interested reader of the Michigan Farmer for ten years, and do so enjoy your articles for, like Mrs. F. L. S. and others, they "hit the spot" every time. I am the mother of four healthy children and anything that helps to take care of their wants, which I think sometimes are many, is a great help to me.

I enjoy very much the letters from

other readers, and would like to ask a favor, which I shall return in any way I can. Will you please reprint the recipes for tomato relish and the one for beet salad? The relish is made uncooked, and the salad is made with cooked beets, raw cabbage and horse-radish. They were in the paper two years ago this fall but my paper got lost.

I have a good recipe for green tomato mince meat and one for red catsup, like what you buy, if any of the readers would like them I will gladly send them in.—Mrs. F. H.

The tomato recipe requested appeared in last week's issue.

HOME QUERIES.

Household Editor:—Will someone please give me directions for cleaning a white velvet hat?—M. P.

There are many patented cleaners on the market for cleaning hats, gloves, etc. But unless a woman is very skilful in work of this sort it is much more satisfactory to send the article to a cleaning establishment.

Household Editor:—Will someone please tell me how to color a soft felt hat?—Reader.

Has any reader a good rule? It has been the editor's experience that such work is rarely successfully done at home.

SHORT CUTS TO HOUSEKEEPING.

Put a handful of common salt in the rinse water for men's shirts and overalls, or any colored clothes, and they will never dry streaked.—L. M. L.

An almost infallible remedy for a cold, when taken soon enough, is a half teaspoonful of bicarbonate of aromatic spirits of ammonia and a half cupful of boiling water. Take this when the first creepy sensations are felt, if possible just before going to bed, and by the next morning the cold will have disappeared.—Mrs. J. C. T.

Thin drapery curtains have been the cause of innumerable broken vases and lamp-shades, as well as of less frequent but serious fires. A lead weight, such as is used in dressmaking, slipped into one end of the hem, will serve to keep the curtain in place while still allowing it to sway pleasantly in the breeze. If the curtain is of lace, cover the lead weight with a bit of muslin before tacking it to the hem.—M. S.

Relief from cold feet at night may often be secured by simply putting an extra blanket doubled over the lower part of the bed. A feather pillow answers the same purpose. It is not heavy, yet induces additional warmth to the lower extremities, where the circulation is not always of the best, especially with elderly people.—E. B.

When there is difficulty about whipping sweet cream so as to have it stand up stiffly, one of two reasons is probably responsible. Either the cream is too thin or it is too warm. Nine times out of ten it will be because it is too thin. The top part of cream that has stood for 24 hours ought to whip readily if at all cold. It is useless to waste time on thin cream. By evaporation the surface portion becomes thicker and this is the part to select for whipping.—E. R.

Keep your silver knives and forks that are not in every day use, in a two-quart fruit jar with the cover on tight and they will always be bright and ready for use.—L. M. L.

Some people cannot sleep at night because of next day's tasks and duties, or pleasures, and so lie with tense muscles and nerves and think and worry. How much better it would be to let alone the things of tomorrow till the day comes, and go about them refreshed and strengthened for usefulness and enjoyment. Life would mean more, and more be accomplished. It is folly to be too ambitious and sheer waste of vitality to anticipate, live in days that are not yet ours.

Do you know that—

Fresh meats, dusted with Borax, will keep fresh much longer. Rub the Borax in as you would pepper and salt. Wash the meat before cooking.

Borax, added to the water in which your washing is done, saves lots of valuable time. It makes washing a simple and easy undertaking, without any attendant harmful results. Add three heaping tablespoonfuls or more to every tub of water.

Bacon cures use Borax in place of salt for curing.

The hands will be kept soft and white, and free from all chaps, redness and roughness if Borax is used in washing them.

If you want your clothes a snow white—not yellow-white, or gray-white, but real white—use Borax in the cleansing water. It will also restore to a snowy white after two or three washings, linens that have acquired an old, yellowish cast through frequent washings with ordinary cleansers.

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Farm Commerce.

Michigan Co-operative Organizations are Active.

CO-OPERATION is not coming—it has arrived. If you must be shown, go to Litchfield, in Hillsdale county, and watch the workings of the creamery organization and the affiliated shippers' association. Then go to the nearby town of Camden, where the farmers have just organized, with F. W. McFadden as president, John Hooligan as treasurer, and O. K. Coolman, secretary. A trip to Van Buren county will show you the Lawrence Co-operative Association, with \$10,000 capital and a membership of 60. In Northern Kent county we have the Harvard Farmers' Produce & Supply Co., which has recently re-elected officers, with reports showing a good financial condition and fine prospects for the future. At Elmdale in southeastern Kent we have a co-operative elevator company, and statements show a monthly business running about as follows: Fourteen cars shipped out, or 14,000 bushels of wheat, 1,500 bushels of oats and a car of baled hay; eight cars received, with sales to members at retail as follows: Fifty tons of soft coal, 28 tons of hard coal, 150 barrels of cement, 18 tons of lime, 20 tons of bran and middlings and 18,000 barrels of flour.

Farmers have formed potato growers' association at Buckley and Manton, in Wexford county. Emmet county supervisors voted to establish a publicity bureau, the object being to assist in advertising the county's many advantages for general farming, stock raising and fruit growing. The Caro Farmers' Co-operative Elevator Company started business in Tuscola county in September, with \$40,000 capital and John McAllister as manager. Alpena county potato growers have organized, with the following officers: President, Chas. Herron, Wilson; vice-president, W. S. Green, Alpena; secretary, Wm. Kennedy, Bolton; treasurer, Rosene Ellsworth, Hubbard Lake.

The Grand Rapids Growers' Association, which includes the leading growers of vegetables under glass in and near the city, has re-elected Reed & Cheney as selling agents for 1915. Practically all lettuce, tomatoes and other products grown under glass go out from one central packing and shipping warehouse in a uniform manner, to markets found by the selling agents. The Freeport Farmers' Elevator Company has been formed in Barry county, with \$10,000 capital.

The Michigan State Horticultural Society will hold its annual meeting in Kalamazoo, December 1-3, and co-operation, direct sales and elimination of middlemen will have a leading place on the program.

Uncle Sam is trying to hitch up closer with the producer and to serve as the agent in getting farm and orchard produce to consumers quickly and cheaply by mail. Use of the parcel post is rapidly increasing. During the grape season just closed the Lawton post office in Van Buren county sent out 1,227 baskets of grapes, also many packages of pears, plums, apples, cucumbers and tomatoes, shipments going south to Texas, west to Wyoming (north to North Dakota and east to Vermont. Postmaster Rickey, of Dowagiac, has taken pains to write to manufacturers of parcel post containers for samples, also to farmers who are already extensive users of the new system to aid in an exhibition of methods of packing fruit and produce for shipment. The display will include butter and egg carriers, containers for dressed poultry, fruit, etc.

Chas. F. Openlander, of Clinton county, read a most valuable paper recently at a meeting of the Looking

Glass Valley Farmers' Club on "Co-operation," in which he said in part: "Do you know that there are over 2,000 co-operative creameries in successful operation in the United States today? Do you know that there is a co-operative elevator in Iowa that has been paying its farmer stockholders good dividends for 25 years? There are more than 335 co-operative elevators in Iowa, 300 in Minnesota, 250 in South Dakota, 200 in North Dakota, and over 2,500 in the grain belt doing business successfully and paying the middleman's margin, not to the middleman, but to the producer, to whom it belongs. Now what are we going to do about it? I would suggest, first, that we educate ourselves on this question by reading. The farm papers are loaded with information on the subject. As soon as we are properly informed of our needs along this line we will have a co-operative society here in Watertown. Farmers, co-operation is coming and the sooner you get in line the less foolish you'll feel when it gets here. The farmer has been dictated to and ruled over so long that he takes it as a matter of course. He is asleep and benumbed to the great possibilities of co-operation, because he has been a slave and a tool so long. The greatest fault with us all is that we try to be too independent. Suppose the labor unions did not oblige their members to sign a pledge of loyalty, how could they ever hope to win a point? The farmer must be pledged by written contract to stand by his fellow farmer; otherwise he can never hope for success." Mr. Openlander took for his text the third chapter of Mark, 25th verse: "If a house be divided against itself, that house cannot stand."

Kent Co. ALMOND GRIFFEN.

Crop and Market Notes.

Michigan.
Arenac Co., Nov. 10.—Potatoes are a fair yield. Beans 10 to 12 bushels per acre; corn good; new meadows fair; wheat and rye look fine. The average number of cattle are being wintered, and there is plenty of feed. Farmers are holding their hay. Beans \$2.05; wheat 90c; oats 43c; potatoes 30c; hay \$10@12.

Barry Co., Nov. 10.—Farmers have their fall work well along, though some corn yet to husk. Corn is an excellent crop. Buyers are offering 20c for potatoes, and quite a good many are being stored awaiting better prices. This is a good location for fruit, but orchards are badly neglected. Farmers are giving some attention to dairying. A few silos have been put up, and more will go up next year.

Isabella Co., Nov. 10.—Potatoes are not as good as last year, and buyers are offering 22@25c. Beans about a half crop, bringing \$1.95. Meadows, new seeding and wheat are fair. More wheat and rye sown than usual. A few hogs and cattle are being fed for sale. Farmers have a good supply of feed for own use. Surplus wheat and rye mostly sold, and no corn or oats for sale. Farmers are marketing potatoes and beans.

Mecosta Co., Nov. 9.—Potatoes, beans and corn were a good crop. Meadows, new seeding, wheat and rye are looking fine. Some hogs and cattle are being fed. Much anxiety is shown over the foot and mouth disease. An average amount of feed in farmers' hands. Potatoes are quoted at 25c; beans \$2; corn 35c per basket.

Shiawassee Co., Nov. 10.—Splendid weather for farm work, and lots of fall plowing being done. Potatoes averaging 130 crates per acre, and some fields yielding as high as 208 crates per acre. Beans good quality, yield 10 to 12 bushels per acre. Corn harvest well under way. Meadows in excellent condition. New seeding looking fine. Wheat and rye are excellent. A few cars of feeding cattle on feed. Very few lambs fed. Plenty of feed in farmers' hands. Some wheat being held for higher prices. Beans (Continued on page 462).

The Blue Valley Creamery

is a PROTECTION

to the Cream Producer

You cream-producing Farmers ought to know that the *Blue Valley Creamery Company*, as a market for your butter-fat, offers you the most absolute protection for *full profit, highest price and prompt pay*. Such a *reliable market* as that is a great asset to you and your business because it allows you to *sell direct* and not through the middleman. It cuts out all the element of *uncertainty* and does away with the necessity of *dividing your receipts* with somebody else.

When you figure out what it costs you to produce cream, the time and money it costs you to care for your cows, why should you share your profits with anybody? When you add the middleman's charges and profits to cost of maintenance and production, do you get enough money out of it to pay you for your trouble? That's why we advise you to sell to the *Blue Valley Creamery Company* and get the *maximum price* and the *maximum profit* both of which are *as sure* as the rising of the sun. Any good business farmer will see the value of these facts at a glance.

And another thing—some of you farmers who are making butter are operating along the lines of greatest resistance. You can make more money with far less labor if you will sell your cream to us and let us make the butter than to attempt to make it and distribute it yourselves. Distribution costs money and if it isn't well organized, it's a waste and not a profit. Figure both of these points out in dollars and cents—get down to brass tacks—contrast the profits you make now with the profits you can make by dealing with us, and it will require no further argument from us. Facts speak for themselves.

The *Blue Valley Creamery System* has a remarkably fine standing throughout America. It makes the best butter and sells to the best trade. It gets the best price for its butter and can afford to pay the best prices for cream. That company, therefore, is your *logical market*. There isn't any other market that is anywhere near as good. And every can of cream you ship to a *Blue Valley Creamery* nets you your maximum profit. These statements being facts, what further argument is necessary? Write us today and get the detailed information.

Better still—ship us a can of your cream today and see how the trial results. You don't stand to lose anything and you will make a discovery that will put money in your pocket, and turn present loss into full profit.

How to Ship Your Cream to a Blue Valley Creamery

OUR GUARANTEE

You take no risk in shipping your can of cream to a Blue Valley Creamery. You are sure of the money for your cream and our binding guarantee insures the return of your empty can. No farmer has ever failed to get his pay for his can of cream during all the years we have been in business. We are proud, and we think justly so, of this record and it is worth a great deal to the farmer who is looking for a high price cream market and one that is at the same time reliable.

We have thousands of letters on file in our offices from shippers. We'll send you copies on application. Each is a glowing recommendation of the Blue Valley System.

Cream is always shipped by baggage or express and low shipping rates have been fixed for 5, 8 and 10 gallon cans. The shipping charge includes the return of your empty can. Ask your local express agent or railroad agent about rates to our nearest creamery. If he can't give you the rates just drop us a postal card and we will see that he is informed. Our wagons meet all trains. Ship on any train that carries express or baggage.

Write for printed shipping tags or use an ordinary shipping tag and address it to the nearest Blue Valley Creamery. Be sure your name and address is on the tag and turn the can over to the transportation company. We will do the rest.

Write today for our handsomely illustrated and interesting short story, entitled, "The Fable of the Cow." It is free for the asking.

Ship a can of cream to us today and try the Blue Valley System. Address our nearest creamery.

Blue Valley creameries are located in wholesale market centers where there are a number of railroads, thus enabling each creamery to get a large volume of cream within a reasonable shipping distance and serve a large number of cream producers. Creameries are located at Chicago, Ill., St. Joseph, Mo., Indianapolis, Ind., Sioux City, Ia., Detroit, Mich., Grand Rapids, Mich., Hastings, Neb., Parsons, Kan., Springfield, Ill., Clinton, Ill., Cedar Rapids, Ia. Ours is a business creamery system built up to meet hand separator conditions, thereby paying highest prices for cream. Your's truly.

BLUE VALLEY CREAMERY CO.

P. S.—Remember each Blue Valley Creamery always pays the same price to all.

Blue Valley Creamery Company	X-143
Gentlemen:—Send me FREE copy of "The Fable of the Cow."	
Name.....	
Address.....	
Rural F. D. Route.....	

Markets.

GRAINS AND SEEDS.

November 17, 1914.

Wheat.—Unprecedented conditions prevail in the wheat market. With a new record established in the increase of the visible supply for the country, last week's trading was continued on an almost steady basis. The heavy marketing by farmers increased the stores to 5,535,000 bushels more than was in sight a week earlier, while prices held to within a rather narrow range. The reason for the market continuing so favorable to the farmers is the foreign demand. Europe must have wheat and at the present time America has about the only supply sufficient to meet the needs. Last week fully 10,000,000 bushels were shipped and America furnished 9,000,000 of the amount. Dealers do not fear the continued demand for while the crop in Argentina is reported as promising, the grain will not be ready for shipment for six months and this country in the meantime can dispose of her big surplus. Boats to carry the grain to Europe is the greatest handicap. Any general cessation of deliveries at country elevators, however, would likely cause a sharp upturn in values. One year ago the price for No. 2 red wheat on the local market was 96½¢ per bushel. Quotations for the past week are:

	No. 2	No. 1	White	Dec.
Wednesday	1.12½	1.09½	1.15	
Thursday	1.13	1.10	1.15	
Friday	1.12	1.09	1.14	
Saturday	1.12	1.09	1.14	
Monday	1.12	1.09	1.14	
Tuesday	1.12	1.09	1.14	

Chicago, (Nov. 16).—No. 2 red wheat \$1.14½@1.15½; Dec., \$1.14½; May \$1.20½ per bushel.

Corn.—There has been a depression in corn values during the week. Besides a let-up in the foreign demand the weather has been such as to encourage liberal marketing by growers allowing stocks to accumulate. The feeding situation is being held in abeyance by the restrictions against the movement of stock on account of the presence of foot and mouth disease, which with the comparatively high prices being paid for corn, is stimulating general selling in those sections where the crop is ready to move. The November estimate of the 1914 corn crop by the government was 2,705,692,000 bushels. One year ago the price for No. 3 corn was 76½¢ per bushel. Quotations are:

	No. 3	No. 3	Mixed	Yellow
Wednesday	76	78	76	78
Thursday	76	78	76	78
Friday	75	77	75	77
Saturday	75	77	75	77
Monday	75	77	75	77
Tuesday	75	77	75	77

Chicago, (Nov. 16).—No. 2 yellow corn 73¼@74¼¢; Dec., 67¼¢; May 71¢ per bushel.

Oats.—Business has not been as animated as a fortnight ago and values have eased off a little from last week; however, the trading is on a firm basis and dealers seem optimistic. Foreign calls continue to come although early this week the European demand was not so prominent a factor in the transactions. The government report for November places the oat yield for 1914 at 1,139,741,000 bushels, as compared with 1,121,768,000 for 1913. One year ago the local price for standard oats was 43¢ per bushel. Quotations are as follows:

	No. 3	Standard	White
Wednesday	50	49½	49½
Thursday	50	49½	49½
Friday	50	49½	49½
Saturday	50	49½	49½
Monday	49¾	49¾	49¾
Tuesday	49¾	49¾	49¾

Chicago, (Nov. 16).—Standard oats 49¾¢; Dec., 49½¢; May 53¾¢ per bu.

Rye.—This grain is firm at \$1.03½ for No. 2, which is 2½¢ higher than last week.

Beans.—Trading continues active and demand good. At Greenville beans are selling on a \$2.05 basis. Detroit quotations are: Immediate and November shipment \$2.25; December \$2.30. Chicago.—Demand is good at firm to higher prices. Pea beans, hand-picked, choice, are quoted at \$2.55@2.60; common at \$2.30@2.45; red kidneys, choice, at \$3.25@3.50.

Clover Seed.—Demand is good at steady prices. Prime spot quoted at \$9.20; December \$9.30; March \$9.50; prime alsike sells at \$8.60.

Toledo.—Prime cash \$9.30; December \$9.32½; March \$9.55; prime alsike \$8.70.

FLOUR AND FEEDS.

Flour.—Jobbing lots in one-eighth buying, the mills quoting as follows: paper sacks are selling on the Detroit

market per 196 lbs., as follows: Best patent \$6.20; second \$5.80; straight \$5.35; spring patent \$6.50; rye flour \$5.60 per bbl.

Feed.—In 100-lb. sacks, jobbing lots are: Bran \$24; standard middlings \$25; fine middlings \$32; coarse corn meal \$32; corn and oat chop \$28 per ton.

Hay.—This trade is quiet and easy at lower prices. Carlots on track at Detroit are: New, No. 1 timothy \$15@15.50; standard \$14@14.50; No. 2, \$13@13.50; No. 3, \$10@11.

Chicago.—Choice grades are in good demand and firm, while common is steady. Choice timothy \$16.50@17.50; No. 1, \$15@16; No. 2, \$12.50@13.

Straw.—Steady. Rye \$7.50@8; oat straw \$7@7.50; wheat straw \$7@7.50 a ton.

DAIRY AND POULTRY PRODUCTS.

Butter.—Market is steady at last week's prices. Extra creamery 32¢; firsts 29¢; dairy 21¢; packing stock 20¢ per lb.

Chicago.—Market is somewhat easier with prices slightly changed. Holders are inclined to force sales a little more. High prices are curtailing consumption. Extra creamery 32½¢; extra firsts 30@31¢; firsts 27½@29½¢; seconds 24@27¢; packing stock 21½@22¢.

Elgin.—Sold at 32¢, which is the same as last week.

Eggs.—Market firm with prices slightly advanced. Fresh stock sells at 29¢ per dozen; current receipts 26½¢.

Chicago.—A firm feeling exists at prices slightly advanced over last week. Fresh stock is in demand. Even some eggs passing as firsts are not good enough for the good trade. Miscellaneous lots, cases included 20@29¢ per dozen; ordinary firsts 26½@27½¢ per dozen; firsts 28½@29½¢.

Poultry.—Market is easy but prices are slightly higher. Springs 13¢; hens 12¢; ducks 14½@15¢; geese 14@14½¢; turkeys 18@20¢.

Chicago.—Springs are firmer but other kinds are unchanged. The demand is good, there being some speculative buying. Quotations on live are: Fowls 11@13¢; spring chickens 11½@12¢; ducks 12@18¢; guinea hens per dozen, \$3.50; young guinea hens \$2@4; turkeys 15½¢; geese 12½@15¢ per lb.

FRUITS AND VEGETABLES.

Fruits.—Pears, Keiffers 50@60¢; grapes 17@18¢ for blue, per 8-lb. basket.

Chicago.—Pears, Keiffers \$1.75@2.25 per bbl; quinces \$2@3.75 per bbl, \$1@1.40 per bu; black grapes 14@19¢ per 8-lb. basket.

Vegetables.—Home-grown cabbage, 75¢@1 per bbl; new beets 50¢ per bu; onions 80¢ per 100 lbs. in bulk, 85@90¢ per 100 lbs. in sacks.

Potatoes.—Carlots 30@35¢ per bu; in bulk, 35@40¢ per bushel in sacks; at Chicago Michigan white, bulk, are quoted at 35@45¢ per bushel; at Greenville, Mich., 30@33¢ in bulk.

Apples.—Due to liberal supply the market is still easy. Average receipts 50@75¢ per bu; \$1.50@2.50 per bbl.

Chicago.—Fancy goods are in fair sale and steady. Trade is generally slow on account of the liberal supply. Snows, Wageners, Spies and Greenings are in most demand. Baldwins \$1.75@2.25; Kings \$2.25@2.50; Wageners \$2@2.25; Jonathans \$3.50@4; Greenings \$2.25@2.50; Northern Spy \$2.25@2.50; Snow \$2.25@2.75; bulk apples 50¢@1 per 100 lbs., according to quality. Western box apples are selling for 80¢@82.25 per box.

WOOL.

A normal amount of business was done last week and the deals covered a wide range of grades; however, the fleece wools occupied a larger place in the transactions than for some time past. Just why manufacturers are not getting anxious about supplies is a mystery, for stocks in dealer's hands are limited, the British government has placed an embargo on wools from her colonial possessions and the shipments coming from South America are being carried in English bottoms, these boats going first to England where the consignments would naturally be offered first to the trade there. But the manufacturers seem satisfied to buy for immediate wants only. However, the demand for finished goods is of good proportions, making the volume of sales reasonably large and the day-to-day buying method guarantees a more constant demand than would be the case where stocks were laid in. Trading in fleece wools is more animated with delaines changing hands at 24@24½¢, and half-bloods at 29¢. Territory wools are active at the best prices of the season.

GRAND RAPIDS.

Wheat is off a cent for Tuesday's trading, the mills quoting as follows: No. 1 red \$1.05; No. 2 red \$1.02; No. 1

white 99¢. Old corn is quoted at 78¢; oats 48¢; rye 90¢; buckwheat 80¢; beans \$1.90. Reports indicate a light crop of turkeys for Thanksgiving trade and all poultry prices are firm. Prices, live weight, at the opening of the week are: Fowls and springs 10½¢; turkeys 17¢; ducks 11¢; geese 10@12¢. Not much change in the potato situation, with market at 20@23¢ at most stations outside, and 35@40¢ here. While some potatoes are moving the bulk of the 1914 crop has been placed in storage.

DETROIT EASTERN MARKET.

The cold weather discouraged the presence of sellers and buyers on the city market Tuesday morning and the volume of business was comparatively small. Prices were firm for most lines. Potatoes were in much smaller supply and sold around 45¢ per bu. Apples are still offered freely but the quality is improved; values range from 50¢@1. Fresh eggs were held at 45¢; butter 38¢; celery 20@25¢ per bunch; squash 30@60¢ per bu; there was no loose hay in sight and the nominal price is \$17@19 per ton for timothy.

CHICAGO LIVE STOCK MARKETS.

November 16.

This is the Monday set for the partial reopening of the stock yards for business, and stock from sections of the country that are not quarantined may be brought in, but no live stock may be shipped from here, and all stock must be slaughtered within 36 hours. The streets, alleys and packing house plants are all sprinkled heavily with lime, and nothing has been left undone to eliminate all danger from further spread of the foot and mouth disease. Receipts of everything are on a limited scale, comprising about 7,000 cattle, 18,000 hogs and 22,000 sheep and lambs. Stock arriving is closely watched by the inspectors, and the work of unloading was so slow that business was necessarily delayed. The packers received direct about 7,000 hogs, as well as about 4,500 sheep and lambs, largely old ewes from St. Paul. After trade got well started in cattle the market was fairly active, with irregular prices, and part of the cattle selling 25 cents or more higher. Two carloads of choice yearling steers brought \$10.75, and that was reported as top for the heavier offerings, there being no heavy beefs such as sold before the closing of the stock yards up to \$11. A carload of fancy heifers brought \$9.75. Hogs were approximately 40¢ or more higher than the last day the yards were open for business, with sales on a basis of \$7.50@8.25 for marketable offerings, but the boom was due mainly to early purchases made by speculators. The packers held back and declined to pay the full advance, and by the noon hour most of the improvement had disappeared, and it began to look like an \$8 top. A firm sheep market was witnessed, with packers buying fat lambs at \$8.50@9. There were reports of a \$9.25 top for lambs, but they could not be verified.

CROP AND MARKET NOTES.

(Continued from page 461).

moving freely. Live stock in a healthy condition. Wheat \$1.05; oats 43¢; beans \$2.05; barley \$1.20; potatoes 40¢; corn 70¢; eggs 24¢; butter 28¢.

Branch Co., Nov. 7.—Late potatoes are yielding well. Corn about two-thirds of an average crop, and some yet to be husked. Rains last month damaged beans, which will not yield as well as expected, averaging only about seven bushels per acre. Meadows, seeding, wheat and rye are looking good owing to the late rains. Some live stock ordered killed in this county. Many farmers have stock all ready for market, but cannot sell on account of the quarantine. Wheat \$1.07; oats 44¢; corn 75¢; potatoes 30¢; butter 26¢; eggs 30¢.

Sanilac Co., Nov. 7.—With the exception of a few showers, we have had a dry fall, and the roads are excellent. Wheat looks fine, and a large acreage was sown. Potato harvest is about over, and yield is good, price offered 25¢. Bean threshing is about done, yielding from six to 10 bushels per acre. Cows are very high, but horses are plentiful and cheap. There is a fair supply of sheep all in good condition. Hay and oats are being marketed freely.

Pennsylvania.

Crawford Co., Nov. 10.—Wheat and rye are looking fine. Meadows and new seeding are good. Potatoes are yielding about 70 bushels per acre. Corn is good, averaging 90 bushels per acre. Beans are a light crop. There is a large amount of feed in farmers' hands for own use, though not much surplus grain for sale. Most farmers have dairy stock and hogs to feed. Farmers are marketing potatoes at 40¢; corn 90¢; oats 38¢.

Perry Co., Nov. 9.—Most wheat and rye was sown about October 25, and makes a poor showing. Young clover is a good stand. Corn is yielding 100 bushels of ears per acre, though some fields are a failure owing to drouth. Some are plowing corn ground for next season. Farmers are marketing some wheat, milk and poultry. Most of the oats and corn will be fed on farms to hogs and horses. Potatoes are being shipped here from New York state, and selling at 75¢ per bushel. Wheat \$1.02; oats 45¢; corn, out of field 65¢; eggs 29¢; butter 24¢; chickens 11¢.

Ohio.

Ashtabula Co., Nov. 9.—The winter grains are looking exceptionally well. New seeding almost a failure. Corn is being husked and the yield is fair. Some are doing fall plowing. Stock is doing well, but not many cattle or hogs for sale. There is plenty of rough feed, but a scarcity of all kinds of grain. Potatoes were a bumper crop and about all dug; they sell at 38¢ per bushel; milk at creamery is \$1.70; butter 30@36¢; eggs 32¢; hogs 7@8¢ alive; veal, dressed 8@10¢; chickens 12¢.

Columbiana Co., Nov. 9.—Weather fine until November 8, when we had several inches of snow. Farmers have their work pretty well done up. Potatoes all dug, and a good yield. Corn is nearly all husked, but not a good crop owing to the dry summer. Meadows are in fair condition; early sown wheat does not look good. A good many cattle are being fed, but there is not much surplus feed. Potatoes are the main crop being marketed, and shippers are paying 40@45¢; oats 50¢; wheat \$1; old corn 90¢; new 60¢; butter 30¢; eggs 30¢.

Madison Co., Nov. 7.—Good progress is being made in harvesting the corn crop, which is an average crop, and bringing 60¢ per bushel. New seeding of wheat and rye looks excellent, though there is some report of damage by fly owing to late warm fall. Several cars of potatoes and apples are being shipped in as these products were almost a failure in this section.

Illinois.

Perry Co., Nov. 4.—Potatoes were the most complete failure for many years, and there will not be enough for home consumption. Northern potatoes are retailing at 80¢ per bushel. There are no beans, and corn is a very short crop. Meadows and new seeding are fine. Wheat and rye are doing fine. Very little stock being fed, some hogs. Few farmers have any feed to sell and many will have to buy. Wheat sells for \$1, and many farmers are holding the grain for better prices. Hay \$10@16; butter 25¢; eggs 30¢; hens and geese 13¢.

Missouri.

St. Louis Co., Nov. 9.—Wheat looking fine and more sown than usual. Farmers held off planting on account of the fly. The usual amount of rye sown. Corn averages 25 bushels per acre; potatoes 35 to 40 bushels. There are no beans. Pears plentiful, and apple market unsatisfactory. Eggs 30@35¢. The East St. Louis stock yards are closed for the first time in many years.

Vernon Co., Nov. 9.—The weather is unusually fine. Farmers are busy gathering their corn. Corn on bottom lands yielding 40 to 50 bushels, while on the uplands it is not quite as good. Lots of wheat has been sown and is looking fine. There is plenty of hay, fodder, etc., on hand for stock. Some hogs are dying with what is supposed to be cholera. Wheat 90@95¢; oats 40¢; corn 65¢; hogs \$6.75; chickens 10¢; eggs 24¢; butter 25¢.

Kansas.

Trego Co., Nov. 9.—Weather is ideal but very dry; wheat is needing rain badly, and some reported dying for want of moisture. Corn is being husked and yields from 20 to 25 bushels per acre. No corn is being marketed as yet, and only a little over half of this year's wheat crop marketed. Feed of all kinds is plentiful, and quite a number of cattle are being shipped in for feeding. Wheat 94¢; corn 60¢; potatoes 75¢; apples 85¢; butter 25¢; eggs 20¢.

Lincoln Co., Nov. 7.—The wheat stand is good, some farmers are turning their cattle on it. Potatoes scarce, some being shipped in and selling at 85¢ per bushel. Corn is also shipped in and sells at 78¢ per bushel. There is quite a number of young cattle fed, and there is plenty of rough feed on hand. Hogs are scarce. A lot of wheat is going to market. Oats 48¢; alfalfa hay \$11; butter 20¢; eggs 20¢.

Nebraska.

Scotts Bluff Co., Nov. 6.—Potatoes yielded 100 to 200 bushels per acre. The season is short for corn, only the early varieties being grown. There are not as many sheep being fed as usual, and only a few cattle fed. The range stock is doing fine. No grain is shipped out; corn is shipped in. Sugar beets good crop and bring \$5.50 per ton. Alfalfa, the leading crop here, brings \$8 on track. Potatoes \$1 per cwt.

LIVE STOCK NEWS.

Dr. Simon Flexner, the world famous pathologist and bacteriologist, who is the head of the Rockefeller Institute, is going to study the foot and mouth disease, with a view of isolating the germ and compounding a serum that can be used as an antitoxin. Dr. Flexner has at his command the \$100,000 appropriation recently made by the institute for the study of the live stock diseases. He and other scientists have arrived in Chicago to pursue researches into the disease that is causing the loss of millions of dollars. Fifty Illinois counties have been under observation for possible traces of the foot and mouth disease, and 15 counties are under quarantine. State and nation have clashed as to the disposition that should be made of the prize dairy cattle sick at the Chicago stock yards, the federal government authorities claiming that they should be killed, while the state of Illinois, represented by Dr. O. E. Dyson, state veterinarian, sees no reason for such drastic action. It is pointed out that the greater part of the 386 head of fancy stock held there are affected with foot and mouth disease, that most of these are recovering, and that to slaughter them means to set back the breeding industry for years.

There was great surprise at the Chicago stock yards the other day when it was discovered that thousands of dollars worth of the serum used for hog cholera, which is manufactured there, had become infected with the germs of the foot and mouth disease. This serum has been sold broadcast, and to prevent widespread injury Dr. S. E. Bennett, representing the United States government, has issued a warning to farmers. A farm to farm canvass among the purchasers of this serum is being made by inspectors acting under orders to examine every cloven hoofed animal on such farms.

Everywhere great regret is expressed because it became necessary on account of the outbreak of foot and mouth disease in the Chicago stock yards and elsewhere to abandon the great International Live Stock Exposition this year. Managers of the famous and popular exhibition state that the entries for the show were the largest ever recorded.

Because of the closing of the Chicago stock yards, a few of the markets not quarantined received unusually large supplies of live stock, and the Kansas City stock yards were glutted with cattle, resulting in big slumps in prices, with the smallest decline in prime corn-fed beefs. Grass cattle comprised the greatest part of the offerings and sold off sharply. Aggregate receipts of cattle, swine and sheep at all the western markets were far less than a year ago. All the markets reported the cattle stocker and feeder trade in a demoralized condition. Some thin cattle have been moving westward from Omaha and Kansas City, but in territory east of the Missouri river there is very little call for thin cattle or sheep for feeding purposes. Since the outbreak of foot and mouth disease stocker values have experienced a big break, but the demand has been poor. November shipments of stock cattle and sheep from the central markets of the United States are going to be the smallest in 20 years, and fat cattle and sheep are sure to be scarce and unusually high. Nebraska's quarantine against Iowa has prevented a lot of live stock from going from the Hawkeye state to Omaha.

The local office of the Bureau of Animal Industry has received the following instructions from Washington: "Owing to scarcity of funds, it is considered advisable to save as many animals as possible. Therefore, you are instructed to make efforts to save animals for food purposes in cases of large herds where disease has appeared in only a few cases."

Horses were allowed to be marketed last week, as usual, at the Chicago stock yards, and they arrived and were shipped out in good numbers, the quarantine not including them, as they do not take foot and mouth disease. Expressers and wagoners were most frequently in demand, next to army horses, the latter being salable at \$130 @ \$140 per head for desirable mounts and at \$150 @ \$180 for artillery horses. During the preceding week the Chicago receipts in the stock yards were officially reported as 7,031 head, exceeding all records, but they included thousands of army horses bought at various western points and on their way to the Atlantic seaboard.

Eugene H. Grubb, of Colorado, who has been in Europe in the interest of the Panama Exposition, returned recently and predicted that at the close of the war there would be a great scarcity of most of the famous, English, French and Belgian horses, and as a result he said the American studs of the principal breeds of Percherons, Belgians, Shires and Clydesdales will enhance enormously in value.

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 letter.

Nasal Catarrh.—Two weeks ago I purchased a calf at public sale; the calf had been clipped and perhaps took cold; since then a mucus discharge has been coming from both nostrils and so far as I can tell, calf is no better. E. D. R., Belleville, Mich.—Give your calf 10 grs. of quinine, a dessertspoonful of fluid extract of gentian and a teaspoonful of Glauber's salt at a dose three times a day. Keep calf stabled during cold, raw, stormy weather and in barn over night.

Poll-evil.—I have a seven-year-old horse which our local Vet. has been treating for poll-evil, but the horse does not seem to recover. J. K. B., Falmouth, Mich.—Ask your Vet. to give horse serum treatment, also apply iodine preparations to bunch every day or two and if it is necessary to do some surgical work on him, he can do it.

Sprained Shoulder.—I have a mare with what people tell me is a sprained shoulder, she is very lame and has not done any work for the past two months. When on pasture she got in a ditch and it took us five hours to help her out; she was then not able to stand alone and it took some time before she was able to walk. Her arm and shoulder are some swollen and the liniment I have applied has made no impression. When walking she twists her leg and swings it out in a sort of rotary manner. A. E. F., Custer, Mich.—Clip hair off shoulder and apply one part powdered cantharides and five parts fresh lard every week or ten days.

Partial Paralysis.—I have two hogs a year old that are dragging their hind parts and have very little use of hind legs. These hogs ran in orchard all summer and were in nice condition up to three months ago, when one began to drop down behind; a month later the others showed the same symptoms. Neither one of them have ever missed a feed. G. S., Bannister, Mich.—You have fed your hogs too much corn and fat-producing food, not enough of muscle-making feed. Discontinue feeding corn, or if they are fleshy and fit for market, destroy them; or, fatten them at once, as a chronic ailment of this kind is not always curable.

Indigestion.—I have a mare twelve years old that bloats after eating, occasionally coughs, and her breath has a foul odor. J. J. T., Belleville, Mich. Give her a dessertspoonful of hyposulphite of soda and 1 dr. of ground nux vomica at a dose in feed three times a day. She should be fed a good quality of food and exercised daily.



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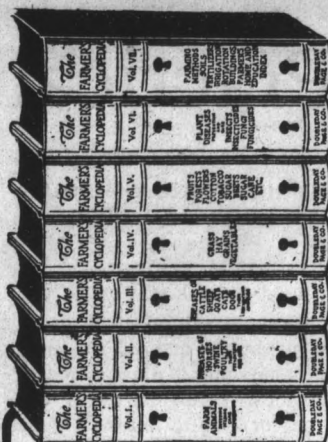
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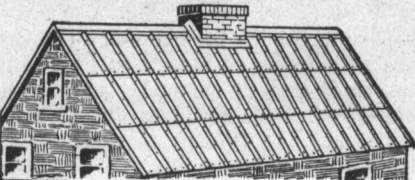
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Practical Science.

THE CONTRIBUTIONS OF POULTRY TO FOOD AND DIET.

BY FLOYD W. ROBISON.
(Continued from last week.)

Dietary Considerations of Eggs.

Eggs are probably one of the most universally used meat diet accessories. Their food value is quite constant and uniform, but market conditions fluctuate very materially. Like meat food products the price at which eggs are sold on the market is usually entirely out of relationship to the nutritive value of the eggs. In fact, there is very little relationship in this country between real nutritive value of food products in general, and the price at which they are retailed. It would seem, with the increased attention which is being given in our colleges and universities to problems of diet, that after awhile some consideration based upon real relationship between nutritive values and costs would evidence themselves in our domestic commerce. However, the American people place such importance on freshness of articles of meat and meat accessories, and upon purity and high quality of food products in general that it is very difficult to establish a diet along economic lines. Therefore eggs are used in dietaries in places where meat products could be more economically and just as advantageously used. On the other hand, many times sirloin and porterhouse steaks and the like are used to the exclusion of such excellent foods as eggs when it is decidedly uneconomical to use them.

Eggs Can be Produced on a Village Lot.

As we mentioned with regard to poultry considerations, one very important reason for the almost universal use of eggs is that egg production is about the only animal production which can be conducted on the small farm or village lot. This possibly effects very favorably the American family diet for it provides a fresh meat accessory many times when meat at all would be impossible.

There are a very great variety of ways in which eggs may be prepared. In fact, nearly every housekeeper has some special way of her own in which eggs are prepared for food. It is generally considered from a standpoint of nutrition that the boiling of an egg in the shell is one of the most satisfactory ways of preparing it for food. If an egg is dropped into boiling water, that is, water of a temperature of 212 degrees, and kept there for two minutes, the yolk will be warmed through but not coagulated, and the white, or albumin, will be changed to the consistency of what is known as a very soft boiled egg. Hard-boiled eggs take usually upwards of four minutes. Some dietists prefer the prolonged cooking of an egg below the boiling temperature. Eggs may be cooked for instances for 35 to 45 minutes if the temperature is not raised near the boiling point and then in this condition will become very easily digested, and, if fresh, with no undesirable flavors, very palatable indeed.

Composition of Eggs.

The Bureau of Chemistry of the United States Department of Agriculture have made some very extensive investigations on the chemical composition of eggs. In general, hens' eggs consist of about 11 per cent shell, 32 per cent of egg yolk and 57 per cent white, or regular egg albumin. Eggs are exceedingly highly nitrogenous food products. They contain as well, large quantities of fat, the yolk of the egg containing practically all of the fat. Besides protein and fat, eggs also

contain in the edible portion noticeable quantities of mineral salts. It is apparent therefore, that the edible portion of the egg is a quite complete food product and inasmuch as it is designed to furnish nourishment and sustenance to the young bird during the early stages of its existence the reason for this food perfection is apparent. In this respect eggs compare in a general way with milk. Milk being the complete food for the mammal for a certain period of its early life necessarily must be, and is, a perfect food for the individual during that life period. Similarly with eggs. The error in dieting is to assume that either milk or eggs are perfect food for an adult. While they contain the ingredients which for a period of time will sustain life, at the same time these constituents are not so balanced that they constitute an ideal food in themselves for adult life.

The Egg Contains the Germ of Life.

From a physiological point of view the egg is one of the most interesting life products which we have to study. It not only contains the proper food products for the growth of the young, but it contains as well the enzymes and catalytic forces which under proper conditions meet the demands of the life processes. Biologists therefore have made a definite study of the egg. Its protein, or albumin, is very complex and the cell nucleus is most marvelous in its physiological and chemical structure. While great progress has been made in the chemical study of the egg, little success has attained the efforts of the biologists in unraveling through the abundance of chemical evidence at hand the mystery surrounding the life activity manifested.

In the egg shell most of the mineral matter is stored up. The egg shell proper consists in a very large degree of calcium carbonate, some magnesium carbonate and some calcium phosphate. Over 90 per cent of the weight of the egg shell is calcium carbonate and about five per cent of it is so-called organic matter.

How Feed Affects Egg Quality.

The feed given to fowls affects very materially the flavor of the egg. It is generally conceded that perfectly fresh eggs have by far the most desirable flavors although there is really little flavor to the absolutely fresh-laid egg. On storage for a considerable period of time eggs deteriorate very materially in flavor, although this deterioration may not be an evidence of spoilage. The shell of the egg is very porous and on this account cold storage men find it necessary to use great care in the storage of eggs. They are in a way almost as susceptible to the absorption of disagreeable flavors as is milk. The bane of the cold storage man's business, insofar as cold storage is concerned, is the development of a must in the egg. No matter how firm an egg may be, if it becomes musty it is practically worthless and this is the condition which storage men fight more than any other condition insofar as egg storage is concerned.

Vegetable Diet Gives Best Flavored Eggs.

A vegetable diet seems to produce eggs of the finest quality. Fowls fed on grain to a large extent have the finest flavored eggs. A meat diet, or a strictly nitrogenous diet where animal products furnish the nitrogen, is very apt to develop badly flavored eggs. Any highly flavored food products, such as garlic, onions, and the like, exhibit their undesirable influences after a time upon the flavor of the eggs.

It has been conceded that the char-

acter of the feed has much to do with the color of the contents of the egg, particularly with the color of the yolk. We are not sure that this statement has been fully corroborated by experimental evidence. It seems reasonable to suppose that the claims of these experimenters, that the use of an abundance of green foods, such as clover, alfalfa, and the like, will deepen the yellow color of the egg, is well founded. On the other hand, we think that this has not reached such a degree of perfection that the control of the color of the yolk of the egg can as yet be said to be scientific.

Preservation of Eggs—How to Keep them Fresh.

A great deal of attention has been given to methods for the preservation of eggs. Generally speaking, eggs are more subject to seasonal variations in price than is any other animal food product. This seems to be because poultrymen generally have not found a way to make hens productive at those seasons of the year in which eggs now are usually high. The greatest effort has therefore been made to find some way to properly preserve eggs so that in periods of apparent plenty they may be kept until the periods of scarcity arrives. This is accomplished on a large scale in the cities by the cold storage houses, and if eggs are placed in cold storage in perfectly fresh condition and the commission merchant will be very religious in his scrutiny of the eggs before they go into storage, when they are taken out of storage several months later they will be found to be in a very satisfactory condition. If this were done we apprehend it would not be long before much of the prejudice against cold storage eggs would disappear. The keeping of eggs in cold storage, however, is not feasible in the smaller towns or in the country homes and various other expedients have been at times followed, such as packing the eggs in salt, in bran, in sawdust, or in brine. We have not felt that any of these methods have been very successful. We understand, however, that a great deal of success has followed the packing of fresh eggs in a solution of waterglass. Waterglass may be obtained at the drug store for quite a reasonable price and is said to be an excellent preservative medium for eggs. According to the reports of the North Dakota Experiment Station a desirable solution for preserving eggs may be obtained by dissolving one pint of the syrup-like waterglass in ten pints of pure water. The eggs may be put into a crock and the waterglass solution poured over them and must cover them completely. The whole solution should then be kept in a comparatively cool place.

BOOK NOTICES.

"Forage Plants and their Culture," by Charles V. Piper, M. S., Agrostologist in charge of forage crop and investigations bureau of plant industry, U. S. Department of Agriculture, edited by L. H. Bailey, is a book of 618 pages, 5x7½ inches in size. It is a comprehensive treatise on forage crops and their adaptation to different sections of the country, the cultural methods best suited to their growth, their proper place in crop rotations and the agriculture of different sections, the varieties best suited to different uses, etc. A very complete work, and a valuable study and reference book for any farmer. Price \$1.75, published by the Macmillan Company, New York City.

"The Textbook of Grasses," with special reference to the economic species of the United States, is a book of the Rural Science series by A. S. Hitchcock, Systematic Agrostologist, U. S. Department of Agriculture, formerly Professor of Botany in the Kansas State Agricultural College. This book is written with a view of giving information on the economic value of grasses native to or which may be grown in different sections of the United States, with a chapter devoted especially to weeds. Price \$1.50, published by the Macmillan Company, New York City.

Poultry.

FODDERING THE HENS.

After studying conditions and practices in many places in different parts of the country, I have arrived at the conclusion that but few farmers and farmers' wives fully appreciate and understand all that can be accomplished by systematically foddering the hens in order to secure desirable results in egg production. In fact, very many consider the hens distinctly as grain feeding animals, and do not give the matter of furnishing them a reasonable amount of palatable forage any consideration.

We have found that to confine the hens in a large, roomy park in the summer time during the fore part of the day, and feeding some palatable green feeds, that they pass the hours quietly, eating and attending to laying. There is always a good supply of pure, clean water within easy access. About two hours before night they are let loose to pick grass and gather worms and insects of various kinds.

Too Much Exercise Not Good.

We have secured so much better results than when the hens were allowed to roam during the day, we have concluded that too much exercise is a detriment. As too much exercise reduces the producing capabilities of the dairy cow, so too much liberty makes the hens roamers, scratchers and foragers, and at the same time reduces the number of eggs produced during the year.

We have found that when hens are confined in the park, they relish a great variety of green feeds. Garden weeds, like round-top, pigweed, checkweed, summer grass, when it is small, lawn clippings in moderate quantities, when fresh, also make a good feed. Early in the spring we sow Russian sweet turnips, and as soon as the tops have leaves half the width of the palm of the hand, we begin to pull them out to thin the rows and feed them to the chickens. These turnip tops make good feed up to the time the winter approaches and the crop is gathered. Sugar beet tops make excellent summer feed, and the beets themselves can be utilized as feed in winter. Cabbages, sown early, make excellent summer feed, and the large leaves and soft heads can be stored for winter feed.

Some Green Feeds that Are Good.

In the winter time hens take hold of green feed very freely and are benefited by them. Some early cut June clover leaves will be relished and will benefit the flock very much. If the alfalfa hay can not be had, a little alfalfa meal mixed in the warm mash in the morning will help much.

A cabbage, gathered leaves, head and all, hung up where the hens can reach it, will furnish green feed, and the hens will exercise while picking at it. A sweet beet hung up to pick on in moderate weather furnishes feed, a comfortable place to roost, without much air space above them, ventilation without draught, a variety of grain feeds, well balanced, in moderate quantities, what forage feeds they will consume readily, plenty of fresh water and gravel or ground oyster shells, and their healthfulness will be insured. When the hens are healthy they can do good service; if unhealthy they are sure to bring disappointment and loss. To talk of foddering the hens may sound strangely, but if practiced in accordance with good common sense and judgment, it will prove to be an economical manner of feeding, and much better results will follow than when only grain feeds are used. N. A. CLAPP.

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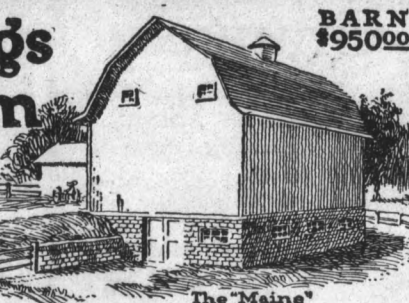
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Now is the time to start your building plans. Send for the big Lewis Easy-Built House Book and the new Barn Book, and pick out the house or barn you've been wanting so long. It is there in the book ready to ship direct to you from the mills, made of the best lumber obtainable, all sawed and worked to fit.

SAVE YOUR TIME AND MONEY.

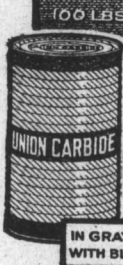
No need to keep running to town, bothering with expensive architects, lumber dealers, contractors and sub-contractors. We send full working plans so you and your hired man can easily erect the buildings.

Write for Free Books today.

LEWIS MANUFACTURING COMPANY, Dept. 95, Bay City, Michigan.

Houses shown from \$248 up—barns and other farm buildings \$75 up.

WARNING—Don't confuse the Lewis-built method with "portable," "knock-down" or other make-shift plans. Nineteen years in this business, and the only shippers of ready-cut lumber, owning and operating our own mills.



HOME MADE ACETYLENE

*Is not poisonous
to breathe*

The home paper will print your obituary in the next issue—if you ever "blow out the gas" when you visit your cousin in the city. But when your city

cousin comes to your country home, he can blow out your acetylene gas light and it won't hurt him a bit to breathe it all night.

Your HOME-MADE ACETYLENE gas is much the best in many other respects. A hundred cubic feet of it will give you more light for your house and barn than a thousand feet of your cousin's city gas. Your light will also be far more brilliant and beautiful, and your acetylene cooking range will have every feature of the finest gas range used by the cities' millions.

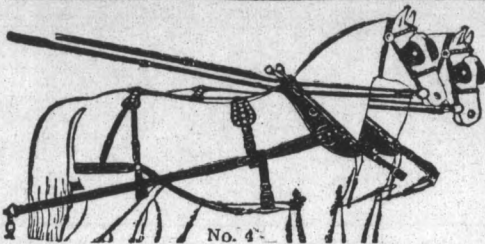
To make acetylene for country home use you require an automatic generator. You simply feed this generator the gas producing stone, Union Carbide, about once a month—the machine does the rest.

The use of HOME MADE ACETYLENE has grown steadily while a hundred other competing light propositions have died by the wayside. Today we supply UNION CARBIDE to over a quarter of a million country home families.

Modern acetylene generators are wonderful improvements over the earlier kinds with which you may have been familiar. We will be very glad indeed to have you ask us any question that may come to your mind.

You will find our advertising literature intensely interesting. Address

Union Carbide Sales Company, Dept. 13, 42nd St. Building, NEW YORK, or Peoples Gas Bldg. CHICAGO, ILL.



HARNESS HORSE COLLARS

Ask Your dealer for the Label

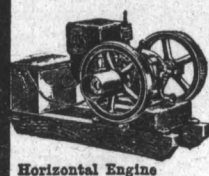
Made and Warranted by

ARMSTRONG & GRAHAM

WHOLESALE ONLY.

DETROIT

ESTABLISHED 1880



Horizontal Engine

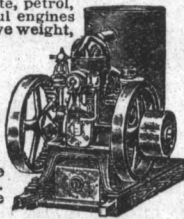
Run on Kerosene—6c for 10 Hours

Ellis Engines develop more power on cheap lamp oil than other engines do on high-priced gasoline. Will also operate successfully on distillate, petrol, alcohol or gasoline. Strongest, simplest, most powerful engines made; only three working parts. No cranking, no excessive weight, no carbonizing, less vibration, easy to operate.

ELLIS ENGINES

Have patent throttle, giving three engines in one; force-feed oiler; automobile type muffler; ball-bearing governor adjustable while running and other exclusive features. Every engine sent on 30 days' approval with freight paid. 10-year guarantee. Write for 1915 catalog, "Engine Facts," showing New Models with special prices.

ELLIS ENGINE CO., 2839 East Grand Boulevard, Detroit, Mich.



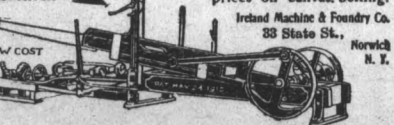
Vertical Engine

SAW WOOD THIS WAY

Be independent of hired help. Save your time, work and money. Saw big timbers at the rate of 25 to 40 cords a day. It's only "boy's play" with an

IRELAND Drag Saw Machine

Has no equal in convenience, simplicity and long life. It's light, compact, strong, well-built and warranted. Saws whole log in short length without leaving lever. No turning for last cut. 7 advantages. Write for free printed matter. Also details on our Wood Saw Machines, Saw and Shingle Mills and Hoists. Equally low prices on canvas belting.



Ireland Machine & Foundry Co.
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Longer it runs empty the sharper the buhrs

Let's Feed Grinders will run empty all day without injury. Grinding plates are not dulled by running together, but sharpen themselves. Grinds feed finer on less power than any other mill. Force feed—can't clog or gum.

LETZ FEED MILL

Write, giving H. P. of your engine, for details of 10 days free trial offer. Letz Mfg. Co., 210 East Road, Crown Point, Ind.

WHITE CEDAR FENCE POSTS

Michigan White Cedar Fence Posts, 7 ft., 8 ft., and 10 ft., lengths. Special attention given to farmer club orders. Write for prices and terms. F. G. COWLEY, Oscoda, Mich.

WANTED! Fur Coat, Robe or Set of Furs

that needs to be repaired, Relined or Remodeled to know that The Blissfield Robe & Tanning Company, Blissfield, Michigan,

does this work and does it right. Send your Fur Garments to us at our expense. If our price is not satisfactory we return goods to you PREPAID. Cold weather will soon be here. Send for free Catalogue.



The Extra Eggs



will soon pay for one of these

Automatic Self-Heating Poultry Fountains and Heaters

Keeps water at the right temperature day and night in the coldest weather and requires less than a quart of oil a week. Made of Galvanized Steel. A long felt want supplied. Every Hen-house needs one. Price of 1 Heater and 2 gallon Automatic Fountain complete \$1.15. Write for Circular J and testimonials. Agents wanted. C. A. S. FORGE WORKS, SARANAC, MICHIGAN



Crown Bone Cutter

BEST MADE Lowest in Price

FEED your hens out green bone and get more eggs. With a Crown Bone Cutter you can cut up all scrap bones easily and quickly, and without any trouble, and have cut bone fresh every day for your poultry. Send at once for free catalog. WILSON BROS., Box 251, EASTON, PA.



BOOK ON Dog Diseases AND HOW TO FEED

Mailed Free to any address by the author
H. CLAY GLOVER, V. S.
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POULTRY.

Bourbon Red Turkeys: White Leghorn Cockerels; B. Young Strain Sicilian Butter Cup Cockerels for sale. Mrs. L. H. Johnson, R. 2, Cloverdale, Mich.

MAMMOTH ROUEN DUCKS—Old and young. Trios, pairs and single birds. All fine, large birds at reasonable prices. D. G. FISHER, R. No. 3, Box 98, Birmingham, Mich.

Pekin and White Indian Runner Ducks—Stock and prices will please you. H. V. Hostetler, Route 1, St. Johns, Mich.

BRO. FARMERS. We have just what you want in From extra laying strain, large handsome fellows. Farm raised. For prices, write RIVERVIEW POULTRY FARM, Box 799 Union City, Michigan.

Barred Rocks—All prize winners and breeding stock at half price. Won 20 prizes last winter. W. O. COFFMAN, R. No. 6, Benton Harbor, Mich.

SILVER and GOLDEN WYANDOTTES—At half price for one month. F. E. COWDREY, R. No. 8, Ithaca, Michigan.

SILVER LACED GOLDEN and WHITE WYANDOTTES—A fine lot of White cockerels weighing 6 to 8 lbs. at \$2 and \$3 each. Browning's Wyandotte Farm, Portland, Michigan.

PINE CREST WHITE ORPINGTONS—The great winter layers, winners at State Fair, pullets, cockerels, hens, also collie puppies, Mrs. Willis Hough, Pine Crest Farm, Royal Oak, Mich.

PLYMOUTH Rock cockerels 5 to 11 lbs., according to age, hens 5 to 8 lbs., 15 eggs \$1. Mammoth Bronze Tom Turkeys 8 to 35 lbs., according to age. Price \$8 to \$25. 10 eggs \$3. A. E. CRAMTON, Vassar, Mich.

DOGS AND FERRETS.

FOX, COON AND RABBIT HOUNDS Broke to gun and field. Prices right. Fox and Coon hound pups \$5 each. Stamp for reply. H. C. LITTLE, Fredericksburg, Ohio.

Trained Running Fox Hounds—30 Fox and Coon hound pups, 500 Ferrets, Poles. Send stamp. W. E. LEOKY, Holmesville, Ohio.

Fox and Wolf Hounds

of the best English strain in America 40 years experience in breeding these fine hounds for my own sport. Save your pigs sheep and poultry. Send stamp for catalog. T. B. HUDSPETH, Sibley, Jackson County, Mo.

2000 Ferrets for sale. Write for price list. It's free. Guarantee safe delivery. DeKlois Bros., Box 41, Jamestown, Mich.

When writing to advertisers please mention The Michigan Farmer.

Grange.

GALA WEEK AT ADRIAN.

Adrian did itself proud, with its three days of celebration and festivities on October 7-8-9. It was a success beyond the expectations of those who arranged it and was another example of the value of co-operation for it was the result of the united efforts of the business men of Adrian and the farmers of the community. The Commercial Club of Adrian, represented the business men and the several live Granges about Adrian represented the farmers. The town was in its holiday attire, and everybody helped to make this the most successful carnival held in Michigan, excepting those held in Wayne and Kent counties. Among the features of the arrangements was the interest the bank took in the affair. It gave up its building for the headquarters of the Grange, and also had a fair and gave prizes for exhibits of grains, fruits and vegetables.

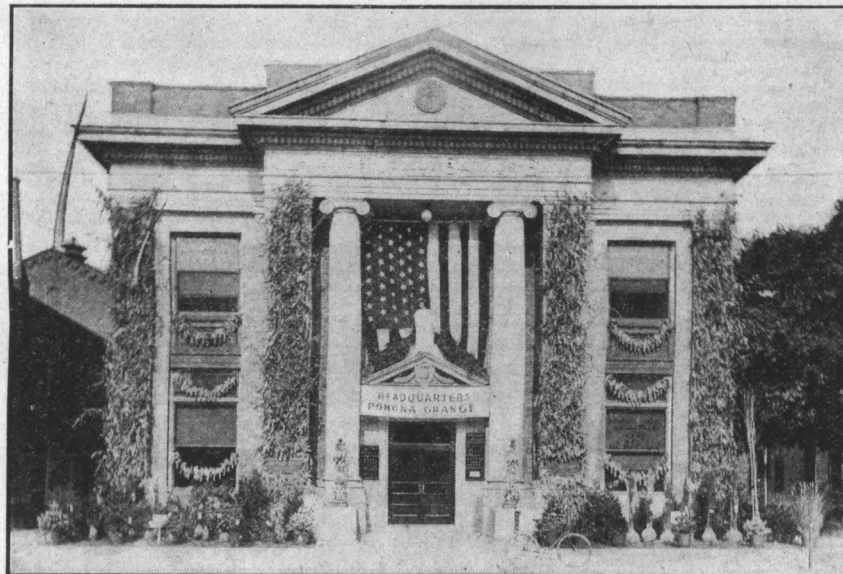
The big day of the celebration was Friday, on which day a monster parade was held. This parade was divided into two large sections and occupied the streets for hours. It is estimated that fully 25,000 people witnessed it. The number of floats in the parade was beyond the expectation of everybody, there being about 250. All of the business concerns had floats advertising their wares, and there were fully 100 floats of Lenawee county farmers' displays. The schools which constituted one section of the parade had over 30 floats in their section. Among the features of the parade were the company of boys and the boys' band in white uniforms, which led the parade, the well-drilled Clinton Tipton band of 30, and the beautiful first prize float of Madison Grange. The latter consisted of a float 30 feet long, representing a complete wheat field with harvesters in farm costumes carrying on the operations of harvesting. To even hint at the beauty of other floats in the parade would require more than the limited space we have. The Fairfield Grange quartet played a prominent part among the several comic features of the parade. This quartet, which has established a reputation over the county appeared in a dilapidated farm wagon, with old Dobbin faithfully doing his duty in the tugs.

A feature of the Thursday afternoon celebration was a meeting at the Opera House, at which Charles N. Gardner, of the National Grange, and John Ketcham, Master of the State Grange, spoke. Mr. Ketcham brought out two points in his speech, which were peace and war. He asked the Granges to see their candidates for Congress and ask them to match each dollar spent for army and navy with one for agriculture and education. He also stated that we should make war on such things as the road bonding and fraternal insurance amendments.

Mr. Gardner as usual delighted his hearers by bringing out important truths in a pleasing manner. He brought out the fact that fundamental prosperity began with the farmer, and that Wall street speculations were based on the condition of the farmer's crops. He even spoke of the three great epochs of rural and agriculture history; the first, when the farm boy did not know the city and was content to follow his fathers occupation; the second, when he knew the city and was attracted by it; and the third when he knew both city and country and preferred to stay on the farm.

Thursday night was fireworks night, and about 15,000 people witnessed a pretentious display of pyrotechnics. Fully 500 automobiles were parked in the pleasure zone, and all available side streets were also occupied by autos.

The gala week ended with a masked carnival, in which 1,500 maskers participated. Those in masks paraded through the main streets of Adrian and stopped at the judge's stand, where the prizes were awarded. The first best mask was a man dressed as Uncle Sam, and the most comical mask was one dressed as a bum. One masker who created considerable entertainment was a fellow about six feet tall, dressed as a clown and looked very much like an overgrown



The Bank was Active in the Affairs of Gala Week.

baby. Wandering about the streets he was crying for his mamma through a megaphone. After the premiums were awarded, the maskers unmasked and the band played dance music and dancing was done on the asphalt pavement of Broad street.

That this gala week was a decided success there is no doubt, the crowds participating in the event being an indication of that fact. If it did nothing more than to display the community pride and progressiveness it was worth the time and effort to get it up. It was certainly an expression of a community spirit which is commendable and the farmers and business men of Lenawee county may well be proud of their accomplishment in this undertaking.

Farmers' Clubs

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

Associational Motto:

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

Associational Sentiment:

"The Farmer: He garners from the soil the primal wealth of nations."

A WORD FROM THE ASSOCIATIONAL SECRETARY.

The 1914 annual meeting, December 1-2, offers unusually strong attractions and we strongly urge each local Club to send delegates, as none can afford to miss the inspiration of such a meeting.

The boys' and girls' exhibits will be shown in a separate room, with competent judges in charge, and we hope for a large display as this year's response will largely determine future efforts in this department.

We suggest the attendance of the contestants, if possible, as we realize the comparison and inspiration received would prove strong incentives

the fancy work shown by the ladies, while the exhibit of farm products though not as large as usual, owing to the rainy day, was of splendid quality. Miss Pauline Raven, of Lansing, gave an address on "College Extension and Home Economics." Her explanation of the work done by the college along this line was of much interest, much more so as Miss Raven's former home was in Columbia, and she is favorably known as a member of this Club. Mrs. Davison gave a vocal solo. A recitation was given by Raymond Ladd. Mrs. Dunn gave a reading on the "Benefits of Recreation," and the company sang a hymn composed by Dr. E. N. Palmer, "Michigan, My Michigan." An invitation was given to meet with Mr. and Mrs. E. A. Halladay, former members of the Club, at their home in Clinton, the invitation being accepted for the November meeting.—Maude Smith, Reporter.

PROGRAM OF TWENTY-SECOND ANNUAL ASSOCIATIONAL MEETING.

Tuesday, December 1, 1914.

10:30 A. M.

Payment of dues.
Presenting credentials.
Appointment of committees.
Presentation of resolutions.

1:30 P. M.

Music, School for the Blind.
Invocation, Rev. W. S. Steensma, East Lansing.

Report of Associational Secretary, Mrs. C. P. Johnson, Hadley and Elba Farmers' Club.

Music, School for the Blind.
Reading, Hazel Belle Crosby, Battle Creek.

Farm co-operation, J. C. Ketcham, Hastings; Grant Slocum, Detroit; J. N. McBride, Burton.

Tuesday Evening.

Banquet, First Baptist Church.

President's address.

Round table.

Wednesday, December 2.

8:00 A. M.

Conference of local Club workers, directed by A. B. Cook, Maple River Farmers' Club.

10:00 A. M.

Report of Committees: Temperance, honorary members, Club extension, good of the order, credentials, national affairs, state affairs.

Miscellaneous business.

11:00 A. M.

Election of officers.

1:00 P. M.

Music, Eureka Quartet, Greenbush Farmers' Club.

Invocation.

Report of committee on state affairs.

Music, Eureka Quartet.

Banking for the farmer and farm credits, Prof. W. O. Hedrick.

Music, Eureka Quartet.

Conservation of farm women, Mrs. T. W. Hart, Marion Farmers' Club.

Reading, Mrs. Roy Latson, Howell Farmers' Club.

Music, Eureka Quartet.

The historical museum, Mrs. M. B. Ferry, Lansing.

7:00 P. M.

Music, Eureka Quartet.

Treasurer's report.

Music, Industrial School.

Reading, A. C. Bucknell, Milford Farmers' Club.

Solo, Prof. Fred Killeen, Lansing.

How the working of the tax commission impresses the farmer, Alfred Allen, Ingham County Farmers' Club.

Music, Industrial School.

Address, James Schermerhorn, Detroit Times.

Thursday, December 3.

Visiting day at state institutions.

The ladies of the First Baptist Church will furnish dinners and suppers at the church.

All exhibits in boys' and girls' contests must be entered Tuesday a. m. if possible.

Resolutions should be written and delivered to the proper committees.

All topics open for discussion.

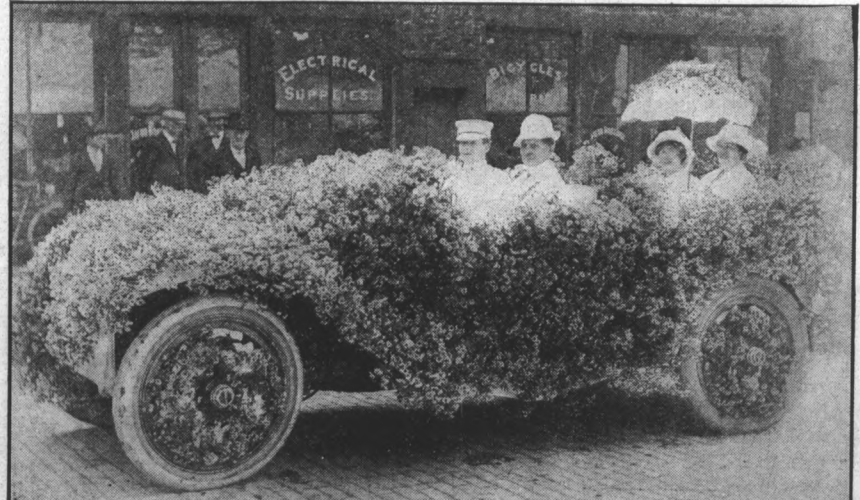
FARMERS' CLUB FAIRS.

Columbia Farmers' Club.

The Annual Fair of the Columbia Farmers' Club was held October 10 at Mountain Ash Farm, with Mr. and Mrs. Henry Peterson. A large attendance, with much interest displayed in



First Prize Madison Grange Float.



One of the Attractive Floats Decorated with Purple Asters.

BREEDERS' DIRECTORY.

CATTLE.

ABERDEEN ANGUS

Bull calves and yearlings ready for service. Sired by Louis of Viewpoint 11. Closely related to five Grand Champions—Brother, Sister, Sire, Sire's Brother and Grandson. (International Grand Champion for three years in succession. Prices \$75 up. Will meet prospective purchasers either at Somerset, Addison or Addison Junction. You are bound to get good calves from these bulls even with strongly dairy type grade cows.

GEO. B. SMITH & CO., ADDISON AND SOMERSET, MICHIGAN.

ABERDEEN-ANGUS

HERD FOUNDED IN 1900. Strains represented consist of Trojan Ericas, Blackbirds and Prides, only. Black Quality Itto, a bull of rare individuality and merit, heads the herd. WOODCOTE STOCK FARM, Ionia, Mich.

AYRSHIRES—One of the foremost dairy breeds. The most economical milk producers. Calves for sale. White Leghorn cockerels. Duroc Jersey swine. Michigan School for the Deaf, Flint, Michigan.

BEACH FARM GUERNSEYS

At Three-Fourths to One-Half Price

Owing to the quarantine stopping the moving of cattle, we will contract our young, pure bred bulls at the above discount, to be delivered as soon as the quarantine is lifted. (if the State does not bury them). People who got our price list can verify the above by dropping us a card. All will receive a square deal. Three of these bulls are old enough for service. These prices will not last, better act quick.

CAMPBELL & ANGEVINE, COLDWATER, MICHIGAN.

Gurnseys—Famous May Rose Strain. A select herd. Tub. Tested. Several A. R. O. Cows. J. K. Blatchford, Windermere Farm, Watervliet, Mich.

We have for sale a number of pure Guernsey cows. Weifers and bulls, also Berkshire hogs. VILLAGE FARM, Grass Lake, Michigan.

Guernsey—Imp. Jim of Edgewater 15384. Age 4 years. Reason for selling is breeding. Write, JOHN EBELS, R. 10, Holland, Michig-n.

FOR SALE.

BIGELOW'S HOLSTEIN FARMS
Three Fine Young Bulls
8, 9 and 10 months old, from 18, 20 and 20 pound cows, each one giving over 10,000 lbs. milk a year—prices, \$100, \$125 and \$150. The two oldest nicely marked—the other has black back and sides, with some white. DeKol 2nd, B. B. 3rd and King of the Pontiacs blood.
BIGELOW'S HOLSTEIN FARM
Breedsville, Mich.

ESPANORE FARM, Lansing, Michigan. Offers for sale

Two Holstein Bull Calves

Excellent breeding and fine individuals. Write for particulars.

CHASE S. OSBORN, } Owners, L. M. HATCH. ADAM E. FERGUSON, } Sup.

FOR SALE

Ready for light service from a 30-lb sire, **HOLSTEIN BULLS**

rich in the blood of Hengerveld De Kol, Friend Hengerveld De Kol Butter Boy, and Pontiac Korn-dyke, three his sons, King of the Pontiacs, and Pontiac Aggie Korndyke. Pedigrees on application. ED. S. LEWIS, Marshall, Mich.

HATCH HERD REGISTERED HOLSTEIN-FRIESIANS

YPSILANTI, MICH., offers HERD HEADERS from choice A. R. O. dams and King Pontiac level King of the Pontiacs. Average per cent of fat of three nearest dams 4.37. Sires in first three generations in his pedigree have 500 A. R. O. daughters. Prices reasonable. Make your own selection at Ashmoor Farms, Tecumseh, Michigan. R. F. D. No. 21, Michig-an.

For Sale Pure Bred Holstein Heifers and Bulls.

De Kol and Landry Girl Butter Boy strain. LEWIS NELLER, - Lansing, Mich.

REGISTERED HOLSTEINS—Herd headed by Albina R Bonte Butter Boy No. 93124, whose dam has semi-official yearly record. Butter 872 lbs. Milk 1832 lbs. as a 2-yr.-old. No stock for sale. W. B. Reader, Howell, Mich.

FOR SALE Registered Holstein Bulls ready for service, and bull calves, also females. FREEMAN J. FISHBECK, Howell, Michigan.

\$75 FOR REGISTERED HOLSTEIN BULL, ready for service. \$35 to \$50 for one month Registered calves. For quick sales. RIVERVIEW FARM, R. No. 8, Vassar, Mich.

Hazel-Let Herd Sires—Line bred Hengerveld DeKol 30 lb. dam. Line bred Pontiac Korndyke 19 lb. 3-yr. dam. Service fees \$50 & \$25. L. M. McLaughlin, Redford, Mich.

"Top-Notch" Holsteins. Extra large fine young bull, 3/4 white, born Oct. 4, 1913. Dam has official record of 29,40 lbs. butter in 7 days, 117.50 lbs. in 30 days. Sire's dam is a 22.64 lb. 4-yr.-old daughter of a 30.58 lb. cow. McPHERSON FARM CO., Howell, Michigan.

Holstein-Friesian Cattle. Young bulls ready for service out of A. R. O. cows. Satisfaction guaranteed or money refunded. Jones & Lutz, Oak Grove, Mich.

Holstein-Friesian Breeder—The best families of the breed represented. D. D. AITKEN, Flint, Michigan.

10 HOLSTEIN BULLS FROM 1 to 3 YEARS OLD

Ten Bull calves, two to ten months old. Ten cows, Your Choice from my entire herd. Don't let anybody make you believe he can sell you a better bull for less money than I can. Don't delay the purchase of bull until the other fellow gets the one you want. Write me or come at once.

L. E. CONNELL, Fayette, Ohio.

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

IXI-ON FARMS offer choicely bred young Holstein Bulls, \$75 to \$100 each, with all papers. S. O. RATHFON & SON, R. F. D. 5, Ypsilanti, Mich.

First Draft for \$125 buys two unregistered 10 mos. bulls, \$75 to \$100 each, with all papers. S. O. RATHFON & SON, R. F. D. 5, Ypsilanti, Mich.

Registered Holstein Bull. Dams A. R. O. records nearly 18 lbs of butter in 7 days. Sire, Pontiac Korndyke and King Segis breeding. Mostly white, very large, in fine condition. One of the best individuals we ever saw. Only \$60 delivered to your town with all papers, safe arrival guaranteed. Worth twice the price. HOBART W. FAY, Mason, Michigan.

A Pure-Bred Jersey

bull counts for more than the dam in grading up. You should be developing some 400-pounds-of-butter cows. The thorough-bred bull is worth all he costs on grade or full-blood Jersey cows. Like begets like. THE AMERICAN JERSEY CATTLE CLUB 324 W. 23d St., New York City.

Lillie Farmstead Jerseys

Bulls ready for service, several from Register of Merit Cows. Four bred heifers, good ones. Herd Tuberculin tested. Prices reasonable. COLON C. LILLIE, Coopersville, Michigan.

THE WILDWOOD HERD

Registered Jerseys. Herd headed by Majesty's Wonder No. 90717. Bull calves for sale by Majesty's Wonder and from high producing dams. Also a Grandson of Stoke Pogis of Prospect. Born March 1913. Satisfaction guaranteed. Write for prices. Alvin Baldeen, Capao, Mich.

CROUSE'S OLD HOMESTEAD JERSEYS

All my surplus Full Blood Jerseys are sold. J. B. CROUSE, Hartland, Michigan.

Jerseys. Bulls ready for service, extra quality sired by Jacob's Fairy Emanon. No. 107111, from high producing dams. SMITH & PARKER, Howell, Mich.

For Sale Jerseys—Heifers from Register of Merit of St. Lambert breeding. Also cows with Register of Merit records. Waterman & Waterman, Ann Arbor, Mich.

HOLSTEIN BULLS READY FOR BUSINESS.

World record stock \$100 to \$300. LONG BEACH FARMS, Augusta, Kalamazoo Co., Michigan.

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

NOW IN SERVICE—A Son of the \$50,000 sire King Segis Pontiac Alcatraz, GREGORY & BORDEN, Howell, Michigan.

MAPLE Lane Register of Merit Jersey Herd—Tuberculin tested by U. S. Government. For sale, Register of Merit cows, also bulls, bull calves and heifer calves, having from 3 to 7 Register of Merit dams in their pedigrees. IRVIN FOX, Allegan, Michigan.

JERSEYS

For list of stock for sale and service facts write A. P. EDISON, Sec. M. J. C. O. C. 328 W. Bridge, Grand Rapids, Mich. If a breeder and a member of M. J. C. O. C. send list of stock for sale to the above.

BUTTER BRED JERSEY BULLS FOR SALE

CRYSTAL SPRING STOCK FARM, Silver Creek, Allegan County, Michigan.

JERSEYS—YEARLING BULL READY FOR SERVICE. Also bull calves. Brookwater Farm, R. F. D. No. 7, Ann Arbor, Mich.

Young Shorthorn Bulls And Oxford Down Yearling Rams for sale. H. B. PETERS, Burton, Michigan. R. R. Elsie.

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

SHORTHORN BULLS FOR SALE—Red and Roans. 10, 160 lbs. milk and 518 lbs. butter with first calf in one year. Reasonable price. Write, F. W. Johnson, Custer, Mich.

SHORTHORNS: 6 CHOICE YOUNG BULLS FOR SALE W. W. KNAPP, Howell, Michigan.

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

Rams and Ewes from the first prize flocks of Cotswolds & Loicesters, Lincolns and Oxford Downs; two years old rams and ewes; yearling rams and lambs, either sex. Some of these are unbeaten this year. Harry T. Crandell, Cass City, Mich.

RAMS—SHROPSHIRE OXFORDS AND HAMPSHIRE. Good strong well woolled fellows ready for business. Shipped to you without the money. Isn't that fair? If so write KOPE KON FARM, Kinderhook, Michigan.

POLLED DELAINE RAMS FOR SALE—Big heavy shearers. F. L. BROKAW, Eagle, Michigan.

OHIO DELAINE & MERINOS Three tested stock rams. (B. Type.) Also bred ewes. S. H. SANDERS, Ashabula, Ohio.

IT PAYS TO BUY PURE BRED SHEEP OF PARSONS' The Sheepman of the East. I sell and ship everywhere and pay express charges. Write for club offer and price list. Oxford, Shropshires and Polled-Delaines. PARSONS, GrandLedge, Mich. R. 1.

INGLESIDE FARM offers fifteen choice recorded breeding ewes of good ages, also yearling and lamb rams. HERBERT E. POWELL, Ionia, Mich.

MAPLESHADE FARM SHROPSHIRE. Ram Lambs of Choice Breeding. Ewes all sold. W. P. PULLING & SON, Parma, Michigan.

SHROPSHIRE—Young rams and ewes of good quality, sired by imported rams. Prices right. WILLIS S. MEADE, R. 3, Lapeer, Mich.

Yearling Shropshire Rams at prices that are right. W. E. MORRISH, Flushing, Michigan.

REGISTERED OXFORD EWES—\$10 to \$15. Rams all sold. B. F. MILLER, Flint, Michigan.

SHROPSHIRE RAMS AND EWS FOR SALE DAN BOOHER, R. No. 1, Marion, Michigan.

REG. SHROPSHIRE—Rams and ewes. Prices reasonable. HARRY POTTER, R. No. 5, Davison, Michigan.

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O. I. C.—Bred sows and spring pigs, large and growthy. Pairs and trios, not akin. Write your wants. GLENWOOD STOCK FARM, Zeeland, Mich.

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O. I. C.—Choice spring boars of March and April farrow. Prices right. JOHN BERNER & SON, Grand Ledge, Michigan.

O. I. C. Swine—Service boars, also gilts of Spring farrow, place your order with me before they are sold. Get my price on pairs and trios of Aug. and Sept. farrow. A. J. GORDEN, R. No. 2, Dorr, Michigan.

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We won this year at Ill. State Fair, nine first prizes, four second and five Champions including 1st Grand Champions; at Wis. we won twelve first prizes, five second and all Champions. We have over 700 pigs on hand of every age. All stock is shipped on their own merits. O. O. D. ROLLING VIEW STOCK FARM, R. No. 2, Cass City, Michigan.

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O. I. C's—I have extra fine lot of last spring boars and a lot of this fall pigs, either sex, not akin, will have a bred sow sale in Jan. 1/2 mile west of Depot. OTTO B. SCHULZE, Nashville, Mich.

O. I. C. Boars ready for service. Also spring gilts, stock recorded in Goshen Ind. H. W. MANN, Dansville, Michigan.

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O. I. C's—Serviceable boars weighing 150 to 300 lbs. Prices right to move them. I pay express. G. P. ANDREWS, Dansville, Michigan.

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O. I. C.—10 good boars, \$15 to \$25 each. One very choice boar \$30. Registered free. G. J. THOMPSON, Rockford, Michigan.

O. I. C's—Large bone kind. Taking orders for September pigs. Shipped O. O. D. J. W. HOWELL, Elsie, Michigan.

O. I. C's—STRICTLY BIG TYPE. For 11 yrs. I have been breeding for size and length with quality. Lengthy Prince one of the largest boars the breed ever produced, heads our herd, assisted by White Monarch and Frost's Choice, 2nd. prize under six months boar at Mo. Inter State Fair 1914. Stock for sale at all times, prices reasonable. Address, NEWMAN'S STOCK FARM, R. No. 1, Mariette, Mich.

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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.

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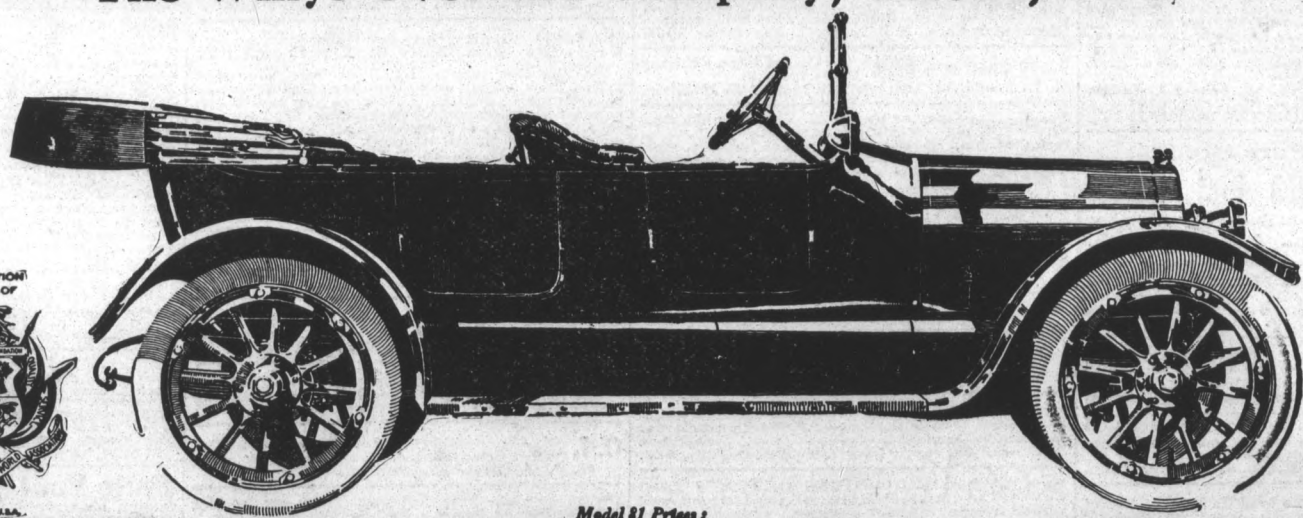
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