

MICHIGAN FARMER

AND LIVE STOCK JOURNAL.
PUBLISHED WEEKLY. ESTABLISHED 1843.

The Only Weekly Agricultural, Horticultural, and Live Stock Journal in the State.

VOL. CXLV. No. 20
Whole Number 3888

DETROIT, MICH., SATURDAY, MAY 13, 1916

50 CENTS A YEAR.
\$2 FOR 5 YEARS.

Among Upper Peninsula Farmers

By W. F. RAVEN, M. A. C. Extension Specialist for U. P.

THE Michigan Clean Seed Demonstration Train has just finished its trip over the Upper Peninsula of Michigan. This is the second trip of the clean seed train. The train was equipped with clean seeds and seeds of all the different varieties of grain grown in the Upper Peninsula. The object of the train was to get the farmer to thoroughly clean his seeds before sowing. There was a grain cleaner and grader on the train and farmers brought their oats, wheat, barley, flax, clover and all farm seeds to

the train to have them cleaned and oats treated for the prevention of oat smut.

The farmers that had grain cleaned last year reported an increased yield from the grain cleaned last year on the train, from 10 to 26 bushels per acre over any seed grain bought elsewhere.

This train left St. Ignace on March 27, and returned to St. Ignace April

26, covering the whole Peninsula except Keweenaw county. Over the M. St. Paul & Sault Ste. Marie to Escanaba; over the C. & N. W. from Escanaba to Ironwood; over the D., S. S. & A. and Mineral Range to Marquette; over the M., M. & S. E. to Munising; over the D., S. S. & A. to Sault Ste. Marie; over the M. St. Paul & Sault Ste. Marie to Trout Lake; over the D., S. S. & A. to St. Ignace.

On the whole the trip was a decided success. Almost every place farmers came from long distances to have a few bushels of grain cleaned, to get information in regard to growing the different grains and seeds.

The train was equipped with pure varieties of potatoes, three early and three late varieties, also with several plates of market grades. The interest in potatoes never lagged once from the time the train left St. Ignace till it returned. The train also carried speci-

(Continued on page 628).



Peas in Bloom on Cliffland Farm, Messrs. Hutchinson and Raven in Field.



Winter Wheat on Cliffland Farm—Messrs. Raven, Hutchinson and Crawford.



A Fine Crop of Improved Potatoes Grown by the White Marble Lime Co.



Part of a Bunch of 80 Pigs Owned by John Munn, of Houghton County.



Farm Home of N. M. De Hass, of Baraga County.



Barn on the Farm of N. M. De Hass, Baraga County.

The Michigan Farmer

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The Lawrence Publishing Co.

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39 to 45 Congress St. West, Detroit, Michigan
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TERMS OF SUBSCRIPTION:

One year, 52 issues.....50 cents
Two years, 104 issues.....1.00
Three years, 156 issues.....\$1.25
Five years, 260 issues.....2.00

All sent postpaid.

Canadian subscriptions 50c a year extra for postage.

RATES OF ADVERTISING:

40 cents per line agate type measurement, or \$5.60 per
inch (14 agate lines per inch) per insertion. No advt in
series for less than \$1.20 each insertion. No objection
able advertisements inserted at any price.Mesa Standard Farm Papers Association and Audit
Bureau of Circulation.Entered as second class matter at the Detroit, Michigan,
postoffice.

DETROIT, MAY 13, 1916

CURRENT COMMENT.

Epoch-Making Events for M. A. C.

There is no other state institution in which the progressive farmers of Michigan have such a vital interest as in the Michigan Agricultural College. The past history of the institution has warranted that interest at every stage of its development. It was the first institution of the kind to be established in any state or country, and during all the decades of its history it has been well to the front in its educational field. Its influence on the agriculture of the country has not been confined to Michigan alone but has been country-wide in its scope, and today more of its alumni are to be found serving in the field of agricultural education than of any other similar institution, and the graduates of the institution who have returned to the farm to afford object lessons of agricultural efficiency in their respective communities are numbered by the hundred, while the benefit of the state's agriculture from the short courses, extension work and other activities of the college, including the publication and circulation of bulletins giving the results of experiments and research work are beyond accurate estimate. In addition to these highly beneficial results along agricultural lines, the Engineering Division of the college has been a potent influence in the building up of Michigan's great commercial industries through the active work of the graduates from the engineering course. Valuable as has been the past work of the institution in the upbuilding of Michigan's leading industries, for which credit is due to the efficient and tireless officials and faculty who have accomplished the results, as well as the people of the state and their representatives in the Legislature who have loyally supported it, a still greater opportunity lies before our agricultural college which, by reason of recent epoch-making events it is well prepared to improve.

First among these events should be mentioned the wise and liberal action of the last Legislature in increasing the mill-tax appropriation for the college to provide adequate funds to enable the institution to keep pace with the increased demands made on it by the farmers of the state, and to meet the requirements of the federal government to make available the state's apportionment of the Lever fund for extension work for the support of county agents, boys' and girls' agricultural clubs, and other important projects. The wisdom of the Legislature in making this increased appropriation has already been demonstrated through the increased activity in extension work, the addition of needed

buildings and equipment and the plans which are being developed for the increased efficiency of the institution all along the line.

Another and more recent event of epoch-making character is the acceptance of the presidency of the college by Doctor Farnk S. Kedzie, long at the head of the Department of Chemistry and the son of Dr. R. S. Kedzie, who early made that department second to none of like character in the country. Students, faculty, alumni and friends of the institution are united in their expression of gratification in this happy solution of the problem of leadership for M. A. C. To the students he is "Uncle Frank," always loved and respected, if sometimes feared, for justice is tempered with sympathetic understanding in his relations with them. The faculty are cognizant of his interest in their every problem, as well as of his executive ability. The alumni are united in their support and praise as they could be for no other man. The friends of the institution everywhere are confident that the destinies of the college are in safer and stronger hands than ever before in the history of its remarkable development.

The most recent, but by no means the least, of this series of epoch-making events for M. A. C., to which we would call attention, is the substantial contribution made by one of Michigan's leading citizens in the institution's hour of need. In the brightest hour of this institution's history, but at a time when every present resource was being taxed to the limit to satisfy immediate needs, the engineering building, together with the shops and equipment, was totally destroyed by fire. Through the energy of President Kedzie and the united co-operation of the faculty and students, arrangements were made for the progress of the work of the division while the ruins smoldered, and not a single class was missed. But the future looked dark, as the appropriation of necessary funds for the immediate restoration of the buildings would necessarily hamper other needed development.

In this hour of the institution's need Mr. R. E. Olds, of Lansing, President and founder of the Reo Motor Car Co., stepped into the breach and tendered to the State Board of Agriculture a contribution of \$100,000 to aid in the restoration of the building. This munificent gift will enable the prompt reconstruction of the plant without in any way hampering the regular work of the college, and is an epoch-making event in the history of M. A. C. in more ways than one. It will enable the college to properly aid the state's commercial industries as well as its agriculture; it will more fully center the interest of all classes of citizens in the institution, and may well prove an inspiration to other public spirited citizens of the state to erect for themselves and their memory substantial monuments in the betterment of the state and its people through the medium of a bigger and better M. A. C.

The Milk Producers' Meeting.

As noted in the report of a recent meeting of the Livingston County Milk Producers' Association which is published in another column of this issue, that organization has taken the initiative in the calling of a general meeting of the milk producers of the state to be held in the Agricultural Building of the Michigan Agricultural College at East Lansing on May 23. It is desirable that general recognition be taken of this meeting by milk producers in all sections of the state, to the end that a concerted movement may be launched looking toward the securing of compensatory prices for market milk at the earliest possible date. Milk producers who are members of other general or local associations should not permit this to interfere with their affiliation with a broader organization which will doubtless be effected at this meeting.

There are many problems which should be worked out in the interest of the dairymen of the state which can be best accomplished by an organization having a state-wide scope. Four objects are mentioned in the calling of this meeting; first, an advance price schedule from buyers for such period as will stabilize milk production; second, advance a movement to protect the integrity of the butter-fat standard; third, secure an increased price for milk in accord with the increased cost of production; fourth, promote the interests of the milk producers of the state.

To the end that intelligent action may be taken at the coming meeting, State Director of Markets, James N. McBride, has been called upon for information regarding the milk marketing methods prevailing in other states, and the Dairy Department of the Agricultural College is being asked for facts and figures regarding the cost of milk production. With authentic data at hand on these subjects, this meeting should be productive of profitable discussion leading to the formulation of plans which will secure for Michigan milk producers a compensatory price for their product. The Livingston county producers who took the initiative in the calling of this meeting insist that the price now being paid for whole milk is less than the actual cost of production, and if it were not for the fact that the dairy industry helps to maintain the fertility of the soil, those engaged in the dairy business would be on the road to ruin. In view of the success recently attained by the dairymen of the Chicago district in securing a more equitable price for the product of their dairies during the ensuing six months' period, this has been considered a favorable time for Michigan dairymen to unite in the consideration of ways and means looking toward the same end.

Other problems confronting dairymen of the state will doubtless also be considered at this meeting, or by committees which will be appointed for the purpose, so that same may contribute to the solution of other vexed questions relating to the sale and transportation of market milk, as well as the establishing of a uniform and adequate yet common sense system of inspection to be followed by municipalities throughout the state.

Dairymen from all sections of the state should interest themselves sufficiently to attend this meeting, which may well be the beginning of a campaign for the general betterment of conditions surrounding the dairy industry in this state. No matter what the reader's affections may be with other organizations of dairymen, either local or general, his support should be given to this timely movement.

Governor Ferris has issued a proclamation announcing Sunday, May 14, as Mothers' Day. The proclamation by which this announcement is made is an eloquent appeal for the rendering of a just tribute to American mothers, and for the public and private discussion of the inspiring theme of "Mother" on the day set apart for that purpose. The text of the proclamation follows:

During the last fifty years the American home has undergone little less than a revolution. Science and invention have wrought marvelous changes in our economic and industrial conditions. Some of these changes have a tendency to destroy the unity of home interests. Time and distance have been annihilated. Home permanence has in a very large measure been destroyed. The responsibilities of the mother have been increased. She finds it impossible to keep her flock together; she finds her task of inspiring and directing her children more and more difficult. She must, therefore, do her greatest work when her children are "little tots," when they are most responsive to the tenderest and wisest suggestions. American mothers recognize this necessity, and are making holy sacrifices to this end.

The mothers of every country are

more important than armies and munitions of war. The mothers are the source of civilization. To our mothers we owe our patriotism, our religion, our holiest aspirations. It is especially fitting in the year nineteen sixteen that we pay tribute to the Mothers of America. Let the boys and girls and the "grown-ups," who are away from home on Mothers' Day, write a letter of gratitude to Mother. Let those who are home meet Mother with a smile, a kiss and a handful of flowers. Recite to her the prayer she taught you at her bedside.

Therefore, I, Woodbridge N. Ferris, ask that the people of Michigan set apart the second Sunday in May (the 14th) as Mothers' Day. In obedience to a resolution by the United States Congress, I ask the people of Michigan to display on this day the United States flag on all government and public buildings, at their homes or other suitable places, "as a public expression of their love and reverence for the Mothers of our country." As far as possible let parents in their homes and both young and old in public meetings discuss the theme of Mother with that enthusiasm and sincerity which characterizes all loyal Americans.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—A new offensive against Verdun has been launched by the Germans, following a two-day artillery bombardment of positions on both banks of the Meuse river, a strong infantry attack resulted in the capturing of 500 metres of first line trenches on the east bank of the river and the taking of underground passageways of hill 304 on the west bank. At all other points the Teutons were repulsed with heavy losses. Aside from these attacks, no fighting of importance has occurred along the remainder of the line in France and Belgium. In the Baltic region Russian torpedo boats shelled German positions on the northern coast of Courland. Along the lower Stripa river in Galicia the Russians made further advances against the Austro-German forces. Turkish troops have made several attacks on the Russian positions along the Black Sea, but in all instances the efforts were futile. They have also been unsuccessful in preventing the Russian advance toward Bagdad, recent retreats being so hastily made that the invaders captured large supplies of war material. Infantry encounters along the Austro-Italian front are reported to be favorable to the Italian troops. The Germans sank a British submarine off Horn Reefs on May 3 while on the previous day a German Zeppelin was destroyed by British sea forces in the North Sea.

The Irish revolt has been practically smothered out. A number of the leaders in this revolt were found guilty by the military courts, and executed, while a large number of others have had death penalty commuted to imprisonment. Chief among these is Countess Georgina Markievicz, wife of a Polish nobleman and sister of an Irish baron who has been prominent in the Sinn Feine movement for years.

Mexican Affairs.—A second raid by Villa bandits into American territory was made last Friday night when they attacked the Texas towns of Boquillas and Glenn Springs. Four Americans were killed and several were carried away. This incident will no doubt cause a more vigorous campaign on the part of the American troops now over the Mexican line and along the border, and will likely delay the time for the withdrawal from Mexican territory.

National.

The German reply to the American note on submarine warfare is satisfactory to the Washington officials, and has again released diplomatic relations between the two countries from severe strain. Following the German reply, Great Britain has also made concessions in her blockade order, and thereby prevented the necessity of a diplomatic controversy with the United States.

Frank R. Crandall, well known stock raiser of Livingston county, and an officer of the Livingston County Agricultural Society, is dead at his home in Howell. He is survived by his widow, four sons and a daughter.

The convicts of Jackson prison are cultivating 2,500 acres of land. A large acreage will be put to corn and peas for canning in a factory to be operated by the prisoners.

A riot in which one man was killed and five others wounded resulted at the gates of the Michigan Alkali Works in Ford City, Mich., Saturday night. Laborers who are on strike made an attempt to rush the guards, which resulted in the riot.

The first prize of \$1,000 in the church peace union's annual essay writing contest was awarded to Dr. Gladden, of Columbus, Ohio, on his essay entitled "The Works of the Road."

Commercial Potato Growing

By W. MILTON KELLY

POTATOES can be grown on practically every farm in the country. More than one-half of the farms in the northern, eastern and central states can grow a few acres of potatoes at a fair profit under present conditions. But this proves nothing. Some other crops may make much greater profit on a certain piece of land. It is only on particular types of soil that potatoes can be grown so well that the crop will surely hold up the rate of profit to the level that justifies cutting out other crops and going to the expense necessary to make potatoes a profitable commercial crop.

Suitable Soil a Factor of Success.

The best results are invariably obtained by planting potatoes on a well-drained, deep sandy or gravelly soil, well supplied with organic matter and located favorably to market and transportation facilities. If you read about farmers who are making large profits from potato growing, and go out and plant a large acreage without duplicating the conditions on their farms you should not wonder when your crop does not do so well. Only a comparatively small portion of the total area of the country is well suited to the potato crop, and only on a few farms will potatoes pay as they pay in the examples so often quoted. It is in spots and areas that vary in size from only a few acres to one or more counties that conditions are ideal.

Profitable Points for Study.

Commercial potato growing affords a fine field for profitable study and investigation. One must be interested in potatoes and make a study of the peculiar requirements of the crop as regards the soil; the selection of seed; the adaptability of varieties; time of planting; the best kinds of manure and fertilizers; proper methods of tillage and cultivation; how, why and when to mix and apply spraying mixtures and how to harvest the crop to the best advantage.

The farm and the crop rotation must be so arranged that potato growing receives its proper attention and is a part of the business. Incidentally a sufficient acreage should be planted to make possible the economic use of special implements and machinery. On many farms the potato crop is a valuable complement to dairying and stock farming. It affords a better distribution of labor and team work, and fits nicely into the rotation of crops practiced in growing food for the stock. But the crop is difficult to handle where other work comes at a time when the potatoes demand attention.

It is evident that the question of economy in fertilizing the potato crop can be worked out only by definite experiments in each locality, but the evidence seems to show that in nearly all sections the cost of production per bushel may be decreased by growing potatoes in rotation with clover, mixed hay, corn and small grains. Such a crop rotation brings the soil around in good condition for the potato crop.

No man who has handled a crop of potatoes and given them clean cultivation has failed to note the benefit accruing to subsequent small-grain and clover crops that follow in the rotation. The soil that is given intense tillage is teeming with bacterial life, a condition brought about by opening up the pores and letting in the air which the soil bacteria need in making plant food available for the growing crops.

The potato crop has a higher money value than many other crops, therefore it should have a liberal supply of plant food from start to finish. By applying excessive quantities of fertilizer to the potato ground a larger crop will result and the ground will be in improved condition for the small grain and clover crops. There is practically no waste in applying large quantities

of fertilizer to the potato ground, for what is not utilized by that crop is taken by the other crops that follow it in the rotation.

Cost of Production Less for the General Farmer.

The uneven seasonal distribution of labor in the specialized potato growing regions tends to increase the labor charges against the crop. This is caused by the relatively short time during which the planting and harvesting can be safely and efficiently done. In most potato growing sections extra help at planting time and digging time is difficult to secure and high in price. For the same reason, if enough labor is employed regularly to care for the potato crop during the rush seasons it will not be remunerative during several months of the year. As a consequence the general farmer with a few acres of potatoes and a less expensive equipment may often grow the crop at a much lower net cost than the large grower with up-to-date methods and machinery.

A combination of potato growing and dairying or stock farming may often be so arranged that the net income from a smaller acreage will be greater than is the case when a larger acreage is grown. The greater efficiency of laborers secured by a system which keeps them on the farm long enough to become accustomed to a certain kind of work should not be lost sight of; nor the fact that better laborers are attracted to the farm that offers permanent employment.

The farmer who decides to grow a few acres of potatoes each year should plan on keeping the cost of production per acre low, thus being able to meet low prices even though the yield per acre may not be so high as could be secured by more expensive methods. This is a phase of crop production that is sure to receive more attention in our future farming operations. Many men who start out with the idea of producing maximum crops soon discover that maximum yields are frequently secured at an expense out of all proportion to their value. It is the man who can put his crop on the market at the lowest cost per bushel who is always master of the situation.

Organic Matter in the Soil an Essential.

The soil for potatoes should be well supplied with moisture. The incorporation of organic matter adds to the moisture-holding capacity of the soil and furnishes a base for the fertilizing elements to combine with while being made available for the growing crop. If drought comes and checks the growth of the potato plants; when the rain comes, they start growing again, and the result is a crop of small, ill-shaped potatoes. Such a yield is common on gravelly and sandy soils that are deficient in organic matter, especially if late varieties are planted.

In the leading potato growing regions and on nearly every farm where potatoes have been grown successfully for any considerable length of time a humus-making crop is grown ahead of the potato crop.

It is not only beneficial to rotate crops in maintaining the humus-supply of the soil, but the rotation should contain legume crops, such as clover, alfalfa or cowpeas if the humus is to be entirely maintained. These crops have the power of gathering their supply of nitrogen from the air, besides building up the humus of the soil. If these crops are removed from the land, however, the actual humus added to the soil is small, although since the land is not tilled when these crops are on the ground, they tend to maintain it. To build up humus rapidly in the soil it is necessary that these crops be pastured or fed and the manure returned, or better still, that occasional crops be plowed under. This indicates

another factor in the maintaining of humus in the soil on dairy and stock farms, and that is the return to the land of the manure produced, not only from feeding the humus-making and nitrogen-gathering crops, but from the grain and by-product feeds as well. This explains, in part, how many dairy and stock farmers can produce potatoes at less cost per bushel for fertilizing materials than growers who depend upon green manures and chemical plant foods.

It is plain to understand that, to maintain an adequate supply of humus and nitrogen, and especially if the supply is to be increased, it is necessary to make wide use of legume crops to be fed to stock, or even occasionally turned under, unless feed or plant food is used from outside sources. For the potato grower who makes little manure, and who sells the bulk of his crops from the land, resort must be made to plowing under legume crops if the humus and nitrogen supply is economically maintained.

The Preparation of the Soil.

The seed bed for the potato crop should be prepared to a depth of from eight to ten inches. If one has been plowing shallow it is better to increase the depth of plowing gradually. A deep, friable and loose seed bed is essential to large yields. By incorporating more organic matter and gradually deepening the seed bed we develop greater water-holding capacity and a greater feeding area for the roots of the crop. If one has the time deep fall plowing followed by shallow spring plowing will put the soil in ideal condition to yield a maximum crop.

Immediately after the ground is plowed it should be harrowed lengthwise of the furrows to fill the spaces between the slices with loose dirt. This prevents the exposed furrows from drying out and hastens the decomposition of the organic matter that is plowed under. This should be followed with the disc harrow and spring-tooth harrow. The application of fertilizers at this time will insure them being worked down into the soil and they will become so thoroughly mixed with the soil particles that they will not injure the young potato plants. There is no work on the farm that will return larger and more certain profits than frequent tillage of the potato ground just before planting time. All of the weed seeds that may have germinated will be destroyed and better moisture conditions are established with the soil below. The frequent stirring of the soil develops plant food and thoroughly incorporates the manures and fertilizers with the soil and insures a more vigorous early growth of the young plants.

EXPERIENCE WITH OLD BEAN SEED.

In a recent issue we see an article from A. B., Van Buren county, which is very misleading. He gives his experience on something he really knows nothing about, as you see it was all his neighbor's. He states his neighbor planted part old seed of his own and part new seed purchased from A. B., but he does not tell us if they were all planted on the same day.

Now we know from past experience that seed planted today might be a perfect failure, while those planted a week later might make a perfect crop, though the seed were out of the same bag, and vice versa.

A. B. knows nothing of how the old seed was handled, whether it was kept in a dry place or whether it was exposed to the elements.

Now we invariably keep our seed from year to year and if present seed is not as good as last year's we use the old seed. Never yet have we had a failure, nor have we seen any difference between old and new seed, for we always sowed some new seed for a check plot.

Sanilac Co.

M. L.

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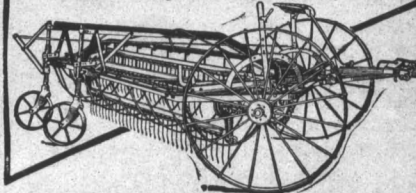
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AMONG UPPER PENINSULA FARMERS.

(Continued from first page).

mens of the different potato diseases and showed potatoes affected with different diseases. The potato growers of the Upper Peninsula only need to be shown what good potatoes are and how to select and grow them; how to identify the different potato diseases and by what means they are best controlled; when they fall in line and endeavor to have the best. This is one reason that the train was such an unqualified success from start to finish. These inquiries were all noted and in counties where there is a county agent he will follow the inquiry, where there is no agent, Mr. J. W. Weston, who had charge of the potato department, or myself, will follow it up. These inquiries are on nearly all farm topics, such as land clearing, live stock, fencing, barn-building, laying out farms and farm buildings.

The train was equipped with a horticultural exhibit under the charge of J. Allyn Petrie, of Kalamazoo, Class '14, M. A. C.

On our trip through the Upper Peninsula we met many people who were interested in the different branches of horticulture. Upon questioning the people visiting the train, we found that small fruits do exceptionally well in most sections and that some growers get fabulous prices for raspberries, strawberries, currants and gooseberries, as the demand for such fruit far exceeds the supply. Many of the more hardy varieties of apples, such as the Wealthy, Duchess, Pewaukee, Yellow Transparent, N. W. Greening, Alexander, Fameuse and McIntosh do well in certain sections. Several hardy varieties of plums are also grown successfully and wild plums grow in abundance in many regions. Several growers find that the Hanson plums from South Dakota do better than some of our other standard varieties.

The worst diseases troubling fruits of the Upper Peninsula are the Oyster Shell scale, Fire Blight and the Green Aphis. Some people said that the bark

a knapsack compressed air-sprayer, a fruit sizing board, picking sack, different types of ladders and certain compounds needed in spraying.

The train made seventy-four stops; the attendance was 8,860.

The railroad officials expressed themselves as being greatly pleased with the success of the train.

FARM NOTES.

An Uneven Stand of Alfalfa.

I seeded a piece of land to alfalfa last August during the wet season. I carefully prepared the land until soil was nicely pulverized, then limed it and inoculated the seed. The ground had had alfalfa and clover on it previous to plowing it for this seeding. The seed was bought from a good seed house and it failed to come up evenly. There are several completely bare spots occurring on high knolls as well as on lower places. Other places where I imagined it would be too wet and rather low the seed came up real well. What is the trouble and what would you advise?

Livingston Co.

L. G.

From the description given, it is impossible to state with any positive knowledge just the reasons for the failure of the alfalfa to make an even stand. If it were not for the fact that the seed failed to grow well on some of the low places as well as some of the high places, the trouble might be in the moisture condition of the soil. Possibly it may have been due to the work of cutworms or other insects. Probably the best way to fix up the seeding would be to work up the places where the stand is poor and re-seed as soon as practicable this spring.

Using Fertilizer with Manure.

I would like to ask you if a 1-8-1 commercial fertilizer would pay at \$25 a ton, to use in connection with a light coat of stable manure, the same to be used for potatoes on sandy loam on timothy sod, plowed last fall?

Schoolcraft Co.

E. G. K.

It is, of course, impossible to tell off-hand whether it will be profitable in any individual case to use any given kind or amount of commercial fertilizer on any given crop. As a general proposition we would say emphatically

as possible before plowing it for beans, but want to plow quite early so as to work it to keep down weeds until it is time to drill them. How late can I plow to be all right? Oats and corn both tested this spring.

Lapeer Co.

M. A. C.

From the standpoint of growing a good bean crop on old June grass sod, it would be better to plow same as early in the spring as is practical. If the plowing is delayed until the last of May or very first of June—and it could not be delayed longer with a prospect of getting a good crop of beans—dry weather may prevail and it thus become impossible to provide first-class conditions for the beans. Then, too, if the plowing is delayed until that late in the season, there will be little chance for the old sod to decay and furnish a maximum of plant food for the growing crop. Since a large amount of pasture could not be secured from the field before it would be necessary to plow for beans, it would be better if possible to sacrifice the pasture and plow this land as early as possible, in order to give the bean crop a fair chance.

CROP AND FERTILIZER QUESTIONS.

Applying Fertilizer to Beans and Corn.

I would like to know from someone who has had experience if it would be practical to sow fertilizer with corn and beans in an ordinary grain drill with fertilizer attachment, sowing fertilizer in the drills with seed.

Eaton Co.

G. R.

More fertilizer is applied in this way than in any other way. Possibly more than in all other ways. A grain drill with fertilizer attachment is a very stable tool in modern farming.

In heavy applications of fertilizer it will not do to apply in this way because too much fertilizer right with the seed is liable to injure the germinating power of the seed and do more harm than good. Early in the spring or in the fall for wheat as much as 350 or 400 pounds can be sown in this way on cereals with no harm. In hot weather, especially if the land is dry, there is danger in sowing more than 200 to 250 pounds per acre on beans. This crop seems to be more easily injured by having fertilizer in close proximity to the seed than any other. Where it is desired to apply more than 250 pounds it is best to drill part of it before the seed is planted. When once mixed with the soil there is no danger.

Laying Drain Tile in Quicksand.

I was much interested in your article on "Tile Drainage and Soil Fertility," by J. H. Hulett. Now, tile drainage is what we are much interested in in our business. Have put down some, but have been much disappointed at results on account of sand filling up the tile. Our land is sandy and not much fall, but good open ditch from two to four feet deep to empty into. The fall is not near one per cent, as mentioned in the above article. Not more than half of that. The length of line of tile is about 15 rods. We were very careful to get tile laid close and true to grade, but still they fill up. The sand seems to go wherever the water does. Now we know this can be done and if you can tell us how in the Michigan Farmer we will be grateful.

Bay Co.

W. E. H.

I have had considerable personal experience in laying drain tile in quicksand and know they can be laid so the sand will not bother afterwards, provided there is sufficient fall to the ditch and also provided the tile are laid to a true grade.

A line should be stretched tight above the ditch parallel with the grade line and the tile must be laid accurately by measuring from this line above the ditch for every tile. Besides the man who lays the tile must not step on the tile after they are laid. This is what gets the tile out of place. The quicksand is wet and soft and the tile easily misplaced. The man must back up ahead of the tile, using the full portion of his tile scoop to prepare the bed for the tile. After each tile is laid he should carefully place soft earth on both sides of the tile to hold it in place and then place earth on top

of the tile also, to the depth of several inches. After he has laid say one rod of tile this way more earth should be placed on top until the ditch is at least half full, besides this should be distributed evenly along the tile so no portion will get much more weight than any other, otherwise this extra weight will cause the tile immediately under it to settle out of shape.

Where large tile, (six inches or more), are to be laid it is necessary to use a "form;" years ago at the Agricultural College we students used to call it a "mortar." I am not sure that is the correct word. It is simply an iron form as long as a tile, oval at each



Scene on the Whitney Farm, Owned by the National Pole Company.

end, having no top or bottom, with sides about one foot high. This is placed in the bottom of the ditch where the tile is to be laid and settled down, and the sand removed to the required depth. This form prevents the quicksand from running in at the sides and filling the excavation made for the tile. After the tile is laid the form is moved along for another tile.

In laying small tile I have found that this form is not necessary. The tile can be pressed into position and held there if the dirt is at once placed on either side and then evenly on top. But the man must keep off the tile until the ditch is half filled with dirt or he will press the tile out of place and then they will soon fill up with the quicksand.

Field Peas the Best Crop.

I have a field which has raised two crops of oats and I had intended to summer fallow it this year for wheat, but now I would like to sow some crop (other than oats, barley or white beans), which I could harvest in time to sow fall wheat on the land. Would soy beans ripen early enough, or cowpeas, or what would you recommend?

Sanilac Co.

B. K.

It is extremely doubtful if soy beans would ripen in time so the land could be prepared for wheat, and I don't think you could rely on cowpeas. But our Canada field peas will fill the bill. You should by right have prepared before this so the peas could have been put in early. It is courting failure to delay the sowing of peas till after the weather gets hot. Get them on as early as you can. I have one field yet to sow May 1, but we sowed two fields the middle of April. This is a late spring and we can plant accordingly.

You may have some trouble in harvesting peas if you have no pea harvester but ripe peas will harvest very well with a mowing machine with a clover seed attachment.

Sow three to four bushels per acre. Fertilize well. You can not grow a good crop of peas on poor land.

Peas will leave the land in prime condition for wheat. It won't have to be plowed, simply worked up with a disc harrow.

COLON C. LILLIE.



Farm Home of H. A. Osborn, of Chippewa County.

on the south side of their trees dried up, split and died.

Many people of this section are making a bad mistake in planting the fruit trees too close together, the trees in some apple orchards not being over eighteen to twenty feet apart. No apple trees should be set closer than thirty feet apart each way even if they be of the smaller growing varieties, and the larger growing varieties should be set at least thirty-five feet apart each way.

On our trip we showed the diseases which trouble the different fruits, and as far as possible gave methods of control. We also gave demonstrations of proper pruning, grafting and the budding of tree fruits, and lectured on the care of the orchard. Pruning and grafting tools were on exhibition, also

that it would be profitable to use a fertilizer of the analysis given to supplement a light application of manure on sandy land, since it will tend to balance the plant food nutrients in the manure the same as a ration may be balanced for live stock by the mixing of different feeds. The use of commercial fertilizer, and especially phosphate fertilizers in connection with stable manures could be more generally practiced with profit upon Michigan farms as a means of conserving and increasing soil fertility as well as the production of more profitable crops.

Time to Plow for Beans.

I have a field of six acres, an old June grass pasture that I intend to plow for beans and to give a new seeding a chance for a good start. Will want to pasture the above six acres of June grass sod as late in the season

Fruit Growers' Problems (Trouble Department)

Spraying Grapes.

Can you tell me what to do for my grape vines? They were out in the spring all right and when nicely in leaf, the lower ones begin to turn brown until most of the vine becomes so and the grapes do not grow to full size. The blight does not seem to kill the plant, but only to affect the leaves and fruit. Can you tell me what to spray and how often it should be used and at what times?

Lenawee Co.

E. W.

Undoubtedly the disease which is attacking your grapevines is the black rot, which is one of the most common and destructive grape diseases.

This is a fungous disease, and can be kept in check by spraying with Bordeaux mixture. The usual method of control is to spray once before growth is started, with copper sulphate solution, and then after the leaves are out, with Bordeaux mixture at intervals of about two weeks until the grapes are half grown.

The Bordeaux should be made of four pounds of copper sulphate and five pounds of lime to 50 gallons of water. The copper sulphate solution should be used at the strength of about one pound to 25 gallons.

Girdled Trees.

What is the best treatment to give my young apple trees, which have been bitten and barked by rabbits?

Newaygo Co.

A. R.

The best treatment to give trees which have been girdled by rabbits is to cut away all of the loose bark, and then paint over with pure white lead and raw oil, making the paint quite thick.

If the girdling is so serious that the girdled portion is over two inches in width and entirely around the tree, the only way to save the trees is to bridge graft them. This is done by making small holes on each side of the girdle, cutting cions slightly longer than the distance between the two holes, sharpening both ends and then sticking them in the holes. The ends of the cions should fit quite tightly in the holes. In order to protect the grafts from the action of the weather, they should be thoroughly covered with grafting wax at each end where the cions enter the trunk. For a tree four inches in diameter, four or five of these grafts are ample to eventually effect a cure.

Many, in addition to applying lead and oil on the girdle wounds which are not very serious, bank the earth up around the tree, so as to prevent as much as possible the drying out of the wound.

Protecting Tomatoes from Frost.

The writer has read with much interest the article, "Orchard Heating in Michigan," by George M. Low, in your issue of April 8. We judge from Mr. Low's article that he has had considerable experience with smudge firing and therefore we would appreciate very much his opinion on the real value of his system of firing if used in a field of tomatoes, would the smudge hover over the field enough to be of value or if there would be a light current of air could the pots be placed on the windward side of the field so that the smudge would pass over the tomato plants and this give the field the desired protection.

G. C. R.

There is no question but what the smudging will save the plants, when first set out or when they are carrying a crop of tomatoes late in the fall. However, they will require more pots or fires to the acre than an orchard. The plants are not high enough to hold the smoke, and for this reason a lot of small fires would be better than a few large ones.

For this season I would suggest the following for an experiment: Secure some straw and put in small piles about twenty feet apart each way, dampen it so it will not blaze but will make a lot of smoke. Save some of it so it can be placed on the windward side of the patch in case the wind should blow the smoke of the other fires away from the patch. This will

prove whether or not the smudge can be held on this particular location or not. I would also advise sprinkling the ground heavily with water after the sun has gone down, and once or twice during the night. Only a small strip will be required, and if properly done will save the plants from any ordinary frost. Would advise the purchase of a frost predictor. This will give ample time to haul out the straw and haul a few barrels of water.

GEO. M. LOW.

Spraying and Blight Control.

Please give me the best formula for spraying apple trees and other fruit trees. My trees are dying with some kind of blight. The leaves first become shriveled, then the branches show signs of blight. SUBSCRIBER.

Spraying will not control blight. The only method of keeping this disease in check is to cut out the blighted limbs, making the cut about six inches below any signs of the blighted condition. The wounds should be disinfected with strong lime-sulphur solution or any other suitable disinfectant.

Trees which are susceptible to the blight are either old trees which are weakened, or young trees which are making too rapid growth. Blight in an orchard is often best checked by using some means of checking the growth of the trees, such as leaving the orchard in sod, keeping fertilizers from the orchard, and very light pruning, if any.

There are seasons when blight is worse than in others, because of the weather conditions, and during the past two years it has been quite serious in most all parts of the country. This is a bacterial disease, and winters over in what is called blight cankers on the larger limbs and trunks of the trees. These cankers are the source of infection the following year, and one of the chief preventive measures is to cut out these cankers early in the season before any growth starts. In cutting them out, the wounds left should be disinfected as in the case of removing the blighted limbs.

The best formulas for spraying apple trees and any other fruit trees except the peach, is concentrated lime-sulphur at the strength of one to 40 for apples and one to 50 for the other fruits, and two and a half pounds of arsenate of lead. The first spraying should be made just as the pink of the blossom shows. This should be followed by another application as the blossom petals are dropping. In about two weeks the trees should be sprayed again, and winter varieties of apples should have another application for the second brood of codling moth about the first of August.

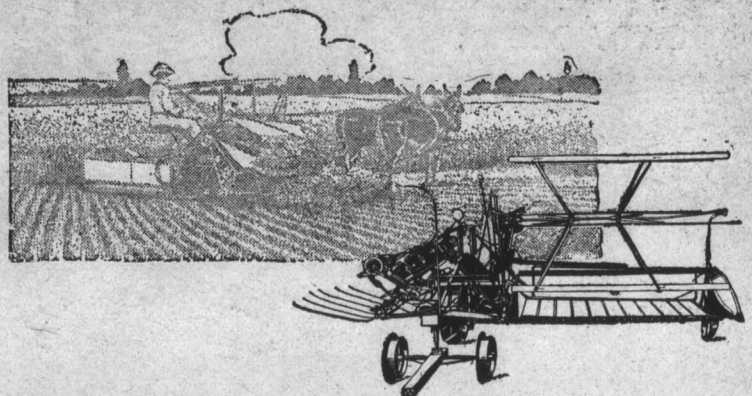
All fruit trees except the peach should receive the first three applications. Plums should receive a spraying after that at intervals of two weeks, until within about a month of ripening time. No fruit should be sprayed within a month of ripening time, because sufficient time should be allowed for the removal of all traces of the spray material by the weather before the fruit is harvested.

ORCHARD NOTES.

Spraying should be a community affair. The farmer who sprays his orchard for scale does not enjoy watching the English sparrows carry the scale from the neighbor's orchard across the road.

Old apple trees can be rejuvenated but their condition when the rejuvenation begins determines whether the work will be profitable or not. It is rather risky attempting to rejuvenate the orchard which is nearly dead from the scale and filled with mixed varieties of little commercial importance. There are some orchards that might better be removed and the land turned over to some other crop.—R. G. K.

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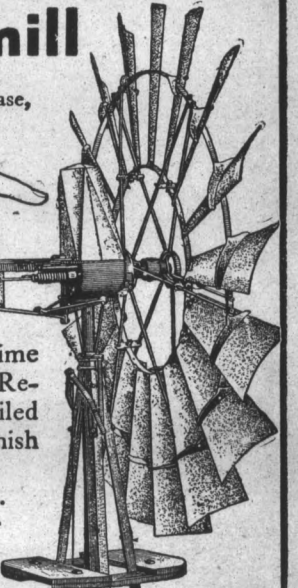
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Reliance Engineering Co., Box 563, Lansing, Mich.

The Milk Inspection Problem

By FLOYD W. ROBISON.

VERY little is accomplished by an inspector taking the position that his duty is fulfilled by a simple rejection of an unwholesome product, or a product which is in any way in variation with the ordinance unless his department attempts to, in some way, remedy the condition which exists. Dairymen are getting tired of having to stand the brunt of this all the way through and the only real remedy which we can see is for the Legislature to establish, by law, the ways and means by which these products may be marketed, and to harmonize the various interests which are involved. To do this will require the deliberations of a committee of competent men who are appreciative of the conditions which exist and who are not antagonistic to any one faction or prejudiced against the interests of any one party in the matter. The transportation problem is the very important problem to solve in the matter.

What Can be Done.

In the meantime it seems to us that much may be accomplished by the boards of health of the cities, or by the dairymen themselves if they would establish laboratories at the various receiving stations in the country. This could be done and frequent laboratory tests of the milk made, in our opinion, without any increase in the expense involved over that which is now made necessary through the farm to farm inspection.

In the small receiving stations the laboratory worker might spend a portion of his time at one station and a portion at another receiving station, thus dividing his time among several of the smaller units. In some of the larger receiving stations the results obtained would warrant the establishment of a laboratory at that point, with a competent man in charge who could devote the major portion of his time to the laboratory consideration of the milk received at that station, who could make individual reports to the farmer and to the city board of health, and who, if possessed with the amount of tact which he should possess, could be of untold benefit to the farmers in that community in showing them the results which would be obtained through certain changes in their equipment or in their method of producing milk.

We have attempted to promulgate this idea in the communities from time to time but officials charged with the enforcement of the law have not responded as, in our judgment, they should respond on this point. This we have been unable to understand.

The Records of Dairy and Food Department Show what Can be Done.

When we were connected with the Dairy and Food Department of the state, during the months of June, July and August, and the fore part of September, we employed special inspectors, young men who were familiar with the general laboratory methods in a study of milk, and who had had the regular work in bacteriology at the Michigan Agricultural College, and who were regular students at the above named institution. These young men we sent out into the various cities of the state, particularly those cities which did not have a well-established inspection department of their own. They were placed in these cities and the milk taken from the wagons of the milk dealers was examined daily through a certain period of time during the trying months of the year, that is, June, July and August. The results obtained in the laboratory were used as a ground work for acquainting the farmer and dairyman with the results of the conditions which they maintained on their farm.

In this way a great deal of good was accomplished and many dairymen were

enabled to see at first instance why the conditions which existed on their places and under which they produced their milk were not conducive to the production of the best type of milk. In the work which was carried on for three years in this way in the Dairy and Food Department, so far as my memory serves me, there was not a single instance of antagonism on the part of any farmer to this work. In fact, the very heartiest co-operation was extended in the matter. So much mystery, however, has surrounded the whole handling of the milk work in many cities and by many dairy departments that it is little wonder to our mind that dairymen have not enthused in the matter in the way that might be expected of them.

Why Not Try it Out?

We should like to see, therefore, in some one, at least, important milk-producing center, the experiment tried out of establishing a laboratory for the purpose of the study of the quality of the milk at that particular point, and an effort be made to obtain accurate and reliable information such as could be obtained by a regular study of the milk, followed by co-operative inspection of the dairy farms contiguous to that milk center. This laboratory and the results should be accessible at all times to the dairymen of that community, and when they desire to inquire as to how their product is showing up under laboratory surveillance, this information should be given them and every facility extended to familiarize them with not only the results but the technique followed out in each case to arrive at any result found.

All that is necessary to establish this laboratory is to secure some young person who is either familiar with the current methods of milk examination, or who is capable of learning these matters when taught. This is not difficult work but requires the services of someone who is not afraid to work. This laboratory should be established at the receiving point where the farmer delivers his milk and where the sale is consummated. A small room can be provided without much expense and the apparatus necessary is not expensive.

We know the type of results which would be obtained and any department of health which is empowered with sufficient funds to send an inspector to the dairymen in the various communities would surely have funds enough to provide for the carrying out of this idea as a test, at least, in some one community. We have supervised this work personally for three years, and the records of the Dairy and Food Department in this respect will show some of the most unique tests that are anywhere recorded. But as explained before, these tests were conducted more particularly with the idea of studying the milk as originally produced by the dairymen.

We think it extremely advisable that a meeting be called of a few representative dairymen, at least, and that ways and means to a careful, intelligent study of this whole milk situation should be discussed and some plan adopted, looking to the betterment of the conditions as they exist today.

CATALOG NOTICES.

"Velvet for Dairymen" is the title of a new book published by the Sharples Separator Co., Westchester, Pa., which fully explains how the farmer can save the cream now going to the pigs. Write for a free copy to the above address, mentioning the Michigan Farmer.

"Sweet Clover and How to Grow it," is the title of an interesting bulletin published by the Bokhara Seed Co., of Falmouth, Ky. This booklet contains valuable information with regard to the use of this soil-improving forage plant, which may be had for the asking by any farmer interested in same.



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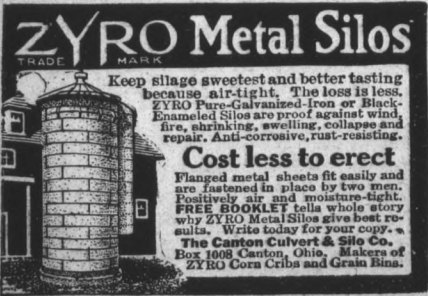
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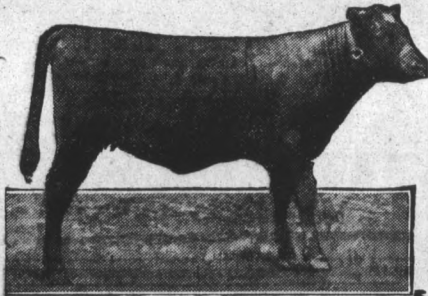
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Raising Dairy Calves

THE question of when the calf should be born is of some importance. The cow should have a roomy, well ventilated box stall with plenty of clean, bright bedding. After the calf has been dropped, this bedding should be removed and burned and clean substituted to prevent disease. The calf barn should be a warm, well ventilated building at a safe distance from the cow barn. Cement floors are handy to keep clean, but should be covered with plenty of good clean bedding to prevent the calf from becoming chilled.

The questions of what to feed, when to feed and how much to feed the calf, are of much importance, but cannot be answered definitely as they must be regulated to supply the wants of the individual calf. If the calf is real thrifty, that is, weighs from 115 to 128 pounds, at birth he will not need as much attention as a calf of a weaker constitution which weighs from 44 to 66 pounds at birth.

The Value of the Colostrum.

The colostrum is very important to every calf as it contains minerals which cleanse the bowels, start digestive functions, aid in the growth of bone and act as a general tonic. It is advisable to leave the calf with the dam for the first two or three days, during which time he should be taught to drink from a pail.

This process will require the utmost patience on the part of the breeder. After stripping the cow, dip two of your fingers in the milk and allow the calf to suck them. Then gradually spreading the fingers, lower the hand into the milk until the calf is getting milk through your spread fingers. Next carefully withdraw the fingers from calf's mouth. He will drink for a few minutes without noticing the difference, and after a few lessons will drink from the pail.

Preventing the Scours.

After the calf is taken from the dam and placed in the calf pen, for the first two weeks it should be regularly fed warm whole milk twice a day. The milk of its own mother is best, but if it does not agree with the calf that of another fresh cow may be used. Special care should be taken that the pails are clean and the milk pure and at body temperature. Large quantities of milk should not be placed before the hungry calf as he is liable to over eat and thus get scours. Scours can be cured by decreasing the amount of milk and adding lime water or buttermilk to the milk the calf receives.

For the next two weeks the amount of whole milk should be gradually decreased and skim-milk substituted in its place, so that at four weeks of age the calf is getting skim-milk entirely. Milk obtained at the creamery should be pasteurized before being fed to the calf. Hay tea makes a good substitute for skim-milk and has been used with success, when milk could not be had.

Calves should be given grain as soon as they will eat it, this is generally at about four weeks of age. One good method in starting calves to eat grain is to rub it on their mouth after they are through drinking milk. Another is to place the grain in the bottom of the pail when they have drunk all the milk. Grain should never be put in the milk as the calf will then gulp it down without giving it proper mastication. There are many calf foods on the market, but it is much more profitable in the long run for the breeder to feed the grain that he can get the handiest. Corn, barley, oats, kafir and sorghum are good grains to give a calf which is being raised on skim-milk. Bran is often mixed with the ration to insure safety against scours.

Some good rations for the dairy calf on skim-milk are: Whole oats and bran, corn meal gradually changed in from six to eight weeks to whole corn, with or without bran; and three parts

corn meal, three parts oats, three parts bran, and one part linseed meal. Fresh grain should be placed in the feed box daily to prevent souring. Whole corn is much better for the calf than corn meal.

The calf will begin to eat roughage almost as soon as grain. At first it will eat no more roughage than grain, but as it grows older the amount of roughage in proportion to the grain will increase until at six months of age it will be consuming about three times as much roughage as grain. Early cut blue grass, clover, alfalfa, and silage make good roughage for the calf. By this time the calf will be old enough to make use of the spring pasture. Calves should never be put on pasture before four months of age and then only for a little while at a time at first, but the time may be increased daily.

Reasons that some have poor luck in raising calves on skim-milk are: Lack of sunlight and fresh air, unsanitary stalls; feeding too much milk at irregular intervals; feeding stale or chilled milk; feeding from pails that have not been scalded; daily feeding improper concentrates and in stale feed box. If these things are avoided, no one should have any trouble raising dairy calves.

Lenawee Co.

I. ROBERTSON.

DAIRY PROBLEMS.

Grain Ration on Pasture.

Will you give me a balanced grain ration for cows running in pasture, and at as small a cost as possible? Will have to buy all of grain at market prices.

Clare Co.

J. G. K.

Good mixed pasture grass is a fairly well balanced ration in itself. It contains the protein and carbohydrates in just about the correct proportion. The only trouble is it is so bulky that it tasks the cow to get enough of it to obtain food nutrients sufficient for her to do her best. Besides good pasture so stimulates milk production that a cow can hardly keep her flesh and vigor. Many times it does not figure a profit to feed grain on pasture, if the pasture is extra good, but always the grain has a cumulative effect. Those fed grain on pasture invariably do better the following winter.

Wheat, bran and corn meal equal parts is a splendid ration. Also ground oats and hominy feed, and gluten feed and dried beet pulp.

When to Dry a Heifer.

I have a heifer which was fresh last September and will be fresh again in August. The quantity of milk which she now gives is small but very rich in butter-fat. Will it do any harm to the cow if in the course of a couple of weeks I only milk her once a day until time to dry her up? Some have advised me that it will be harmful and some not.

Indiana.

R. A. I.

I would advise by all means, to keep milking the heifer twice daily until the middle of June. Is she was an older cow I would not care so much. The heifer should be encouraged to be a persistent milker. If you dry her off it will tend to fix a habit and she will want to go dry for a long time. A persistent milker don't have to give a big mess of milk to be profitable. It is the old question of keeping everlastingly at it.

COLON C. LILLIE.

GOAT MILK BUTTER.

One of the odd questions asked recently of a food specialist contained a request for information about producers of butter made from the milk of sheep and goats. It seems that a large number of Greeks, Syrians and Armenians in the vicinity of New York have been in the habit of importing it, but the war has shut off the supply. Butter of this sort usually sells for \$1 a pound. The Wells-Fargo Express Co. has been trying to find American producers who can meet the demand, but it appears the industry is new.



Get all your Cows Earn

Every milch cow in your herd earned a nice profit for you that your separator *failed to deliver*. Where did the money go? Let us show you.

Every separator (except the New Sharples) loses cream if not turned at the exact speed marked on its crank. Experiment Stations and independent researches have brought out the surprising fact that 19 out of every 20 separator users turn their machines under speed and thus lose \$2.40 to \$12 per cow per year. (See Purdue Bulletin No. 116).

The New Sharples skims clean whether turned *fast or slow*. It will get you this extra profit your cows make for you, but which your fixed-feed Separator throws away.

THE NEW SHARPLES SUCTION-FEED

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These are some of the reasons why you should have a New Sharples and *get all the cream money all the time*.

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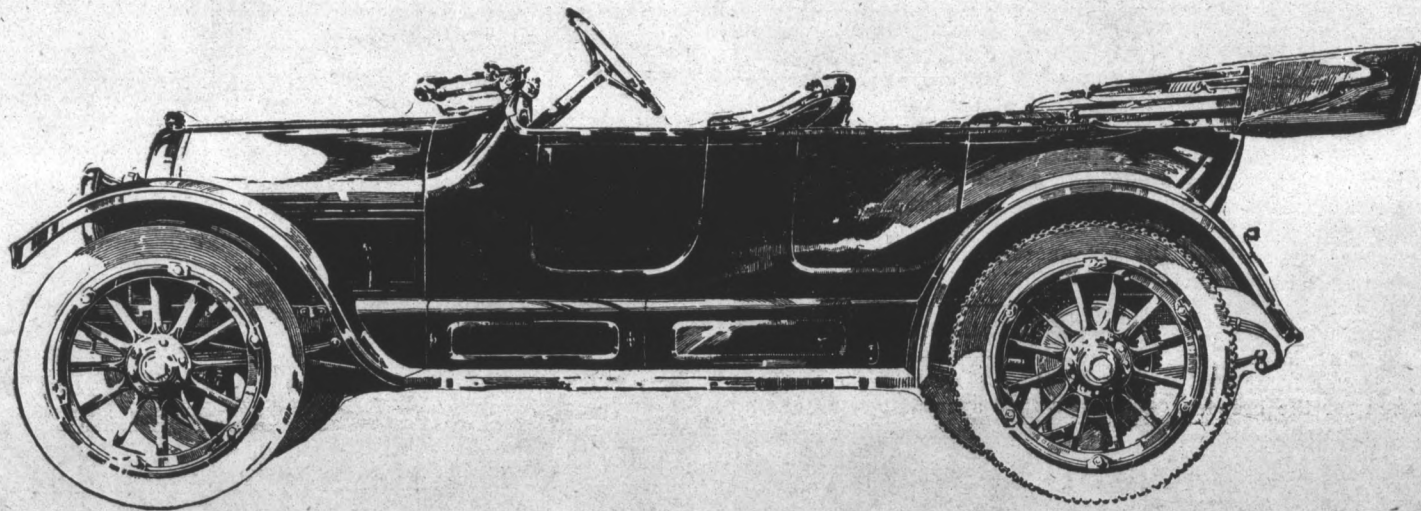
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JOURNAL
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The FARM BOY
and GIRL
SCIENTIFIC and
MECHANICAL

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

England, Birthplace of the Cooperative Idea

By WILLIAM B. HATCH

I ACCOMPANIED an advance committee to make some preliminary investigation in England and Scotland. We left Paris on the third of July, getting into London that evening.

As we stepped on to the boat at Calais for Dover and was taking a last "shot," with the camera, at Continental Europe, one of the boat's crew who stood near said, "this is not a very good day, sir, for taking pictures." It was one of those seemingly all but everlasting "gray days" which so abound in this climate. But the friendly interest of this boatman was one hundred per cent appreciated from the fact that he spoke English. After two

months of work among people speaking at least six different languages, the English not included, the first voluntary and common use of it makes you feel that verily you're "going over 'ome," and that you'll gladly get along without the "h" if you can only have the rest of the alphabet. Undoubtedly our common language with other English speaking peoples, contributes a much larger part to the friendliness which prevails than we realize.

The ride into London from the English Channel naturally exhibits a density of population which is probably

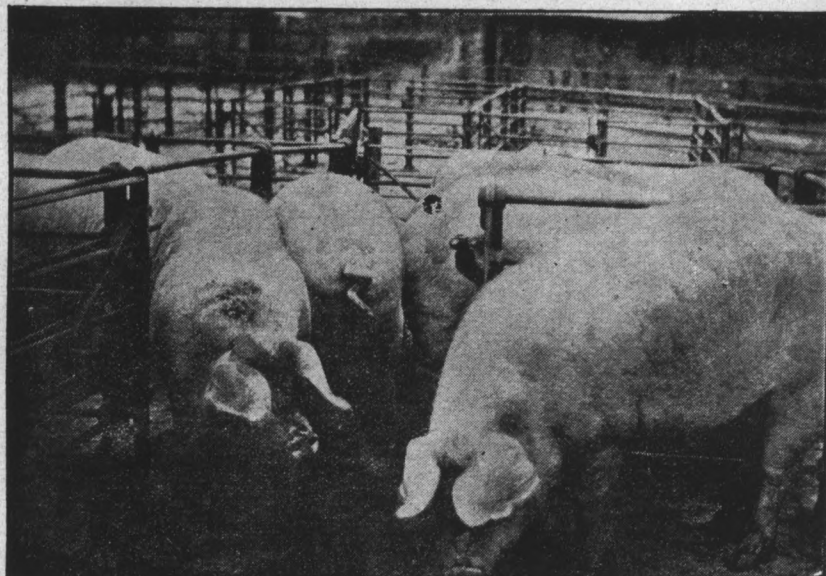
second only to that of Belgium. The farm holdings, however, are much larger than you would expect and Lloyd George's campaign for the promotion of smaller holdings is but the natural result of the feeling that the welfare of the people at large require more intensive methods and consequently the breaking up of these large estates. The irregular hedge-separated fields and the course-wool sheep grazing over the lower downs illustrate the opposite of intensive agriculture. Both, however, add to the beauty of the landscape.

The main body of the Commission

were in Paris on the Fourth of July. The day was appropriately observed at the American Embassy and the exercises were participated in by the American Commission and on the grave of Lafayette the Commission placed a wreath out of respect for this much American loved Frenchman. Our committee in London decided to observe the Fourth by taking a day off from our regular work. So we went to the Paddington Station and took a Great Western train for Bristol to see England's big agricultural fair. It is called the Royal Show, given under the auspices of the Royal Agricultural Society of England. This ride of 130



American Commission Investigating an English Egg Depot.



Yorkshires in a Co-operative Market at Ipswich, England.



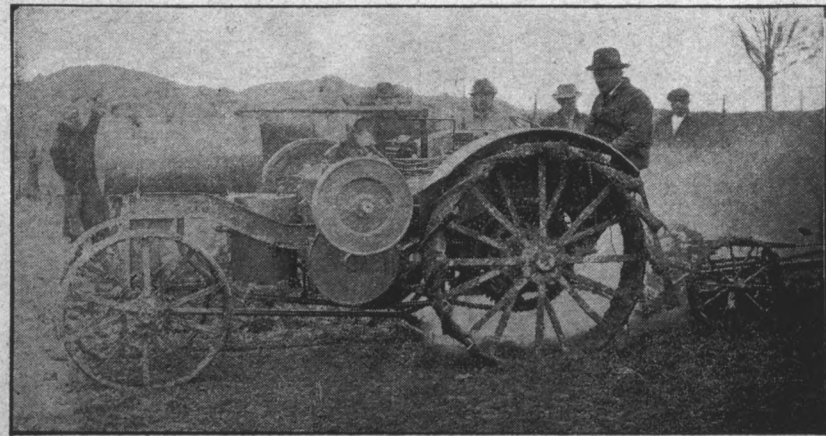
Farmers were Deeply Interested in the Work of Each Machine.



Blue Ribbon Shorthorn Cow at the Royal Show at Bristol.



Stree Parade of Tractors at Carson City, Mich., April 22.



Despite the Mud and Rain the Gas Horses Continued to Plow.



Worth Investigating

Down in Texas, recently, a man made a 124-mile round trip in his motor car—just to investigate Clothcraft Clothes.

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miles gave us a car window glimpse of English agriculture. But it did not disclose what Americans would regard as up-to-date agriculture.

The Royal Show well repaid us for going. King Edward was there and we had a close view of him while he alighted from his carriage, petted some Southdown sheep of his which had taken a prize, commended the herdsman and then passed on to other exhibits. The crowd cheered about as lustily as an American crowd would in the presence of their President.

The Royal Show is said to be the finest stock show in the world. We think this would be disputed by enthusiasts from some other countries, including our own. It was, however, very fine in some lines, especially in its exhibits of fat cattle, draft and coach horses, sheep and hogs. Both the Ayrshire and the Swiss cattle were more conspicuous by their absence than otherwise. But Scotland has her own show at Paisley, near Glasgow. And it is here they say you must go if you would see the finest Ayrshire and Aberdeen Angus cattle, Clydesdale horses and Scotch sheep. The Scottish Agricultural Society is back of this.

The Royal Show at Bristol is ideally located on a large elevated area adjoining the city. It is covered with grass, the rock protrudes in places, and the natural drainage insures against mud. Like the other foreign fairs visited, this show sticks to the text—"this one thing I do"—and that one thing is to promote agricultural education. There isn't a cheap, compromising, catch-penny side-show permitted to harangue and annoy the crowd. The machinery exhibit, while large and comprehensive, seems to make one-quarter the noise usually heard at American fairs. The actual reported attendance at the Royal Show on this Fourth of July was 78,702. Our train hauled fourteen coaches loaded, over 130 miles back to London in two hours. In England they have practically eliminated the grades so there are no grade crossing troubles and they go through hills instead of around them. These betterments, combined with a rock-ballasted road-bed makes it possible to cover sixty-five miles an hour with safety.

England the Birth-place of Co-operation.

It is perhaps natural when we remember that the twenty-eight weavers of Rochdale way back in 1844 gave birth to the principle of co-operation and organized the Equitable Pioneers' Society, that in England we would find the largest development of the principle and the most perfect examples of its application. This, however, is not true, at least as regards its application to agriculture. As a matter of fact England has taken its inspiration for the organization of co-operative agriculture largely from Ireland, although Great Britain sent a committee of investigation to cover part of the ground, traversed by the American Commission, and published the Cahill Report as embodying its findings.

That little group of weavers has grown from twenty-eight to 11,000 in Rochdale. This represents about 15 per cent of the population and this organization in this one city is doing an annual business of over \$1,250,000.

English Agricultural Organization Society.

The Irish Agricultural Organization Society—the great concrete accomplishment of Sir Horace Plunkett, was also the inspiring influence which actuated the realization of the English Agricultural Organization Society in 1901. This society represents the consolidation of the British Agricultural Organization Society and the National Agricultural Union. It is briefly referred to in the reports as "A. O. S." In the year of its organization it comprised twenty-five affiliated societies with a total membership of 517 and had a turnover, for that year, of something over \$45,000. It had grown to the end of its fiscal year May 13, 1913, to

comprise 495 affiliated societies with a membership of 45,000 and a turnover for that year of \$10,000,000. This organization or society covers Wales as well as England, and really has affiliated with it, the Scottish Agricultural Organization Society, (Ltd.) These affiliated societies, as regards the scope of the activities, are grouped thus:

One hundred and seventy-eight societies for the supplies of requirements and sales of product; 30 dairy, bottled milk and cheese-making societies; 194 small holdings and allotment societies; 48 agricultural credit societies; 24 egg and poultry societies; 18 miscellaneous societies; one Central Co-operative Agricultural Bank, (Ltd.); one Scottish Agricultural Organization Society, (Ltd.); one Agricultural and General Co-operative Insurance Society, (Ltd.), making in all a total of 495.

It will be observed that the departments of co-operative agricultural production, distribution, finance, and also small holdings and insurance, are promoted by this one general central organization.

Co-operative Wholesale Societies.

This society is distinctively conspicuous in England and Wales because of the very large development to which it has attained. One-fifth of the population of the United Kingdom is in the habit of making purchases at co-operative stores, where a little paper or metal check, with figures showing the amount, is given with each purchase. The shop looks like any other; the goods outwardly are not very different; the giving of the check with the purchase is the only feature likely to strike an observer. From data collected for us by an official of this society, I submit the following, to me, very interesting facts and opinion:

"During 1910 these co-operators did a total trade of over \$500,000,000. Nearly 123,000 persons were employed in those shops and the warehouses and factories connected with them. These employees were paid over \$35,000,000 as wages during the year.

"Yet, small as these wages may seem (about \$5.50 a week being the average for men, women, boys and girls altogether), they were, substantially higher than the majority of the workers would have obtained in other shops, warehouses or factories. The goods were of the best quality and as cheap as in other shops and the hours of labor, less. The purchasers were, for the most part, of the so-called "well-to-do" working class.

"The total profit on this upwards of \$500,000,000 of co-operative trade this year, after wages and expenses were paid, amounted to over \$60,000,000. The total capital employed was something over \$250,000,000. Under the system of business followed by the other four-fifths of our population this profit would have been divided, as interest on capital, between a comparatively small number of trades people. Twenty years ago the total trade of the society in the United Kingdom was under \$200,000,000.

"These facts and figures afford the most convincing evidence of the inherent vigor of co-operation. So signal a success justifies the sanguine ideal of the Rochdale weavers that the workers of the country were able to own and manage their own business. There are other features of co-operative work which constitute an effective denial of the charge sometimes made, that co-operation is no more than shopkeeping. During this same year over \$45,000 was spent in educational work, an amount which represents much earnest labor in the direction of enlightening members as to the principles of the movement, students' classes, lectures, etc. During the same year over \$250,000 was subscribed to various charitable objects.

"The idea that profits should be paid out on the same basis that they are paid in, that they are first reckoned and got in on the purchase price, they should be paid out as dividends on purchases, while capital should only

receive a fair interest, seems to have been the original discovery of these Rochdale weavers in 1844. They held very strongly that profit made out of the people in front of the counter should be paid back to them. Their little attempt to run a shop that should belong to the customer and not to an individual, was attended with immediate success. It held the germ of a great idea, that no individual should be allowed to amass fortune out of the supply of necessities to the community.

"Every customer in a co-operative store is, or may become, a part owner of the business. By paying \$5.00 down or agreeing to pay it by installments, anyone may become a member, entitled to receive a fair rate of interest on their capital, full dividends on purchases, and a voice in the management of the affairs of this society, including the election of the committee.

"After the expenses of management, depreciation, and interest at fixed rates on share and loan capital have been paid, the remaining profits are divided among the members in proportion to their trade, after such sums as the quarterly meeting may determine have been put aside for reserve funds, charitable donations and grants to relief funds.

"Cash trading is a fundamental principle of the Co-operative Wholesale Society, both in buying and selling.

"The bulk of the general trade of the society is done in goods bought by the society's buyers at home and abroad and distributed to the retail societies from its warehouses, or, in case of very large consignments of certain articles, sent direct to the retail society from the manufacturer or port where landed. The stocks of hams, bacon and canned goods from America are held in great warehouses at the ports of arrival, and on receipt of orders at Manchester, New Castle or London, the heavy orders are sent direct.

"One general principle runs through all the purchasing done by the society, namely, to go direct to the source of production, whether at home or abroad, so as to save the commissions of middlemen and agents.

"The total amount of goods imported direct by the society from foreign countries for the year covered by this report was over \$35,000,000.

"The bank is another important branch of the Co-operative Wholesale Society. Its turnover in 1910 amounted to \$682,500,000.

"The society also carries on the business of shippers, having steamers employed on continental service.

"The various productive work of the societies are situated in England with the exception of the creameries and bacon factories in Ireland, a bacon factory at Herning, Denmark, and a tallow and oil factory at Sydney, Australia, the latter being a subsidiary to the soap, etc., works at Irlan, Silvertown and Dunston.

"The output from the society's factories in 1910 exceeded \$32,500,000.

THE MAN WITH THE SCYTHE.

BY CORA B. HOWDEN.

I passed him by the roadside,
 As I went for a walk today,
 His back was bent from toiling.
 And his beard and hair were gray.
 He was mowing weeds by the wayside,
 With his scythe he worked along,
 But the arms that felled the burdocks,
 Seemed very far from strong.

Young men passed him unnoticed,
 On recreation bent;
 Middle aged men strolled by him,
 And children, singing, went;
 But the old man, worn and wrinkled
 Bent to his humble task,
 Nor stopped his weary labor
 Awhile the sun did last.

I wondered how it happened
 That age should find the need
 To bend to such a task as his
 So far from the aged's creed:
 Was it that he had squandered,
 Or sickness, did it come,
 Or did ambition force him
 To toil so hard alone?

Light of Western Stars

By ZANE GREY

"I didn't see the finish, but those horrible yells were enough for me."

Ambrose hurried the three women over the rough rocks down to the cliff. The cowboys below were saddling horses in haste. Evidently all the animals had been brought out of hiding. Swiftly, with regard only for life and limb, Madeline, Helen, and Christine were lowered by lassoes and half carried down to the level.

By the time they were safely down the other members of the party appeared on the cliff above. They were in excellent spirits, appearing to treat the matter as a huge joke.

Ambrose put Christine on a horse and rode away through the pines; Frankie Slade did likewise with Helen. Stewart led Madeline's horse up to her, helped her to mount, and spoke one word:

"Wait!"

Then as fast as one of the women reached the level she was put upon a horse and taken away by a cowboy escort. Few words were spoken. Haste seemed to be the great essential. The horses were urged, and, once in the trail, spurred and led into a swift trot.

One cowboy drove up four packhorses, and these were hurriedly loaded with the party's baggage. Castleton and his companion's mounted and galloped off to catch the others in the lead. This left Madeline behind, with Stewart and Nels and Monty.

"They're goin' to switch off at the holler thet heads near the trail a few miles down," Nels was saying, as he tightened his saddle-girth. "Thet holler heads into a big canon. Once in thet, it'll be every man fer hisself. I reckon there won't be anythin' wuss than a mighty rough ride."

Nels smiled reassuringly at Madeline, but he did not speak to her. Monty took her canteen, filled it at the spring, and hung it over the pommel of her saddle. He put a couple of biscuits in the saddle-bag.

"Don't fergit to take a drink an' a bite as you're ridin' along," he said. "An' don't worry, Miss Majesty, Stewart'll be with you, an' me an' Nels hangin' on the back trail."

His somber and sullen face did not change in its strange intensity of bridled passion, but Madeline felt that she would never forget the look in his eyes. Left alone with these three men, now stripped of all pretense, she realized how fortune had favored her, and what peril still hung in the balance.

Stewart swung astride his big black, spurred him, and whistled. At the whistle Majesty jumped and with swift canter followed Stewart. Madeline looked back to see Nels already up and Monty handing him a rifle. Then the pines hid her view.

Once in the trail, Stewart's horse broke into a gallop. Majesty changed his gait and kept at the black's heels. Stewart called back a warning. The low, wide-spreading branches of trees might brush Madeline out of the saddle. Fast riding through the forest, along a crooked and obstructed trail, called forth all her alertness. The stirring of her blood, always susceptible to the spirit and motion of a ride, let alone a perilous one, now began to throb and burn away the worry, the dread, the coldness that had weighted her down.

Before long Stewart wheeled at right angles off the trail and entered a hollow between two low bluffs. Madeline saw tracks in the open patches of ground. Here Stewart's horse took to a brisk walk. The hollow deepened, narrowed, became rocky, full of logs and brush. Madeline exerted all her keenness, and needed it, to keep close to Stewart. She did not think of him, nor her own safety, but of keeping Majesty close in the tracks of the

black, of eluding the sharp spikes in the dead brush, of avoiding the treacherous loose stones.

After some time she was brought to a dead halt by Stewart and his horse blocking the trail. Looking up, she saw that they were at the head of a canon that yawned beneath and widened its gray-walled, green-patched slopes down to a black forest of fir. The drab monotony of the foot-hills made contrast below the forest; and away in the distance, rosy and smoky, lay the desert.

Retracting her gaze, Madeline saw the packhorses cross an open space a mile below, and she thought she saw the wolf-hounds. Stewart's dark eyes searched the slopes high up along the craggy escarpments. Then he put the black to the descent.

If there had been a trail left by the leading cowboys, Stewart did not follow it. He led off to the right, zig-zagging an intricate course through the roughest ground Madeline had ever ridden over. He crashed through cedars; threaded a tortuous way among boulders; made his horse slide down slanting banks of soft earth; picked a slow and cautious progress across weathered slopes of loose rock. Madeline followed, finding the ride a severe tax on her strength and judgment. On an ordinary horse she never could have kept in Stewart's trail.

It was dust and heat, a parching throat, that caused Madeline to think of time; and she was amazed to see the sun sloping to the west. She remembered Monty's advice about drinking and eating as she rode along. Stewart never stopped; he never looked back; he never spoke. He must have heard the horse close behind.

The worst of the rough travel came at the bottom of the canon. Dead cedars and brush and logs were easy to pass compared with the miles, it seemed, of loose boulders. The horses slipped and stumbled. Stewart proceeded here with extreme care. At last, when the canon opened into a level forest of firs, the sun was setting red in the west.

Stewart quickened the gait of his horse. After a mile or so of easy travel the ground again began to fall decidedly, sloping in numerous ridges with draws between. Soon night shadowed the deeper gullies. Madeline was refreshed by the cooling air.

Stewart traveled slowly now. The barks of coyotes seemed to startle him. Often he stopped to listen; and during one of these intervals the silence was broken by sharp rifle-shots. Madeline could not tell whether they were near or far, to right or left, behind or before.

Evidently Stewart was both alarmed and baffled. He dismounted and went cautiously forward to listen. Madeline fancied she heard a cry, low and far away. It was only that of a coyote, she convinced herself; yet it was so wailing, so human, that she shuddered.

Stewart came back. He slipped the bridles of both horses and led them. Every few paces he stopped to listen. He changed his direction several times and he got among rough, rocky ridges. The iron shoes of the horses cracked on the rocks. The sound must have penetrated far into the forest. It perturbed Stewart, for he searched for softer ground.

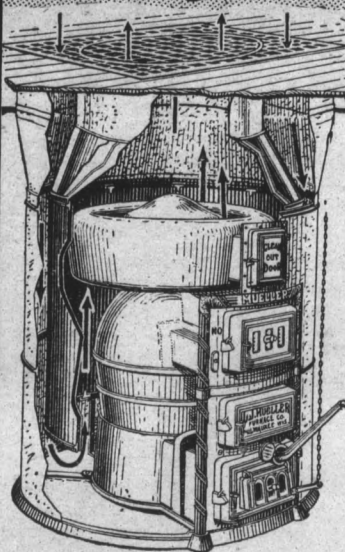
Meanwhile the shadows merged into darkness. The stars shone. The wind rose. Madeline believed hours passed.

Stewart halted again. In the gloom Madeline discerned a log cabin, and beyond it dark, spear-pointed trees piercing the sky-line. She could just make out Stewart's tall form as he leaned against his horse. He was either listening or debating what to do; perhaps both.

Presently he went inside the cabin

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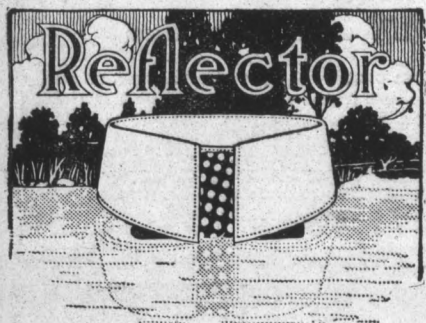
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Madeline heard the faint scratching of a match; then she saw a faint light. The cabin appeared to be deserted. Probably it was one of the many scattered habitations belonging to prospectors and foresters who lived in the mountains.

Stewart came out again. He walked around the horses out into the gloom, then back to Madeline. For a long moment he stood as still as a statue and listened. Then she heard him mutter: "If we have to start quick, I can ride bareback."

With that he took the saddle and blanket off his horse and carried them into the cabin.

"Get off," he said in a low voice, as he again stepped out of the door.

He helped her down and led her inside, where he struck another match. Madeline caught a glimpse of a rude fireplace and rough-hewn logs. Stewart's blanket and saddle lay on the hard-packed earthen floor.

"Rest a little," he said. "I'm going in the woods a piece to listen. I'll only be gone a minute or so."

Madeline had to feel around in the dark to locate the saddle and blanket. When she lay down it was with a grateful sense of ease and relief. As her body rested, however, her mind became once more a thronging amaze of sensation and thought.

All day she had attended to the alert business of helping her horse. Now, what had already happened—the night, the silence, the proximity of Stewart and his strange, stern caution, the possible fate of her friends—all claimed their due share of her feeling. As for herself, somehow she had no fear; but she could not sleep. Indeed, she did not try.

Stewart's soft steps sounded outside, and his dark form loomed in the doorway. As he sat down Madeline heard the thump of a gun that he laid beside him on the sill; and then the sound of another. Stewart's wide shoulders filled the door; his finely shaped head and strong, stern profile showed clearly in outline against the sky; the draft waved his hair. He turned his ear to the wind and listened. Motionless he sat for what seemed hours to her.

Then the stirring memory of the day's adventure, the feeling of the beauty of the night, and a strange, deep-seated, sweetly vague consciousness of happiness portending, were all burned out in hot pain at the remembrance of Stewart's disgrace. Something had changed within her so that what had been anger at herself was sorrow for him. He was such a splendid man! She had discharged him; she could not take him back; she knew her debt to him, yet she could not thank him, could not speak to him. She fought vainly against an unintelligible bitterness.

Then she rested with closed eyes, and time seemed neither short nor long.

When Stewart called her, she opened her eyes to see the gray of dawn. She rose and stepped outside. The horses whinnied. In a moment she was in the saddle, aware of cramped muscles and a weariness of limbs.

Stewart led off at a sharp trot into the fir forest. They came to a trail, into which he turned. The horses traveled steadily; the descent grew less steep; the firs thinned out; the gray gloom brightened.

When Madeline rode out of the firs the sun had risen, and the foot-hills rolled beneath her; and at their edge, where the gray of valley began, she saw a dark patch that she knew was the ranch-house.

About the middle of the forenoon Madeline reached the ranch. Her guests had all arrived there late the night before, and wanted only her presence and the assurance of her well-being to consider the last of the camping-trip a rare adventure. Likewise they voted it the cowboys' masterpiece of a trick. Madeline's delay, they averred, had been only a clever

coup to give a final effect. She did not correct their impression, nor did she think it needful to state that she had been escorted home by only one cowboy.

Her guests reported an arduous ride down the mountain, with only one incident to lend excitement. They had fallen in with Sheriff Hawe and several of his deputies, who were considerably under the influence of drink and very greatly enraged by the escape of the Mexican girl, Bonita. Hawe had used insulting language to the ladies, and, according to Ambrose, would have inconvenienced the party on some pretext or other if he had not been sharply silenced by the cowboys.

Madeline's guests were two days in recovering from the hard ride; on the third day they leisurely began to prepare for departure. This period was doubly trying for Madeline. She had her own physical need of rest, and moreover had to face a mental conflict that could scarcely be postponed any further.

Her sister and friends were kindly and earnestly persistent in their entreaties that she should go back to the east with them; and she desired to go. It was not going that mattered; what disturbed her was the question of her return. Before she went to New York she wanted to have fixed in mind her future relation to her ranch and to the west.

When the crucial hour arrived she found that the west had not fully claimed her yet. These old friends had revived old memories. It turned out, however, that there need be no hurry about making the decision.

Madeline would have welcomed any excuse to procrastinate; but, as it happened, a letter from Alfred made her departure out of the question for the present. He wrote that his trip to California had been very profitable, and that he had a proposition for Madeline from a large cattle company. Furthermore, he wanted to marry Florence soon after his arrival home, and would bring a clergyman from Douglas for that purpose.

Madeline went so far, however, as to promise Helen and her friends that she would go east soon—by Thanksgiving, at the very latest. With that promise, they were reluctantly content to say good-bye to the ranch and to her.

At the last moment there seemed a great likelihood of a hitch in their plans for the first stage of the homeward journey. All of Madeline's guests held up their hands, western fashion, when Link Stevens appeared with the big white car. Link protested innocently, solemnly, that he would drive slowly and safely; but it was necessary for Madeline to guarantee Link's word, and to accompany them, before they would enter the car.

At the station good-byes were spoken and repeated, and Madeline's promise was exacted for the hundredth time. Helen's last words, spoken with a mocking light in her eyes, were:

"Majesty, bring Stewart with you when you come. He'll be the rage!"

Madeline treated the remark with the same merry lightness with which it was received by the others; but on her way home she remembered Helen's words and looks with something almost amounting to a shock. Any mention of Stewart, any thought of him, displeased her.

"What did Helen mean?" mused Madeline.

That mocking light in Helen's eyes had been simply an ironical glint, a synical gleam of worldly experience, suspicious and yet tolerant in its wisdom. But there had also been in her look a certain sweet gravity that was something deeper and more subtle. Madeline wanted to understand it, to divine in it a new relation between Helen and herself, something fine and sisterly that might lead to love. The thought, revolving around a strange mention of Stewart, was poisoned in

its inception, and she dismissed it.

Upon the drive to the ranch, as she was passing the lower lake, she saw Stewart walking listlessly along the shore. When he became aware of the approach of the car, he suddenly awakened from his aimless sauntering and disappeared in the shade of the shrubbery.

This was not by any means the first time Madeline had seen him avoid a possible meeting with her. Somehow the act had pained her, though affording her a relief. She did not want to meet him face to face.

It was annoying enough for her to know that Stillwell had kept him at the ranch. The old cattleman had been distressed to hear of Stewart's discharge. Several times he had tried to open a conversation on the subject with Madeline; but she had evaded him until the last time, when his persistence had brought a cold and final refusal to hear another word about the dismissed foreman. Stillwell had been crushed.

Yet, as days passed, Stewart remained at the ranch. Madeline was not moved to a kinder frame of mind to see him wandering dejectedly around. It hurt her, and because it hurt her, and because it hurt her she grew all the harder.

Then she could not help hearing snatches of talk which strengthened her suspicion that Stewart was losing his grip on himself, that he would soon take the downward course again. Verification of her own suspicion made it a belief, and belief brought about a sharp conflict between her generosity and some feeling which she could not name. It was not a question of justice or mercy or sympathy. If a single word could have saved Stewart from sinking his splendid manhood into the brute from which she had recoiled at Chiricahua, she could not have said it.

A telegram from Douglas, heralding the coming of Alfred and a clergyman, put an end to Madeline's brooding; and she shared something of Florence Kingsley's excitement. The cowboys were as eager and gossipy as girls. It was arranged to have the wedding ceremony performed in Madeline's great hall-chamber, and the dinner in the cool, flower-scented patio.

Alfred and his companion arrived at the ranch in the big white car. They appeared somewhat wind-blown. In fact, the clergyman was breathless, almost sightless, and certainly hatless.

WINTER IS OVER.

BY MILDRED M. NORTH.

High in a tree top a bobolink clinging,
Rocking and swaying with never a fear,

Out on the branches he loves to be swinging,
Singing his carols so joyous and clear.

Dandelions gold in the meadows are flinging,

Bright as a dollar their faces appear,
Everywhere robins and redwings are singing,

This is their message: "The Spring-time is here."

Proudly the lilacs their plumes are up-lifting,

Sweet is the fragrance that floats in the air,

White fleecy clouds in the heavens are drifting,

Dream ships that float on a sea blue and fair.

Down thru the branches the sunbeams are sifting,

What with the sunshine of Spring can compare?

Silently Life its death-fetters is rifting
Robing the earth with a garment most rare.

Sweet-scented snowdrifts the orchards are heaping,

Hark how the bluebirds and orioles sing!

Over their hidden nests loving watch keeping;

Bits of blue sky and of sunshine on wing,

Violets blue from the roadsides are peeping,

Look how the forests their green banners fling!

Everywhere Nature is waking from sleeping,

Winter is over and this is the Spring.

Alfred, used as he was to wind and speed, remarked that he did not wonder at Nels's aversion to riding a fleet-footed cannon-ball. The imperturbable Link took off his cap and goggles and, consulting his watch, made his usual apologetic report to Madeline, deploring the fact that a teamster and a few stray cattle on the road had held him down to the manana time of only a mile a minute.

The arrangements for the wedding earned Alfred's delighted approval. When he had learned all that Florence and Madeline would tell him, he expressed a desire to have the cowboys attend; and then he went on to talk about California, where he was going to take Florence on a short trip. He was curiously interested to find out all about Madeline's guests, and what had happened to them. His keen glance at Madeline grew softer as she talked.

"I breathe again," he said, and laughed. "I was afraid—well, I must have missed some sport. So you went up to the Crags! That's a wild place. I'm not surprised at guerrillas falling in with you up there. The Crags was a famous rendezvous for Apaches—it's near the border—almost inaccessible—good water and grass. I wonder what the U. S. cavalry would think if they knew these guerrillas crossed the border right under their noses! Well, it's practically impossible to patrol some of that border-line. I'm sorry to say that there seems to be more trouble in sight with these guerrillas than at any time heretofore. Orozco, the rebel leader, has failed to withstand Madero's army, and has broken up his forces into guerrilla bands. They are moving north and west, intending to carry on guerrilla warfare in Sonora. I can't say just how this will affect us here; but we're too close to the border for comfort. The guerrillas are night-riding hawks; they can cross the border, raid us here, and get back the same night. Unfortunately we happen to be favorably situated for them, down here in this wilderness corner of the state."

On the following day, Alfred and Florence were married. Florence's sister and several friends from El Cajon were present, besides Madeline, Stillwell, and his men. It was Alfred's express wish that Stewart should attend the ceremony.

Madeline was amused when she noticed the painfully suppressed excitement of the cowboys. For them a wedding must have been an unusual and impressive event. She began to have a better understanding of the nature of it when they cast off restraint and pressed forward to kiss the bride, according to the old-fashioned custom. In all her life Madeline had never seen a bride kissed so much and so heartily, nor one so flushed and disheveled and happy.

The dinner began quietly enough, with the cowboys divided between embarrassment and voracious appetites that they evidently feared to indulge. Wine, however, loosened their tongues and when Stillwell got up to make the speech everybody seemed to expect of him they greeted him with a roar.

Stillwell was now one huge, mountainous smile. He was so happy that he appeared on the verge of tears. He rambled on ecstatically till he came to raise his glass:

"An' now, boys and girls, let's all drink to the bride an' groom—to their sincere an' lastin' love—to their happiness an' prosperity—to their good health an' long life. Let's drink to the unitin' of the east with the west. No man full of red blood an' the real breath of life could resist a western girl an' a good hoss an' God's free hand—that open country out there. So we claim Al Hammond, an' may we be true to him! An', friends, I think it fittin' that we should drink to his sister an' to our hopes. Heah's to the lady we hope to make our Majesty! Heah's to the man who'll come ridin' out of the west, a fine, big-hearted man

with a fast hoss an' a strong rope, an' may he win an' hold her! Come, my friends, drink—"

A heavy pound of horses' hoofs and a yell outside arrested Stillwell's voice and halted his hand in mid air. The patio became as silent as an unoccupied room.

Through the open doors and windows of Madeline's chamber burst the sounds of horses stamping to a halt, then harsh speech of men and a low cry of a woman in pain.

Rapid steps crossed the porch, entered Madeline's room. Nels appeared in the doorway. Madeline was surprised to see that he had not been at the dinner-table. She was disturbed at sight of his face.

"Stewart, you're wanted outdoors," called Nels bluntly. "Monty, you slope out here with me. You, Nick, an' Stillwell. I reckon the rest of you hed better shut the doors an' stay inside."

Nels disappeared. Quick as a cat Monty glided out. Madeline heard his soft, swift steps pass from her room into her office. He had left his guns there. Madeline trembled. She saw Stewart get up quietly and, without any change of expression on his dark, sad face, leave the patio. Nick Steele followed him.

Stillwell dropped his wine-glass. As it broke, shivering the silence, his huge smile vanished. His face set into the old cragginess, and the red slowly thickened into black. Stillwell went out and closed the door behind him.

Then there was a blank silence. The enjoyment of the moment had been rudely disrupted. Madeline glanced down the lines of brown faces to see the pleasure fade into the old, familiar hardness.

"What's wrong?" asked Alfred rather stupidly. The change of mood had been too rapid for him. Suddenly he awakened, thoroughly aroused at the interruption. "I'm going to see who's butted in here to spoil our dinner," he said, and strode out.

He returned before any one at the table had spoken or moved, and now the dull red of anger mottled his forehead.

"It's the sheriff of El Cajon!" he exclaimed contemptuously. "Pat Hawe, with some of his tough deputies, come to arrest Gene Stewart! They've got that poor little Mexican girl out there tied on a horse. Confound that fool sheriff!"

Madeline calmly rose from the table, eluding Florence's entreating hand, and started for the door. The cowboys jumped up. Alfred barred her progress.

"Alfred, I'm going out," she said. "No, I guess not," he replied. "That is no place for you."

"I am going." She looked straight at him.

"Madeline! Why, what is it? You look—dear, there's pretty sure to be trouble outside. Maybe there'll be a fight. You can do nothing. You must not go."

"Perhaps I can prevent trouble," she replied.

As she left the patio she was aware that Alfred, with Florence at his side and the cowboys behind, was following her.

When she got out on the porch she heard several men in loud, angry discussion. Then, at sight of Bonita helplessly and cruelly bound upon a horse, pale and disheveled and suffering, Madeline experienced the thrill that sight or mention of this girl always gave her. It yielded to a hot pang in her breast—that live pain which so shamed her. But almost instantly, as a second glance showed agony in Bonita's face, her bruised arms where the rope bit deep into the flesh, her little brown hands stained with blood, Madeline was overcome by pity for the unfortunate girl, and by a woman's righteous passion at such barbarous treatment of one of her own sex.

(Continued next week.)



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Woman and Her Needs

At Home and Elsewhere



A New Individuality

MY next door neighbor dropped in last week with a face of woe and despair. For some weeks she had been looking for news of her mother's death and my first thought was that the wire had come and she wanted help to make the next train.

"No, it isn't mother," she assured me despondently. "Mother's getting better. It's Angela."

"Angela?" I exclaimed. "Why, she went by this morning the picture of health. Has there been an accident?" Angela was the 18-year-old daughter.

"Accident? No," replied the mother mournfully. "But there might better have been. I might better have buried her in infancy."

"For goodness sake, Mrs. Jackson, what is the matter? What can have happened?" I urged.

"She wants to be a trained nurse," the mother explained tragically. "Not only wants to be, but is bound to be. She says if she can't be she will go out cooking for someone."

"Well, I don't see anything so terrible in that," I replied. "I thought she had leprosy or smallpox. Why shouldn't she be a trained nurse if she wants to? You can afford to put her through training and it's a good paying profession, one where she can do lots of good."

"But I want her to be a school teacher," sniffed the mother. "It's so much more genteel and she could live at home and be company for me, and I've always intended her to be. She knows well enough I put her through high school just for that and intended to send her to college. I never could go, but I always meant her to. She says she isn't going to college and 'bone' for four years cramming her head with a lot of stuff she never will use and don't want to know anyway, when she does like to nurse. What do we bring children into the world for anyway, to have them turn on us like this when they get their growth?" And the poor lady dabbed her eyes with her moist handkerchief and groaned aloud.

I groaned, too, but for Angela. Not a youngster in the street who wouldn't go to her with a pounded thumb or a bruised toe or a sliver to get out, quicker than to his own mother. She was always tying splints on lame pussy cats' legs, not to mention dropping in to rock crying babies to sleep or rub headaches away. If ever there were a born nurse, Angela was one. As for teaching, she had barely "squeaked" through high school, and "flunked" twice in the grades, and had confessed to a group of us just the week before that she didn't know whether Serbia was a place or a salad. Her letters to friends always had to be carefully edited as to punctuation and spelling before they could be sent out, and she was more likely to tell you seven times nine are 56 than to get it straight. Angela a school teacher! How absurd.

"But, Mrs. Jackson," I ventured finally, "Angela is a born nurse, and if she doesn't like school she'd never make a good teacher. She would be unhappy all the time and the children would not get along. She'd end by having every youngster hate her, where now they all adore her. You can't expect her to be just like you and to like everything you do. Why not let her do the thing she likes, and make the best of it?"

"Don't you dare to encourage her," flared forth the mother, forgetting her grievance to turn on me. "You just

keep still and leave her alone. She isn't going to be a trained nurse if I can help it, and I'd thank the neighbors to mind their own affairs and not come between mother and daughter. I've always meant her for a school teacher, and she's going to be one if I have anything to say about it." And the angry lady flounced out to tell her troubles to a more sympathetic neighbor.

Poor Angela, and poor mother. It's the age-old problem of raising a child as a part of one's self and having it turn out to be an individual with pronounced likes and leanings of its own. Angela and her mother are as much alike as a humming bird and a crow, and yet the mother expects her daughter to like the same books, people and pursuits. The mother can not see that the girl is not simply mother, but mother and father and all the ancestors on both sides. She inherits characteristics from both sides of the family, and of course is anew individuality. She could scarcely be expected to like a thing just because mother did, any more than she could like to smoke just because father enjoyed it.

It's a mistake that so many parents make. They wanted to do certain things in youth and could not, probably because their parents intervened. And because they wanted to do it so much they decide that their children shall carry out their thwarted desires, without stopping to think that perhaps that will not suit the child at all, and that their insistence will spoil the child's life as theirs were spoiled before.

It's hard, no doubt, to stand back and see your child doing the thing you don't like, and turning down the occupation you deem most desirable. But remember you are not the child. He will have to live on, carrying on his work for years after you are laid on the shelf. Why not give him the privilege of doing the thing he most enjoys?

DEBORAH.

UNTIL BERRIES ARE RIPE.

BY M. A. L.

While the city housewife, who wants to pay the price, has been enjoying strawberries since February, the country housekeeper in the lake regions must wait until June for this delicious berry. Meantime, tired of pies and puddings, cakes and doughnuts, she sighs for "something different" in the way of desserts. Oranges, pineapples, lemons and bananas she can usually get, for if fresh pineapples have not as yet reached her market, she can always buy a good quality canned. A delicious pineapple pudding may be made as follows:

Pour the juice off one small can of diced pineapple, or take a cup of the fresh fruit diced. Mix with three-fourths of a cup of powdered sugar and pour into two and one-half tablespoons of powdered gelatine dissolved in one cup of boiling water. When the mixture begins to stiffen add a half pint of whipped cream and pour into a mould to harden.

Orange and Grape Juice Jelly. Boil one cup of sugar with one pint of boiling water ten minutes. Add two tablespoons of powdered gelatine, one-half cup of orange juice and one-half cup of grape juice. Stir thoroughly until the gelatine is dissolved, strain, add three

beaten egg whites and beat the entire mixture thoroughly with the egg beater until it is cool. Then pour into a mould and serve with whipped cream.

Currant Tapioca. Ripe currants are, of course, still in the future, but this dessert is made with currant jelly. Any other sort may be substituted. Cook one-half cup of tapioca with one and a half pints of boiling water in the double boiler until it is transparent. Then add a half teaspoon of salt, one-half cup of sugar and one tumbler of jelly and stir until sugar and jelly are dissolved. Pour in a mould and set on ice or on the cellar bottom until ready to serve.

Oranges, than which there is no better fruit for torpid livers, may be served in a variety of ways. We all have our favorite orange salad, while oranges sliced in circles and sprinkled with powdered sugar have been served from time immemorial. Then there is orangeade, to take the place of lemonade, and orange shortcake as a makeshift for the real sort of shortcake to come in June. Orange bouillon may be served as the beginning of dinner some warm spring day. To make, put one quart of orange juice with a cup of sugar in the double boiler and set over the fire until the mixture is scalded, stirring occasionally. Then thicken with two tablespoonfuls of corn starch, dissolved in a little cold water, stirring constantly until clear and then cooking without stirring for five minutes. Chill thoroughly and serve in bouillon cups if you have them, if not in your prettiest glasses.

Orange Cream. Scald three cups of milk in the double boiler and add five eggs, a pinch of salt and one-third cup of sugar beaten together. When partly cooked add the grated rind of one orange and the juice of three. Serve with whipped cream. If preferred, reserve the whites of three eggs, whip dry, flavor, sweeten to suit and pile on top of the custard, which has been poured in a glass bowl. Of course, rich milk may be substituted for the cream.

Lettuce may usually be secured at this time of the year, and most country groceries also have potted cheese on sale. A change from ordinary lettuce salad is made as follows: Arrange crisp lettuce leaves on the salad plates and sprinkle with crumbled cheese. Boil as many eggs hard as you have services, cut in halves, remove the yolks and crumble over the cheese. On top set the cups of egg white filled with your favorite salad dressing.

To serve with cold meats, make a mint jelly, instead of the usual mint sauce. Steep a handful of chopped mint for a half hour in a half pint of water, strain, and add to one and one-half cups of boiling water. Pour this over two tablespoonfuls of powdered gelatine and one cup of sugar and stir till dissolved, then add one-half cup of lemon juice, strain again and set away to harden.

DIETS LACKING IN MINERAL NUTRIENTS.

Dr. E. B. Forbes, chief of the Department of Nutrition of the Ohio Experiment Station, says that many American diets today consist too largely of meats and cereal foods which lack the outer seed coats. Such diets are deficient in minerals. Those minerals most commonly lacking are calcium, phosphorus and iron.

Calcium is abundant in milk, eggs, vegetables and fruits. Phosphorus is

found in large amounts in milk, eggs, nuts, peas, beans and cereal foods containing the outer seed coats. Iron is contained in abundance in beef, eggs, prunes, beans, peas and green vegetables (especially spinach). Foods poor in minerals are polished rice, pearl hominy, white flour, bolted corn meal, and other cereal foods lacking the outer seed coats. Such foods are likely to be constipating. More liberal use should be made of milk and vegetables, especially for children.

RECIPES.

Oatmeal Nut Bread.

A good nut or raisin bread may be made with rolled oats combined with the fruit or nuts. To make, pour two cups of boiling water over an equal quantity of rolled oats and when lukewarm add one cake of yeast and a quarter of a cup of brown sugar which have been dissolved in a half cup of lukewarm water. Add enough flour to make a sponge, beat well and set in a warm place until light. When light add one teaspoon of salt and enough flour to make a dough. Let rise again, then add a cup of chopped nuts or a cup of chopped raisins, form into loaves and when light bake about 45 minutes.

Meat Turnovers.

To use up bits of left-over meat try meat turnovers. Make a rich biscuit dough and cut in circles about the size of a pie plate. Spread with the chopped meat, which has been seasoned to suit, with salt, pepper, chopped onion or celery. Brush the edges of the dough with egg white and pinch together. Bake about a half hour and serve with a brown gravy.

Vegetables.

At this season of the year many cellars contain a few vegetables aside from cabbage and a few wilted carrots and onions. Before using the vegetables should be soaked several hours in water as cold as it can be secured, changing the water frequently to keep it cold. This restores some of the freshness to the vegetables and makes them more appetizing. As a change from hot slaw and creamed cabbage, try some one of the following recipes:

Cabbage with Sausage.

Fry sausage crisp and brown. Remove from frying pan and place where it will keep hot. Pour off the fat, all but three or four tablespoonfuls, and in this fry finely minced cabbage six or seven minutes, seasoning with salt and pepper unless the fat gives enough flavor. Pile on a hot platter and arrange the hot sausage cakes around the outside.

Cabbage with Ham or Bacon.

Instead of the plain salt pork and cabbage which we all know, the cabbage may be boiled with a bit of bacon or the end of a ham from which no more can be cut for frying. Boil the meat slowly for a couple of hours, then add the cabbage, cut in halves, and cook until done, usually not more than 45 minutes.

FRENCH ON THE MENU.

If you are out to dinner and have a French menu placed before you, do not despair. The following list of terms with their English equivalents should enable you to order so as to satisfy hunger:

Au Gratin—Dishes covered with crumbs and browned.

Bisque—Soups made thick with mince and crumbs.

Canape—Usually toast with cheese or potted meat spread upon it.

Canneton—Meat stuffed, rolled up and roasted or braised.

En Coquille—Served in shells.

Farcie—Stuffed.

Croustade—A kind of patty made of bread or prepared rice.

Fondue—A preparation of melted cheese.

Ragout—Stewed meat in rich gravy.

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Farm Commerce.

Should Know Cost of Milk

THE milk question is a vital one for all dairymen that offer this commodity for sale. Whether you operate on a large scale, or on a small scale, the issue is the same.

If dairying is your main industry, affording the wherewithal to support and educate your family, it is time that you looked into the business side of the proposition. If you are operating a dairy as a side issue, it is time for you to determine whether this branch of your business is being conducted at a loss, thereby diminishing the net revenues of your other undertakings.

If such is the case, ordinary business prudence would suggest the elimination of this branch, and a concentration of your efforts in those branches that do pay.

The time has come when the farmer, to make a success of his operations, must study and apply the same methods to his business that have proven successful for the various enterprises in our cities.

If we study the methods of any successful manufacturing company, we will find that the cost sheet is the foundation stone of the whole enterprise. Upon the accuracy of this cost sheet depends the entire superstructure and financial being of the company.

In this cost sheet are incorporated all the items of expense that enter in the manufacture of the product. The raw material, handling, freight, cartage, real estate, buildings, insurance, taxes, light, heat, power, water, gas, tools, labor, superintendence, etc., are carefully determined and itemized, and the summation of same divided by the number of completed units gives the unit cost of the product.

To offer the product for sale at a lower price than the unit cost would, of course, spell ruin for the concern, and their lease on life would depend entirely upon the amount of their reserve or working capital.

Of course, this unit cost is not the actual cost to the company, as will be shown, but I wish to lay particular emphasis upon the cost at this stage, because it is just at this point that the majority of farmers or dairymen cease in the determination of cost of the product which they manufacture.

As a rule, the dairyman estimates his net revenues by deducting the cost of the cow, spread over a term of years and the feed she consumes per year, from the returns of his milk check. That seems to leave a nice balance, but yet, somehow, at the end of the year he finds he is no richer than he was the year before.

His trouble is very evident: the same thing would apply to the manufacturing company if they failed to add their overhead expense. Their overhead expense would consist of salaried officers, bookkeepers, clerks, stenographers, salesmen, etc., whose operations are not directly connected with the manufacturing end of the business.

They might anticipate a profitable business for the year, by adding a profit to the manufacturing cost price of the article, but by failing to take into consideration their overhead expense, before determining the selling price of the product, they likewise would find at the end of the year that their anticipated profits have vanished, and in its place a deficit stares them in the face.

The trouble with the dairyman is that he leaves his overhead expenses out of consideration. Among his overhead expenses might be mentioned: Interest on money invested in cow; insurance on cow; taxes on cow; depreciation of cow; barn rent; bedding;

keep of bull; incidentals, light, medicine, veterinarian, tools, heating, water, salt, etc.

It is in his failure to consider the above items, and to enter them into his cost of producing milk, before he adds in his profit to the unit cost, that causes him to sell his product at an actual loss at present prices.

There are no state laws that will compel an individual or firm to sell its product at a loss. Such procedure would be confiscation, and under the terms of the law no man's property can be confiscated without due recompense be given.

Bear in mind this word confiscation; while one's property or business cannot be confiscated, there are other legal ways in which the same result can be brought about.

In its present state the marketing of milk by the producer is limited entirely to his selling to the one distributor in his locality. He either accepts or rejects the price offered him.

To continue in business he is forced to accept the one price offered, whether this price has any bearing on the actual cost of production or not. It is out of the question for him to consider

selling to the consumer direct.

The actual marketing or distributing of milk to the consumer direct is a separate and distinct business. The producing and distributing should go hand in hand, each is dependent on the other. For either one to dictate to the other is wrong in principle. Both must be conducted at a profit—should one fail, the other likewise fails.

The producer should at all times receive a profit on his product, and he should have a voice in the determination of its selling price. That such is not the case at present is very evident.

The power of the distributor over the producer is plainly evident in the drop in prices from March to April. All stockmen in this vicinity realize that April is a harder month to feed than March. The cattle are aware of the approach of spring and a restlessness pervades the entire herd. Anticipating the green and succulent grass of May, their appetites lessen, likewise the flow of milk.

Thus a double hardship forces itself upon the producer, not only is his selling price lowered 28 per cent, but poor "Bossie," realizing the injustice of the same tries to get even by likewise lowering the flow of milk.

If a solution of this question is only to be found in co-operation, then verily, the milk producers for the Detroit market will have to co-operate by joining together in one organization and demanding a price that is just and fair, one that pays them a reasonable interest on their investment.

Livingston Co. W. L. DECKER.

Gets Good Prices for Apples

IT is not normal conditions, but unusual ones, that call forth all the mental resources of the fruit-grower in order to avoid a failure and to place the balance on the right side of the ledger. Such was the year of 1914. The enormous over-production of apples with consequent low prices in the usual markets, made their marketing a serious problem. Thousands of bushels of Michigan apples were not even picked and thousands more that were picked and sold did not pay for the labor of picking and packing.

This was the condition that confronted the Garden Orchards, of Delta county. These orchards were originally owned by a lumber company, whose manager established them as a hobby. By the spring of 1914, the company had cut all its timber, and they sold their entire holdings, including the orchards, to a big land company. This concern was organized solely to deal in lands. Its members were none of them fruit men, but they had to take the orchards in the deal.

The orchards comprised 116 acres, as follows: Fifty-six acres about 15 years old; 20 acres, 10 years; 20 acres, eight years; 20 acres, six years. The orchard had had fairly good care, but had never been sprayed. When the land company came into possession, it fell to the lot of Mr. Stephens, the secretary, to look after the orchard. He got busy immediately and bought a power spraying outfit and that year the orchard was thoroughly sprayed. When the proper season arrived, the trees were a mass of bloom and Mr. Stephens realized he would have a problem on his hands when harvest time came. And, later, when reports came that the crop all over the country would be enormous, the problem assumed serious proportions.

But, Mr. Stephens did not complain; instead, he set his wits to work. He ordered a good supply of boxes and barrels and when picking time came, his plans were ready. He knew nothing about the commercial grades of apples, but used his own judgment in grading, and packed them in four grades. The best were packed in 60-pound boxes, and the other three grades in barrels. The varieties were

Duchess, Wealthy, Northern Spy, Greenings, and Pewaukee, with a few each of several other varieties.

Mr. Stephens now went to Escanaba, a city of 14,000, which is about thirty miles from the orchards, and rented a store in the best section of the city. The apples were shipped to him daily by boats. He fixed a nice display of box apples in the windows and had both boxes and barrels arranged neatly in the store. He advertised in the local papers and business soon came.

In six weeks he disposed of nearly 5,000 bushels at the following prices: Fancy, \$2.25 to \$2.50 per 60-pound box; No. 1, \$4 to \$4.50 a barrel; No. 2, \$3 to 3.50 a barrel; poorest grade, \$2 to 2.75 a barrel.

Last year there were forty acres more came into bearing. Except for the Duchess and Wealthy, however, the crop was short. On account of so much rainy and cloudy weather, the fruit was not up to standard in size and color. Consequently only two grades were packed; the best in boxes and the rest in one grade in barrels, leaving out the culls for cider. Prices last year for boxes was \$2 to \$2.25; barrels, \$3 to \$3.50.

The prices received were excellent, especially when we consider that the bulk of the crop was Duchess and Wealthy. It must be remembered, however, that these varieties are a great deal later in season than in regions farther south, and, consequently, they keep much longer. In the north, the Duchess is considered a good eating apple in November and December.

With two years' experience in marketing, Mr. Stephens is well satisfied with results. No. 1 apples from Lower Michigan were delivered in Escanaba last year in wholesale lots at \$2.10 a barrel. Mr. Stephens received that much for his poorest grade. His experience shows that an intelligent method of distribution is an important factor in securing good prices.

U. P. H. S. SPOONER.

Nothing that is without a man can make him rich or restful. * * * That which we are makes us rich or poor; that which we own is a trifle.—Alexander Maclaren.

Milk Prices in Michigan

By JAMES N. McBRIDE,
State Director of Markets

THE price of milk in Michigan has been the subject of serious complaint. Dairy herds have been sold and are being offered for sale. An industry fundamental to the whole people and the maintenance of soil fertility is menaced by a price below the cost of production. With the improved means of conserving milk, milk products, and with increased uses, the producer is not sharing in the gains.

Coincident with the maintenance of milk products in storage until used, has come an increased cost of production along every line—land, labor, and feed. In the sections devoted to whole milk selling for domestic use, condensing and the manufacture of milk powder, the cost of production is very little less in summer than in winter. The cut in prices, under this condition, appears to be inequitable.

When the April prices for whole milk were announced this spring the butter-fat prices were well maintained. The New York prices for butter-fat were in excess of the prices paid for the milk from which it was derived.

When the retail price of whole milk for domestic consumption was reduced from nine cents to eight cents a quart in April the reduction was around 11 per cent; the reduction in price paid to the producer was approximately 22 per cent. April is an expensive month in the production of milk and such increase in output as may occur is fully absorbed by increased demand. The reduction in price made by several of the condensing plants in this state worked a hardship on producers whose milk was expensive to them because of the high-priced foodstuffs needed as raw material.

Food Elements Not Considered.

The discrimination in price against summer milk relates to a condition prevailing many years ago and is continued despite the fact that these conditions have long since changed. Bran, for example, was formerly a by-product in making flour; its use was restricted and its price low. Today bran is high-priced, yet the mineral and protein elements of the bran transferred into milk are practically unpaid for. For instance, the price paid for 3.5 per cent milk during the month of April was just about equal to the butter-fat prices. The other solids, not fat, such as approximately four pounds of milk sugar, three pounds of casein and albumen and probably one pound of ash, are elements essential for food, yet are largely overlooked in making the price.

Michigan has a law compelling the furnishing of a standard of these items, also butter-fat, and the law has been invoked at times in compulsion of their delivery. The morals and justice of the inclusion of these items of food and their conversion is cause for the dissatisfaction of the milk producer.

The Milk Producer Finances the Distributor.

Milk sold for domestic use is practically the capital of the distributor, furnished by the producer, and generally collected for by the distributor before the producer is paid. The financing of the manufacture of milk products such as ice cream, milk powder, condensed milk and casein is somewhat complexed; but these, in the language of finance, are liquid assets constantly in process of consumption and with rather even distribution. That strong financial backing has been found for handling these products is evidence that these manufacturing enterprises are well thought of in the investment world.

Unless operated co-operatively, the practice of paying for milk an arbitrary price and without pre-announcement of schedule of rates, is autocratic and unbusiness-like, at least it is not

a practice followed in the sale of the finished product. The self-respect of the producers as well as good business policy should compel definite advance information as to prices to be paid.

The investigation of prices paid for milk indicates that the producer has realized very little benefit because of the increased uses and demand for this article of commerce. The general index price of 25 of the principal foods of the United States was on January 1, 1896, 80 cents. Those same products were worth \$1.55 in April of 1915 and \$1.66 in April of 1916. The increase in price during the last year of all food products has been around eight per cent, while milk in Michigan has, on the whole, lost ground as to price.

It is possible that the dairy business in the sections devoted to the selling of whole milk could be changed in character so that the cream would be separated on the farm and the skim-milk fed to stock. However, there are some circumstances in this connection to be considered. First, the increase in quantity of butter-fat would tend to bring down prices to the consternation of those outside the zones of whole milk selling. Second, the investment in equipment now used and additional equipment for the changed industry would be an economic loss. Third, the consumers of whole milk and whole milk products are in positive need of this nourishing food.

A General Call to Milk Producers.

The question, then, is as to an adjustment of prices and conditions that will permit satisfactory industrial operations. To this end the Livingston County Milk Producers' Association has taken the initiative. At a meeting held April 22 the following resolutions were adopted:

Whereas, the milk producers of Michigan are suffering seriously because of a greatly increased cost of production with no corresponding increase in income, be it

Resolved, that we issue this call to all milk producers of Michigan to gather at the Michigan Agricultural College, East Lansing, Room 402, Agricultural Building, on Tuesday, May 23, 1916, at 11 a. m.

At this meeting methods will first be discussed whereby, if possible, we may bring about a decreased cost of production.

If by a discussion of conditions we find it impossible to further remedy these conditions, be it

Resolved, that it is our purpose to adopt such measures as we hope, may result in securing an increased price for our product.

The Illinois milk producers estimate that their gains for this year because of their activity in a marketing way will amount to a million and a half of good money and that this is secured to them without any added cost to the consumer.

It is expected that most of the milk-producing sections of Michigan will be represented at the forthcoming meeting at East Lansing and that a policy will be formulated that will make milk producing in Michigan a more satisfactory occupation than it has been much of the time in the past.

O. A. Baldwin, of Bridgman, Berrien county, had 18 acres of strawberries last season. He contracted the berries early at \$1.05 per crate, a low price as future events proved, but nevertheless sold over 4,000 crates and his net profit, after paying all expenses including labor and packages, was \$3,300, or nearly \$200 per acre. Another Berrien grower sold 278 crates from half an acre, making a net profit of \$500 per acre.

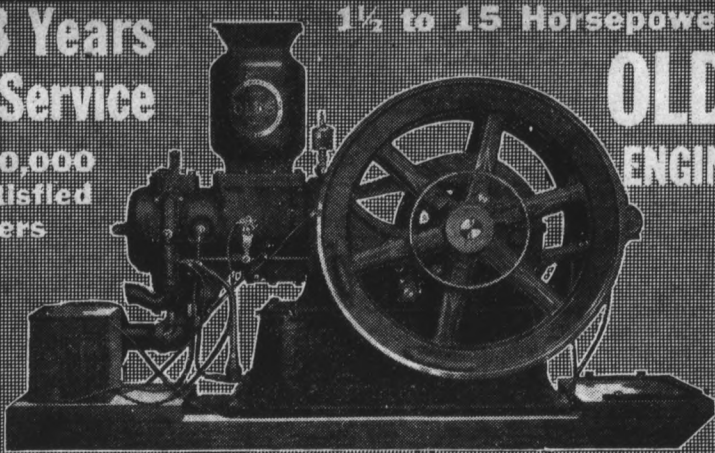
Better than he Thought.

David W. Cousins, Northport, Mich., who has been advertising poultry, writes: "I am all sold out of surplus stock. The Michigan Farmer is a great deal better for advertising than I thought it would be."

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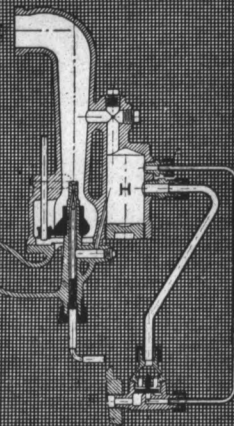


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Actual records prove that Appleton
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more and better work
with less power than
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Write for Our Special Proposition Today and state if you intend to buy this year. Early orders will save you money.

The E. W. Ross Co., Box 114, Springfield, Ohio

VEGA



Cream Separator—The "VEGA" Separator. Successful in Europe since 1885. Received Grand Prize at 4 different World's Expositions. Marvel of simplicity. Above all in quality, efficiency, durability and appearance; yet low in price. Easiest cleaned and assembled—no complicated parts. Fewer discs; all alike; interchangeable, no numbers. Self-balancing bowl. Enclosed gears. **Closest Shimmer on the Market** Recent test of New York State School of Agriculture showed loss of but one pound of butter fat in 5 TONS of skim milk! **Investigate the "VEGA"** Get more information about this wonderful separator, which has caused such favorable comment by State Experimental Stations, Agricultural Authorities, and Dairymen everywhere. Send a postal for free catalog and name of nearest Dealer. The Vega Separator Co., Dept. 11, Fostoria, Ohio.

Seed Potatoes

Selected seed planting size, Rural New Yorks. Carload in bulk.....75c per bushel. 50 bushel lots in sacks.....85c per bushel. Pieces F. O. B., Paw Paw. Send orders promptly to E. D. JOHNSON, R. No. 4, Paw Paw, Michigan.

SEED BEANS.

Fancy bright stock free from disease. Pea beans \$4.75. Michigan Wonder \$5.00 bush. Fancy graded winter sand vetch 16c lb. Seed Corn and potatoes. Will promptly return money on any seed returned not satisfactory. Write to day for price list 24. A. H. FOSTER, Allegan, Mich.

SEED CORN

Early varieties of MICHIGAN GROWN CORN. 1914 crop. Good germination. Write for prices. YOUNG-RANDOLPH SEED CO., Owosso, Michigan.

SOY BEANS Planted with ensilage corn greatly increase the quality of the feed. Write us for prices. YOUNG-RANDOLPH SEED CO., Owosso, Michigan.

Soy Beans For Sale. Medium yellow Mosherville, Mich. Bags 2c extra. Ralph W. Smith.

SEED CORN: 1915 Crop very early. Screened 1 bu. \$2.50; six bu. \$12.40 graded for horse planter, sacked, f. o. b. Dryden. White Pea Beans, get prices. FRANK BARTLETT, Dryden, Michigan.

FERTILIZER

Muncey Cartage Co., shippers of horse manure and tobacco stems, 450 Grand River Avenue, Detroit Mich. Tel. Grand 821 and 4207.

Markets.

GRAINS AND SEEDS.

May 9, 1916.

Wheat.—The government crop report indicates an improvement in the condition of the winter wheat crop in a number of the larger producing states. Notwithstanding this gain, the present outlook is for a crop 155,000,000 bushels less than for 1915. The largest abandonment of acreage is along the Ohio valley, and in Wisconsin, Minnesota, Iowa and Missouri—the amount ranging from 18 to 33 per cent of the acreage sown last fall. An increased number of reports of damage by insects in Kansas and other western states threatens to overcome some of the recent improvement noted above. The visible supply shows a decrease of 1,989,000 bu. The amount of wheat afloat has increased during the past week, and primary receipts are running heavier than a year ago. No. 2 red wheat was quoted at \$1.50½ on this date in 1915. Last week's Detroit prices were:

	No. 2	No. 1	May.
Wednesday	1.23¼	1.18¼	1.24¼
Thursday	1.21¼	1.16¼	1.22¼
Friday	1.20¼	1.15¼	1.21¼
Saturday	1.22¼	1.17¼	1.23
Monday	1.21¼	1.16¼	1.22¼
Tuesday	1.22¼	1.17¼	1.23

Chicago.—May wheat \$1.43¼ per bu; July \$1.16; Sept. \$1.15¼.

Corn.—Corn values suffered a fractional loss on the local market Monday. Ideal weather conditions had a bearish effect upon the trade, as did also the prospect of enlarged receipts. On the other hand, corn is in good demand and dealing would undoubtedly be improved if cars could be secured for distributing grain. The visible supply decreased 1,995,000 bushels last week. A year ago No. 3 corn was quoted at 77½c. Last week's Detroit quotations were:

	No. 3	No. 3
	Mixed.	Yellow.
Wednesday	76½	79
Thursday	76	78½
Friday	76	78½
Saturday	76½	79
Monday	76	78½
Tuesday	76	78½

Chicago.—May corn 78½c; July 74½c; Sept. 73½c.

Oats.—During the past week oat values advanced, due to an active domestic consumption. The market, however, on Monday was influenced by the lack of strength in wheat and corn and improved weather conditions increased the prospects for the growing crop. The U. S. visible supply of oats decreased 148,000 bushels, with a heavy increase, however, in the amount in bond. One year ago standard oats were quoted at 55½c per bushel. Last week's local quotations were:

	Standard.	No. 3
		White.
Wednesday	48½	47½
Thursday	48	47
Friday	48	47
Saturday	48½	47½
Monday	48½	47½
Tuesday	48½	47½

Chicago.—May oats 47½c per bu; July 34½c; Sept. 33½c.

Rye.—Unchanged at 95c per bushel for cash No. 2.

Barley.—Milwaukee prices about steady at 74½c, while Chicago values are 63½c per bushel.

Beans.—This product is very scarce in all the markets, and the demand is good. Cash beans advanced another 5c last week, and are now quoted at \$3.85 in Detroit, with July at \$3.90. At Chicago pea beans, hand-picked, are quoted at \$3.85@3.95; red kidneys at \$4.75@5.

Clover Seed.—Prime red clover and prime alsike \$8.85.

Timothy Seed.—Prime \$3.45 per bu.

FLOUR AND FEEDS.

Flour.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$6.50; seconds \$6.20; straight \$5.90; spring patent \$6.80; rye flour \$6.

Feed.—In 100-lb. sacks, jobbing lots are: Bran \$24; standard middlings \$22; fine middlings \$30; cracked corn \$31.50; corn and oat chop \$28 per ton. **Hay.**—No. 1 timothy, \$21.50@22; standard timothy \$20.50@21; light mixed \$20.50@21; No. 2 timothy \$18@19; No. 1 mixed \$15.50@16; No. 1 clover \$13@14.

Chicago.—Choice timothy hay \$19.50@20.50; No. 1 do \$17.50@18.50; No. 2 do \$15@16.50.

DAIRY AND POULTRY PRODUCTS.

Butter.—This market followed the decline in the Elgin market. Receipts are large and demand is fair. Extra creamery 30c; firsts 28c; dairy 25c; packing stock 22c.

Elgin.—Increasing receipts weakened the market and brought a decline of 2c. Price for the week, based on sales is 30c.

Chicago.—Light demand and liberal receipts brought lower prices. The buying is in small lots only. Extra creamery 29½c; extra firsts 29c; firsts 28c; dairy extras 29@29½c; packing stock 24@25c.

Eggs.—Market is quiet and steady at unchanged prices. Current receipts are quoted at 20¼c; firsts 21¼c.

Chicago.—The feeling is firm at prices a fraction of a cent lower than last week. Firsts 20½@20¾c; ordinary firsts 19@19¼c; miscellaneous lots, cases included 19@20¼c.

Poultry.—The market is firm and quiet at former prices. Fowls 19@21c according to quality; spring chickens 19@20c; ducks 21@22c; geese 16@17c; broilers 35@40c.

Chicago.—The feeling was slightly easier in fowls but prices remain the same. Other kinds are unchanged. Quotations for live are as follows: Hens 17½c; ducks 16@18c; geese 10@13c; roosters and stags 13c.

FRUITS AND VEGETABLES.

Apples.—Apples easy at unchanged prices. Greenings \$3@3.75; Spys \$3.50@4; Baldwins \$3@3.50; Steele Reds \$4@4.50. At Chicago the market is improved for stock which is sound. Off-grade stuff is hard to get rid of. No. 1 Greenings are quoted at \$2.50@3.25 per bbl; Golden Russets \$3@3.25; Baldwins \$3@3.25; Spys \$3.50@4.50; Ben Davis \$1.75@2.25.

Potatoes.—Potatoes are quiet and easy at slightly lower prices. Carlots on track 98c@1.03 for white and 95c@1 for red. At Chicago the market is active and steady at lower prices. No Michigan stock is quoted but others sell from 80@95c per bushel. At Greenville potatoes are selling for 75c a bushel.

WOOL AND HIDES.

Wool.—There is no let-up in the demand for wool. An increased number of inquiries came to dealers last week. A fairly satisfactory amount of business in new wools is already being done in Boston. In the fleece states perhaps a larger number of farmers than usual are holding back their wool crop, believing higher prices than they can now get will be offered later.

Hides.—No. 1 cured 17c; do. green 15c; No. 1 cured bulls 13c; do. green 10c; No. 1 cured calf 25c; do. green 24c; No. 1 horsehides \$4.50; No. 2 \$3.50; No. 2 hides 1c and No. 2 kip and calf 1½c lower than the above; sheepskins, as to amount of wool, 50c@52.

GRAND RAPIDS.

Wheat advanced 2c for this week's opening, with No. 2 red quoted at \$1.15 per bu; No. 1 white at \$1.10; rye, 56-lb. test, is worth 75c; oats 45@47c; corn 75@80c; buckwheat 75c; white pea beans \$3.25; red kidneys \$4.25. Eggs are quoted at 19½@20¼c. Butter, creamery, is off 2c; dairy butter steady at 25c. Hay on the city market brings \$15@18.

DETROIT EASTERN MARKET.

The few farmers who brought products to the market Tuesday sold out early because of an active demand. Ben Davis apples were held at 40@75c; potatoes 50c@51; eggs 25@27c; butter 35c; loose hay is in small supply with prices ranging from \$18@25 per ton.

LIVE STOCK MARKETS.

Buffalo.

May 8, 1916.

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

Receipts here today: Cattle 160 cars; hogs 95 d. d.; sheep and lambs 75 d. d.; calves 2000 head.

With 160 cars of cattle today, there were about 60 cars of shipping steers and the trade was slow to a dime lower, with three loads of choice cattle landing at \$9.85. There was a strong demand for the butcher steers and female stuff, and they sold fully steady. We look for a fair run of cattle here next Monday and if they do not have a heavy run in Chicago on Wednesday we look for about a steady trade here.

Receipts of hogs were fully up to expectations, in the neighborhood of 95 double decks on sale, and while demand was fair, prices were 10@20c lower on all grades a few selected lots selling at \$10.20@10.25, with the

bulk around \$10.15; pigs and lights \$9@9.25; roughs \$9@9.10; stags \$6.50@7.50. About everything sold at the close and late trade was steady.

Market was active on choice sheep and lambs, but slow on the heavy and coarse, with prices steady with the close of last week. About all sold and we look for steady to possibly a shade higher prices last of the week.

We quote: Clipped lambs \$10.15@10.25; heavy lambs \$8.50@8.75; cull to fair \$6@10; bucks \$4.50@6.75; yearlings \$8.50@8.75; handy ewes \$7.25@7.50; heavy do \$6.50@7; wethers \$8@8.25; cull sheep \$4@5.50; veals, good to choice \$10.25@10.50; common to fair \$8@10; heavy \$6@9.

Chicago.

May 8, 1916.

Cattle. Hogs. Sheep.
Receipts today.. 20,000 45,000 15,000
Same day 1915.. 12,922 30,252 15,060
Last week..... 38,455 155,986 53,752
Same wk 1915.. 39,518 139,195 43,818

Only 14,117 hogs were shipped from here last week, comparing with 24,287 a year ago. Hogs received averaged 218 lbs.

After the cattle trade got well started today steers were reported as largely a dime lower, the better class expected while butcher stock was steady. Hogs started 5c lower, with sales at \$9.30@9.95. Sheep and lambs of quality sold at steady prices, but there were lower bids for others. The late hog market was at least a dime lower.

Cattle were marketed in only fair numbers last week, and a small advance in prices resulted. Taking the week as a whole, the bulk of the beef steers sold at a range of \$8.75@9.65, with smaller offerings of the best class of cattle. Choice to fancy lots went at \$9.50@9.95, good steers \$9.25@9.45, medium to good do. \$8.80@9.20, fair killers \$8.50@8.75 and inferior light weight steers \$7.75@8.45; yearlings of the better class \$9@9.90 for good to best kinds, and \$8.25@8.50 for the commoner offerings. Butcher stuff had a good outlet on the basis of \$5.60@8.60 for fair to prime cows and \$5.75@9.50 for heifers, the heifers selling at \$9 and upward being fancy little yearlings. Cutters sold at \$4.90@5.55, canners at \$3.60@4.85 and bulls at \$5.50@8.15, prime light weight yearling bulls being the highest sellers. Calves from dairying districts were marketed liberally and sold freely, desirable light weight veal calves selling at \$8.40@9.60 and heavy calves \$5@7.75. There was a good demand for feeder steers at \$7.50@8.75, while stockers went at \$5.75@8.50, and stock and feeding heifers at \$6@6.90 and stock and feeding bulls at \$5.90@6.40. Eastern shippers purchased a good part of the best beef steers. The bulk of the cattle closed higher than a week ago.

Hogs were marketed freely last week, yet they continued to sell not greatly below their high time, the top for the week being \$10.05. Prime light weight singeing hogs were bought on Canadian account at top quotations, with prime heavy hogs selling about a nickel below them. Despite the materially increased week's receipts, hogs sold Saturday nearly as high as a week earlier, prices ruling at \$9.40@10, with prime heavy and light shipping hogs taken at the top price.

Lambs comprised most of the offerings shown in the sheep house last week. Advancing prices for fat stock resulted from declining receipts. The week's close saw prices for woolled lambs 15@25c higher than a week earlier, with sheep and yearlings advanced 10@25c, while shorn lambs advanced 35@50c. Lambs closed at \$9.25@11.75; feeding lambs at \$10.25@11.10, yearlings at \$9@10.75, wethers at \$8.25@9.50, ewes at \$6@9.50, bucks at \$7.25@8.50 and clipped lambs at \$7@9.90. Spring lambs brought \$9@13.

Most horses sold below \$225, with limited sales of desirable drafters at \$240@285 and fancy ones of extra heavy weight quotable up to \$300 or even higher. Commercial chunks were in demand at \$165@235, and inferior animals sold down to \$60@75. Wagons sold at \$165@200 and expressers at \$170@210. Most farm workers went at \$100@145.

Green pastures remind hundreds of stockmen that it is time to see that this is utilized, and those who have not done so already are in the market for stock and feeder cattle. Most farmers who own thin cattle have no intention of marketing them, as they fully realize that in all probability good profits are to be made by finishing them, while those who need the cattle to feed on their grass discover that prices asked in the market for a choice kind of thin cattle are unusually high. The poorer class of stockers are comparatively low-priced, but there is no urgent demand for them. Recently the best demand for feeders has come from buyers in Indiana, Michigan and Ohio, with little demand from east of the Ohio line.

MICHIGAN CROP REPORT.

Wheat.—The condition of wheat in the state is 81, in the southern counties 78, in the central counties 80, in the northern counties 88 and in the upper peninsula 95.

The condition on April 1 in the state was 78, in the southern counties 73, in the central counties 82, in the northern counties 89 and in the upper peninsula 98. The condition one year ago was 92 in the state and southern counties, 94 in the central counties, 90 in the northern counties and 97 in the upper peninsula. The per cent of wheat that will be plowed up because winter-killed or otherwise destroyed is five in the state, six in the southern counties, five in the central counties, three in the northern counties and one in the upper peninsula. The damage by Hessian fly in per cent is three in the state, five in the southern counties, two in the central counties and one in the northern counties.

The total number of bushels of wheat marketed by farmers in April at 72 flouring mills is 69,136 and at 74 elevators and to grain dealers 68,796 or a total of 137,932 bushels. Of this amount 92,853 bushels were marketed in the southern four tiers of counties, 42,062 in the central counties, and 3,017 in the northern counties and upper peninsula. The estimated total number of bushels of wheat marketed in the nine months August-April is 7,500,000 and the quantity yet remaining in possession of growers after deducting 2,500,000 bushels used for seed and home consumption is 5,494,517 bushels. Fifty-eight mills, elevators and grain dealers report no wheat marketed in April.

Rye.—The average condition of rye in the state is 88, in the southern counties 84, in the central counties 89, in the northern counties 92 and in the upper peninsula 97. The condition one year ago was in the state and southern counties 94, in the central counties 95, in the northern counties 93 and in the upper peninsula 100.

Meadows and Clover.—The condition of meadows and pasture in the state is 91, in the southern counties 89, in the central counties 93, in the northern counties 92 and in the upper peninsula 96.

The acreage of clover sown as compared with last year is 97 in the state, 94 in the southern counties, 96 in the central and northern counties and 101 in the upper peninsula. The acreage of clover that will be plowed up because winter-killed or otherwise destroyed is six per cent in the state, nine in the southern counties, four in the central counties, three in the northern counties and two in upper peninsula.

Oats.—The acreage of oats sown or that will be sown as compared with last year is 98 in the state, 96 in the southern counties, 97 in the central counties, 102 in the northern counties and 106 in the upper peninsula.

Chicory and Mint.—The number of acres of chicory in the state so far as reported is 637 and the number of acres of mint 3,710.

Spring Pigs and Lambs.—The per cent of spring pigs saved as compared with 1915, is 90 in the state, 89 in the southern and northern counties, 96 in the central counties and 92 in the upper peninsula. The per cent of lambs saved as compared with 1915 is 92 in the state, 93 in the southern counties, 95 in the central counties, 88 in the northern counties and 97 in the upper peninsula.

Farm Wages.—The average monthly wages with board is \$28.56 in the state, \$29.72 in the southern counties, \$28.20 in the central counties, \$27.36 in the northern counties and \$29.09 in the upper peninsula.

The average wages by the day without board is \$1.74 in the state, \$1.82 in the southern counties, \$1.69 in the central counties, \$1.60 in the northern counties and \$1.81 in the upper peninsula.

The average wages in the state last year, by the month with board was \$27.03 and the average wages by the day without board was \$1.64.

Fruit.—Fruit correspondents report a very promising prospect for an abundant crop of fruit in all sections of the state where the business is given the proper care.

The following table will show the prospect at present for a crop of the various kinds of fruit in the state and the different sections:

	State.	Sou. Co's.	Cent. Co's.	Nor. Co's.	Up. Pen.
Apples	87	85	87	92	96
Pears	84	84	85	81	88
Peaches	79	79	74	82	..
Plums	85	83	86	87	96
Cherries	89	88	88	93	94
Small ft.	91	89	90	97	99

The average prospect for peaches in the Michigan Fruit Belt is 79 per cent; one year ago it was 93 per cent in the same territory.



60 HEAD OF STALLIONS FOR SALE

PERCHERONS, CLYDESDALES and HACKNEYS

Also 20 head of Choice Hackney mares with foal.

Gentlemen I got on my selling clothes.

Write for prices.

JOHN CRAWFORD

Colby Ranch, Stanton, Mich.

FOR ALL YOUR HEAVY WORK

You have scores of things daily to be hoisted, lowered or hauled, such as unloading hay or grain, hauling timbers, elevating ice, driving fence posts, loading or unloading coal, fertilizer, machinery, fruit, etc. Let us help you save money, work and two-thirds of your time with an

Ireland Geared Hoist

Operates safely and easily. Special pulley for your engine. Guaranteed every way. Write for hoist circulars—also about our drag saws, wood saws, saw mills and shingle mills.

Ireland Machine & Foundry Co.
33 State St., Norwich, N. Y.



American Vitriol Tile Is Best

It will stand the test of time. It is salt glazed and is frost-proof, acid-proof and will last as long as the earth in which it is laid.

It is best for both public and private drains. You should buy it for the one and use your influence to see that it is used in the other.

Write for carload lots, if your dealer can't supply you.

American Sewer Pipe Co.,
200 St. James Street, Jackson, Mich.

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If you want to make from \$10 to \$50 per week without interfering with your regular work and have exclusive territory for the best Ford Shock Absorber made. Write today for particulars to

The M. & M. Company,
Ohio's Largest Auto Supply House,
Cleveland, Ohio

SEED CORN, Picket Yellow Dent. Germination 98% and better. 1914 crop. Shelled and sacked 7c. per pound F. O. B. Grand Rapids. J. P. Munson, Pres. Kent Co. Farm Bureau, R. R. 3.

A Successful Manure & Gravel Loader is now being built and marketed by the Iowa Manufacturing Co., of Bancroft, Iowa.

DOGS

COLLIE DOGS

The Best on Earth at Reasonable Prices.
E. A. ROGERS, Dundee, Michigan.

Fox, Coon and Rabbit Hound Pups
From the best of blood and broke hounds. \$5.00 each. Broke hounds at all times, stamp photos.
H. C. LITTLE, Frederickburg, O.

HOUNDS FOR HUNTING—Fox, Coon and Rabbits, all ages. Send 2 cent stamp.
W. E. LECKY, Holmesville, Ohio

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ADVERTISER, CARE THE MICHIGAN FARMER,
Detroit, Michigan

THIS IS THE LAST EDITION.

The first edition is sent to those who have not expressed a desire for the latest markets. The late market edition will be sent on request at any time.

DETROIT LIVE STOCK MARKET.

Thursday's Market.

May 11, 1916.

Cattle.

Receipts 2249. There was a good fair run in all departments at the local stock yards this week and nearly everything arrived and was yarded early, the only straggler being a string off the northern division of the Pere Marquette which arrived at 3:00 p. m.

In the cattle division the trade was again active and all grades brought steady last week's prices, the quality was unusually good and several carloads brought \$9 per cwt. Michigan cows were very scarce and the few here were of an inferior quality. Quite a number of country buyers were on hand after stockers and feeders and several carloads were bought and returned for feeding. The close was steady as follows: Best heavy steers \$8.50@9; best handy weight butcher steers \$8.25@8.50; mixed steers and heifers \$7.25@8; handy light butchers \$7@7.75; light butchers \$6.50@7; best cows \$6.50@7.10; butcher cows \$5.50@6.25; common cows \$5@5.25; canners \$3.50@4.50; best heavy bulls \$7@7.25; bologna bulls \$6@7; stock bulls \$5@6; feeders \$7.25@7.75; stockers \$6@7.50; milkers and springers \$4@7.5.

Bishop, B. & H. sold Mason B. Co. 1 bull wgh 1080 at \$7.10, 2 do av 815 at \$6.75, 1 do wgh 1380 at \$6.75, 1 do wgh 1240 at \$7.50; to Parker, W. & Co. 6 cows av 1060 at \$6.50, 1 do wgh 1020 at \$5, 3 do av 1073 at \$7, 20 do av 1078 at \$6.25, 2 do av 1075 at \$6.50, 14 steers av 904 at \$8.50; to Kull 23 do av 965 at \$8.65; to Bresnahan & B. 6 cows av 1190 at \$6.50; to Thompson Bros. 12 steers av 873 at \$7.85, 10 do av 736 at \$7.65; to Newton B. Co. 27 do av 1100 at \$8.85, 5 do av 762 at \$8, 1 bull wgh 850 at \$6, 20 steers av 887 at \$8.30; to Thompson Bros. 10 do av 1033 at \$8.75, 23 do av 1019 at \$8, 3 bulls av 823 at \$6.25; to Sullivan P. Co. 10 steers av 1117 at \$8.75; to Parker, W. & Co. 2 cows av 1170 at \$6, 1 do wgh 730 at \$5.50, 2 do av 985 at \$5.15, 2 do av 920 at \$7; to Hammond, S. & Co. 2 bulls av 1285 at \$6.75, 1 do wgh 870 at \$6.75, 7 steers av 1050 at \$9, 2 do av 1070 at \$8.50, 4 bulls av 1130 at \$6.50, 5 do av 1004 at \$5, 10 steers av 1029 at \$8.50, 4 do av 942 at \$8, 14 cows av 1073 at \$6.60; to Fromm 3 butchers av 870 at \$6.25, 3 do av 817 at \$6.25, 4 cows av 1020 at \$5.65; to Garber 2 do av 1285 at \$7.25, 2 do av 1065 at \$7.25.

Veal Calves.

Receipts 1132. The veal calf trade was active and 50c higher than last week and the quality was fair. Shippers are advised not to buy bob calves or thin heavy grades as they are being watched closely by the meat inspector and are sure to be condemned. Best grades \$10@10.50; medium and common \$6.50@9.50.

Haley & M. sold Sullivan P. Co. 7 av 140 at \$10, 6 av 140 at \$10; to Hammond, S. & Co. 12 av 160 at \$10.25, 2 av 135 at \$8.50, 12 av 170 at \$10.25.

Erwin & S. sold Parker, W. & Co. 7 av 140 at \$10.25, 18 av 145 at \$10.25, 2 av 115 at \$10; to Burnstine 5 av 155 at \$10; to Fineman 8 av 125 at \$9.

Sheep and Lambs.

Receipts 2160. The supply of sheep and lambs on sale was common and the general market steady. Swift & Co. paid \$9.75 for a few extra fancy but the bulk of the good brought \$9@9.50. The close was steady. Best lambs \$9.25@9.75; fair lambs \$7.25@8.25; light to common lambs \$6.75@7; fair to good sheep \$6.50@7.25; culls and common \$4.50@5.50.

Bishop, B. & H. sold Thompson Bros. 124 lambs av 65 at \$9; to Sullivan P. Co. 126 do av 65 at \$9; to Parker, W. & Co. 84 do av 75 at \$9, 18 mixed av 90 at \$7.50; to Sullivan P. Co. 9 sheep av 120 at \$7.25, 11 lambs av 63 at \$8, 12 do av 55 at \$8, 7 sheep av 90 at \$4.50, 26 do av 95 at \$7, 13 do av 75 at \$7; to Sullivan P. Co. 43 lambs av 55 at \$8; to Thompson Bros. 10 sheep av 118 at \$7.15; to Sullivan P. Co. 44 lambs av 68 at \$9.50; to Swift & Co. 58 do av 80 at \$9.75, 100 do av 88 at \$9.50, 143 do av 80 at \$9.75.

Sandel, S. B. & G. sold Parker, W. & Co. 110 lambs av 70 at \$9; to Sullivan P. Co. 8 sheep av 110 at \$7.25, 95 do av 65 at \$8.60.

Hogs.

Receipts 10,734. In the hog department the trade was very slow on Wednesday and packers would not pay over \$9.60 for anything. The quality was fair. On Thursday the market was 5@10c higher. Pigs \$8.50@8.75; mixed grades \$9.50@9.75.

NORTHERN MICHIGAN AGRICULTURAL CONGRESS.

Cadillac, Wednesday, May 17.

1:00 p. m., president's address, G. A. Brigham, President Farm Bureau.

1:45 p. m., "The Market Question," J. N. McBride, Commissioner of Markets, East Lansing.

Discussion.

2:30 p. m., "Development of Northern Michigan," Prof. R. S. Shaw.

3:30 p. m., "Sweet Clover," Samuel Willis.

Wednesday Evening.

7:00 p. m., "What Railroads can do to Aid Northern Michigan," W. P. Hartman, Grand Rapids, Industrial Agent for G. R. & I. R. R.

7:15 p. m., "Organization in County and City," M. M. Callaghan, Reed City.

7:45 p. m., "Concrete and Positive Needs of Northern Michigan," Governor W. N. Ferris.

Thursday Morning.

9:30 a. m., appointment of the provisional committee to plan to aid in the development of Northern Michigan.

9:45 a. m., "Advantages in Northern Michigan Cattle Raising," Paul King, Receiver of the P. M. R. R.

Discussion, F. B. Sotham.

10:30 a. m., "The Services County Agents can Render to Northern Michigan," Dr. E. Mumford, East Lansing.

Discussion, Jason Woodman, Kalamazoo, County Agent of Kalamazoo County.

12:00 M., dinner at McKinnon Hotel.

Afternoon.

1:00 p. m., "Live Stock for Northern Michigan," L. W. Oviatt, Bay City.

Discussion, F. B. Sotham.

2:00 p. m., election of officers.

2:15 report of committee.

2:30 p. m., general discussion.

4:30 p. m., adjournment.

LIVE STOCK DEALERS.

At the meeting of the executive board of the Michigan Live Stock Dealers' Association held in the offices of the Michigan Railroad Commission on May 5, it was decided unanimously that it was proper to assess each shipper of live stock a small amount per car for the purpose of financing the association which was formed for the mutual protection of the live stock dealers and growers of Michigan. The farmer has as direct interest as has the live stock dealer. The association proposes to fight the present rates and classification as well as the minimum weights applying on both interstate and intrastate shipments of live stock. The matter of the failure of the railroad companies to furnish proper equipment was also discussed and it was arranged to supplement the formal complaint by asking that two single deck cars be handled as one double deck, when the carriers fail to furnish the equipment ordered when given a reasonable time in which to furnish same.

President Fuller appointed a finance committee and a legislative committee. The instructions of the latter committee being to see to it that proper authority be given the commission covering the reasonable handling of shipments of live stock, together with a number of other minor matters.

The live stock dealers of Michigan are far from satisfied with the present rates and classification applicable upon live stock, as they find that instead of approximately the five per cent advance they are assessed as high as 50 per cent increased charges for the transportation of live stock in many instances. This, of course, hits the farmer as well as the dealer, as the dealer cannot be expected to assume the entire burden.—G. M. Parsons, Secretary.

Owners of healthy, growing pigs and young hogs are highly favored, with ruling prices extraordinarily high, and no pains should be spared to make such holdings prime in quality before marketing. The supply in feeding districts in the corn belt states is short, while the requirements of the trade are extremely large. Breaks in prices take place from time to time, and whenever the decline is pronounced stock feeders begin to withhold supplies, the result being lively advances in the market. This has happened recently, with prime hogs selling around the highest prices of the present year, or at \$10 per 100 lbs. The highest prices are paid for prime light weight bacon hogs on the "singeing" order, these being purchased by Canadian packers. These hogs usually weigh around 185 to 195 pounds, with Hampshires, Tamworths and Yorkshires the favored breeds selected, while occasionally hogs of the rangy Oklahoma type are bought to fill out shipments. The singeing process takes less time than scalding, while it imparts to the meat a richer taste.



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Farquhar Threshers handle all varieties of grain, are long lived and easy to operate. Our construction, though simple throughout, provides for ample separating and cleaning facilities. This means fast, efficient threshing with light operating power.

The Farquhar Vibrator as illustrated above, answers every requirement of the merchant thresherman. It is built in six sizes and can be supplied with all latest labor-saving attachments, such as Self Feeder, Wind Stacker, Weigher, etc. For the individual user with light power, the Farquhar Rake makes an ideal outfit.

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Six-cylinder seven passenger automobile, recently repainted and in splendid mechanical condition, for team of good Belgian mares or good Belgian stallion. Address Box P-513, Mich. Farmer, Detroit, Mich.

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Northern Hydrated Lime and Pulverized Limestone, also pulverized burned lime, all made from high calcium limestone. Guaranteed to be the best on the market. Your inquiries solicited. Samples furnished on request.

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EGGS, ETC.—Small consignments from producers in your territory bring very attractive prices. Returns day of arrival. Refer to Dun or Bradstreet. Zenith Butter & Egg Co., 355-59 Greenwich St., New York, N.Y.

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THE HARPSTER COMMISSION CO., Union Stock Yards, Toledo, O. Sell live stock on commission, get highest prices and best fills. Try them. Daily market, force of six looks after your interest. Financially backed by over \$1,000,000.

FARMERS—We will pay premiums whenever possible above the highest official Detroit Market quotation for your eggs shipped direct to us by express. Write us for information. It will pay you. American Butter & Cheese Co., Detroit, Mich.

HAY

Ship To The Old Reliable House Daniel McCaffrey & Sons Co., 623-625 Wabash Bldg., Pittsburgh, Pa.

POULTRY.

BARRED PLYMOUTH ROCK EGGS from full blood stock, \$1.50 per 15. Have won at leading shows for years. J. A. BARNUM, Union City, Michigan.

Baby Chicks from our own Bred-To-Lay Ringlet Barred Rocks \$1.00 per 100. C. White Leghorns \$1.00 per 100 and S. C. Buff Orpingtons \$1.25 per 100. Hatching Eggs carefully packed \$4 per 100. For further information write for our Chick Folder. **RUSSELL POULTRY RANCH, PETERSBURG, MICH.**

BARRED ROCKS Parks 200 Egg Strain with records to 290 eggs a year—\$1.50 per 15. Delivered. By Parcel post. **Fred Astling, Constantine, Mich.**

BARRED ROCK EGGS and Baby Chicks. Four pullets laid 950 eggs in 12 months. Average 237 eggs each. **W. C. Coffman, R. 3, Benton Harbor, Mich.**

BARRED ROCK EGGS for hatching of Bradley Bros. strain, \$1.50 per setting 15. \$3.50 per setting 50 eggs. **A. A. PATTULLO, R. 4, Deckerville Mich.**

BARRED ROCK EGGS Prize pen bred-to-lay, \$3.00-15. Choice Utility. \$1.00 per 15. **PINE KNOLL, Box 391, Shelby, Mich.**

Bred To Lay Barred P. Rocks, greatest laying strain in America, cockerels \$3.00 up, eggs \$1.50 and \$3.00 per setting. Write **JOHN NASBERG, Crystal Falls, Michigan.**

Cousins Northern King Strain Barred Plymouth Rocks. Have won many prizes. Eggs \$2. for 15. Both matings. Satisfaction guaranteed. **David W. Cousins, North Port, Mich.**

JOHN'S Big, beautiful, hen-hatched Barred Rocks. Eggs, \$3.00, \$2.50, 100, \$7.00. Select matings 15, \$4; 30, \$7.00, all postpaid. Photos. Circulars. **John Norton, Clare, Mich.**

DAY-OLD CHICKS

30,000 for 1916 from Standard Bred S. C. White Leghorns, \$9.00 per 100. \$85.00 per 1,000. S. C. Brown Leghorns \$9.00 per 100, \$85.00 per 1,000.

Our strains are heavy layers and are sure to please you. We guarantee their safe arrival. Catalog on request. **Wolverine Hatchery, Zeeland, Mich., Box 2221**

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Strong Day Old Chicks \$10 Per 100. S. C. W. Leghorns, \$10 each. Two white guinea hens \$1.50 each. **O. E. HAWLEY, Ludington, Mich.**

CHICKS 7c and up. Barred Rock, Wyandottes, Leghorns, Minorcas, etc. Safe delivery guaranteed. Circular free. **Reliable Hatchery, McAlisterville, Box 6 Pa.**

White Leghorn Chicks, 10 cents each. Vigorous, bred to lay stock. At a bargain. A few cock birds, 220-250 egg pedigree. **M. Maloney, R. 1, Kalamazoo, Mich.**

EGGS for hatching from pure bred White Plymouth Rocks and S. C. Buff Leghorns on free range. **Kietzlen & Webster, Bath, Mich.**

Eggs and Baby Chicks from pure bred R. and S. C. H. I. Reds. Two white guinea hens \$1.50 each. **O. E. HAWLEY, Ludington, Mich.**

Hatching Eggs Buff, Barred, Columbian, Partridge, Silver and White Rocks, Pekin and Rouen Ducks, Sheridan Poultry Yards, Sheridan, Mich. **Chicks** Ducklings

Eggs for hatching—From pure bred White Plymouth Rocks, Pekin and White runner ducks, White African guineas. **H. V. Hostetler, R. 1, St. Johns, Mich.**

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Fowler's Buff Rocks—Utility Eggs \$1.50 for 15, \$3.00 for 30; \$4.00 for 50; \$7.00 for 100. Pen \$4.00 for 15. Send for catalogue. **R. B. FOWLER, Hartford, Mich.**

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IMPROVE your poultry. My Young's strain S. C. White Leghorns great money makers. Vigorous, free range stock. Baby chicks \$8 per 100 and up. Satisfaction guaranteed. Free catalogue. **W. Van Appleton, Holland, Mich.**

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LILLIE Farmstead Poultry, B. P. Rocks; R. I. Reds; W. Leghorns. 15 eggs \$1; 25 eggs \$1.50; 50 eggs \$2.50. P. P. delivery free. **Colon C. Lillie, Coopersville, Mich.**

NO frosted combs with R. C. Brown Leghorns, Kulp strain. Winter layers. Select eggs 15, \$1; 50, \$2.50. **MAPLEWOOD FARM, Navarre, Ohio**

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Pine Crest S. C. White Orpingtons—Eggs \$5 and \$3 per 15; utility \$8 per 15; chicks 40 cents and 25 cents each. **MRS. WILLIS HOUGH, Pine Crest Farm, Royal Oak, Michigan.**

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BUFF LEGHORNS—Cockerels, hens, pens or eggs. Anything you wish in Buff Leghorns. Great laying strains. **Dr. William Smith, Petersburg, Mich.**

Ferris Leghorns—200 Egg Strain—Eggs, chicks, 8 week - old pullets from hens with records up to 264 eggs. Prize winners at largest shows. Prompt shipment, prices low, quality guaranteed. White Leghorns are best for eggs. We raise thousands. Free catalog and price list gives particulars. Write for it now. **FERRIS LEGHORN FARM, 934 Union, Grand Rapids, Mich.**

Heavy Winter Layers—Long, large bodied, S. C. W. Leghorns, Wyckoff strain. Eggs, \$1.00 per 15; \$3 per 50; \$5 per 100. **H. A. Magoon, R. 5, Ann Arbor, Mich.**

A FINE TIME TO BUY S. C. REDS Let us sell you a trio or pen of this year's breeding stock at half the price you pay at other times of the year. A good chance to start with well-bred stock. Hatching eggs 1/2 price after May 15th. Order chicks now. Remember this (Satisfaction or your money back.) **Babcock & Son, Battle Creek, Mich., R. D. 4.**

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ROSE and S. C. R. I. Red eggs by mail \$1.50 per 15 or 20c per egg from special pens; \$5 per 100. Hens for sale. **JENNIE BUELL, Ann Arbor, R. 8, Mich.**



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Rose Comb Brown Leghorns—Eggs \$1 per 15; \$4 per 50; \$7 per 100. Stock is from Philadelphia winners. **D. Elton Spotts, Hillsdale, Mich.**

S. C. B. Minorcas Cockerels and Pullets. Eggs, Pope strain. P. C. Bred Sows and fall pigs. Big type with quality. **R. W. Mills, Saline, Mich.**

S. C. WHITE LEGHORNS, bred for size, shape, vigor, egg production. 14 years' experience breeding Leghorns. Hatching eggs \$1.50 per 100. Baby Chicks \$10 per 100. **A. O. HOWARD, Tecumseh, Mich.**

Tom Barron S. C. W. Leghorns. Large, vigorous stock. Eggs \$5.00 per 100, \$1.25 per 15, post paid. No Chicks. **Bruce W. Brown, Mayville, Mich.**

Buff Wyandotte and Barred Rock Cockerels \$2.00 each, eggs for hatching \$1.00 per 15. **Mrs. R. W. BLACK, Caro, Michigan**

SILVER GOLDEN and WHITE WYANDOTTES. Eggs from all matings, 150 per 15, \$2.50 per 30 until July 1st. **C. W. Browning, R. 2, Portland, Mich.**

White Wyandotte Cock & Cockerels. Eggs \$1, \$2, \$3, per 15, \$4 per 50, \$7 per 100. **DAVID RAY, 202 Forest Ave., Ypsilanti, Michigan.**

WHITE WYANDOTTES. Eggs \$1.50 per 15, \$2.50 per 30, \$7.00 per 100. From choice stock. **A. FRANKLIN SMITH, Ann Arbor, Michigan.**

White Wyandotte Eggs Half Price balance of the season. **EGGADAY POULTRY RANCH, Marshall, Michigan.**

"PREMIER" PARTRIDGE WYANDOTTES 80% winter layers. Eggs \$2.00 per 15. **W. H. BACON, Petersburg, Mich.**

TURKEY EGGS.

From one large robust strain Mammoth Bronze \$3.00 for 10 or \$5.00 for 20. **A. H. Foster, Allegan, Mich.**

Controlling the Hen House

LICE are indirectly responsible for many poultry diseases. The healthy hen can fight away a lot of disease germs but the louse is one of the prime causes of dumpy hens and the devitalized hen easily succumbs to disease. It is a peculiar fact that lice seem to select the most unthrifty hen in the flock for their special breeding place. I should think that they would attack the healthy hens first but the thrifty fowl can be examined carefully and will be found to have a clean skin and no lice, while another hen on the same roost will be fairly swarming with vermin. The vermin-infested hen is usually the bird with a generally run down appearance. It is a question whether lice attack weak birds or the birds become weak from the attacks of the lice. I have a theory that the strong birds dust themselves more thoroughly and more frequently than birds lacking in vigor and for this reason few lice are seen on a strong healthy hen. It is a fact that lice multiply rapidly and for this reason the slightly weakened hen which picks up a few vermin is apt to be supporting a whole family of them in a short time. As the hen becomes weaker and neglects scratching and dusting, the lice become healthier from living on the hen's unhealthy skin and finally the lice win but have to seek a new home. Their boarding house keeper is dead.

Means of Controlling Lice.

At present there are many methods of keeping down the lice in the farm flocks, the home-made compounds are easily made and the commercial lice killers are not expensive. At first the battle is rather hard but when lice are once brought under control or practically eradicated, it is not so much work to keep the hens and the hen-house in good condition.

Lice breathe through fine pores on the sides of the body and for this reason any dust that will clog the pores kills the louse by suffocation. The healthy hen which wallows or bathes

have a strong odor of carbolic acid, which is offensive to lice and mites and the powder is fine enough to clog the breathing pores of the lice. A coffee can makes a good holder for lice powder. Punch the cover six or eight times with a shingle nail and that will allow enough of the powder to come through at one time. Too many holes will cause a serious wasting of the powder and even if it is cheap the time taken in making it is possibly worth considerable and the supply cannot be replenished frequently during the busy season in the summer when lice are the most dangerous.

The expense of using Persian insect powder may be reduced by mixing a quart of the powder to four quarts of fine road dust. This may be applied in the same manner as other powders. I do not like to saturate the feathers of white fowls with insect powders as it gives them a dirty appearance which lasts many days. For such birds I believe that the blue ointment treatment is the best method of killing lice. The standard formula for this mixture seems to be mercury, 50 parts; lard, 25 parts; suet, 23 parts, and oleate of mercury, two parts. The necessary portions can be purchased at the drug store and the mixture made at home or the prepared blue ointment can be purchased from poultry supply houses. At night the birds can be caught and each one rubbed under the vent with a small piece of the ointment. It is said that this will prevent attacks from lice during an entire season but probably two applications during the summer will be safer. When setting hens it is well to give them an application of the blue ointment as this will not only protect the mother hen but it will keep the little chicks free from vermin.

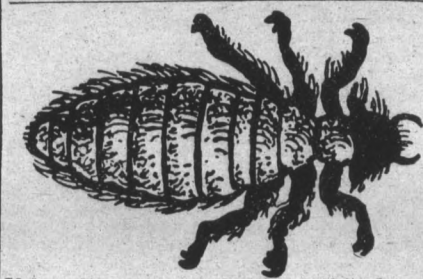
Provide Good Dusting Places.

It is best to make the hens co-operate with you in fighting lice and they can do this if you provide plenty of good dusting places. Good garden soil or road dust is the basis of the hen's dust bath but it can be made of more value by adding finely sifted wood ashes, dry slaked lime or flowers of sulphur. This mixture can be placed in a long shallow box in the hen house or a place in the house may be boarded off as a dusting place and this can always be well filled with clean dust with possibly one of the above additions such as wood ashes. During the winter it is next to impossible to obtain good dust for the baths and so a few barrels of dirt should be stored up in the fall for such use. It is not difficult to get plenty of fine wood ashes in the winter and there should be a place to store these until there is an opportunity to sift them. Hot ashes from the stove should never be dumped into the dust bath as small hot coals may be scratched from the ashes into the saraw, causing an unexpected fire.

There are several machines on the market for the killing of hen lice and the principle is simple. The birds are usually placed in some kind of a receptacle such as a revolving cylinder into which any insect powder can be sifted. A few turns of the cylinder and the bird is thoroughly saturated with the dust. These machines do their work fairly well and the temporary discomfort to the birds probably causes no injury. In fighting the louse it is well to remember that there is no mystery about which side will win. The poultryman has the remedies and it is only a case of using them. The louse is a helpless little bug in competition with dust and blue ointment.

Ingham Co.

R. G. KIRBY.



If hen lice were as large as this drawing they would be about half as dangerous. Then they would look as bad as they are and the poultry house keeper would rapidly eradicate them.

in road dust continually makes the lice fight hard for existence and such a hen will usually be free, or nearly free, from vermin. Most of the powders on the market have Persian insect powder, carbolic acid or tobacco dust as their base, as these products are very penetrating and much more effective than road dust in rapidly riding hens of lice. Fresh Persian insect powder is a very effective remedy and we have had much success in keeping hens clean by simply dusting them thoroughly with this powder. By going out to the coop at night with an assistant a hundred hens can be dusted in an hour. Hold the hen securely by the legs and allow the assistant to thoroughly shake the powder around the vent, under the wings and on the thighs an dwhile you hold the bird with one hand the powder may be thoroughly worked into the feathers with the other.

An Inexpensive Lice Powder.

An inexpensive powder about as Persian insect powder, can be made by pouring a mixture of four ounces of crude carbolic acid to a quart of gasoline over about three pounds of air-slaked lime. This should be thoroughly stirred in mixing and when the oil evaporates the remaining powder will

Feed sour milk or beef scrap to help build muscle, feathers, and bone. One per cent of bone meal should also be included in the ration.

Leg weakness results from lack of bone-making feed.

Farmers' Clubs

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."

CO-OPERATIVE ENTERPRISES OF FARMERS' CLUBS.

An example of what can be done by an energetic Farmers' Club is seen by what Minnesota's 900 Clubs are doing to improve, simplify and cheapen live stock shipping by small farmers. These Clubs have been the means of the farmers of this state forming hundreds of live stock shipping associations, which are little more than neighborhood agreements to ship together, but nevertheless they are co-operative institutions of unusual merit and power, for they get results. They solve the problem for small farmers of selling live stock to advantage. They are a substitute for the old local buyer system, and by this modern method of selling there has resulted an actual saving in necessary expenses amounting to \$40 or \$50 a carload—a saving which is entirely outside of any profits the local buyer might make. It is quite impossible for a local buyer to compete with a shipping association.

There are approximately 200 of these associations in Minnesota and many in Wisconsin, and not one of them has failed to get satisfactory results. During a recent trip to the former state I was much impressed with the prosperous appearance of farms whose owners had been members of one of these live stock shipping associations for a long time. Everything about the farms showed plainly that the owners were making money. The organization is exceedingly simple, as no capital stock is sold, for none is needed. It represents merely a mutual agreement by a group of farmers to ship their stock together, and by this means each farmer, regardless of the amount of stock handled, is enabled to ship to a central market at carload rates and get exactly what his stock brings, less the freight, yardage, commission, etc. A man sells one hog, one steer or one sheep to just as good advantage as he can sell a carload.

The most intelligent, far-seeing farmers of Minnesota believe that every hoof grown on Minnesota farms should be marketed by its owner. This can be done, and is being done in many places, through these shipping associations, and it is the hope of Minnesota farmers that every shipping point in the state will in a short time have such an association, and thus take a long step toward the improvement of live stock marketing. Great numbers of Farmers' Clubs have perfected these shipping associations, and practically every Farmers' Club in the state is investigating the subject.

The Minnesota Farmers' Clubs are wide-awake and active is shown by the fact that several hold annual Club fairs. Others are interested in starting co-operative creameries, in shipping coal, in exchanging local products for products that usually have to be imported; in establishing telephone lines, in cow-testing, and a great variety of other activities. But despite these activities of the past, everything shows that Minnesota Farmers' Clubs are preparing for a more energetic campaign of co-operation and concert of action than ever before.

One other phase of co-operation in Minnesota which has grown out of the get-together spirit fostered in the Farmers' Clubs is the farmers' elevators. One farmer out of every five in Minnesota belongs to a farmers' elevator company. One of these companies has a membership of 600, another a membership of 500, two of 400, and four of from 300 to 400. The business done by all the farmers' elevators of the state in 1913-14 was \$30,000,000. These elevators not only permit the marketing of farmers' wheat and other grain in bulk, but supplies of various kinds are also purchased in large quantities by the companies and sold to the farmer members at cost, or at low wholesale prices.

Illinois.

ISAAC MOTES.

Grange.

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

STATE GRANGE OFFICERS.

Master—John C. Ketcham, Hastings.
Overseer—C. H. Bramble, Tecumseh.
Lecturer—Dora H. Stockman, Lansing.
Secretary—Jennie Buell, Ann Arbor.
Treasurer—Frank Coward, Bronson.
Executive Committee—C. S. Bartlett, Pontiac; Geo. B. Horton, Fruit Ridge; J. W. Hutchins, Hanover; W. F. Taylor, Shelby; Wm. H. Welsh, Sault Ste. Marie; N. P. Hull, Dimondale; Burr Lincoln, Harbor Beach.

A WEEK AMONG THE GRANGES OF JACKSON COUNTY.

(Continued from last week.)

Springport Grange is one of the oldest in the state. However, many of the former members have either died or moved away, and now nearly all who attend are young people. Bro. E. O. Elmer, a graduate of M. A. C. who, fortunately for the community, has gone back to the farm, is the worthy master. They have a very competent lecturer, and programs at each meeting. The play spirit finds expression in basket ball, a game in which most of the members are interested to a considerable degree. A very promising lot of young people are in this Grange, and we hope that they will secure from it just the help they need to make life better worth while for each of them.

We held a good meeting with Minard Grange. This Grange, too, has a good lecturer, and good programs at the meetings are the rule.

Hanover is the home of Bro. J. W. Hutchins, chairman of the executive committee of the Michigan State Grange. The roads were very bad and our attendance there was small, but the spirit of the meeting was fine, and it was good to be in such an atmosphere. Hanover is also the home of Mrs. Clara Sullivan, who has in charge the juvenile work of the state. She is also worthy lecturer of Jackson Pomona.

The final meeting in this series was held at Pulaski. The Grange here is small but in it are a few members who are very determined. We gave them as much encouragement as we were able to, we had a good time together, and we hope that each member will be a committee of one to help make Pulaski Grange what it might be in the community in which it is situated.

Bro. E. O. Elmer has lately organized a new Grange in which have been enrolled some excellent people who believe in "Community Service" and are willing to do their part in it. There are still other points at which Granges might be gotten, and we believe Bro. Elmer will be equal to the occasion.

We can not close without saying a word about Jackson Pomona. This is one of the liveliest Pomona Granges in southern Michigan. The year book for 1916 is a model. It is the first attempt of the kind in the county and as such it is rather remarkable. The meetings are well advertised, the programs are good, and good speakers have been secured for the several meetings. But the best of the story is that Jackson Pomona has a definite ideal. It is becoming a moulder of public opinion in the county, and in its program is ever a kindly watch over the subordinate Granges.

Oceana Co. W. F. TAYLOR.

AMONG THE LIVE GRANGES.

Chester Grange has given up the idea of building and the present quarters have been rented for another year. After looking over the situation the Grange seemed to be unanimous in the opinion that it was pretty well off where it was.

Sears-Cross

Absolutely Accurate

Speedindicator

Mechanical Type

FOR FORD, CHEVROLET "490" AND SAXON "4 CYLINDER" CARS



Model F-15—is the same instrument that \$8 was used as standard equipment during 1915 by the Ford Motor Co. and is installed in exactly the same manner except that a new post is furnished which clamps around the new type steering arm of the 1916 Ford Car.



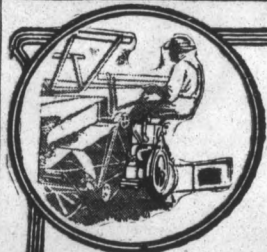
Model FF-16—New flush type for Fords. \$10 Fits on the windshield strip flush with the cowl dash where it can be easily read, and where a Speedometer should be. It is fast displacing all other types of Speedometers for Ford Cars. Furnished with a swivel drive for use on cars equipped with Shock Absorbers at an additional cost of \$2.00.



Model F. C. N. B.—For Chevrolet 490 \$12 and Saxon (4 cylinder) is a Flush Type Instrument to be installed in the Filler Board. Furnished complete including the latest improved type swivel drive.

For Sale by the Best Dealers Everywhere

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Why Lose money—

and grain when a "New-Way" All Purpose and Binder Engine will save it for you. This is a fact and not a supposition as

this engine has demonstrated its value in the great harvest fields of Kansas, and other grain growing centers—under wet, unfavorable conditions, as well as extremely dry and hot weather—and has made good!

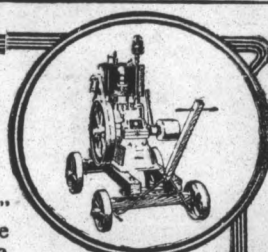
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whether on Grain or Corn Binders, or general farm work. Let us send you our *Big Free Golden Harvest Folder* containing valuable information which you cannot afford to be without. A postal card will bring it to you. Write for it today.

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THIS BUGGY \$36.50

Can't be duplicated elsewhere at the price. It's a wonderful buggy for the money and we ship it on

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Subject to your approval. It's another proof of Elkhart quality and the saving made by our factory to user plan.

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and read how 43 years experience has taught us how to give the most for the money in wearing quality, appearance and general satisfaction and by cutting out all unnecessary selling costs save you \$25 or more on each buggy. 175 Styles Buggies and 65 Styles Harness are illustrated and described. Don't buy without seeing our book. A postal brings it free. Better write today. **ELKHART CARRIAGE & HARNESS MFG. CO.** 714 Beardsley Ave., Elkhart, Ind.

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FARM GLOVES

Protect your hands now—why abuse them—canvases working gloves for every purpose—JUMBO brand—BIGGEST, best VALUE in farm gloves—extra durable—porous knit wrist, stoutly sewed. A BETTER GLOVE cannot be bought at any store. Direct from maker to you—PARCEL POST PREPAID—one dozen pairs—\$1.00. Get the best and SAVE MONEY. Satisfaction guaranteed or money back. Send NOW. **Union Glove Company,** 4 Glass Street, Marion, Ind.

Baird's Heave Remedy Is guaranteed. Works while animal works. Write **BAIRD MFG. CO.,** Box 627, Purcell, Okla., for particulars.

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Change of Copy or Cancellations must reach us
Ten Days before date of publication.

DISPERSAL SALE

Thoroughbred HOLSTEIN COWS

10 CHOICE FEMALES

Eight have A. R. O. records, one 26.79 lbs.

One daughter of King Segis, granddaughters of Hengerveld DeKol, all bred to our World record Sire Long Beach DeKol, Korndyke, \$100 to \$500.

Also 10 Choice Bulls, 5 ready for Service—all handsome fellows—all sons of Korndyke, prices \$75 to \$500. Stables over-run, come see them, don't write.

Long Beach Farm,
Gull Lake, (Kalamazoo) Mich.
Trolley Car from Battle Creek, Kalamazoo or Grand Rapids and boat to our dock.

CATTLE.

ABERDEEN-ANGUS

HERD ESTABLISHED IN 1900.
TROJAN-ERICAS and BLACKBIRDS only.
Also breeders of Percheron, Hackney and Saddle Horses.

WOODCOTE STOCK FARM, Ionia, Mich.

ABERDEEN ANGUS: We are offering 15 head of Choice young bulls, one two year old Trojan Erica at \$200.00 if taken in 6 weeks, 14 head from 8 to twenty months old including the first and second prize, Senior bull calves at the 1915 State Fair. Write for Particulars, and come to the farm to look over our stock over, they are of the Blackbird Trojan-ERICAS, and K. Pride Families only. U. L. CLARK, Hunters Creek, Mich. SIDNEY SMITH, Mgr.

FOR SALE—14 Angus bulls 9 months and older, including our herd bull. Also a few cows and heifers. Geo. Hathaway & Son, Ovid, 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.

VILLAGE FARMS, Incorporated

Grass Lake, Michigan,

GUERNSEY CATTLE
BERKSHIRE HOGS

BEACH FARM GUERNSEYS

Average yearly production 422.3 lbs. of fat, three-fourths of them making their records as two year olds. By the use of a pure bred sire, a big improvement can soon be attained if the right selection is made. The breeding of the Beach Farm Herd is as good as can be found, and we guarantee them to be free from contagious diseases and to be satisfactory in every way or money refunded. Write and let us tell you about them.

CAMPBELL & ANGEVINE,
Coldwater, Michigan.

Registered Guernsey Bull Calves for sale, May Rose breeding. Address Clint Bishop, Watervliet, Mich.

AVONDALE Guernsey bulls all sold. Sorry to disappoint those wishing our stock. Only registered bull calves left. Avondale Stock Farm, Wayne, Mich.

Guernsey Bulls of service age and calves from choice. Adv. reg. breeding. T. V. HICKS, Route 1, Battle Creek, Mich.

FOR SALE Reg. Guernsey bull calves, dams running in a, r, y, w. Cheap now, write. JOHN EBELS, HOLLAND, MICH. R. No. 10.

AT Farmers' Prices, Registered Guernsey Bull calves from A.R. dams and dams being tested. If interested write for photo, breeding and price. Byers & Barnes, Coldwater, Mich.

Guernseys—Bull calves sold, they were beauties, every one pleased, 3 cows to freshen this month, better write now for a good one. J. M. Williams, No. Adams, Mich.

GUERNSEYS

We offer a choice lot of high grade Guernsey cows and heifers, bred to registered bulls LaTette of Maple Lane, No. 2392 and Sir Dena No. 36173. Prices reasonable. THE JENNING'S FARMS, R. 1, Bailey, Mich.

For Sale Cheap: Guernsey Bulls of May Rose blood up 7 months of age. Write Meadow-Gold Guernsey Farm, St. Johns, Michigan.

Herefords—One Bull Calf.

ALLEN BROS. PAW PAW, MICH.

HOLSTEIN BULLS FOR SALE

Four of them from 12 to 17 months old by 31 lb. sire dam's A.R.O. Price \$100.00 to \$150.00. Younger bull calves from \$50.00 up. BLISSVELDT FARMS, Jenison, Michigan

Do You Want A Bull?

Ready For Service.

From a grand daughter of The King of the Pontiacs. Sired by a bull that is more than a half brother to the Champion Holstein Cow of the World, and whose dam is a 30 lb. 6% fat daughter of Pontiac Aggie Korndyke who has more 30 lb. daughters than any other living bull. If you do write for pedigree.

EDWIN S. LEWIS, Marshall, Mich.

LIVINGSTON COUNTY HOLSTEIN BREEDERS' SALE COMPANY

SECOND ANNUAL SALE OF

100 Head of Registered Holsteins

at the Sale Pavilion on the Fair Grounds at Howell Michigan
on Wednesday, May, 17, 1916, at 10:30 a.m.

This is not a lot of cull stuff. 75% of our offerings are under 4 years old and include 5 granddaughters of the \$50,000.00 bull, 6 of Colantha Johanna Lad and 2 of Pontiac Korndyke, 4 daughters of King of the Hengervelds, 10 from a 30 lb. bull and 11 from a grandson of Pontiac Korndyke.

Our reference sires are a superior lot and include a son of Mabel Segis Korndyke, 40.32 lbs at 4 yrs. old and sons of cows with records from 29 to 35 lbs., from well known sires. A fine chance to get good young foundation stock. Remember the date. Catalogs, May 7th.

F. J. Fishbeck, Sec'y., Howell, Michigan.
PERRY and MACK, Auctioneers.

Duroc Jersey Herd Boars

Special Offering of High Class Fall Boar Pigs. Breeding and Individuality good enough for breeders who appreciate the best.

Also some good farmer's boars. This is the best lot of fall pigs we have ever had to offer. A cordial invitation is extended to visit the farm and inspect the stock. If you wish one of the best young Jersey bulls in Michigan we have him for sale. For further particulars, address,

Brookwater Farm, Swine Dept., Ann Arbor, Mich.



Purebred Registered
**HOLSTEIN
CATTLE**

Holsteins, the best dual purpose breed.

As evidencing the enthusiasm with which members of the Holstein-Friesian Association apply themselves to the exploitation of the "Black and White" breed, it is only necessary to state that over 4,000 certified reports of official tests were received at the Advanced Registry Office during the month of April, 1915. The Holstein-Friesian Association distributes each year \$15,000 in prizes for milk and butter production. Begin with Holsteins if you do nothing more than to buy a purebred bull to use on your grades. Investigate the big "Black and White".

Send for FREE Illustrated Descriptive Booklets
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FOR SALE

SOME VERY FINE YOUNG BULLS
Whose sires have as high as 31 lbs. of butter behind them. As they are young, will make a low price on them. BIGELOW'S HOLSTEIN FARMS, BREEDSVILLE, MICH.

HOLSTEIN Bull Calf: Born Oct. 5. A splendid individual, well grown, and of choice breeding. Dam has A.R.O. record, butter 7 days 18.04 lbs. milk 419.8 as a 2yr. old. Sire Albina Bonte Butter Boy No. 93124. W. B. Reader, Howell, Mich.

HOLSTEIN-FRIESIAN CATTLE

Herd headed by grandson of King Segis Pontiac, and tuberculin tested annually. A few choice young bulls from dams having official records. PEACELAND STOCK FARM, Three Rivers, Mich. Chas. Peters, Herdsman. C. L. Brody, Owner, Port Huron, Mich.

For Sale: Big Holstein Bull 2 yr. old. Good breeding. Reg. bulls and heifers 10 mos. old. Ferd. J. Lange, Sebawing, Mich.

\$75 gets Hazel-let grandson of Maplecrest DeKol Parthenon and Pontiac Maid 30.2 lb. Born March 28. Traces to De Kol 2d 17 times. Dam Pontiac Hesperia 2d, a Pontiac Korndyke, Pontiac Cornucopia and Pontiac Burke combination. M. L. McLaughlin, Redford, Mich. J.

"TOPNOTCH" Holsteins

By careful retention, for many years, of largest producing females, and use of superior sires, a breeding herd of wonderful quality has been established. We are selling young bulls of this "TOP NOTCH" quality of serviceable age, at moderate prices. Information, pedigrees, etc., on application. McPHERSON FARMS CO., Howell, Michigan.

I Have Holstein Bulls, Bull Calves and Cows that I offer for sale. I can show breeding, records, individuality and attractive prices. L. E. CONNELL, Fayette, Ohio.

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

REG. Holstein-Friesian cows and heifers, some fresh and some ready to freshen \$125. Reg. bulls \$50 up. Frank Staffen, R. 3, Box 38, Howard City, Mich.

Holstein-Friesian Cattle.

HOBERT W. FAY, Mason, Michigan.

Reg. Holstein Bull, 5 mos. old. Dam made 546 lbs. milk. 18.46 lbs. butter 7 days. Nicely marked and well grown. E. R. Cornell, Howell, Mich.

Only \$40 Delivered: Handsome registered Holstein bull calf. Sire 25 lb. butter bull, Dam A. R. O. 17.62 lbs. butter. All papers. Rougemont Farms, Detroit, Mich.

WANTED

Six good men to buy pure bred HOLSTEIN BULL CALVES. Good notes on a year's time accepted in payment. GEO. D. CLARKE, VASSAR, MICH.

For Sale My entire herd of high grade Holstein Cows and Heifers. Also one Reg. 3-yr. old Percheron stud colt or will trade for Reg. Holstein cows. Arthur N. Birkholz, New Buffalo, Mich.

CHOICE HOLSTEIN BULLS—all from A.R.O. dams Entire herd on Semi of test for yearly work. Jr. 2-yr. old just finished year's record of over 15,000 lbs. milk over 1000 lbs. butter record in mature class. Cherry Creek Stock Farm, M.E. Parmelle, Prop., Hilliards, Mich.

FOR SALE Reg. Holstein females, Pontiac Korndyke and Hengerveld DeKol Breeding. Price right. 1 to 5 years. John A. Rinke, Warren, Mich.

EXCEPTIONAL OPPORTUNIT: For sale, half-dozen yearling, high-bred Registered Holstein heifers Beauties, \$125 to \$150 each. All papers. ROUGE MONT FARMS, Detroit, Mich.

Lillie Farmstead Jersey Cattle. Bull calves from R. of M. Cows, also heifer calves and several bred heifers for sale. Colon O. Lillie, Coopersville, Mich.

Hope Farm Jerseys FOR SALE—3 yearling bulls, 2 bull calves. GEORGE C. BORCK, Grand Haven, Mich.

Jersey Bulls for Sale from high-producing dams, with testing Asso. records, also on semi-official test. C. B. Wehner, R. 6, Allegan, Mich.

Registered JERSEY BULLS and Heifers, Duroc Jersey Boars and bred sows for sale. NOTTEN FARM, Grass Lake, Mich.

Grade Jersey Herd For Sale

FORTY COWS

The result of twenty years careful breeding and selection, are now offered for sale. Individual milk records have always been kept and are open for inspection. If interested write for particulars and if possible visit and examine the herd and their record. Delivery will be made at any time desired during the spring or early summer. A few registered Jerseys also for sale. Address Geo. A. True, Armada, Mich.

The Wildwood Jersey Herd Majesty Breeding herd now on R. of M. test. No females for sale. Choice young bulls for sale from Dams that are on test for Register of Merit. Write your wants or come and see them before buying. ALVIN BALDEN, Capac, Mich.

Hillside Farm Jerseys A 10 mos. old, solid color bull now offered for sale. Dam is a R. of M. cow with record of 546 lbs. of butter as a 3 yr. old. Is a fine individual. Price right. C. & O. Deake, Ypsilanti, Mich.

Maple Lane R. of M. JERSEY HERD offers for sale, and bull calves backed by several generations of R. of M. breeding. IRVIN FOX, Allegan, Michigan.

JERSEY BULL CALF FOR SALE
Ready for service, Majesty—Raleigh breeding. Meadowland Farm, Waterman & Waterman, Ann Arbor, Mich.

FOR SALE—Our herd bull, Jacoba's Fairy Emanon age 4 years, kind, quick and sure. Must be seen to be appreciated. Reason for selling, must change sires. Also two yearling bulls from him. SMITH-PARKER, R. D. No. 4, Howell, Michigan.

BIDWELL SHORTHORNS

For "Beef and Milk"
Registered bulls, Scotch-topped roans, red and white for sale. Farm at N.Y.C. Depot; also D. T. & I. R'y. Address G. R. Schrader Mgr. BIDWELL STOCK FARM Box B, Tecumseh, Mich.

Shorthorn Cattle of both Sex for Sale
W. W. KNAPP, Howell, Michigan.

DAIRY Bred Shorthorns of best Bates strains. No more females for sale at any price. J. B. Hummel, Mason, Michigan.

FOR SALE—12 Reg. Short Horn Bulls by Maxwellton John Schmidt, Reed City, R. No. 5, Michigan

Shorthorn Cattle. Five cows, Ten heifers. Five bull calves; also herd bull for sale. Write. Wm. J. Bell, Rose City, Mich.

Shorthorn Cows and Bulls For Sale
R. R. Station, Elsie. H. B. PETERS, Carland, Mich.

AND POLLED DURHAMS FOR SALE.
Have red roan and white. Have over 100 head in herd. C. Carlson, Leroy, Mich.

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

Two yr. red shorthorn Bulls. Roan Calf 9 mos. old. 1 Poll Angus Bull calf, 8 mos. old, not reg. Price to move quick. "HABE'S" Stock Farm, Mariette, Mich. R. 1.

2 Loads feeders and two load yearling steers. Also 2 can show you any number 1, 2 and 3 years old from 600 to 1200 lbs. Isaac Shanstun, Fairfield, Iowa. R-8

HOGS.

Royalton Bred Berkshires. 8 to 10 weeks old, both sexes, registered with papers \$8.00 each. Order quick. D. F. VALENTINE, Supt., Temperance, Michigan.

Berkshire Hogs. Sows bred to farrow in April. Best of breeding. Maple Place Farms C. S. BARTLETT, Prop., Pontiac, Michigan.

Berkshires of best breeding, of various ages, either sex, all registered stock, no akin, special reduced price. Write your wants quick. Mitchell's Lakeside Farms, R. 2, Bloomington, Mich.

Berkshires. Of various ages, either sex, open or bred, prolific strains. Registered, at moderate price. Elmhurst Stock Farm, Almont, Michigan.

SWIGARTDALE FARM

BREEDERS OF

HOLSTEINS AND BERKSHIRES
Stock for sale at all times, Berkshires of unsurpassed quality and breeding, at reasonable prices. A choice bull calf, nicely marked, five months old, sire's dam with record of over 27 pounds. Dam of calf a grand daughter of Hengerveld De Kol. Price \$50.00.

Swigartdale Farm, Petersburg, Mich.

Boars for Sale One yearling; two 10 mos; two 6 mos; first class specimens. J. H. BANGHART, East Lansing, Mich.

DUROC JERSEY BOARS a choice lot of spring boars Fall pigs, pairs and trios not akin. W. C. TAYLOR, Milan, Michigan

Duroc Jerseys—Fall and spring pigs either sex, from choice strains. S. O. STAHLMAN, OCHERRY LAWN FARM, Shepherd, Michigan.

DUROC JERSEY Bred sows and gilts all sold. Booking orders for spring pigs. E. D. Heydenberk, Wayland, Mich.

DUROC Jerseys—Fancy fall pigs (either sex). Buff Rock eggs \$1.25 per 15; S. C. W. Leghorn eggs \$1 per 15. John McNicoll, R. 4, Station A, Bay City, Mich.

Duroc Jersey—Sept. boars ready for service also open gilts and some sows bred for Aug. and Sept. E. H. MORRIS, MONROE, MICH.

DUROC JERSEYS—all sold out for the present. Wm. W. Kennedy, Grass Lake, Michigan.

DUROC JERSEYS—A few bred gilts for sale. Carey U. Edmonds, Hastings, Michigan.

Duroc Jerseys I have some good last September Boars and gilts. Gilts will be bred for September farrow. H. G. Keesler, R. No. 5, Cassopolis, Michigan

DOBSON'S DUROCS Combine size, quality, breeding. Boars for sale. Pigs at weaning time. Registered Jersey bull. Orlo L. Dobson, Quincy, Mich.

Heavy Boned Durocs For Sale, Bred Sows, Service Boars, and Spring Pigs. M. A. Bray, Okemos, (Ingham Co.) Mich.

Duroc Jersey Boars Ready for service. Big, smooth, lengthy fellows. Grand Champion blood lines. Gilts bred for Sept. farrow. F. J. DRODT, R. 1, Monroe, Michigan.



Raise Chester Whites

Like This

the original big producers

I HAVE started thousands of breeders on the road to success. I can help you. I want to place one hog from my great herd in every community where I am not already represented by these fine early developers—ready for market at six months old. Write for my plan—More Money from Hogs. G. S. BENJAMIN, R. E. D. 10 Portland, Michigan

Chester Whites Spring pigs from the best blood lines for sale. Pairs not akin. F. W. ALEXANDER, Vassar, Mich.

O. I. C. BRED GILTS, Also young boars shipped C. O. D. J. CARL JEWETT, Mason, Mich.



O. I. C. BRED GILTS, Also young boars shipped C. O. D. J. CARL JEWETT, Mason, Mich.

O. I. C. SPRING BOARS of good type and Red Polled bull calves. John Berner and Son, Grand Lodge, Mich.

O. I. C. Choice serviceable boars. Choice gilts all sold. Fall pigs, either sex, not akin. Write for low prices and description. A. V. HATT, Grass Lake, Mich.

O. I. C. Swine—A nice lot of spring pigs. Write your wants. Meadow View Stock Farm, Holland, Michigan. R. R. No. 5.

O. I. C. October boars weighing 200 lbs. at \$25 each for April shipment. C. J. THOMPSON, Rockford, Michigan.

Way Brothers Stock Farm. The home of the big bone O.I.C. Hogs. Stock for sale. Registered free. J. R. Way, Three Rivers, Mich.

O. I. C. Boars for service. Gilts bred for May and June farrow. June farrow, I prepay express. G. P. ANDREWS, Dansville, Mich.

O. I. C. Serviceable boars, gilts bred for June farrow. Booking orders for Spring pigs, no akin. H. W. MANN, Dansville, Michigan.

BIG TYPE O. I. C.'s and Chester Whites. Special B prices on all boars and fall pigs either sex. These are sired by Abo 2nd, this boar sired our unbeaten breeders young herd at every state fair we showed this year, other sires are Wonder Boy, White Hailan Allen, this boar was junior champion at Wis. State Fair last year. Now Mr. Buyer our pigs are all sired from champions, our price is no higher than other breeders and the Express Co. charges just the same for a poor pig as it does for a good one. Get our catalog and see where the good ones are. We are booking for Spring pigs sired by Sch oolmaster, the highest priced boar of the breed and five times G. Champion. We Reg. Free and ship C. O. D. Rolling View Stock Farms, Cass City, Mich.

O.I.C. Swine. I am booking orders for Spring pigs, Elmer E. Smith, Redford, Mich.

O. I. C. bred gilts all sold, am offering Sept. boars and gilts, large growthy ones, and booking orders for spring pigs. A. J. Barker, R. 1, Belmont, Mich.

O. I. C.'s. A few bred sows to farrow in April, May and June. I have 20 last fall boars to offer, also fall pigs price right. All good stock. Otto B. Schulze, Nashville, Mich. 1/2 mile west of depot.

O. I. C. SWINE I am offering choice gilts strictly O. I. C. type bred to farrow the forepart of May also fall pigs price right. Stock registered in purchaser's name free of charge. A. J. Gorden, R. 2, Dorr, Mich.

O. I. C SWINE, Oct. boars and gilts. 3 Registered Holstein Bulls sired by 27 lb. bull. Cloverleaf Stock Farm, Monroe, Mich. No. 1.

O. I. C.'s Some 2-year-old sows bred. Fall pigs, either sex. A. R. GRAHAM, Flint, Michigan.

O. I. C. Spring pigs, both sex, \$10.00 each at weaning time. Booking orders now. Recorded free. Satisfaction guaranteed. Julian P. Claxton, Flint, Mich. R. 8.

O. I. C.'s Strictly Big Type
Four last September boars, large enough for service, right good ones. One 1914 Sept. Sow raised Nine pigs last fall. Due to farrow May, 10th. Will sell cheap if taken soon.

NEWMAN'S STOCK FARM, Mariette, Mich., R. F. D. 1.

O. I. C. September pigs, sows all sold. E. B. MILETT, Fowlerville, Michigan.

Boars at Half Price
We still have a few big boned, big type Poland China boars ready for service, weighing up to 250 lbs. not fat at \$20 & \$25 each. Registered in buyer's name. Also registered black Percheron Stallion 2 years old \$250.00. J. C. BUTLER, Portland, Mich., Bell Phone.

Big Type Poland China Pairs and trio not akin out of large litters. G. W. HOLTON, Route 11, Kalamazoo Michigan.

Big Type Poland Chinas—Boars of August farrow, booking orders for spring pigs. A. A. WOOD & SON, Saline, Michigan.

Breeders' Directory—Continued on page 647.

Veterinary.

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

Contagious Abortion—Service Bull.—Would you advise me to use my thoroughbred bull on a neighbor's cow which we suspect of having aborted May, 1915? Also, how old should a bull be before he is used for service? J. B., Peck, Mich.—If the cow you refer to has not been properly treated, she might perhaps infect the bull; however, I would suggest that you treat your herd bull both before and after service when mated to cows that you suspect of being diseased. Contagious abortion is sometimes spread in the manner you mention. Bulls should be fit for service when they are from 12 to 18 months old.

Calf Has Poor Appetite.—I have a calf four weeks old that has a poor appetite for milk and is not thriving. R. H., Wayne, Mich.—Give your calf three tablespoonfuls of castor oil to clean out bowels, then give 15 drops of tincture gentian (comp.) and 20 drops of tincture cinchona compound and 15 grs. of bicarbonate soda three times a day.

Foot Lameness.—My twelve-year-old mare is lame in right fore leg and is inclined to point foot. A. S., Fremont, Mich.—Clip hair off coronet and apply one part powdered cantharides, six parts lard twice a month, or you can safely apply any of the blisters that are regularly advertised in this paper.

Diseased Tooth—Sidebone—Ringbone.—I have a ten-year-old mare that had an ulcerated tooth which our Vet. punched out through the side of her face and for a long time the wound refused to close; but since, she has an offensive discharge from nose. She also has sidebones and ringbone on one hind leg which makes it very difficult for her to move. G. N. H., Kalamazoo, Mich.—I do not believe that your mare will get well of either ailment; therefore, you will be money in pocket to have her destroyed; however, you had better get the opinion of your Vet. before doing away with her.

Heaves.—I have a work horse that has heaves, and would like to have you prescribe a remedy. F. D., Springport, Mich.—Feed no clover or dusty, musty, badly-cured fodder of any kind. Give 1 dr. fluid extract lobelia, 1 dr. ground nux vomica and 1/2 dr. fluid extract of belladonna at a dose in feed two or three times a day. It is perhaps needless for me to say that your stable should be kept clean and plenty of fresh air admitted; besides, the horse should be exercised every day.

Diseased Tail.—I have an eight-year-old horse that has lost the hair from his tail and mane every year for the past three years and he now has bare spots as large as a dime on different parts of his body. He never rubs or seems to itch and the other horses do not become infected. J. W. P., Eaton Rapids, Mich.—Give him 2 drs. of Donovan's solution at a dose in feed twice a day and apply one part coal tar disinfectant and 50 parts water, to sores once a day and occasionally paint bare patches with tincture iodine.

Chronic Cracked Heels—Worms.—I have a horse that has had scratches for a long time; his legs swell to twice their normal size and I imagine that his legs itch for he is inclined to rub them against posts or trees. I would also like to have you tell me what to give to a horse that is troubled with worms. F. B., Ensign, Mich.—Apply one part powdered sulphate copper and five parts vaseline to sore parts every day or two. Give him 2 drs. of Fowler's solution at a dose twice a day. Give 1 dr. of ground sulphate iron, 1 dr. ground nux vomica and 1 oz. of ground gentian at a dose in feed twice a day to the wormy horse.

Poll-evil.—My horse bumped top of head, causing it to swell on each side of neck back of ears and the treatment I have applied fails to effect a cure. A. DeW., Holland, Mich.—Apply equal parts tincture iodine and spirits of camphor once a day.

Sore Shoulders.—I have a four-year-old mare which I have been working lately that has a sore shoulder and is some lame. F. S., Davison, Mich.—Dissolve 1/4 lb. acetate of lead, 3 ozs. of sulphate of zinc, 2 ozs. of tannic acid in a gallon of water and apply to the shoulder three times a day.

Abortion.—My six-year-old Jersey cow lost her calf at the seven months period. The calf before this came too soon and she was bred some two weeks after she freshened. L. J. W., Milford, Mich.—Doubtless your cow suffers from contagious abortion and if she is the only one in your herd, segregate her or she may infect some of the other cows or heifers. If you treat her, dissolve 1 dr. permanganate of potash in three quarts of water and

flush out vagina every two days for 30 days and give her 2 drs. of methylene blue at a dose daily for one week, then discontinue treatment for a week, then give 10 more doses two or three days apart and at the end of 60 days you may breed her.

Cow Leaks Milk.—We have a cow that seems to lose her milk and we have been applying rubber bands to prevent her leaking milk. C. B. G., Evart, Mich.—Hard rubber teat plugs or rubber bands is the only practical appliance to prevent milk dripping out of udder when the bag fills. She should be milked three or four times a day.

Death Resulting from Castration.—Had a Vet. castrate a yearling bull about four o'clock in the afternoon and the bull died at six o'clock the following morning. What caused his death? O. M., Wooster, Mich.—The bull may perhaps have died from hemorrhage or shock; however, it is difficult for me to tell, not having seen the animal.

Lumpjaw.—Can you give me a cure for lumpjaw in a cow, for I have one that seems to be diseased and the bunch is now about twice the size of a hen egg. S. E. F., White Cloud, Mich.—Apply one part red iodide and 1/2 dr. of potassium iodide at a four parts lard to bunch once a week, dose twice a day for 15 days.

F. C. K., North Street, Mich.—From the description of your calf that died I am unable to make a correct diagnosis. You should secure the services of a competent Vet. and have him examine one after death. Doubtless you have clippings telling you what to do for scours in calves, for it has been repeatedly given in this column and other parts of the paper.

Goitre.—I have quite a number of lambs that seem to have a small egg-shaped bunch on each side of the windpipe which is small in some, but of considerable size in others. What treatment do you recommend? A. B., Reed City, Mich.—Apply tincture of iodine two or three times a week to bunches and they will gradually disappear.

Mare Disowns Her Colt—Raising an Orphan Colt.—I have a young mare that will not own her colt, and I would like to know if anything can be done to make her own it? If not, will you give me directions how to raise it by hand? J. O. B., Colon, Mich.—Certain mares will never own their colts and it is not possible to change the disposition of such a mare. Sometimes by punishing such a mare and watching her closely for two or three days, she will then take to colt. Another method is to confine them in a narrow stall or stocks so that colt can nurse from the side of stall; she might then allow the colt to suck. If you raise colts by hand, be sure and keep the feeding utensils clean, select a cow that has recently freshened and add some sugar and about one-quarter or one-third water to the milk. Also feed colt often for first two or three weeks.

Abortion.—My six-year-old mare foaled two months too early and I have been told that she will perhaps lose her next colt. A. B., Millman, Mich.—If you have no cases of contagious abortion on your farm her miscarriage was perhaps due to an accident; if so she will perhaps carry her next colt full gestation period.

Bunch on Thigh—Shy Breeder.—One of my colts has a bunch or growth on hind leg close up to flank, but it does not appear to produce any lameness, and appears to be movable and not deep. The end of it is some sore, then scabs over. I have a cow that bothered us in getting her with calf last year; had to breed her four different times. She now comes in heat about once a week and at other times runs the full period. W. D. V., Sutton's Bay, Mich.—The growth you refer to should be cut out and the leg will get well. Apply one part iodiform and four parts powdered charcoal to wound once a day. Your cow should be examined by a competent Vet., as she may have cystic ovarian trouble; if so he can put her in condition to breed.

Irritation of Urinary Organs—Wounded Udder.—I have a heifer calf four months old that makes quite a fuss in passing urine. I also have a heifer due to freshen the twelfth of this month that cut her leg on barbed wire. What had I better apply? L. J. J., Breedsville, Mich.—Give your heifer a teaspoonful of bicarbonate soda at a dose in feed three times a day and let her have some grass to eat. Dissolve 1 oz. permanganate of potash in three pints of clean water and apply to the wound twice a day.

Opacity of Cornea.—I have a yearling colt that is blind in one eye and now there is a white scum coming on the other eye. I have been applying burnt alum which appears to cut the scum away, but it is very painful. W. A., Whitehouse, Mich.—Dissolve 40 grains of borate of soda and 40 grains water and apply to eye twice a day. Burnt alum is a caustic and should not be applied to the eye.



The style of the sulky has changed, but the anatomy of the horse remains the same. Newton's has cured horses for 34 years.

Certainly, Heaves Can Be Cured!

The old, empty claim that heaves can't be cured has been smashed to pieces. We did that more than 34 years ago when Newton's Remedy first came on the market. Since then, horse owners, who never before realized the cause of this disease, have been stopping heaves, saving their horses and consequently their money with

NEWTON'S Heave, Cough, Distemper and Indigestion Cure

because it corrects and eliminates the cause—*indigestion*.

This veterinary prescription has gained the reputation of being the best general conditioner and expeller of stomach and intestinal worms that can be bought—not only for horses, but also for cattle and hogs. You'll find it a paying investment to have a can always on hand.

Our belief in this cure is so great that we guarantee three \$1.00 cans of Newton's to cure Heaves. If they fail, we will refund your money. **Newton's is death to heaves.**

Sold in powdered form in air-tight cans costing 50c and \$1.00. If your dealer hasn't any, we'll supply you by Parcel Post. Write for booklet that will give you some new pointers on horses.



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THE NEWTON REMEDY CO., 133 Ontario St., Toledo, Ohio

CATTLE

GUERNSEYS—REGISTERED BULL CALVES
Containing blood of world champions.
HICKS' GUERNSEY FARM, Saginaw, W. S., Mich.

HOGS

BIG TYPE P. C. BOARS with pedigree papers. Six weeks old. \$8.00 each. Satisfaction guaranteed. Dewey Blair, Manelona, Michigan, R. No. 3.

MY, OH MY!

What an Opportunity
Starting May 1st, we are going to give to the farmers and breeders an opportunity to get started right in the breeding industry. We are going to give you a chance to get hold of foundation stock that will give you a nucleus for one of the finest and best herds in your community. We are going to show you, as we have others, that you will have greater success with our big type

POLAND CHINAS

than with any other breed. Write for spring pig prices. Hillcrest Farm, Kalamazoo, Mich.

Large Strain P. C. A few choice fall boars ready for service, and 1 May boar. Gilts for early farrow all sold, a few choice Gilts to farrow in Aug. and Sept., bred to black Wonder and Oaklands Equal Jr. H. O. Swartz, Schoolcraft, Mich.

Large Type P. C. Gilts and sows, Bred for Mar. and Moines, Big Knox Jr. and Giant Defender. Bred to Big Knox Jr. Smooth Wonder 3 and Big Jumbo, four great sows in state. Come or write. W. E. Livingston, Farms, Mich.

For Sale Poland Chinas either sex, all ages. Something good at a low price. P. D. Long, R. F. D. No. 8, Grand Rapids, Mich.

Heavy Bred Poland Chinas, Fall and Summer Pigs. Sows Bred. Eggs from big Barred Rocks \$1.00 for 15. ROBERT NEVE, Pierson, Michigan.

REGISTERED Poland China Spring Boars and Sows at \$15 each. Making this special price to make room for others. A. G. Meade, Stanton, Mich., Colby's Ranch.

Large Type P. C. Sows and Gilts all sold. Have 3 extra good spring boars. Sired by Big Defender. W. J. HAGELBAW, Augusta, Michigan.

Large Yorkshire Swine all ages. Red Poll Bulls ready to use \$75 each. HOMER, MICHIGAN.

Large Yorkshires August and September pigs. 2 spring boars. Prices reasonable. W. C. COOK, Route No. 1, ADA, MICHIGAN.

GROWTH THE DISEASE PROFITABLE "MULEFOOT" RESISTING HOG

WE ARE NOW BOOKING ORDERS FOR SPRING PIGS
THE CAHILL FARMS
KALAMAZOO MICHIGAN

Yearling Hampshire Boars \$25.00 each for quick sale. registered. John W. Snyder, R. 4, St. Johns, Mich.

Hampshire Swine Bred Sows and gilts for August and September farrows. Spring pigs, both sex. FLOYD MYERS, R. No. 9, Decatur, Ind.

SHEEP.

Kope Kon Farms
SHROPSHIRE and DUROCS. KINDERHOOK, MICH

Oxford Down Sheep. Good yearling field Rams and ewes of all ages for sale. M. F. GANSLEY, Lennon, Michigan.

HORSES

Registered Percherons

Brood mares, fillies and young stallions priced to sell. Inspection invited. L. C. HUNT, Eaton Rapids, Michigan

Valuable Percheron Stallions & Mares

Must be Sold to Close Estate

A. A. PALMER ESTATE,
R. R. Orleans, Mich P. O. Belding, Mich

FOR SALE A matched pair of black reg. Percheron mares, 4 and 6 years old, with colts 2 weeks old by side, weight 3000 lbs., well broken and good to work. A bargain if taken soon. WILLIAM BIRD, St. Johns, Michigan.

Percherons, Holsteins, Angus, Shropshires, Durocs
DORR D. BUELL, Elmira, Michigan.

Grey Registered Percheron Stallion sold. Have the best one yet. \$400 takes him. T. H. LOVE, R. 3, Howell, Michigan.

FOR SALE—Registered Percheron Stallion Mare and Fillies at reasonable prices. Inspection invited. F. L. KING & SON, Charlotte, Mich.

FOR SALE: Percheron Stud Colt, 11 months old. Duroc pigs, Feb. farrowed, either sex. E. J. ALDRICH, Tekonsha, Cal., Co., Mich., Bell Phone.

Shetland ponies for sale. 3 black and 2 spotted two-year-old mares, 1 black and 1 spotted 2-year-old gelding, 1 black yearling. Mark B. Curdy, R. 6, Howell, Mich.

A RAZOR SNAP

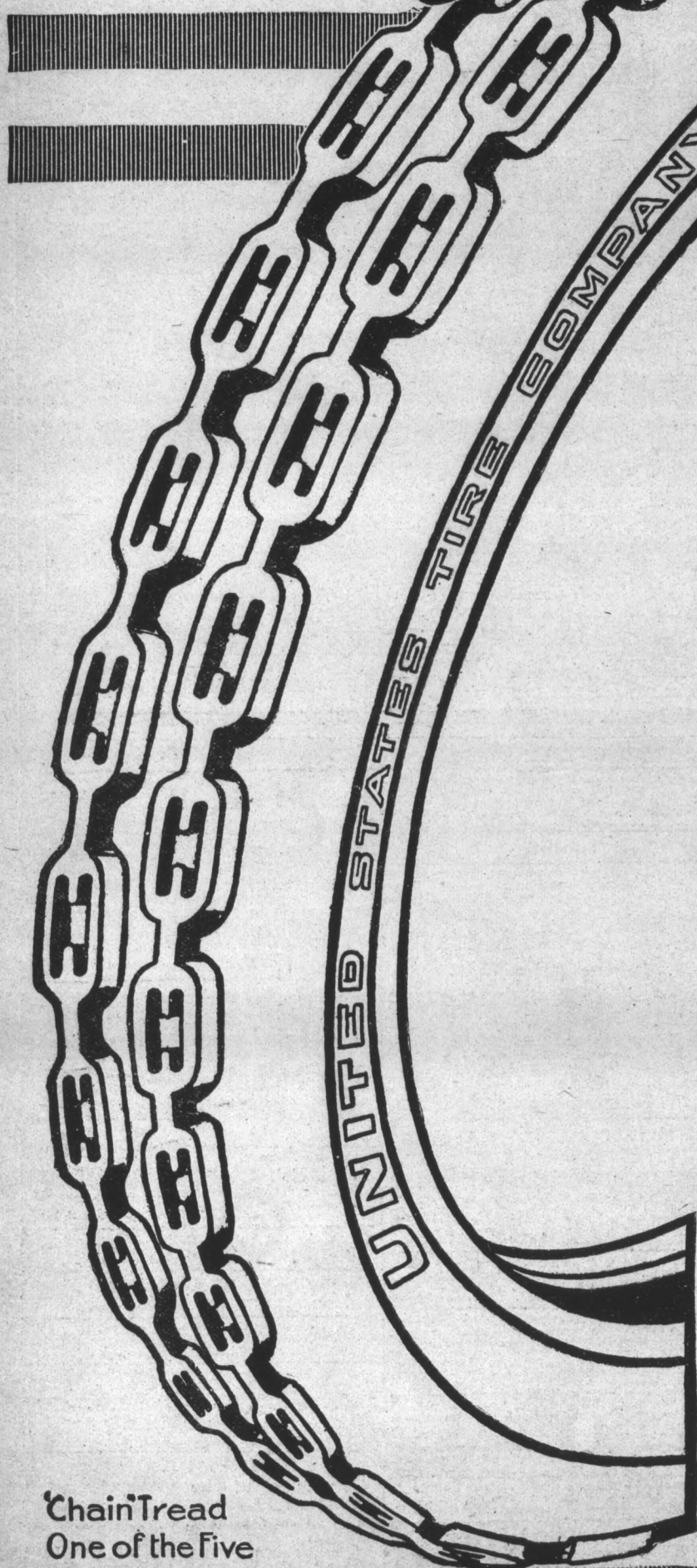
A new lot of fine quality Imported Razors at 50 cents while the supply lasts, is now offered by the Michigan Farmer.

The razors are made of the best cutlery steel, five-eighth-inch blade, and black handle. We will not say just what these razors ordinarily retail at, as prices on razors vary with each dealer, but we have seen razors no better sold at \$1.25 and \$1.50.

Every man who shaves ought to have at least three razors as it is a proven fact that giving a razor a rest is beneficial to it, and here is your opportunity to get a supply at very little cost.

So, only while our present supply lasts the price is 50 cents each, post-paid, or a half-dozen at \$2.00, post-paid. Address all orders to the Michigan Farmer, Detroit, Mich.

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'Chain' Tread
One of the Five

'Union' and 'Balance' Make Stable Tires

United States Tires in more than name only, carry out the principle of 'union' and 'balance' which makes a great stable nation out of the forty-eight individual States of the Union.

United States Tires have that complete 'union' between rubber and fabric which absolutely prevents tread separation and disintegration under the tread.

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Every part of each tire helps every other part to last longer—and that is the 'union' and 'balance' which give the whole tire longer life—which give the low-mileage cost for which United States Tires are famous.

There are five United States 'Balanced' Tires—a tire to meet every motoring need of price and use. Ask your dealer to show you.

United States Tire Company

'Nobby' 'Chain' 'Usco' 'Royal Cord' 'Plain'
"INDIVIDUALIZED TIRES"

