

MICHIGAN FARMER

AND
LIVE STOCK
PUBLISHED WEEKLY.

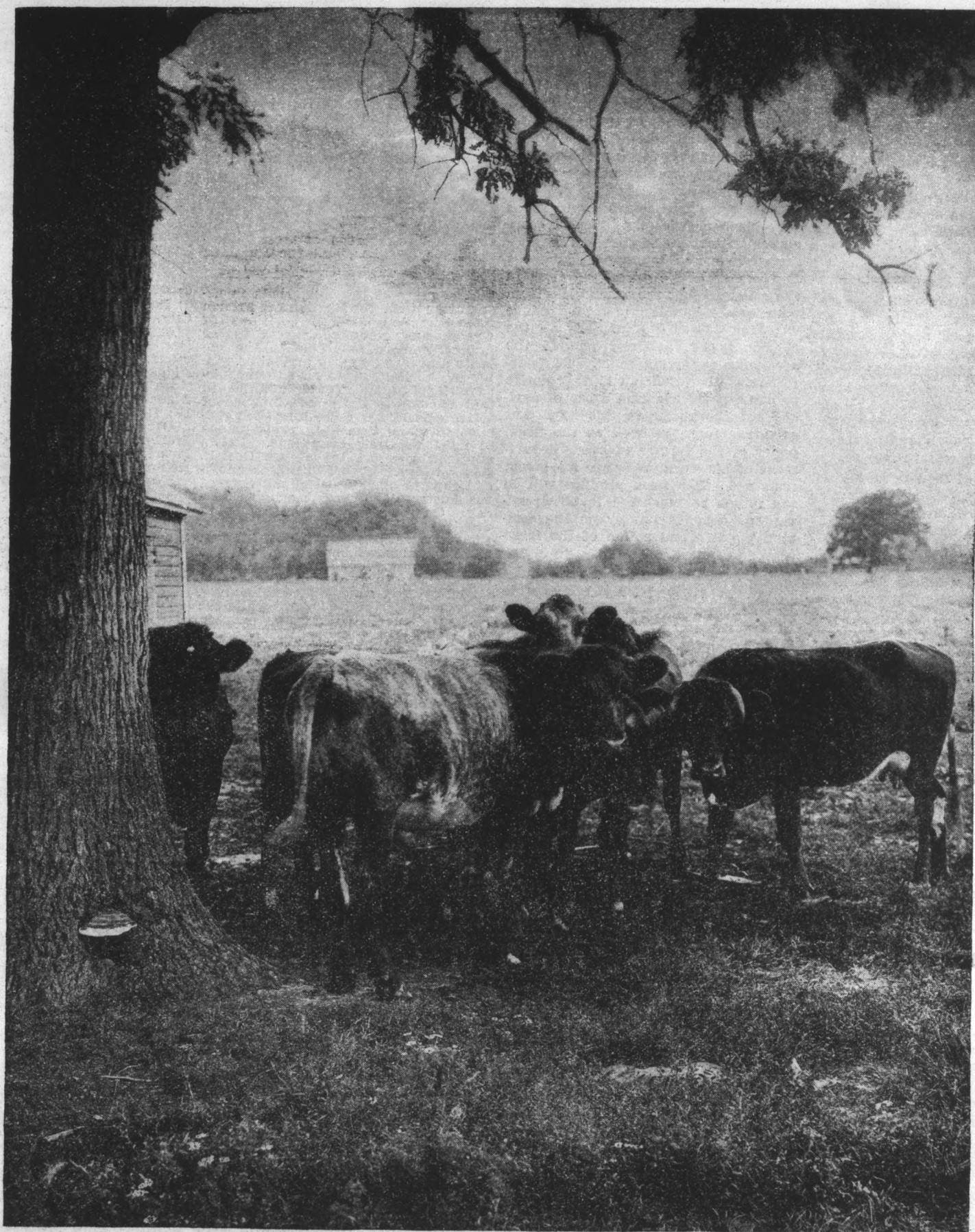
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(SEE PAGE 518).

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DETROIT, DEC. 4, 1915

A GOOD INVESTMENT.

The first question any business man would ask when offered an opportunity to make an investment in a promising enterprise would pertain to its safety, and the next question to the percentage of profit which the investment would return. Quite often safe investments are overlooked in the desire to secure large profits from the funds invested; quite as frequently small investments which would yield exceptional profits are neglected and a source of possible profit is thus lost. An investment does not necessarily signify the purchase of stocks or bonds or merchandise or lands or other saleable commodities. Many of the small expenditures, such as the purchase of necessary equipment, etc., may properly be considered as investments by the progressive farmer.

The supplying of reading matter for the farm home comes in this class of investments, and there is perhaps no investment which can be made on the farm which will pay as large returns for the capital invested as will the reading matter pertaining directly to the farm business, if properly selected. First in the list of this reading matter should be your own trade paper. The Michigan Farmer is essentially the trade paper for Michigan farmers, and aside from practical matter pertaining to general agriculture and almost every department of specialized farming, it offers in benefits made available to every subscriber additional returns on his investment which will add materially to his profit.

With reliable market information published weekly, free veterinary advice, service in the way of legal advice at a nominal fee so small as to make it practically free, free testing of milk or cream, free analysis of soil to determine its lime requirements, personal service in the way of answering any question pertaining to farm practice by some authority competent to handle same, etc., in addition to seasonable technical matter relating to all departments of the farm, and additional and entertaining reading for every member of the home, there can be no question that it will prove a good investment to subscribe for one, three or five years, as may be desired, thus making the paper itself cost less than one cent per week for one year, and only a little more than half that amount for five years.

Plans have been made for a special discussion of several important topics, as noted on Page 519, during the coming year. These are topics which will interest every Michigan farmer and to which he can most profitably have his

attention directed. A small investment in your trade paper will this year pay a high cash return as well as a perhaps better appreciated return of satisfaction to every member of the family.

CURRENT COMMENT.

The Marketing Problem. At a recent meeting the State Board of Agriculture formally appointed Mr. James N. McBride, M. A. C. field agent in marketing, as Director of Markets under the law passed by the last Legislature establishing that office. The benefit which may accrue to the farmers of the state from the establishment of such an office will depend very largely upon the farmers themselves. Such an officer can undoubtedly aid very materially in correcting well known practices and customs which are unjust to producers, and in the publication of the results of investigations which bring to light other practices which are adverse to the interests of producers but which are beyond his authority or power to correct.

For several years the Michigan Farmer has been devoting special attention to the marketing problem, and during the succeeding year will devote a large amount of space to the discussion of this vexed problem. One of the most important phases of this problem is undoubtedly that of distribution in such a manner as to reach the consumer with the greatest economy. An investigation of the marketing problem by a municipal committee in the city of New York resulted in the estimate that the annual loss from unnecessary handling of farm produce exceeded \$60,000,000 annually to the consumers of that city and to the producers supplying them. The publishers of the Michigan Farmer desire to make it the clearing-house of agricultural thought upon this important economic topic, as well as the trade paper of the farmer in every department of his work. Whether live stock, fruit and other farm produce will in the future be marketed to better advantage depends largely on the common purpose and action of the farmers of the state.

This problem has been partially solved in many Michigan communities and new ideas are being applied to its attempted solution in others. We shall be glad to publish all feasible plans to this end and report the success or failure of those which have been tried in many Michigan communities.

The season for Farmers' Meetings. farmers' meetings which opened this week with the meeting of the State and National Potato Associations at Grand Rapids, will continue with almost weekly gatherings of farmers organized in some capacity from now until midwinter. These meetings will include the State Horticultural Meeting, the annual convention of the State Association of Farmers' Clubs, the meeting of the State Grange, the Live Stock meeting at the college, and various other events of considerable general interest.

Too often these farmers' gatherings are attended by only a few enthusiastic members or interested delegates. A general attendance of each and every one of these meetings would mean much to those who attend, and not a little to all the people of the communities in which they live. An effort will be made to present in these columns something of the best features which are presented at the several sessions. Such a report cannot, however, at best prove the source of inspiration which attendance of the meetings themselves would do.

There will also be the farmers' in-

stitutes, the local meetings of farmers' social organizations, and in some places the lecture courses and one week agricultural schools which offer opportunities for increasing the knowledge and broadening the viewpoint of all who attend them with that object in view. Too often the younger farmers who are just establishing themselves in business feel that they cannot give the time to attend farmers' meetings of this kind. Farm boys, too, quite often are asked to stay at home and do the chores while their fathers attend such meetings as are held in the adjacent town. The young men are the ones who will get the greatest benefit from meetings of this kind. It is in the hope of promoting a larger attendance of young men at meetings of this character that the reader's attention is directed to the subject.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—Announcement is made from Berlin that the campaign in Serbia is finished. The way has been cleared for the free passage of troops and munitions from the central powers through Bulgaria to Constantinople. The northern Serbian army has been either driven back into Albania and Montenegro or captured—late last week 101,000 were taken prisoners by the Teutons. On the other hand, the Bulgarians who have accomplished their objective in the capture of Macedonia dissent from further campaigns looking toward the capture of Monastir. The Allies have also improved their positions by increasing their forces and consolidating their trenches, and the Russians are massing large armies on the Roumanian frontier for a drive across that country at the Bulgarians in co-operation with the English and French from the south. The positions of Greece and Roumania seem to be gradually more favorable to the entente allies. The early arrival of winter in the Balkans is also to the disadvantage of the Teutonic allies in that it compels the discontinuance of active operations and allows their enemies to make necessary preparations to meet the new conditions. Italy's unrelenting effort to capture Gorizia seems to have been fruitful, as unofficial reports state the Italians entered the Austrian city from the north Sunday. On the Gallipoli peninsula only artillery actions and mining operations are in progress. The Russian front remains unchanged and on the west comparatively little is being accomplished. The Germans occupied an excavation caused by exploding a mine north of the Labyrinth while the French dispersed a strong German force near Berry-au-Bac.

The Canadian government has seized all the No. 1, 2 and 3 northern wheat in the public elevators at Fort William and Port Arthur and in eastern terminals. War conditions necessitated the move and it is probable that further commandeering of grain supplies will follow.

The Japanese government protests against China's allying herself with England, France and Russia, as being inimical to the interests of Tokio.

Russian surgeons report the successful grafting of the nerves of young pigs into the human body.

Reports are persistent of food shortage in Germany and Austria. This constitutes the chief ray of hope for the enemies of the central powers.

National.

Henry Ford, the automobile manufacturer, has chartered a ship to carry peace advocates from this and other countries to the Hague for a convention looking toward an early ending of the present European war.

Women suffragists will appeal to Congress for the privilege of addressing that body on the question of universal suffrage from the floor of the house.

The Ann Arbor Railway is trying to prove the two-cent passenger fair law confiscatory in a trial now under way at Grand Rapids before the federal court.

The conditions imposed by the new federal seaman's law are alleged to have forced car ferries crossing Lake Michigan to discontinue the carrying of passengers.

A special federal census of Highland Park shows an increase in population of 559 per cent since 1910. The present number of people within the incorporation is 27,155.

The campaign instituted and conducted under the direction of the Michigan State Board of Health against tuberculosis, is meeting with hearty co-operation in the localities where the work is going on.

Hon. Luke Lea present Senator from Tennessee, was defeated for re-nomination to that office by the Democratic party of his state. A second primary, however, will be necessary to decide between McKellar, a present Congressman, and Patterson, a former governor, neither of whom received a majority of the votes cast.

The new municipal pier at Chicago is nearly completed. The gigantic structure is more than 3,000 feet long and 292 feet in width. It is expected that the pier will stimulate Lake Michigan shipping.

Two things impress upon business men the fact that an era of industrial expansion is being entered upon by this country; the demand for steel has grown so enormously that steel plants are being found altogether inadequate in capacity to meet the orders for steel products, and our railroads which are second to agriculture in the scale of economic importance, are making record-breaking earnings. We have also had two years of unprecedented crop abundance, together with high values prevailing for most farm products.

MICHIGAN FARMERS' INSTITUTES.

The following farmers' institutes have been announced by Supt. Taft, to be held during the succeeding week. The balance of the December list will be published in the next issue:

County Institutes.—Ogemaw, West Branch, Dec. 7-8; Roscommon, Roscommon, Dec. 8-9; Montmorency, Atlanta, Dec. 9-10; Crawford, Grayling, Dec. 10-11.

One-day Institutes.—Midland county, Averill, Dec. 6; Homer, Dec. 7; Hope, Dec. 8; Coleman, Dec. 9.

Kalamazoo county, Oshkemo, Dec. 6; Galesburg, Dec. 7-8; Richland, Dec. 9; Ross township, Dec. 10; Kalamazoo City, Dec. 11.

Emmet county, Harbor Springs, Dec. 6; Stuttsmanville, Dec. 7; Readmond, Dec. 8; East Bliss, Dec. 9; Alanson, Dec. 10; Epsilon, Dec. 11.

Isabella county, Shepherd, Dec. 6-7; Blanchard, Dec. 8-9; Weldman, Dec. 10; Brinton, Dec. 11.

Osceola county, Dighton, Dec. 6; Marion, Dec. 7; Avondale, Dec. 8; Evart, Dec. 9; Reed City, Dec. 10; Ashton, Dec. 11.

Montmorency county, Lewiston, Dec. 7; Big Rock, Dec. 8; Atlanta, Dec. 9-10.

Wexford county, Hoxeyville, Dec. 7; Boon, Dec. 8; Harietta, Dec. 9; Me-sick, Dec. 10; Buckley, Dec. 11.

Missaukee county, Shippy, Dec. 10; Morey, Dec. 11.

ANNUAL MEETING OF STATE HORTICULTURISTS.

The forty-fifth annual meeting of the State Horticultural Society will be held in Grand Rapids, December 7-8-9, in the Coliseum.

This is to be a banner meeting. The society was born in Grand Rapids in 1870 and it is planned to make this meeting a real holiday event for the fruit growers and their friends attending. The officers of the society have left nothing undone to make this a fine meeting. The Coliseum will be filled with a display of horticultural accessories, and many innovations are in store for those who attend.

No fruit grower who expects to stay in the business and be up-to-date can afford to miss the meeting.

OHIO AND MICHIGAN FARM EXPOSITION.

One of the largest indoor agricultural expositions ever staged in the country has just opened in Toledo, Ohio. It is called the Ohio and Michigan Land Products, Live Stock and Power Farm Machinery Exposition, a name which reveals its broad scope as an agricultural show. The terminal building, where the exposition is being held is one of the largest halls in the country, and every available foot of space in the spacious building was reserved weeks ago by the exhibitors. The exposition opened December 1 and continues until December 12. A large Michigan attendance is expected at the show.

The Children Enjoy Them.

I want to tell you how much my little children enjoy your Land o' Nod Stories. They are eager to have me read to them anything that brings them closer to a knowledge of animal life.—Mrs. Wm. H. Ruesink, Adrian.

Read Our Proposition on Page 518—Turn to it Now!

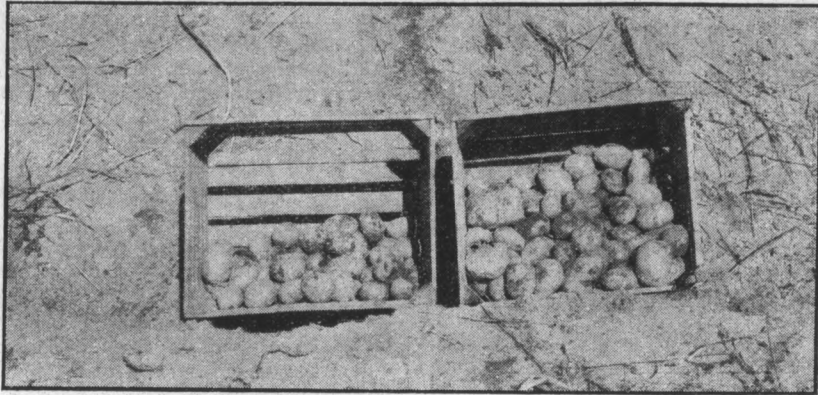
Controlling Potato Blight

ONE of the questions which will be asked very frequently at the farmers' institutes and other farmers' meetings this winter is, "how can we control the late blight on potatoes?" The serious inroads which this disease made on most of the potato fields in this and other states the past season has caused the growers to "sit on the anxious seat." They wonder whether it is likely to occur again next year. If so, they are anxious to know how to prevent it.

Whether or not it will prove a serious disease in Michigan another season depends very largely upon the weather conditions. According to records compiled by the Ohio Experiment Station, late blight on potatoes has proven serious only during years when there has been an excessive amount of rain and cool weather during the growing season for the pota-

ing of potatoes such as inferior seed, poor cultivation and unproductive soils which cannot be overcome in the slightest degree by the use of spray materials. The potato grower who looks after all of the factors having to do with yields, except spraying, is losing an opportunity to make a good investment if he does not make provision for and make use of spraying as a means of insuring his crop against potato blight.

Spraying with Bordeaux has proven profitable on potatoes in other states. Probably the most convincing evidence of this is given in the reports of the Geneva, New York, Experiment Station. In bulletin 379, the results of ten years' tests at the Geneva station show an average increase of 97½ bushels per acre annually. In the farmers' business experiment conducted by the Geneva New York Station,



Product of Ten Hills Each from Unsprayed and Sprayed Rows.

to. The fact that this disease was so common over so wide an area in 1915 will in all probability enhance the chance of its development over the same area in 1916, providing weather conditions are favorable for such a development. That some of the spores will remain alive over winter on the roots or stems of the potato plants or on the potatoes left in the field seems very probable. It will be the safest policy to follow for growers who lost heavily through the ravages of the blight this year to take precautions to prevent a similar attack another season.

Only One Means of Preventing Blight.

There is only one means of preventing the disease which has given quite

which has run nine years and which covers 1,500 acres, the average annual net gain per acre was \$14.43.

Some Michigan Results.

Some very striking results were secured in Michigan last season. Mr. J. C. Redpath, near Kalamazoo, sprayed his large field five times. He left a strip through the center unsprayed. Cut No. 2 is a picture taken of this field. He dug and measured the potatoes from the sprayed rows and unsprayed rows separately. The total yield of the sprayed rows was at the rate of 260 bushels per acre and of the unsprayed 130 bushels per acre. There was probably about 125 per cent more marketable potatoes in the sprayed than in the unsprayed rows.



Potato Field of J. C. Redpath, of Kalamazoo Co., Showing Unsprayed Rows in Center Attacked by Blight.

general satisfaction. That is timely and thorough spraying with Bordeaux. During such a rainy season as the past, it is not surprising that some disappointments have resulted in the use of Bordeaux on potatoes. Spraying will not overcome unfavorable soil conditions. In some sections of the state, where heavy soils predominate, no amount of spraying would have insured a good crop of potatoes on fields which were in need of underdrains. There are other limiting factors in connection with the grow-

Mr. W. T. Bingham, of Schoolcraft, sprayed his large field five times but left a strip unsprayed. The writer was present when 20 feet of row, 10 hills each, of the sprayed and unsprayed were dug and weighed. The total weight from the 10 hills sprayed was 25 pounds, 23 of which were marketable. The total weight from the 10 unsprayed hills was 11½ pounds, of which eight were marketable. Figure 1 shows these potatoes, the sprayed in one crate and the unsprayed in the other.

There are some important things to keep in mind when spraying potatoes for blight. Bordeaux is a preventive and not a cure. The spraying must be done ahead of the attack of the disease to be effective. The leaves must be covered with spray material all of the time, or as nearly so as possible. To do this the spray material should be applied in the form of a mist and should be so forced into the vines that no considerable amount of leaf or stem surface will not be covered. A spraying outfit which will insure a pressure of from 160 to 200

pounds will be more satisfactory than one which gives less pressure.

The Bordeaux must be carefully mixed. The lime and vitriol (copper sulphate) should not be put together until both are diluted. This will insure a stable mixture while the mixing of the materials before they are diluted will cause the material to coagulate and settle quickly. The Geneva results were secured from 6:50 Bordeaux. In this state the 5:5:50 formula is most commonly used.

C. W. WAID,

Sec. Mich. State Potato Assn.

Practical Game Protection

NOW that the hunting season is on full blast we find that we are required to pay \$1.00 for a license to hunt birds and rabbits. Now there are very few farmer boys who do not hunt small game a few days at least.

We don't begrudge the money, but the question naturally presents itself, what are we paying for? Are we paying for actual game protection, or are we giving this money just to make good fellows of ourselves? About all we are able to find out is, that we must dig up the dollar.

For the last ten years, game regulations have been steadily increasing and becoming more strict, and game wardens multiplied, and meanwhile game has steadily become more and more scarce, until now an almost universal tax is put upon us for the protection of game. Will this tax increase the game, or stop the steady decrease? Our past experience tells us, not in the least.

The trouble is that the remedy is not applied at the right place. In the northern counties of this state, there are at least five times as many partridges and rabbits destroyed by owls, hawks and foxes, as are killed by hunters. I am not guessing at this, but know it to be a fact from actual observation and experience.

I have lived all my life in the woods, and being naturally observant I have learned perhaps more than most people having the same opportunity. The snowshoe or "Jack" rabbits raise two to three litters of from three to five young each, in a summer, and I believe that the cottontail rabbit breeds

of the amount of game destroyed by these pests, let us observe what they eat and how much. First we will investigate the hawks. The large hen hawk will devour about four birds the size of a robin in a day. Of these I think I am safe in saying that one is a young partridge. Then the smaller prairie hawk will get away with about half that much.

Next let us investigate the long-eared or "Hoot" owl. They hunt all night and consequently have an advantage over the swift-winged partridge as they get him from his roost, and they are great rabbit eaters, too. An owl will devour a full grown rabbit every two days, or a half-grown one every night, and since they winter here they destroy great quantities of game.

In the summer time Mr. Owl lies in wait near grass patches or old roads where the young rabbits play, and when they come out he pounces down on one and makes his meal on the spot. But in winter he pursues quite different tactics, for now he has full-grown rabbits to capture. He takes up his vigil on a log or limb directly over the runway and when the rabbit comes along he drops upon him and sinks his powerful talons deep into the back of his victim. The rabbit sometimes drags him some distance until the owl grasps a limb or bush with one foot while he holds the rabbit with the other and dispatches him. He eats the head off first, and usually down to the middle, and then hides the remainder until the next night, when he returns and finishes his prey.

I have secured a rabbit by one foot and left him over night, and when I returned the next day I found the hind quarters, and the following morning found that he had returned and taken the rest of the rabbit. I have done this repeatedly and always with the same result. I have caught a great many owls in traps in this manner.

The fox feeds mostly on gophers and mice during the summer, but in the winter he lives on partridges and rabbits. Foxes hunt rabbits in pairs; one chases the rabbit while the other lies in wait for the prey. But their method of hunting partridges is very interesting and shows their sagacity. On cold nights when there is six or eight inches of soft snow, the partridge dives under the snow for a distance of two or three feet and spends the night there. The fox knows this and, aided by his keen scent, he locates his prey, creeps up to within six or eight feet of his victim, and a single leap carries him to his supper. He then turns in for the night. In all my experience I have never known a fox to take more than one partridge in the same night. A fox devours about two partridges a week and about the same number of rabbits.

Having found the main cause of game destruction, the remedy naturally suggests itself. Let us destroy these pests. If the money we are paying for license was paid in bounties on these game destroyers they would soon be wiped out, as the wild cats have been. Wildcats have not been exterminated, but they have been kill-

about as fast. About two-thirds of this increase is destroyed by owls and hawks during the summer, about one-sixth is taken by hunters in the fall and the other sixth is killed by foxes and owls during the winter.

The average partridge hatches two broods of 15 each during the summer, and they go about the same as the rabbits do.

In the summer there are swarms of hawks which go south with the small birds in the fall, but they "make hay" while they are here. To get an idea

ed off until they are no longer a menace to small game.

If a bounty of \$2.00 was paid on owls, \$1.00 on hen hawks and 50 cents on the smaller hawks, they would soon be thinned out and the license fund would far more than foot the bill. I do not believe a bounty on fox necessary, because his fur is valuable and he is hunted pretty close now.

Conditions are different in the southern part of the state but that should make no difference, because

the boys from the southern counties come up here hunting every fall, and they should be interested.

As for deer protection, there is just one sensible way, and that is to prohibit the killing of does and spike-horn bucks.

Let everyone who reads this article write his members of the Legislature along these lines and let us see if we can't get something in the way of practical protection for our money.

Otsego Co. G. F. DeLAMATER.

The Tramp Nuisance

IN these days of scarcity of help on the farms, the tramp nuisance assumes double prominence. Farmers in the writer's locality have been unable to obtain help, this season, at any price, particularly during the busiest times. During one of these rush periods when crops were going to waste because labor could not be bought, a "hobo" camp near the writer's home, swarmed with young, able-bodied men. These men were not looking for a job; they were seeking, rather, a way to avoid working for any wage whatsoever. They scoured the neighborhood asking for hand-outs, and assembled at the camp to make coffee and lounge in the sun. If, perchance, one of them was caught unawares by some worried farmer in dire need of help, he proved absolutely worthless as a laborer, and if he did not quit in an hour or two of his own accord, his employer was forced to pay him for his time and send him on his way. In some of the older countries of the world, the tramp problem has actually become a menace to society, and in the light of the facts, it would seem to be assuming something of the same aspect here.

In dealing with the tramp evil, all classes of honest, self-respecting citizens are concerned. The farmer, however, comes in for a big share of responsibility in alleviating the situation. The problem has to do directly with the labor question on the farms. Could the army of men who are idle from choice be converted into an army of workers, the farm labor problem would not be so perplexing. But, someone asks, how can the farmer make an honest laborer out of a professional hobo?

Let us, in the beginning, state a few wholesome truths. It is a crime to feed any man who is able to work and who will not do so. To give the professional tramp a meal is to encourage idleness and dishonesty. The man who will not work is a parasite on respectable society, living from the hard-earned means of the self-respecting toilers. To feed or clothe these wilful vagrants is misdirected charity. Every person who feeds an able-bodied tramp, encourages him just that much in his life of shiftless idleness. It is obviously unfair to give to the strong who are wilfully idle, while thousands who are willing to work and can not, are destitute of the common necessities of life.

With these fundamental facts in mind, let us come to the farmer's duty in the matter. Towns are infested with tramps, but in large measure, they seek the local lock-up for shelter and food. In the farming districts, they must rely altogether on the tender-hearted individual. For a variety of false notions, farmers feed these worthless idlers. Some feed them because they feel, in their isolated position, that it would not be good policy to do otherwise. In other words, they stand in fear of these vagrants, and dislike to offend them in any way, fearing that their buildings or other property may suffer in consequence. Others feed the tramps out of a false and misdirected philanthropy; and still others, out of a false sentimentality which can not bear to see anyone go hungry. A few even feed these

Weary Willies with the erroneous notion that it is their religious duty. First and foremost, then, the farmer can help solve the tramp problem by refusing absolutely to help any of these vagrants, except for value received. The neighborhood which will adopt this rule, and adhere to it, will not long be troubled with tramps.

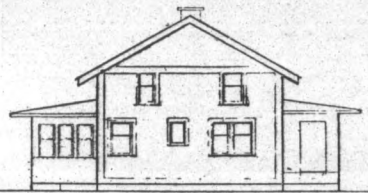
In the second place, all farmers' organizations can take up the problem and lend their influence in the making of laws adequate to deal with the evil. Now and then a village or a city attempts alone, to solve the tramp nuisance within its own jurisdiction. But the problem is state-wide, nationwide. Pass a law in Michigan which would put to work at hard labor, every professional tramp, and within a month, Michigan would be rid of the tramp nuisance. Delaware has no vagrants. Before the eyes of every wilfully idle man looms the terrible whipping post, and Delaware's tramps, if she ever had any, have fled in terror to other states. But the whipping post while it is effectual, is not necessary. Put the tramp to work on our highways. They are much in need of repair and permanent improvement. Make him earn an honest living, everywhere. When the man who will not work can not eat, the tramp nuisance will become a thing of the past.

In concluding this article, we arrive at the point from which we started—namely, the farm labor problem. When every able-bodied tramp is compelled to work or starve, the farmer will not find help so scarce. Even enforced habits grow and become permanent. The strong young loafer who is forced into service on our streets and roads, will in time, become self-supporting and self-respecting. He will prefer to strike out for himself and abandon the odious position of enforced labor. The farms will get their share of the workers, and by solving the tramp problem, the farm labor problem will become less perplexing.

Hillsdale Co. J. A. KAISER.

A SIMPLE BUT MODERN HOUSE PLAN.

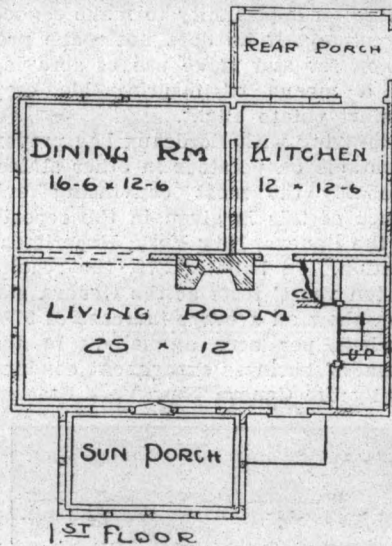
Simplicity is the standard upon which this two-story seven-room house was built. Its pleasing proportions and its general style give this 30x26 house a touch of genuine beauty. It is a massive looking structure that



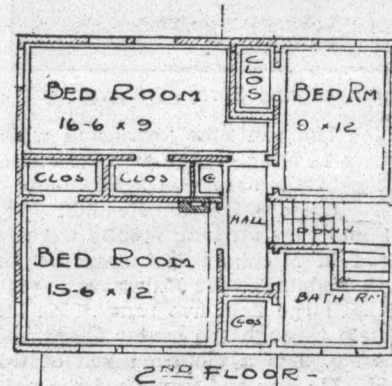
will fill the wants of many in farm home building. The farmer's home can not be covered here and there with freak gables and dormers. To begin with, they are too expensive for the average farmer and in the second place they are not wanted in the farm home. The city home that stands on a narrow lot and has many tall houses as neighbors makes a good showing, but to take this same house into the country and out in the open it would look like a lonely pine tree that had been left to stand alone after all the other trees of the forest had been cut

down. Here is a plain, four-cornered structure with lots of good usable room but little wasted room.

With the stairway in the corner of the house one has perhaps the most economical arrangement of rooms for most conditions. It gives one a landing on the second floor directly in the center and opening into all rooms so



that the second floor hall space is cut down to a minimum. Everyone likes a long living room with a fireplace in it like the one that is worked out in this plan. The open hearth fire is ever a source of cheer. The wide and spacious hall in the center of the



house bids one a good home-like welcome as he enters from the wide front porch. The second floor bedrooms are all square and each is equipped with a closet of the standard size.

W. E. F.

LILLIE FARMSTEAD NOTES.

It is simply marvelous the effect of rain on clay soil. Last Thursday night, November 18, we had a heavy rain, about one and a half inches of water falling. The ground was very dry, having had no rain to speak of since the middle of October, and then only a modest shower. The ground was so dry and hard you could hardly plow clay land. Some farmers gave up plowing. You could hardly keep the plow in the ground and the horses could scarcely draw it, (three good horses). By Saturday the water had all been absorbed by the dry earth and the clay plowed mellow and nice. One could scarcely believe the transformation made by the rain. But when clay land gets too wet it is as bad as when too dry. I don't think a man should attempt to farm a very large clay farm. Conditions are so uncertain that the tillage can not be done on time. Sandy or loamy soil is not so much affected by too little or too much moisture and one can till a much larger area. Clay land is naturally good fertile land but you will earn every dollar you get from it.

It has been a splendid fall for pasturing stubble fields on clay soil. The ground has been so dry the cattle did not injure it by tramping. Some falls it will not do at all to pasture it. Stock will tramp it and injure the physical condition so much that one better let all the crop residue go to waste than to attempt to pasture it.

I presume some farmers think I am wrong in my idea of having only permanent pasture. Many think pasture should come in a rotation. This sort of a rotation can be practiced on sandy or loamy soil, but some years it would not do at all on clay land. A clover sod is not firm enough to prevent cattle from injuring the land by tramping if the season is wet. And during most every season there are times during the pasturing season when it is too wet to pasture clover fields. The physical condition of the soil would be so much injured that it would take two or three seasons to get it back in good conditions again. While a light sand might be benefited by the tramping, a heavy clay would be almost ruined. Clay soil must not be worked or tramped when too wet, and it is almost impossible to work it when too dry. If you understand it and only work it when in proper condition it will respond fairly well. The proper period of tillage is always more limited than with loamy or sandy soil, hence the area one can farm is much lessened. The only way to overcome this handicap is to have plenty of horse or traction power and when conditions are right rush the work as much as possible. Clay soil is more apt to be in proper condition for tillage for longer periods in the fall than in the spring, and that makes fall plowing of more importance on a clay farm than on a sandy or loamy farm.

The ground is frozen for the first time this year, (November 22). It looks as if winter is near, and if wheat makes no more growth this fall it is seemingly in poor condition for winter. It does not look good to me. Of course, I have seen it go into winter in even worse condition than this and come out all right, but it was a very mild, favorable winter. Perhaps history will be repeated. But winter wheat should have a better fall growth than it has in this section at the present writing.

COLON C. LILLIE.

WISCONSIN'S POTATO CONGRESS.

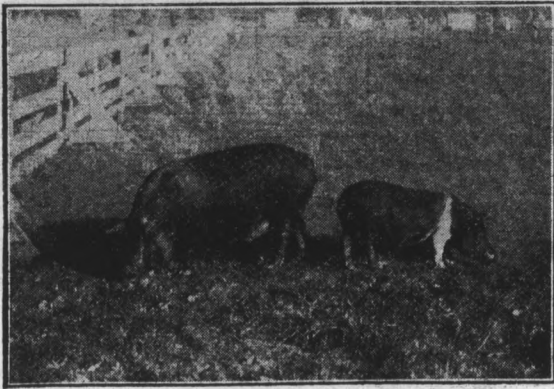
Wisconsin's annual potato show was held at Marinette, November 17-19, and drew an attendance of fully 400 people to that city. There were upwards of 200 individual exhibits and 14 county exhibits of potatoes, and the tubers were of high quality. There were educational displays of diseased tubers, also a large exhibit of potato machinery. In the balcony of the building Miss Nellie McKenzie Jones, of Auburndale, Wis., with the aid of two gas ranges, demonstrated 25 different methods of preparing potatoes fit for kings to eat, and free lunches were furnished.

Prominent speakers on the program from outside the state included Carl Schurz Vrooman, assistant secretary of agriculture, Washington, D. C., E. S. Brigham, commissioner of agriculture, Vermont, and C. L. Fitch, of Ames, Iowa.

Officers of the Wisconsin Potato Growers' Association for the coming year were elected as follows: President, J. W. Hicks, Prentice; vice-president, C. Woodward, Weyauwega; secretary and treasurer, Prof. J. G. Moore, Madison. Judges of the tubers exhibited were C. W. Waid, of Michigan, E. C. Brown, of Minnesota, and E. S. Brigham, of Vermont. In the displays made by counties, Oneida won first prize, with a marking of 93½ points. One of the features of the meeting was a forty-mile trip through Marinette county's best potato country, including the great Stark farm in Porterfield.

Kent Co. ALMOND GRIFFEN.

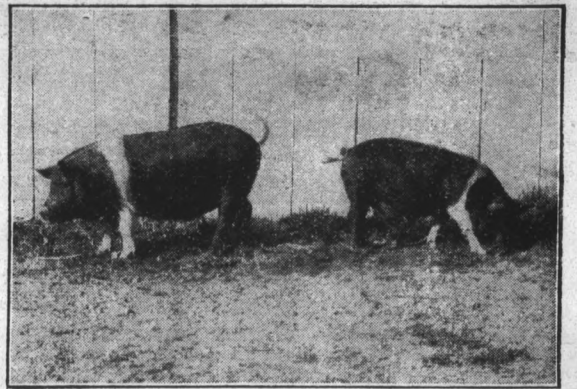
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Left, Self-fed on Alfalfa, Weighing 185 lbs.; at Right, 1 Per Cent Corn Ration on Alfalfa.

Feeders' Problems

In answering a question on pig feeding use is made of data secured from the big swine feeding demonstrations recently conducted at the Iowa Station, in which four hundred pigs were fed in fifty-seven different ways, and with results which will prove a surprise to many veteran hog feeders of the state.



Left, Corn, Tankage, Middlings, Self-fed on Alfalfa; Right, Corn Products on Alfalfa.

The Free-Choice System of Swine Feeding.

Will you kindly tell me what is the best and cheapest balanced ration for fall pigs where one does not have milk enough? Can get ground wheat at \$1.75 per cwt., and have the oats and corn to get ground; flaxseed meal at 6c a lb; oil meal at 2½c a lb., and calf meal at 3½c a lb., also cottonseed meal. If calf meal will take the place of milk with calves would it not do as well with pigs? What do you think of automatic feeders and let a hog balanced his own ration in northern Michigan in winter? Will they stall themselves when first tried?

Bay Co.

A. M. G.

Owing to the nature of the questions propounded in this inquiry, it has seemed advisable to answer the last question first as indicated by this heading. Some very interesting experiments have recently been conducted at the Iowa Experiment Station relating to what is called the free-choice system of hog feeding, both on forage crops in summer and in the dry lot in winter.

In this free-choice system so-called, both hand feeding and self-feeding were practiced, using different feeds which collectively would make up a balanced ration, and permitting the hogs to select for themselves such of these feeds as their appetites dictated. In practically every case where these different systems were tried out on a competitive basis with hogs fed on supposedly balanced rations according to the three accepted and most used feeding standards, the free-choice self-fed hogs made the cheapest gains and gave the largest profits.

By way of demonstrating the possibilities of the free-choice self-fed system for fall pigs—which are necessarily a dry lot rather than a forage fed proposition—seven groups of 78-day old 42-lb. weanling pigs were used in competitive experiments. They were dry lot fed on shelled corn, wheat middlings and 60 per cent protein tankage. The trial continued nearly three and a half months, or until the pigs were about a week less than six months of age.

Under the free-choice self-fed plan, these three feeds were simply put in different compartments of a self-feeder giving the pigs their choice as to what was consumed. The results showed for the free-choice self-fed lot of pigs a cost for 100 lbs. of gain of \$5.90, compared with \$6.07 for free-choice hand-fed three times per day pigs, \$6.35 for free-choice hand-fed twice per day pigs, \$6.35 for pigs fed a balanced ration according to the Dietrich standard, \$6.03 for pigs fed a balanced ration according to the Kellner standard, and \$6.42 for pigs fed

according to the Wolff-Lehmann standard.

The prices charged for the feeds were: Shelled corn 70c; wheat middlings \$1.45 and tankage \$2.50. With hogs selling at \$7 per hundred pounds and feeds charged at the above rates, the profit per pig on the free-choice, self-fed lot was \$1.25 as compared with 77 cents the highest profit shown by pigs fed a balanced ration according to an accepted standard, the larger profit being due to a greater gain in the self-fed pigs.

Corroboration of the value of the free-choice self-fed system is found in similar experiments conducted at the Iowa station where pigs were fed a supplementary ration on pasture, where in every case the free-choice

weanling pigs where neither skim-milk nor buttermilk is available. In the series of hog feeding experiments conducted at the Iowa station to which reference is above made, it was found that a little milk works wonders in pig feeding at this stage of the pig's development.

Where weanling pigs were fed on a ration composed of corn, wheat middlings and tankage, the pigs ate under the self-fed free-choice plan 299.9 lbs. of corn, 53.5 lbs. of wheat middlings, and 54.6 lbs. of tankage which would represent fairly accurately the proportions of these feeds which are required by pigs of that age, the tankage fed being 60 per cent protein.

Where pigs were similarly fed on the same feeds with the exception

that the addition of other feeds such as oil meal, which compares closely with buttermilk in its content of protein, might better the showing of the pigs receiving no milk. Cottonseed meal is detrimental to hogs, even when fed in small quantities and should not be used as a pig feed.

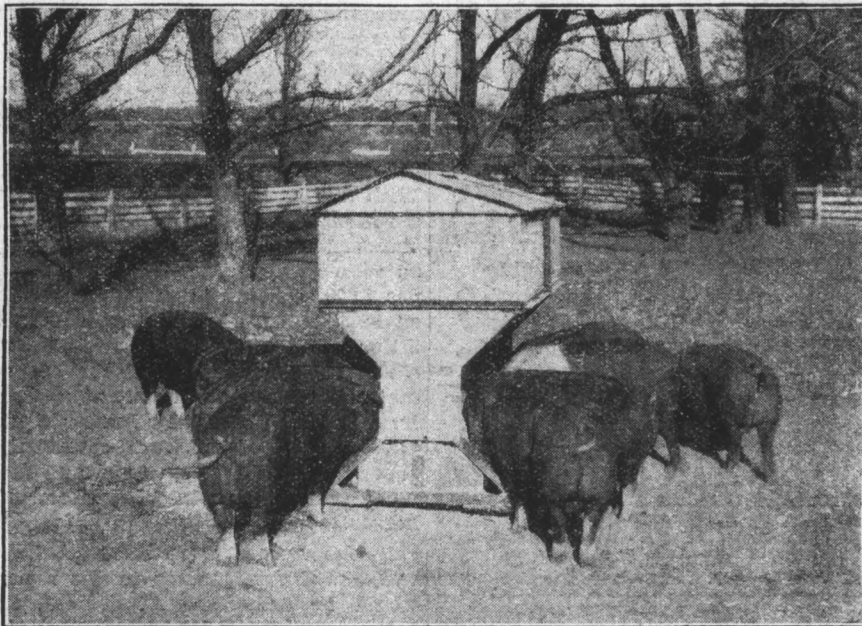
With experimental data lacking with regard to possibilities along this line, individual experimentation would be interesting and perhaps profitable. There is, however, no question about the value of buttermilk or skim-milk in the ration for the small pig, the experiments above referred to showing that buttermilk had a value of 45.5c per hundred pounds when fed in the combination above noted.

Other Important Results of Iowa Experiment.

In the Iowa feeding experiments above referred to, 400 pigs were fed in 57 different ways, bringing out prominently many facts relating to pig feeding which Michigan Farmer readers may well ponder carefully. One result of these experiments appears to be the disproving of the popular opinion that hogs will pay a better profit on forage, particularly clover or alfalfa pasture, where fed but a limited grain ration. Curiously enough, aside from disproving this fallacy, this series of experiments indicates that the hog which receives a maximum grain ration on alfalfa or other suitable forage will actually eat more of the forage than the one fed a limited grain ration. This seemingly impossible result is due to the fact that the hog grows so much more rapidly that his capacity for feeds is far greater when fed on the maximum grain ration. While good pasture reduces the cost of pork production very materially, the reduction is greatest when the pigs are continually fed a liberal or maximum grain ration.

Another point brought out by this series of experiments is the apparent fact that corn products alone, even though supplying a practically balanced ration on alfalfa or other pasture, will not produce the results which will be secured from the addition of other protein feeds to the ration so that the pigs may have a greater variety of feeds from which to balance their own ration where the free-choice plan of feeding is used.

The results of these feeding trials as shown in the finished animals, several photographs of which are here reproduced, are most convincing and should prove of great value to the farmers of the entire country, since the plan of feeding which gave the uniformly best results is one which



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self-fed lots made the most economical gain secured by any method tried in the experiments. This seems to settle the fact that the pig's appetite is a sufficiently good guide as to feed requirements, provided feeds are given which will afford a balanced ration and the pig has attained an age when such feeds are most suitable to its use.

This combination of corn, middlings and tankage is undoubtedly an excellent one, although it might be varied somewhat to provide greater variety in the ration and possibly to cheapen its cost when one of these feeds was excessively high in price.

Ration for Weanling Pigs.

Unfortunately we have no data at hand regarding the efficiency of different mixtures of protein feeds or prepared feeds such as calf meal for

that they were given a little less than one quart of buttermilk per pig once daily, practically the same amount of corn but considerably less protein feeds were consumed, the consumption of grain being as follows: Shelled corn 299.7 lbs; wheat middlings 37 lbs; tankage 36 lbs., which amount of grain, together with 155.8 lbs. of buttermilk were required to produce 100 lbs. of gain. Estimating the buttermilk at a value of 25 cents per cwt., the cost of 100 lbs. of gain where buttermilk was used in the ration was \$5.58; where none was used it was \$5.90.

The results secured with feeding skim-milk were practically the same as those with buttermilk, the two feeds being closely comparable as to feeding value for pigs. It is possible



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will prove a saving of time and labor upon any farm, which, together with the better results which may be secured as demonstrated by the Iowa trials, make this method of hog feeding one which should be given a fair trial upon every farm where hog production is made any considerable factor in the farm program.

Winter Ration for Idle Horses.

Will someone kindly give me the amount of hay and grain, in pounds, to feed to a farm team that is idle most of the time? We have mixed hay, clover and timothy, corn and oats.

Oakland Co.

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The question of feeding idle horses is one of no small importance to every farmer, since the cost of wintering horses during the season when they are not engaged at productive work is a considerable item which good farm management requires to be reduced to the lowest point conformable to the maintenance of the horses in a condition which will insure their maximum efficiency at the beginning of next season's farming campaign.

This subject has been made the question of considerable study at many experiment stations, and upon the work of these experiment stations has been based a modification of the so-called Wolff-Lehmann feeding standards under which the nutrients required by idle horses per 1,000 pounds live weight are given as follows: Dry matter 13 to 18 lbs; digestible crude protein 0.8 to 1 lb; total digestible nutrients 7 to 9 lbs; nutritive ratio of ration 1:8.9.

Figured according to this standard, a ration compounded from the feeds given above would be improved by the addition of a small amount of a protein concentrate such as oil meal. With this ingredient added to the list, a ration which could conform to this standard might properly be made up as follows, the amounts given being per 1,000 pounds of live weight: Mixed hay 12 lbs; corn and oats ground 5 lbs; oil meal ½ lb. This would give a ration aggregating 15.5 lbs. of dry matter with a protein content approximating one pound and having a nutritive ratio of 1:8.6. Theoretically, then, this would be an ideal and economic ration for wintering idle work horses.

If the horses were used at light work, a slight increase in the ration would be desirable. If desired, its volume might be added to by the addition of a little coarse forage, such as bright straw or corn stover. The ration would, of course, be somewhat cheapened by eliminating the oil meal, but this would be done at the expense of maximum economy in maintaining the horses in good condition, since the oil meal has an undoubted catalytic value in addition to its content of nutrients; in other words, it has a beneficial effect upon the general digestive and assimilative processes which enables the animal to appropriate a larger percentage of the available nutrients in the ration.

Of course, feeding standards are only relative and the individuality of the animals being fed will be found a constantly varying factor, as will the quality of feeds, and with horses these factors and the kind of work demanded from them will all require a degree of individual judgment on the part of the feeder in order to secure the most economic results. As a general guide, feeding standards are of undoubted value, and a reasonable adherence to their requirements will add to the economy of the feeding operation. But, as above noted, this problem of wintering the idle horses is an important one and is a farm management problem which may well engage the attention of every careful farmer at this season of the year. Its correct solution involves the feeding of the farm horses at the lowest possible cost consistent with their maintenance in a vigorous and healthy condition, and in a degree of flesh which will bring them up to the strenuous spring campaign in the pink of condition.

POTATOES AS HOG FEED.

Many experiments have been conducted in Germany and other foreign countries as well as a few in the United States to determine the value of potatoes as feed for swine. In Ireland and Germany farmers feed large quantities of potatoes annually. From experimental data it has been concluded that four to four and a half bushels of potatoes when cooked are equal to about one bushel of corn for putting gains on hogs. Therefore, if corn is worth 80 cents a bushel, potatoes when fed to hogs would be worth only 18 to 20 cents a bushel. There may, however, be instances where it would be more advantageous for the farmer to feed to hogs right on his own place at least part of his crop rather than to haul these potatoes to an already overloaded market.

According to the consensus of opinion, potatoes are fed to the best advantage when cooked or steamed and mixed with other feeds. Experiments in which raw potatoes were fed alone have been reported. In certain instances the raw potatoes are said to have caused scours. However, raw potatoes in small quantities and in a diet lacking succulence may be conducive to health in pigs.

In cooking potatoes only enough water should be used to make a mealy mash and prevent burning. The resultant meal should then be mixed with corn meal or other grain supplement. Tankage, skim-milk, or meat meal would probably add to the profit of the mixture. Potatoes when prepared in the manner described and under the conditions mentioned can often be fed to pigs with advantage.

COOKED FEED FOR HOGS.

This year there will be an unusual amount of cull beans picked from Michigan's bean crop. Owing to the ruling of the Department of Agriculture which will prevent the use of these by canners as has been quite extensively done in previous years, the only market for them will be as stock feed. On this account the farmers in the bean growing sections will be able to buy them at feed prices. These cull beans make a very valuable hog feed when cooked, and as they are high in protein, they make an excellent addition to corn as a ration for either growing or fattening hogs.

Very considerable areas of potato blight shortened the potato crop and increased the proportion of small and unmerchantable tubers materially. These small unmerchantable potatoes, if cooked and fed in combination with beans or other feeds, will return a good price when fed to hogs. The cooking of this class of feeds insures the feeding of a warm ration to hogs during the cold winter weather, which in itself will promote more rapid and economical gains.

One lot of five lambs allowed the run of the entire Oregon farm during the winter and fed in troughs and racks in the open field made an average gain per head of 27.75 lbs., while another lot of six lambs kept in a shed with access to a small outside yard well bedded with straw made an average gain per head of 23.25 lbs. The lambs under shelter did the better during the rainy season, but during good weather the best results were obtained from those outside.

A NEW SERIAL

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The Colt's First Winter

I AM not ready to say that breeding good horses on the farm is a lost art, but it is correct to say that there is not as much attention paid to the colts during the period of growth as there was twenty years ago, nor as much as there should be now. Especially the young men and boys are not studying the requirements necessary to produce good, serviceable horses that are fair to look at, and have the life and staying qualities which are desirable and add value to them as servants of their owners. One who has had a considerable experience with horses, and has been a close observer of results produced by different methods of rearing colts, can tell a horse that was neglected while young. With such animals the beautiful colt shape has been lost beyond recovery, and there is a jaded appearance which shows itself in the lack of life and prompt action in the harness.

The fact should be made known that the muscles which had started well while the colt was following its mother have been allowed to waste away to a considerable degree the first winter, and it has been impossible to develop them to their normal size, and regain the elasticity which originally belonged to them. This condition is frequently seen with the grade draft horses raised by the non-professional breeder.

A Wrong Rule is Followed.

It was the saying among many of the farmers of a half a century ago, that the colts must be compelled to rough it the first winter in order to toughen them. They seemed to really believe that to winter the colts on coarse forage feeds, like straw, marsh hay, corn stover and no grain, would make them "easy keepers" later in life. Their methods reduced the size of the horses raised, destroyed their naturally beautiful appearance, and reduced their efficiency as workers. I have heard farmers say that the colts from the "thoroughbred" draft sires are too flabby and hard keepers. They meant "pure-bred," as the word "thoroughbred" properly refers to the English running horse.

I am willing to admit that colts sired by pure-bred draft sires do not inherit, from their paternal ancestors, the capabilities of resisting the cold rains in the fall, the severe storms during the winter, and thriving on inferior feeds. The improved draft horses have been improved under good conditions, and by the constant use of feeds which were best adapted to their needs—good palatable feeds.

Better Methods Suggested.

The man who provides comfortable shelter for his colts during the rainy weather in the fall, and begins to feed them some grain as soon as the grass has been frost-bitten and lost some of the nourishment which it formerly contained, has started on the right plan by which the colt's muscles can be kept growing and the colt form retained. It is a critical period in the life of the colt, and to tide the colt over from the summer feeds and summer comforts to comfortable conditions and proper winter feeds is a wise plan.

The winter feeds are not as succulent as the pasture grasses, and yet by modern methods the colt can be kept growing the first winter and the fine colt shape can be retained. If one has ensilage the colt can be fed some of that once a day with benefit and safety. If one has alfalfa hay, he has the best of forage feeds. If not the alfalfa, perhaps the June clover is present and can be used. Timothy hay, if one does not have anything better, can be used. For colts, timothy should be cut before the seed ripens. Such hay as will give good

results with the dairy cow, will give good results with the colt.

The Grain Feeds.

The kind and amount of grain to be fed will depend on the kind of forage used. If one is feeding alfalfa hay twice per day and corn stover once a day, the colts will not need much grain and that may be largely corn meal with a small percentage of wheat bran. If it is June clover, or clover and timothy mixed, corn meal and wheat bran, equal parts, may be fed. If the forage is largely timothy hay, equal parts of oats and wheat bran with a small percentage of oil meal may be fed with good results. One's good judgment as to the amount of grain to feed, must be the guide, varying according to the size of the colt and the quality of the forage used.

The colts do best when allowed their freedom in the open yard during the day when the weather is fair, but during stormy weather, and nights, they should be comfortably housed. All the good water that a colt can drink should be supplied twice per day.

If the colts have not been broken to halter before, they should be tied and led during the first winter, and gently handled enough to keep them under control and familiarize them with their master.

Wayne Co.

N. A. CLAPP.

HOW TO BUTCHER A SHEEP.

The work of killing and dressing a sheep is a little more difficult than is the case with a hog, but when the art is thoroughly mastered the work can be speedily done. A sheep that I intend to kill is removed from the rest of the flock eight to 10 hours before being slaughtered and is put in rather a close dark pen without feed, in order to allow the stomach and entrails to clean. In killing the animal is put on its left side in a V-shaped trough about one and a half feet above the ground. Its feet are tied and the animal so placed that its head will extend beyond the end of the trough. One hand is placed on the back of the neck and the other under the jaw, then by a quick motion its neck is broken to end all suffering. As soon as its neck is broken it is stuck with a sharp knife just back of the ear, care being taken to sever both jugular veins. I cut through to the backbone but am careful not to sever the gullet as its contents would come up and spoil the flavor of the meat. After killing the process of skinning is started on the hind legs, the gambrel is inserted and the carcass hung up the same as a hog. The wool is never allowed to touch the meat and care is exercised not to cut into it. I let the knife slip down sideways and frequently dip it in water to keep it clean. After the skin is pulled down from the hind legs it is "clubbed" off with a short clean stick. In removing the entrails I split the animal down the belly from tail to breast bone, being careful not to cut the entrails. With a sharp knife the hams are divided. When the carcass is spread open to cool it is washed off by a bucket of cold water being thrown over it. I usually sell some of the meat to neighbors who, at the time, have no sheep fat enough to kill.

Illinois.

W. M. HARDY.

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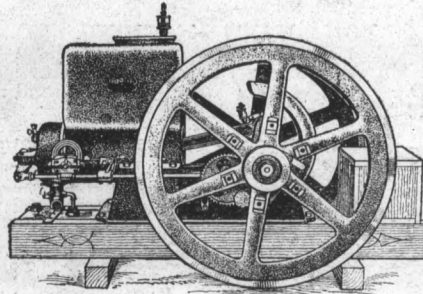
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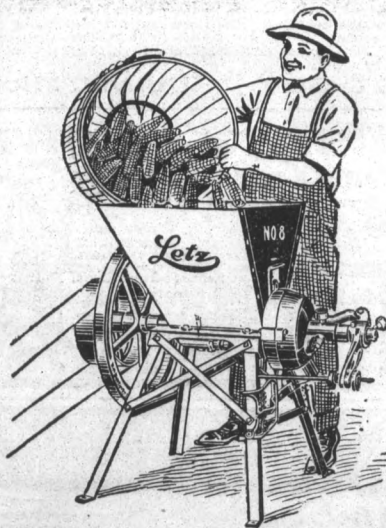
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The Future of the Dairy Business

PRICES for beef and beef products are soaring and as usual, reformers are preaching the return of beef cattle to the intensive pastures of the middle states. Farmers who have been engaged in the dairy industry have heard these rumblings and are trembling lest they forecast the truth. There is, however, no cause for alarm. Just as other industries have had their periods of depression and growth, so the dairy industry will have its periods of depression and growth. If there is such a period in dairying, it is now, but the present conditions do not seem to be serious.

The Lay of the Land.

The lay of the land encourages the keeping of dairy cattle. I say this because, as I have traveled around over the country in the last six weeks, I have noticed that there is some alarm on the part of young breeders—those who have just entered the business and have only one or two pure-bred cows. This is no time to sell those cows.

There are many reasons why dairying is bound to be one of the basic occupations of tomorrow. Some of these are that the problems of soil fertility are best solved through the medium of dairy cattle. Furthermore, with the closing up of the vast ranches of the west and the opening up of more fertile lands by irrigation, beef cattle can only be raised in a limited way. Limited pastures and intensive conditions point to dairy cattle.

With the growth of the cities, there is an increasing demand for milk and its products. In fact, the indications are that in fifty years from today, nearly every farm of medium size will be more or less of a dairy farm.

The Problems of Soil Fertility.

There seems to be a propaganda in some parts of the country that would attempt to show farmers that cropping can be carried on continually and successfully without stock. The theory looks good and it would indeed be a fine thing were it possible for us to work one-half the year and use the other half for reading and amusement but we must not deceive ourselves. No amount of powerful logic nor theory can displace the commonly observed fact that we cannot continually take fertilizing constituents from the soil without returning something thereto. While it is true that the legumes have the power to fix free nitrogen from the atmosphere, that is about as far as they can go in the fertilizing process except that the roots add some humus to the soil. There is no plant that can take either phosphoric acid or potash from the air for the simple reason that there is none in the air. The proposition reduces itself, then, to putting back upon the land what has been taken from it, with the exception of the nitrogen element. It is an established fact that the sale of any dairy product removes less fertilizing constituents from the farm than almost any other product that can be sold.

Humus Necessary to Successful Cropping.

Humus, while being one of the greatest will-o'-the-wisps of the fertilizer vocabulary, is a combination of complex compounds that, when added to the soil, renders it porous, accessible to air and capable of being easily drained. When we add commercial fertilizers to the soil we add no humus and this is one of the greatest values of this sort of fertilizer. Many soils are capable of producing enormous quantities of crops—that is, the fertilizing constituents, namely nitrogen, phosphoric acid, and potash are all in the soil in unlimited quantities, but because the air cannot get to the roots of the plant, and because the soil is not well drained, this land is barren. Many people seem to think

that the chemical constituents of the soil are the all-important ones, yet there is abundant reason to believe that the physical condition of the soil far outweighs any chemical considerations.

The Demand for Dairy Stock.

Never in the history of the country was there such an under-current of demand for pure-bred dairy stock, and why? Is it because the pure-bred cow is of any more value than is the scrub cow, or is it the result of a fad for pure breeding animals? It is neither one of these. We will grant that there are some scrub cows that are far superior in dairy capacity to some pure-bred cows, but this is the exception rather than the rule. The very fact that a cow is a pure-bred shows that her ancestry has been selected carefully and that the owners of the ancestral stock have taken some pains to propagate certain desirable features. In the dairy world, the breeders for hundreds of years have been breeding to get a cow that can produce milk economically—in fact, the economy of milk production is the only true criterion of the value of a dairy cow and upon this very fact hinges the proposition that a pure-bred cow is worth more than a scrub cow.

The price of land constantly increases; labor costs are increasing—in truth, all costs connected with farming are on the rise and as these costs increase, more rigid economy must be enforced. This rigid economy points to promotion of the dairy industry.

Dairy Young Stock Makes Good Beef.

Many people contend that the young stock of the dairy breeds cannot be made into prime beef. It can be. I helped butcher three steers last winter; a Durham, an Aberdeen-Augus, and a Holstein grade. All were prime beef and Mr. Roller, of Lansing's leading market, inspected the carcasses and offered just 11 cents a pound. He did not say, "I will give you 11 cents for the first two and nine and one-half cents for the last," as some people have chosen to say in the last two or three months. This proved that the statement that dairy young stock cannot be made into good beef is a fallacious one.

Because milk products are in demand, because the dairy cow so materially helps to solve the problem of soil fertility, and because of the demand for pure-bred stock, it seems that there is no cause for fear on the part of the dairy breeder that dairying will give way or lurch far to the starboard on the troubled waters. Good cows should not be sacrificed.
Illinois. I. J. MATHEWS.

PROFITABLE AGE OF MILCH COWS.

It is the belief of many dairymen that when a cow reaches the age of nine or ten years, her useful years are over, and that she should be replaced by one younger. Numbers of cows are sent to the shambles every year because the owners have a set opinion that cows at a certain age are no longer profitable. Other things being equal, we believe this is a mistake. A cow that has been well cared for, with generous rations and proper attention given to her comfort, through all seasons of the year, is better and will make a more profitable return at ten years old than at any other age.

We have had several cows that were in their prime at ten years old and continued in that condition until

A NEW SERIAL

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at least 13 or 14 years old. After this age they gradually declined both in quantity and quality of milk until we believed they were no longer profitable and we then sold them to the butcher.

Cows with first calves—at two or three years—are generally unprofitable in their milk yield, and one really good cow at ten years of age will pay a better revenue than two that are performing their first year's duties in the dairy herd, and it will always be found that she consumes but a little more food than one of the younger ones. This is a fact that should be remembered by all those who are dairying for profit.

Indiana.

D. LEATHERMAN.

COW-TESTING RESULTS IN CANADA.

For the purpose of encouraging and assisting farmers to keep records of the quantity of milk produced by each cow, so that the profitable ones may be distinguished from the unprofitable, dairy-record centers have been established in Canada. For the year which ended March 31, 1915, 35 of these dairy-record centers were in operation. The results are, according to a report received by the Department of Commerce, that "the average production of milk in Canada has been increased by 1,000 pounds per cow since this work was started. With over two and a half million cows in Canada, the value of the total annual production is thus increased by at least \$25,000,000, and the work is only just begun."

In one of the associations the average production of the two-year-olds was 4,430 pounds of milk and 170.3 pounds of fat. The lowest production of milk as 2,515 pounds by a scrub Holstein. The lowest amount of fat was 91.5 pounds, by a scrub Ayrshire. The highest amount of milk was by a pure-bred Holstein, which produced 7,994 pounds and the highest amount of fat as 315.7 pounds, by a pure-bred Holstein. Of all cows in the association the highest amount of milk was 13,027 pounds, by a pure-bred Holstein, four years old, and the highest amount of fat 513.2 pounds, by the same cow. The average production of all cows of all ages, was 5,336.8 pounds of milk and 202 pounds of fat.

SILO SEEPAGE.

We erected a tile silo the past summer, our first experience in the silo line, securing experienced men in this line of work for the erection and spared no expense to make it a perfect job. Later, during the heavy rains and before filling we noticed that it would wet through, and since filling we noticed it wets through from the inside as the ensilage juices appear in several places on the outside. We anticipate more or less spoiled silage as a result and we wonder as to the best way to overcome this condition. Is it one that is apt to occur in silos of this type?

St. Joseph Co.

J. M. A.

This silo seepage is well known by all who have had experience with silos. If the corn is put in the silo as green as it should be, there will always be seepage, no matter what kind of silo. If there is no noticeable seepage, you may be pretty sure that your corn was too dry when the silo was filled.

It must be remembered that the pressure of a column of water 30 feet high is 33 pounds per square foot; this is sufficient pressure to burst a strong barrel. If there is any free moisture in the silo, it is going to be forced through the pores of the cement. If corn is put in a little too green, the juice will sometimes run out or ooze out sufficiently to form streams and run over the yard.

This summer when we filled our silo with pea vines, the seepage was so great that several streams ran out and the juice ran down the lane gutter for more than sixty rods to the creek and

polluted the water. Of course, the rains, of which we had plenty at the time, helped to carry the juice so far. I don't think J. M. A. need worry about this, he will probably find his silage in good condition.

ONLY CORNSTALKS FOR ROUGH-AGE.

Will you please compound a balanced ration for cows whose roughage is principally cornstalks with perhaps a little clover hay, the grain to be bought. E. D.

It takes an expensive grain ration for cows that have only cornstalks for roughage. I would not advise depending entirely on grain to balance this ration. It would be cheaper and better, I am sure, to buy clover hay and not feed so much grain. Clover hay can be bought for \$10 to \$12 per ton, I think, and I am positive the cows would do better to feed clover hay once a day and cornstalks once a day rather than cornstalks all the time for both feeds.

I would recommend corn and oats ground together, wheat bran and oil meal for a grain ration. I would mix them equal parts by weight, that is, 100 pounds of corn and oats, 100 pounds of wheat bran and 100 pounds of oil meal. Give them all the cornstalks they will eat and then as many pounds of grain per day for each cow as she produces pounds of butter-fat each week. That is, if a cow produces nine pounds of butter-fat in a week, give her nine pounds of the grain mixture per day, or give her one pound of grain for every three or four pounds of milk she produces.

If you buy clover hay, you can cut down on the grain ration, and especially on the oil meal, which is the most expensive food.

NO LOSS OF BUTTER-FAT FROM HEAVY CREAM.

Do I lose butter-fat by skimming off a heavy cream testing about 45-50? Gd. Traverse Co. R. A. W.

No, there is no loss of butter-fat when you skim a 45 per cent cream. The separator will do just as thorough work and skim a 40 to 45 per cent cream as it will when you only skim 18 to 20 per cent cream. The separator is set so a certain amount of the milk is thrown out of the cream opening by the centrifugal force. That portion of the milk which is thrown out contains the butter-fat, because it is lighter than the other portions of the milk and is more easily thrown out by the force. When you skim 20 per cent cream, more milk goes out with the butter-fat. Making the opening smaller allows less milk to go out, hence a proportionately larger amount of butter-fat, making a heavier cream.

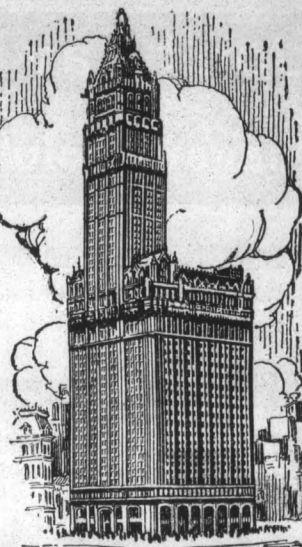
SPOILED SILAGE.

Spoiled silage may not seem to injure some farm animals, but it is dangerous to others, and has lost much of its food value for all. The loss results almost entirely from mold and could have been prevented, although the only thing to do now is to study what has happened in your silo and learn how to do better next year.

Unless the silo was sealed or feeding was begun immediately after filling from six inches to a foot at the top is sure to be spoiled. It should be put where it cannot be reached by any farm animals. Lower down, the presence of spoiled silage always indicates the presence of air as the molds which give it the appearance of rotten manure could not work without air. The lack of sufficient water in filling is the commonest cause of the presence of air, but sufficient tramping in an air-tight structure is also necessary. Red mold which sometimes causes alarm is no more dangerous than the less conspicuous forms which often pass unnoticed.

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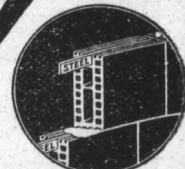
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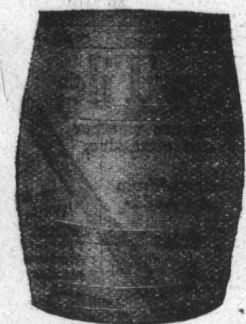
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A Good Greenhouse for Farmers

THIS is the time of year when thoughtful farmers and many town people who desire to produce their own cabbage, tomato, celery, sweet potato and other plants, early lettuce, radishes, etc., are planning for a hot-bed or two. The hot-bed is a great money saver because it enables the small producer to grow the necessary quantity of early plants at a cost far lower than is necessary when the plants are purchased from a store or greenhouse.

These are the days when both the urban and rural householders are examining very carefully every feasible plan for reducing the high cost of living. It has been my experience that early vegetables, such as radishes and lettuce, are very expensive. Most farmers do without these health producing appetizers during the early season simply because of the cost.

Many families have already learned by experience what a great money saver the ordinary hot-bed is. It is my purpose in this short article to explain the construction of a very cheap, self-heating greenhouse which can be built almost as cheaply as an ordinary hot-bed and has a great many points of superiority.

The Plan of the Greenhouse.

The following description is of the one I built. You will make the changes necessitated by your local conditions. My greenhouse was planned to use four hot-bed sash, each of which is three feet wide and six feet long, and to contain two beds, each three feet wide and 12 feet long, having an alleyway 18 inches wide between them. My location is on a slight slope and in sandy soil so that there is never any danger from seepage water. An excavation about 18 inches deep, 13 feet long and eight feet wide was made first, the long dimension extending east and west. The two tall posts to support the roof were first set deep at each end 12 feet apart and a little

spiked to the top of the tall posts which stand at the north side of the alleyway. At each end rafters were extended to the short corner posts, at northeast and northwest corners. On the south side there was a roof space left just large enough to contain the four hot-bed sash. These extend up and down. Some little work was necessary to make the sash fit firmly at the bottom and yet be loose so that any one or all may be removed to throw manure and dirt in or out of the house. (New hot-bed sash can be bought for less than two dollars each). The gables were then boarded up and covered with tar paper. In the west end between the two tall posts I made the door, which is some 20 inches wide, and goes almost to the bottom of the alleyway, opening outward. Steps were made outside.

For covering the north side I simply cut 12-foot poles, most of which were large enough to split once. These were laid as closely together as possible and the cracks chinked. On top a heavy layer of hemlock boughs was placed and the entire side was covered with 12 to 20 inches of dirt.

About two weeks before time to plant each year I haul enough fresh horse manure to fill the beds about 18 inches deep when tramped down solidly. Do not use poultry or cow manure for these do not produce much heat by fermentation. I pour enough water onto the manure in the beds to soak it completely. Next I cover the manure with some four inches of very rich dirt or compost, finely pulverized. One can tell when the manure begins to ferment nicely by thrusting the fingers down through the dirt. Use plenty of water as the heat develops else the dirt may get too hot and injure the growing plants later. As soon as the ground begins to get warm seeds may be planted.

This sized house gives two beds



The Setting of Fruit in Most Vineyards was Good this Year.

over three feet from the north side of the excavation. Then, by setting a short post, which extends six inches above the ground, just three feet north of each of the tall posts, I had the four corners for one of the beds. Two short posts were spaced between the two tall ones and two between the corner short posts, all six of the short ones being of equal height. This bed as then boarded up. When completed it was three feet wide, 12 feet long and boarded up two feet, which, you will observe, puts the top of the bed some six inches above the level of the ground. Then 20 inches south of the tall posts I sunk two other tall posts and set two short ones between them. Three feet south of these a row of short posts was set. This, when boarded up like the other one, made another bed three feet wide and 12 feet long. Between the two beds is the alleyway 18 inches wide and it should be dug to the depth which will best enable you to stand up in it and reach over the beds. Mine is 30 inches.

A 12-foot two-by-six timber was ing a cold frame to transplant plants

into one may produce thousands of the best quality of plants for the early-top-notch market.

The house will last for many years, the first cost being practically the only one involved. It more than pays for itself on what may be saved on early produce the first year or two.

Mason Co. I. B. McMURTRY.

THE SEASON'S EFFECT IN THE VINEYARD.

It goes without saying that the season just past has been a most peculiar one, but it is surprising to note how little effect the abnormal weather conditions have had on fruit crops. One would expect that, due to so much wet weather, the fungus diseases would be prevalent, but thorough spraying gave surprisingly good results, if it was done in time. Trees have made good growth and have been comparatively free from blight. The insect pests have not been serious on account of the cold weather. The aphids, however, has had ideal weather for its development and on that account has been rather hard to control. This difficulty in control should not be blamed on the remedies used, but on the time of application and abnormal weather. Those who made the early spraying for aphids at the right time were quite successful in its control.

The grape has been affected more by the weather than any other fruit. Early in the season a frost got many of the vineyards after they had started growing. These vineyards started new growth and set to fruit but were more seriously affected by the frosts

early in October than the others.

The cold summer delayed the ripening so that it kept the grape men on the anxious set for fear the grapes would not mature. As it was, the time of ripening was delayed several weeks but the good weather this fall has enabled many to harvest most of their crop. The condition of the vines had something to do with their ripening. Those which were heavily loaded did not ripen as readily as those with only a fair crop. In order to have grapes ripen well there must be a certain amount of healthy leaf surface. The heavy bearing vines undoubtedly developed fruit at the sacrifice of the foliage and therefore did not ripen as well as vines with less fruit and more foliage.

The weather conditions also produced surprises in the behavior of varieties. The Delaware, which is always a rather weak grower, went to the top of the list for vigorous growth. It was also wonderfully productive of grapes which were larger than normally. The Niagaras and Concord, usually good growers, did not do as well as usual. This would indicate that the Delaware delights in plenty of moisture, whereas the other prominent varieties could not do as well as normally under conditions which existed this year.

The vines in most cases bore well and if the frost did not hurt the crop the grape grower had a profitable season, as prices were good. As is generally known, the grape bears its fruit on the new wood and usually one or two bunches on each growth, but this year it was a common sight to see three, and even four, well developed bunches on a shoot.

Profitable Strawberry Growing

ONE spring several years ago, the writer, being anxious to try an experiment with strawberries, set out 500 plants on a piece of land four-by-four rods, containing just a tenth of an acre. The next spring he sold 512 quarts of berries from this plot for \$74.10.

For several years previous, berries had sold on the market for from five to eight cents a box. He believed that, by adopting a different method of packing and marketing, the price could be materially increased.

He realized that in order to secure a better price the fruit must, first of all, be strictly first-class in quality. With this end in view, he ordered from the nursery plants propagated from mother plants that had never been allowed to fruit. This is the only way to get good, strong plants.

Before the plants arrived, the ground was put in good condition. The soil was a black loam that had been worked for years without fertilization. Two wagon loads of stable manure was turned under to a depth of eight inches, and it was harrowed four times.

The plants came in good condition. They were heeled in in moist soil until ready to use. Only one bunch of 25 plants was carried at a time, in a basket which had one end covered to protect the plants from wind and sun. With a pair of shears, the roots of the plants were cut off about one-third of their length before the bunches were untied. They were set in rows three and one-half feet apart and approximately 28 inches apart in the row.

All blossoms were picked off this year. Each plant was allowed to make four runners, which were placed around the mother plant in star shape. All other runners were treated as weeds and cut out. When fall came, the plants covered the entire foot-wide space, and were as nice and green as when set in the spring. They were covered lightly with rye straw, which was removed in the spring from directly over the plants and allowed to lay between the rows, forming

a cushion for the fruit, and keeping weeds down and the ground moist.

When blossoming time came they were a sight to see. And later when the ripe fruit appeared, they surpassed in beauty any nursery catalog picture. The fruit was graded in the field. Four-quart carriers were used in picking. Nothing but first-class fruit was put in the boxes for sale as table fruit. All under-ripe, over-ripe, and mis-shapen berries were placed in separate boxes and sold for canning purposes. The top layer was placed in rows with the stems down, thus making a very attractive package. A nice two-color label, which consisted of a picture of a strawberry in red and the wording, "Fancy Strawberries," and the farm name and address in black, was pasted on each box. Arrangements were made with a local grocer catering to the highest class trade to handle the berries on commission. The grower set the retail price at 15 cents a box and he gave the grocer one and a half cents a box for handling, the grower agreeing to take back any unsold.

The berries were placed on display beside others whose price was eight cents. It was surprising to see how many customers picked up the 15 cent berries in preference to the eight-cent ones. Four hundred and sixty-four boxes were sold in this way for 69.60. Ten times this amount could have easily been sold. The remaining 48 quarts were sold for canning at \$1.50 a crate. The expense was as follows:

Plowing and harrowing	\$2.00
Five hundred plants	2.50
Manure	1.00
Spraying material	.30
Straw	4.00
Thirty-two crates at 12c	3.84
Four hundred sixty-four labels at \$3 per thousand	1.40
Commission, 464 boxes at 1½c	6.96
Total	\$22.00

As the grower did the labor in spare time, and it was hard to estimate, it is not included in the expenses. The berries sold for a total of \$74.10. This left a net profit of \$52.10, or at the rate of \$521 an acre. Wayne Co. H. L. SPOONER.

Read this Guarantee. Read Every Word.

We guarantee Hanes Underwear absolutely—every thread, stitch and button. We further guarantee to return your money or give you a new garment if any seam breaks on any piece of Hanes Underwear.

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There's absolutely everything in Hanes Elastic Knit Winter-Weight Underwear that any man could possibly wish for—everything. And don't forget this—only 50c buys a single garment and \$1.00 a union suit. Call on your Hanes dealer in town and ask him to show you this soft, warm, fleecy underwear and you'll surely rig yourself out with Hanes, because any man can see with half an eye that it's the greatest value in America today—no exception. The same value, whether you buy single garments or union suits. Now, follow closely and look at the circles in the picture—see what your money is buying when you demand

50c per Garment **HANES** \$1.00 per Union Suit
ELASTIC KNIT UNDERWEAR

All Hanes Union Suits have pearl buttons. The union suits have a closed crotch and elastic shoulder with improved lap seam to keep the sleeve in place and allow lots of room without binding. Anklets are form-fitting—keep the cold out. The single garments have elastic collarette to keep the throat warm. Improved cuffs hug the wrist and won't flare out. Strong, well-stitched waistband and every garment and suit guaranteed to have unbreakable seams.

This label on every garment



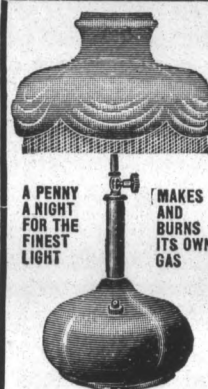
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Any garment offered as "Hanes" is a substitute unless it bears the "Hanes" label.

Call on the Hanes dealer in your town and examine this splendid underwear. If you don't know who he is, write us. Read guarantee in left-hand top corner.

P. H. HANES KNITTING CO., Winston-Salem, N. C.



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Here's the simplest, cleanest and most easily operated lamp of them all—the Coleman Air-O-Lite. Gives you less trouble, requires less care than any other. No wicks to trim. No chimneys to clean. No greasy oil lamps to fill. No batteries or engines to fuss with. No smoke, no soot, no odor. Nothing to clog up or get out of order.

THE COLEMAN AIR-O-LITE

is a beautifully shaped and finished portable lamp that furnishes bright and cheerful, yet mellow and eye-resting light at only one-tenth the cost of kerosene lighting. Will give you 300 candle power (the equal of 20 oil lamps) at a cost of only one-third of a cent per hour.

GUARANTEED FOR FIVE YEARS

Perfectly safe. No danger even if tipped over. Burns dry without exploding. Built of heavily nickel-plated brass. Awarded Gold Medal at San Francisco. Ask your dealer—or, if not on sale in your town yet, write us for illustrated catalog of 20 different styles of gasoline lamps and lanterns. Dealers or agents wanted in every locality. Write nearest address of

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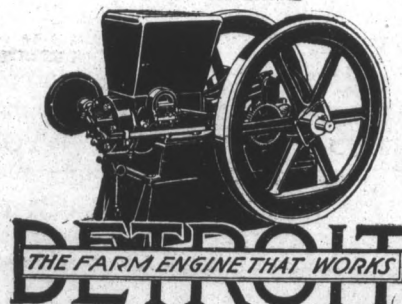
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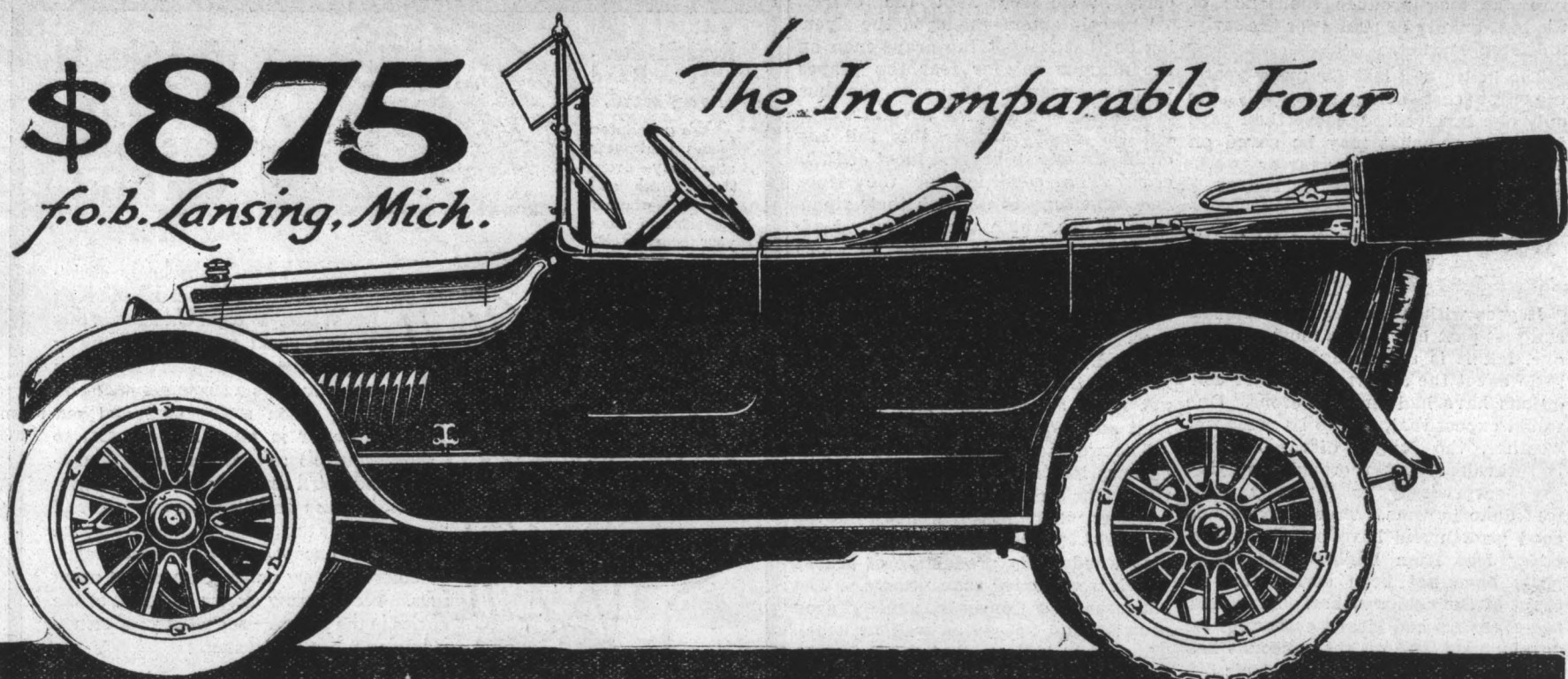
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Matchless Value****—this New Reo the Fifth
at Its New Price****Salient Features**

Wheel Base—115 inches.
 Springs—Front—Semi-elliptic—38" x 2" with 7 leaves. Rear—three-quarter elliptic. Lower section—44 3/8" x 2" with 7 leaves; upper section 22 13-16" x 2" with 7 leaves.
 Front Axle—I-beam, drop forged, with Timken roller bearing spindles.
 Rear Axle—Tubular—semi-floating. Timken roller bearings at differential—Hyatt High Duty roller bearings at wheels, pinion integral with stub shaft—two universal joints in propeller shaft—torque taken by separate torque arms—gear ratio 4 to 1.
 Tires—34" x 4" front and rear. Non-skid on rear.
 Motor—Vertical, four-cylinder, cast in pairs, modified L type with integral head, with inlet valve in head. Valves mechanically operated and protected. Exhaust valve seated directly in the cylinder. Barrel type crank case with three crank shaft bearings. Helical timing gears running in oil.
 Cylinder dimensions—4 1/4" x 4 1/2".
 Horsepower—35.
 Cooling System—Water jackets and tubular radiator, cellular pattern. Water circulation by centrifugal pump direct to exhaust valves.
 Carburetor—Automatic, heated by hot air and hot water.
 Ignition—Combined generator and magneto driven through timing gears; 100 ampere hour storage battery.
 Starter—Electric, separate unit, six volts, connected to transmission.
 Transmission—Selective swinging type with single rod, center control.
 Clutch—Multiple dry disc, faced with asbestos, with positive and instant release.
 Brakes—Two on each rear wheel, one internal, one external, 14" diameter drums.
 Steering—Gear and sector with 18" steering wheel.
 Control—Left-hand drive, center control—spark and throttle on steering wheel with foot accelerator. Positive—thief proof locking device.
 Fenders—Drawn sheet steel of latest oval type.
 Gasoline Capacity—16 gallons.
 Body—Five-passenger streamline touring car type with extra wide full "U" doors, front and rear. Genuine leather upholstery. Deep cushions and backs.
 Finish—Body, Golden Olive; running gear, black; equipment, nickel trimmed.
 Equipment—Fully electric lighted throughout, improved 5-bow, one-man mohair top with full side curtains, mohair slip cover; clear-vision, rain-vision, ventilating windshield; speedometer, electric horn; extra rim with improved tire brackets; pump; jack; complete tool and tire outfit; foot and robe rails.
 Price—\$875, f. o. b. Lansing, Mich.

WE REO FOLK FEEL that if we had accomplished only this, the perfection of this great Reo The Fifth model to the high degree it has attained, our contribution to the progress or the world would have been well worth while.

TO HAVE ACHIEVED through years of endeavor a motor car of such mechanical excellence—such absolute reliability—dependability, and of such low maintenance cost—is a record of which any corps of engineers might well be proud.

WHEN YOU CONSIDER that the average cost of maintenance for cars of this model has proven to be less than six dollars per car per year (and thousands of owners tell us they have never spent a dollar for replacements or repairs), you will appreciate that the quality of materials in this product must be wonderfully uniform throughout.

AND THAT IS THE FACT. A marvelous degree of precision—and uniformity—has been reached and is applied to the composition and treatment of metals that go into Reo cars.

THAT IS WHERE REO QUALITY is obtained—that and the equally accurate workmanship for which the Reo factories and organization is famous among automobile manufacturers.

THIS REO THE FIFTH represents more years of concentrated effort on the part of Reo engineers—has been more consistently refined and improved—and for a longer period—than any other automobile in America so far as we can recall.

IT IS THE RIPEST PRODUCT of Reo experience and engineering acumen. And all there was of Reo good intent—Reo integrity—Reo aspiration—went into the original designing and, year after year since then, into the refining of this model until the result is this newest Reo the Fifth, a motor car that very nearly approximates perfection—as nearly as is humanly possible.

BUT IF THAT IS an engineering achievement of the first magnitude—and we submit that the extremely low up-keep cost combined with the consistency of performance of Reo the Fifth proves it to be all that—still we believe our greatest achievement has been the placing of this great car—this big, roomy, powerful car—within your reach at its present price.

FIVE YEARS AGO it was not possible to procure a car of this quality—performance, beauty, finish, reliability and low operation cost—anywhere in the world at \$5,000.

IN FACT IT WAS NOT POSSIBLE to obtain a car of such mechanical excellence at any price—because science had not up to that time, developed an automobile to that point of perfection.

WE SOMETIMES WONDER if the average buyer appreciates what a marvelous piece of mechanism he is now able to own for so small an amount.

WHY, IT WAS UNDREAMED OF a few years ago—most buyers cannot grasp it even yet.

STUDY THE SPECIFICATIONS—Consider the power; the wheel base; the bigness of the car in every way. Then look at the finish; inspect the workmanship—the fineness, the accuracy:—

RIDE IN IT—DRIVE IT YOURSELF—for you can easily drive Reo the Fifth if you have ever handled any automobile—and learn at first hand how silent and sweet running it is,—

THEN REMEMBER that back of all we say and your local Reo dealer says about this car is the Reo guarantee backed in turn by Reo financial stability and Reo integrity. And say then if anywhere else in all the world you can find such value as is represented in this latest edition of Reo the Fifth at its price—\$875.

105-C

REO MOTOR CAR COMPANY, LANSING, MICHIGAN, U. S. A.

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

MICHIGAN FARMER
AND **LIVE STOCK**
PUBLISHED WEEKLY.
JOURNAL
ESTABLISHED 1843.

The **FARM BOY**
and **GIRL**
SCIENTIFIC and
MECHANICAL

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

WHEN Madeline Hammond stepped from the train at El Cajon, New Mexico, it was nearly midnight. Her first impression was of a huge, dark space of cool, windy emptiness, strange and silent, stretching away under white, blinking stars.

"Miss, there's no one to meet you," said the conductor, rather anxiously. "I wired my brother," she replied. "The train being so late—perhaps he grew tired of waiting. He will be here presently. But—if he should not come—surely I can find a hotel?"

"There's lodgings to be had. Get the station-agent to show you. If you'll excuse me, this is no place for a lady like you to be alone at night. It's a rough little town—mostly Mexicans, miners, cowboys; and they car-

Light of Western Stars

By ZANE GREY

[Our New Serial]

ouse a lot. Besides, the revolution across the border has stirred up excitement along the line. Miss, I guess it's safe enough, if you—

"Thank you! I am not in the least afraid."

As the train started to glide away Miss Hammond walked toward the dimly lighted station. As she was about to enter, she encountered a Mexican with sombrero hiding his features and a blanket mantling his shoulders.

"Is there anyone here to meet Miss Hammond?" she asked.

"No sabe, senora," he replied from under the muffling blanket, and shuffled away into the shadow.

She entered the empty waiting-room. An oil-lamp gave out a thick, yellow light. The ticket-window was open, and through it she saw that there was neither agent nor operator in the little compartment. A telegraph instrument clicked faintly.

Madeline Hammond stood apping a

shapely foot on the floor. With some amusement she contrasted her arrival in El Cajon with her usual reception when she left a train at the Grand Central. The only time she could remember being alone like this was once when she had missed her maid and her train at a place outside of Versailles—an adventure that had been a novel and delightful break in the prescribed routine of her much chaperoned life.

She crossed the waiting-room to a window, and, holding aside her veil, looked out. At first she could discern only a few dim lights, and these blurred in her sight. As her eyes grew accustomed to the darkness, she saw a superbly built horse standing near the window. Beyond was a bare

WORLD EVENTS IN PICTURES



Winston Churchill and the Kaiser Before the War.



Giant Dredges Find it Difficult to Keep Pace with Slides in Panama Canal.



Gen. Alexeiff, New Chief of Russian Army.



Great Slabs of Copper to be Exported and made into Bullets for the Allies.



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Happy Group of Skaters who Welcome Arrival of the Winter Season.

No Money In Advance

30 Days Free Trial

Nothing we can tell you here can give you a fair idea of the marvelous ease and speed with which you can make butter with the wonderful Fayway—the butter separator which has revolutionized butter-making on the farm. Nor can mere words alone convince you of how much better butter you can make with the Fayway than you have ever been able to make with any ordinary churn. The only way for you to be convinced of these facts is to make butter with it on your own farm. We want you to prove our claims for yourself. That is why we offer to send you the Fayway without a cent of advance payment.



without a deposit—without even a promise to buy—and use it in every kind of butter-making test for 30 days absolutely at our risk. If with the Fayway you can't make butter in less than half the time consumed by the best churn you ever saw or used—if it doesn't make the best butter you ever tasted—if you don't consider it the best investment you could possibly make—we don't want you to keep it. Send it back at our expense. The 30 days' trial costs you not one penny. If you decide to keep it, you may pay all cash or on easy monthly payments.

The Fayway Butter Separator

The Fayway principle solves the question of fine butter. It keeps the fat globules intact. Ordinary churns break them down. Result—greasy, salty butter. Fayway butter has better body, contains less moisture, keeps longer, looks and tastes better than any "churned" butter. It's the extra fine butter that brings you fancy prices.

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You can get from five to ten cents more per pound for Fayway butter than for ordinary butter. And you get more butter because the Fayway recovers all the butter-fat whereas the ordinary churn leaves up to 4% of the butter-fat in the buttermilk. The extra profits alone that the Fayway brings you pay for it over and over again.

Guaranteed 5 Years

The Fayway is the only Farm Churn that can stand up under such a strong guarantee. Think of it! We guarantee this marvelous butter-maker for five years. With ordinary care it will last a lifetime. This sensational guarantee is made direct to you by the manufacturers. It covers the design, material, workmanship and results of the Fayway for 5 whole years.

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Complete course in buttermaking absolutely free to you. Opens your eyes to bigger butter profits. Thousands have found it of tremendous advantage. No matter how small or large a herd you milk you should know the secrets this course reveals. Post card brings facts and proof. Write today—NOW!

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Your fur goods will cost you less than to buy them, and be worth more. Our illustrated catalog gives a lot of information which every stock raiser should have, but we never send out this valuable book except upon request.

It tells how to take off and care for hides; how and when we pay the freight both ways; about our safe dyeing process which is a tremendous advantage to the customer, especially on horse hides and calf skins; about the fur goods and game trophies we sell, taxidermy, etc. If you want a copy send us your correct address.

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M. SLOMAN & CO.

204 Soman Bldg., Detroit, Mich.

square; or, if it was a street, it was the widest one Madeline had ever seen.

The dim light shone from low, flat buildings. She made out the dark shapes of many horses, all standing motionless with drooping heads. Through a hole in the window-glass came a cool breeze, and on it breathed a sound that struck coarsely upon her ear—a discordant mingling of laughter and shouting, and the tramp of boots to the hard music of a phonograph.

"Western revelry!" mused Miss Hammond, as she left the window. "Now, what to do? I'll wait here. Perhaps the station-agent will return soon, or Alfred will come for me."

As she sat down to wait she reviewed the causes which accounted for the remarkable situation in which she found herself. That Madeline Hammond should be alone, at a late hour, in a dingy little western railroad station, was indeed extraordinary.

The close of her debutante year had been marred by the only unhappy experience of her life—the disgrace of her brother and his leaving home. She dated from that time the beginning of a certain thoughtful habit of mind and of a growing dissatisfaction with the brilliant life society offered her.

The change had been so gradual that it was permanent before she realized it. For a while an active outdoor life—golf, tennis, yachting—kept this realization from becoming morbid introspection. There came a time when even these lost charm for her, and then she believed that she was indeed ill in mind.

Travel did not help her. There had been months of unrest, of curiously painful wonderment that her position, her wealth, her popularity no longer sufficed. She believed that she had lived through the dreams and fancies of a girl to become a woman of the world. And she had gone on as before, a part of the glittering show, but no longer blind to the truth—that there was nothing in her luxurious life to make it significant.

Sometimes from the depths of her there flashed up, at odd moments, intimations of a future revolt. She remembered one evening at the opera, when the curtain had risen upon a particularly effective piece of stage scenery—a broad space of deep desolation, reaching away under an infinitude of night sky, illumined by stars. The suggestion it brought of vast wastes of lonely, rugged earth, of a great blue-arched vault of starry sky, pervaded her soul with a strange, sweet peace.

When the scene was changed she lost this vague new sense of peace. Turning away from the stage in irritation, she looked at the long, curved tier of glittering boxes that represented her world. It was a distinguished and splendid world—the wealth, fashion, culture, beauty, and blood of a nation. She, Madeline Hammond, was a part of it.

She smiled, she listened, she talked to the men who came into the Hammond box between the acts, and yet she felt that there was not a moment when she was natural, true to herself. She wondered why these people could not somehow be different, but she could not tell what she wanted them to be. If they had been different, they would not have fitted the place; indeed, they would not have been there at all. Yet she thought wistfully that, to her mind, they were lacking in something.

And suddenly, realizing she would probably marry one of these men if she did not revolt, she had been assailed by a great weariness, an icy, sickening sense that life had palled upon her. She was tired of fashionable society. She was tired of polished, imperturbable men who sought only to please her; she was tired of being feted, admired, loved, followed,

and importuned; tired of people, tired of fine houses, luxury, ostentation, noise; tired of herself.

In the lonely distance and the passionless stars of boldly painted stage scenery she had caught a glimpse of something that stirred her soul. The feeling did not last. She could not call it back.

She imagined that the very boldness of the scene had appealed to her; she divined that the man who painted it had found inspiration, joy, strength, serenity, in rugged nature. And at last she knew what she needed—to be alone, to brood for long hours, to gaze out on lonely, silent, darkening stretches, to watch the stars, to face her soul, to find her real self!

Then it was that she had first thought of visiting the brother who had gone west to cast his fortune with the cattlemen. As it happened, she had friends who were on the eve of starting for California, and she made a quick decision to travel with them.

When she calmly announced her intention, her mother had exclaimed in consternation. Her father, surprised into pathetic memory of the black sheep of the family, had stared at her with glistening eyes.

"Why, Madeline! You want to see that wild boy?"

Then he had reverted to the anger he still felt against his wayward son, and had forbidden Madeline to go. Her mother forgot her haughty poise and dignity. Madeline, however, had exhibited a will she had never been known to possess; she stood her ground, even to reminding them that she was twenty-four and her own mistress. In the end she had prevailed.

How Weather Forecasts are Made

HOW are the weather forecasts made? To this the shortest and simplest answer is: By telegraph.

The weather forecaster does not look out of the window and guess. He is not weatherwise like the old salt who scents the approach of a storm without knowing how. To the signs by which the ordinary citizen decides whether to take his umbrella with him or leave it at home, he pays no attention. Give him his telegraph wires and he can make his predictions as accurately in a windowless cellar as on the top of New York's highest skyscraper.

The private individual sees the clouds settle on a near-by mountain or the rain sweep over a field a mile from his house and knows that the storm will be on him in a few minutes. With the aid of the telegraph the weather man sees the same storm when it is a thousand miles away, and not only this storm but every other one in the country. He knows in what direction and at what speed each is moving, and can thus calculate with reasonable accuracy the approximate time when it will reach any place in its route.

Twice a day, at eight in the morning and eight in the evening, reports are telegraphed to Washington from about 200 observers stationed in as many different localities in the United States and Canada. In these reports the observers do not volunteer their personal opinions about what is going to happen. They confine themselves to a plain statement of the actual conditions at that particular moment, the pressure or weight of the atmosphere, the temperature, the direction and velocity of the wind, the amount of rain since the last report, and so forth. From this information the Weather Map of the United States is made up, showing the conditions that prevail in every part of the country. Since there are two maps for each day it is obvious that by comparing them the forecaster can keep track of

ed, and that without betraying the real state of her mind.

Her decision to visit her brother had been too hurriedly made and acted upon to give her time to write to him about it, and so she had telegraphed from New York, and again, a day later, from Chicago, where her traveling friends had been delayed by illness. Nothing could have turned her back then.

Madeline had planned to arrive in El Cajon on the third of October, her brother's birthday, and she had succeeded, though her arrival occurred at the twenty-fourth hour. Her train had been seven hours late. Whether or not the message had reached Alfred's hands she had no means of telling, and the thing which concerned her now was the fact that she had arrived and he was not there.

It did not take long for thought of the past to give way wholly to the reality of the present.

"I hope nothing has happened to Alfred," she said to herself. "He was well, doing splendidly, the last time he wrote. To be sure, that was a good while ago, but then, he never wrote often. He's all right, I'm sure. Pretty soon he'll come, and how glad I'll be! I wonder if he will be very much changed."

As she sat waiting in the yellow gloom she heard the faint, intermittent click of the telegraph instrument, the low hum of wires, the occasional stamp of an iron-shod hoof, and a distant laugh rising above the sounds of the dance. These commonplace things were new to her. She became conscious of a slight quickening of her pulse.

Madeline had only a limited knowledge. (Continued on page 504).

the course and progress of both storms and periods of clear weather. From that, the next step is to predict what sort of weather will prevail for a day or two in any given locality.

This map is the basis for all scientific weather forecasting. A glance at it will show that it is divided into "high pressure areas" and "low pressure areas." These are technical terms used to describe the regions in which the weight or pressure of the atmosphere is great (high) or small (low). At sea level the barometer, which is used to measure this weight, will register 30 inches under normal conditions of the atmosphere. When it registers more than this, say 30.5 or 31, the pressure is "high;" when 29.5 or less, "low." In this way the height of a column of mercury in a barometer indicates the weight of the air just as, in a thermometer, it indicates the temperature.

Low pressure usually mean strong winds, rain, and rising temperature; high pressures, cool, clear weather. For a reason to be explained later, these "highs" and "lows," as they are called, travel in a general direction from west to east. The forecaster notes their progress on the map, perceives their speed and their route, and then predicts the time of their arrival at any specified point. If they traveled, like a ship steered by compass, an exact course to the east, and if they moved invariably at the same speed, then weather forecasting would be a simple sum in arithmetic, like calculating the time when a railroad train running 50 miles an hour will arrive at a station 500 miles away. But storms are not railroad trains. They travel in an easterly direction, but they do not travel due east. Their speed is liable to change, and they are affected by the presence of other storms, by mountain ranges, large bodies of water, and many other things which make weather prophesying the complicated science that it is. The skeleton of the science, however, is the progress of those "highs" and

"lows" eastward across the country. This progress is caused by the shape of the earth and the well-known fact that hot air rises. The tropical sun in the regions along the Equator heats great masses of air, which rise and drift toward the north and south poles. As the earth revolves from west to east these masses are carried along with it at the same speed. But, as is also well known, the equator revolves much faster than the poles, which are practically stationary, in much the same way as the rim of a wheel revolves faster than the hub. Therefore these masses of air, revolving at the same rate as the equator, begin, as they approach the poles, to move much faster than the earth beneath them. There is thus a constant movement of the atmosphere from west to east, a movement which becomes more marked the nearer one gets to the poles.

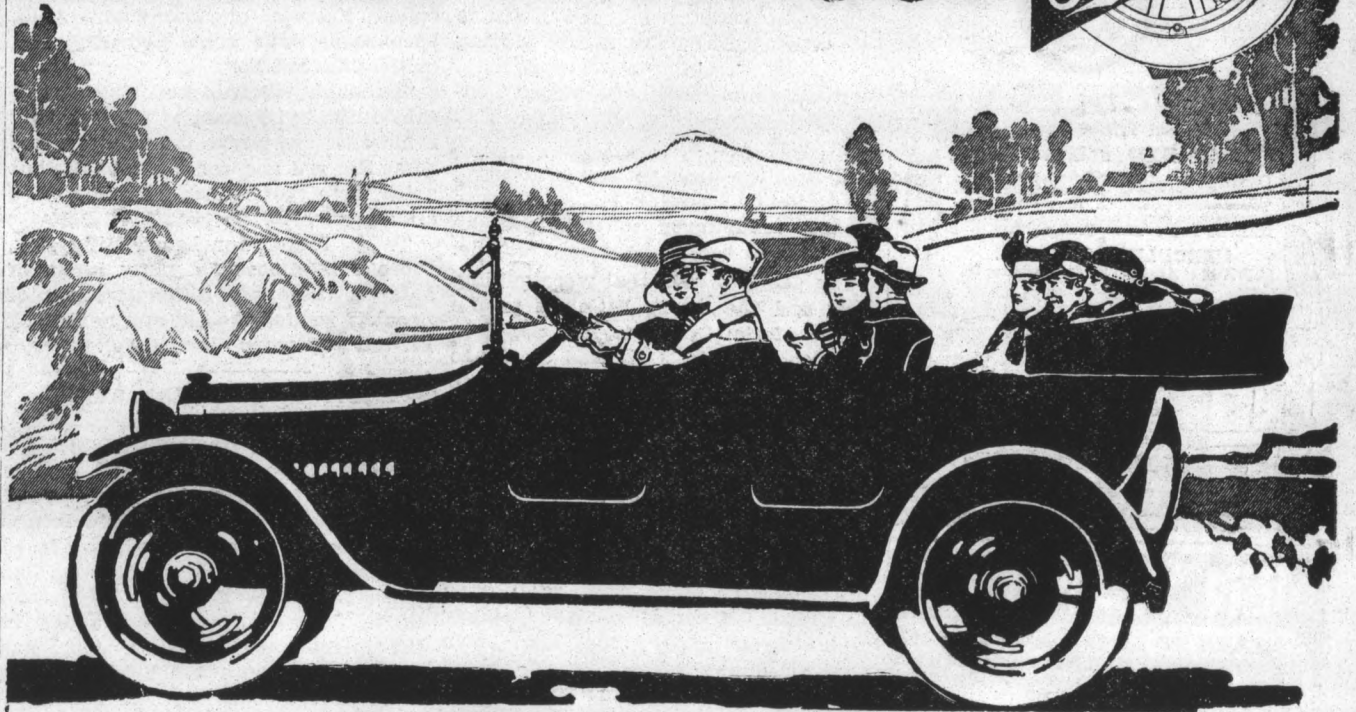
This, of course, does not mean that the wind always blows from the west. The great current flows in that direction, but surface conditions cause innumerable eddies which are the winds we feel. Into a low pressure area, for instance, the air rushes from every direction. Thus, if the center of the disturbance is to the west of us, we will have an easterly wind as the air rushes toward this center; when the storm has reached and passed us on its easterly way we will have westerly winds. For this reason it is common to say that west winds mean clear weather.

The air that flows into the low-pressure area obviously must go somewhere. Since it is coming in from every point of the compass, the only available place is up. As it rises it cools and contracts. In the process the moisture it contains is condensed and we have rain. That is, we are likely to. It can not be stated too emphatically that there many things to be considered which may make exceptions to the most fundamental rules.

In regard to temperature, everyone has noticed that rain in winter means warm weather, in summer cool weather. This arises from the fact that heat travels more easily through clear skies than through clouds and moisture. In the daytime heat reaches the earth from the sun; at night it leaves the earth to be absorbed in the atmosphere. In summer, therefore, when the days are longer than the nights, the earth is being heated for a greater part of the 24 hours than it is being cooled. In consequence the clearer the weather and the easier it is for heat to travel, the hotter it grows. In winter the reverse is true. The cooling time is longer than the heating, and the clearer it is the colder it grows.

Thus the pressure of the atmosphere is the key to the weather, affecting the three vital questions of rain, temperature, and wind. Many things may create an area of low pressure and many things may influence its career when once it has been created. But there are certain general rules based on the principles already outlined. The weather maps tell the forecaster the conditions of the last few days, the telegraph tells him of the conditions at the moment, and with this information he is able to predict the conditions for the immediate future from a standpoint very different to that of the amateur observer, however experienced, who can form an opinion only from the signs visible to his unaided eye. It may, in fact, be said that no accurate forecasts for more than a few hours in advance are possible unless the prophet is able to study a series of observations covering a wide range of country a few hours after they have been taken. For its weekly forecasts, indeed, the United States Weather Bureau has reports not only from this country but from abroad and at sea as well.

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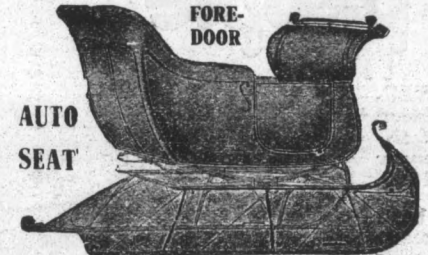
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Land O' Nod Stories.

By HOWARD T. KNAPP

The Wonders of Antland.

BILLY BE BY BO BUM kept a tight hold of Tinker's hand as they entered the tunnel leading down into the ants' underground city, for to tell the truth he was just a little bit frightened, for everything was so strange and new.

At first the passage was as dark as the inside of a pocket, but as his eyes became accustomed to the dusk, he was able to see without any trouble.

The sentinel ants that were guiding Billy and the merry little elf to the palace of the Queen trotted along in front so fast that Billy had to run to keep up with them, and although the soldiers did their best to clear the way for the visitors, more than once Billy bumped smack into a worker hurrying up to the gate on its way to the harvest fields.

The tunnel led down and down and down until it seemed to Billy that they must be going right on through to China. Then at last the passage widened out into a big, high room several hundred feet long and about half as wide, at least it seemed that large when you compare the size of an ant to the size of a man. It was almost completely filled with piles of wheat, oats and other kinds of grain and seeds.

"This is one of the storerooms where the ants keep their winter's supply of food," said Tinker. "There are many more vaults like this, some of them far, far down below the surface of the earth. Before Jack Frost comes and freezes everything with his icy breath, every storehouse will be filled with grain."

"I don't see where they get it all," said Billy, stopping a minute to look up at the great mountains of grain which nearly touched the roof of the chamber.

"Why, Billy Boy, where are your eyes?" replied Tinker. "As we came along the road the ants built from the harvest fields, don't you remember that every ant we passed on the way was carrying something in its jaws, either a seed or some kind of a crumb of the cookie you dropped back under the old apple tree. The ants are a thrifty little people and have learned that in summer they must get ready for winter. They know that when cold weather comes everything will be frozen up; the fields and meadows will be bare and brown, the grain will be cut down and carried away, so there will be no more seeds to gather. So all through the summer and fall the wise little fellows work early and late in the harvest fields, gathering a store of grain to last them through the winter. So you see the ants are wiser than lots of people who never think of saving anything up against a time when they can't work."

"The busy little workers find lots of seeds and kernels of grain on the ground in the oat forest surrounding the city on every side, but if there are not enough lying around on the ground they climb the oat trees and cut the grain from the stalks."

"In some parts of the country there grows a plant called ant rice. The Little People are very fond of the seeds and when they clear away the grass and weeds to make the doorway around their city, they never cut down the ant rice but leave it growing on the plain so they will always have a supply of food close at hand. They even plant some seeds on the side of the ant hill and take care of the plants as well as the best farmer."

"Why, they act just like real farmers," said Billy in surprise.

"They certainly do," replied Tinker.

"In fact, these particular ants are called Farmer or Harvester Ants, because of their grain gathering and cultivating habits."

"I thought all ants were the same," said Billy. "Of course, I know that some ants are larger than others, and some are red and some are black, but aside from that I imagined they were all alike."

"Why, bless your heart, Billy Boy, there are almost as many kinds of ants as there are different kinds of people," replied the elf, and next week I'll tell you more about them.

LIGHT OF WESTERN STARS.

(Continued from page 502).

edge of the west. Like all of her class, she had traveled Europe and had neglected America. A few letters from her brother had only confused her already vague ideas of plains and mountains, as well as of cowboys and cattle. She had been astounded at the interminable distance she had traveled. If there had been anything attractive to look at in all that journey, she had passed it in the night. And here she sat in a dingy little station, with telegraph wires moaning a lonely song in the wind.

CHAPTER II.

A faint sound, like the rattling together of thin chains, diverted Madeline's attention. At first she imagined it was made by the telegraph wires. Then she heard a step. The door swung wide. A tall man entered, and with him the clinking rattle. She realized, then, that the sound came from his spurs.

The man was a cowboy, and his entrance vividly recalled to her that of Dustin Farnum in the first act of "The Virginian."

"Will you please direct me to a hotel?" asked Madeline, rising.

The cowboy removed his sombrero. The sweep he made with it, and the accompanying bow, despite their exaggeration, had a kind of rude grace. He took two strides toward her.

"Lady, are you married?"

In the past, Miss Hammond's sense of humor had often helped her to overlook critical exactions natural to her breeding. She kept silence, and she imagined it was just as well that her veil hid her face at the moment. She had been prepared to find cowboys rather striking, and she had been warned not to laugh at them.

This gentleman of the range deliberately reached down and took up her left hand. Before she recovered from her start of amaze, he had stripped off her glove.

"Fire sparks, but no wedding-ring!" he drawled. "Lady, I'm sure powerful glad to see you're not married!" He released her hand and returned the glove. "You see, the only hotel in this here town is some against boarding married women."

"Indeed?" said Madeline, trying to adjust her wits to the situation.

"It sure is," he went on. "Bad business for hotels to have married women. Keeps the boys away. You see, this isn't Reno."

Then he laughed boyishly, and Madeline realized that he was half drunk. As she instinctively recoiled, she not only gave him a keener glance, but stepped into a position where a better light shone on his face. It was like red bronze, bold, raw, sharp. He laughed again, as if good-naturedly amused with himself, and the laugh scarcely changed the hard set of his features.

Like that of all women whose beau-

ty and charm bring them much before the world, Miss Hammond's intuition had been developed until she had a delicate and exquisitely sensitive perception of the nature of men, and of her effect upon them. This crude cowboy, under the influence of drink, had affronted her; nevertheless, whatever was in his mind, he meant no insult.

"I shall be greatly obliged if you will show me to the hotel," she said.

"Lady, you wait here," he replied, slowly, as if his thought did not come swiftly. "I'll go—fetch the porter."

She thanked him, and as he went out, closing the door, she sat down, considerably relieved. It occurred to her that she should have mentioned her brother's name.

Then she fell to wondering what living with such uncouth cowboys had done to Alfred. He had been wild enough in college, and she doubted whether any cowboy could have taught him much. None of her family except herself had believed that there was even latent good in Alfred Hammond, and her faith in her brother had scarcely survived two years of almost complete silence.

Waiting there, she again found herself listening to the moan of the wind through the wires. The horse outside began to pound with heavy hoofs, and once he whinnied. Then Madeline heard a rapid pattering, low at first, but growing louder, which presently she recognized as the galloping of horses.

She went to the window, thinking, hoping, that her brother had arrived. As the clatter increased to a roar, shadows sped by—lean horses, flying manes and tails, sombreroed riders, all strange and wild in her sight.

Recalling what the conductor had said, she was at some pains to quell her uneasiness. Dust clouds shrouded the dim lights in the windows. Then out of the gloom two figures appeared, one tall, the other slight. The cowboy was returning with a porter.

Heavy footsteps sounded without, and lighter ones dragging along; then suddenly, the door rasped open, jarring the whole room. The cowboy entered, pulling a disheveled figure—that of a priest, a padre, whose mantle had manifestly been disarranged by the rude grasp of his captor. Plain it was that the padre was extremely terrified.

Madeline Hammond gazed in bewilderment at the little man, so pale and shaken, and a protest trembled upon her lips; but it was never uttered. For this half-drunken cowboy now appeared to be a cool, grim-smiling devil. Stretching out a long arm, he grasped her and swung her back to the bench.

"You stay there!" he ordered.

His voice, though neither brutal nor harsh nor cruel, had the unaccountable effect of making her feel powerless to move. No man had ever before addressed her in such a tone. It was the woman in her that obeyed not the personality of proud Madeline Hammond.

The padre lifted his clasped hands, as if supplicating for his life, and began to speak hurriedly in Spanish. Madeline did not understand the language.

The cowboy pulled out a huge gun, and brandished it in the priest's face. Then he lowered it, apparently to point it at the unlucky man's feet. There came a red flash and a thundering report that stunned Madeline. The room filled with smoke and the smell of powder.

Madeline did not faint, or even shut her eyes, but she felt as if she were fast in a cold vise. When she could see distinctly through the smoke, she experienced a sensation of immeasurable relief on finding that the cowboy had not shot the padre; but he was still waving the gun, and now appeared to be dragging his victim toward her.

What could be the drunken fool's intention? This must be—this surely was—a cowboy trick! She had a swiftly flashing recollection of Alfred's first letters descriptive of the extravagant fun of cowboys. Then she vividly remembered a motion picture she had seen—cowboys playing a monstrous joke on a lone school-teacher.

Madeline decided that her brother was introducing her to a little wild west amusement. She could scarcely believe it, yet it must be true. Alfred's old love of teasing her might have extended even to this outrage. Probably he stood just outside the door or window, laughing at her embarrassment.

Anger checked her panic. She straightened up with what composure this surprise had left her, and started for the door; but the cowboy grasped her arms and barred her passage. Then Madeline divined that her brother could not have any knowledge of this indignity. It was no trick. It was something that was happening—

that was real—that threatened she knew not what.

She tried to wrench free, feeling hot all over at the touch of this drunken brute. Poise, dignity, culture, all the acquired habits of character, fled before the instinct to fight.

She was athletic. She fought. She struggled desperately; but he forced her back with hands of iron. She had never known a man could be so strong. And then it was the man's coolly smiling face, the paralyzing strangeness of his manner, more than his strength that weakened Madeline until she sank trembling against the bench.

"What do you mean?" she panted. "Dearie, ease up a little on the bridle!" he replied, gaily.

Surely Madeline was dreaming! She could not think clearly. It had all been too swift, too terrible for her to grasp. Yet she not only saw this man, but also felt his powerful presence; and the shaking priest, the haze of blue smoke, the smell of powder—these were not unreal.

(Continued next week).

Holly and Mistletoe for Xmas

FOR many years holly has outranked every other Christmas green. So popular has it become that no Christmas package, gift or decoration is considered quite complete without a spray or wreath of this universal symbol of good cheer. The berries are just turned scarlet in time for Christmas. A month or more before the holiday season opens, thousands of trees of moderate dimension, and crates, baskets and bales of the holly branches are shipped from the holly districts to the large cities. And gliding over the waters of the Atlantic there are ships laden with more branches and wreaths for American and English residents in all parts of the world.

Two or three decades ago the holly was practically without commercial value. The southern forests then teemed with the trees, but few of the branches ever reached the city markets. Instead of holly wreaths of running pine were sold in large quantities for Christmas greens. This attractive little evergreen is fast disappearing from its native haunts where it formerly grew in profusion, and the holly wreath has very largely taken its place. But at no distant date, according to present indications, the holly will be exterminated, too, except in the corners of inaccessible swamps, so great is the demand for it and so great is the waste in gathering it.

The holly was formerly considered a "wild crop," like huckleberries, growing in the woods for the benefit of the boys and a class of people who did not work except when necessity compelled them. These were the pioneer holly gatherers. Then the railroads extending from New York and Philadelphia into Delaware, Maryland, Virginia and North Carolina opened up territory of wide extent, wonderfully rich in holly. The holly thickets of these states have for many ears furnished hundreds of thousands of wreaths annually. Some years the holly berries are scarcer than in other years, but as the blooming time comes too late to be injured by frost there is never a complete failure of the berries.

The season for harvesting opens Thanksgiving week when everyone, old and young, gets busy. The first shipments are made to distant markets. There is a fearful waste in cutting the holly branches. Most of the holly is gathered by boys who have no thought of the trees' future. Climbing to the top, the boy with hatchet in hand begins to rob the tree of every branch that has choice berries. The fuller the tree is of berries the more

certain its ruin. The holly is a tree of extremely slow growth, yet in many instances it is either cut down or so completely stripped of its branches that it soon dies. A tree judiciously cut will within six or seven years grow out again, and trimming in the right way will improve the berries.

After the branches laden with the scarlet berries have been cut from the trees, the new twigs bearing the red fruit, are broken off and carried to the homes of the gatherers. In every home there is a busy scene, especially at night, when all hands find something to do. Young children bunch the berries, tying two or three clusters together with very fine wire; others cut off the leaves with scissors, while older workers will wind the wreaths on frames of sweet pepper bush, azalea or other flexible young twigs, which look like a bunch of switches before they are deftly twisted into circles. An expert worker will complete an hundred or more wreaths a day. Dealers pay from five to fifteen cents each for the wreaths, according to size and the number of clusters of berries they contain.

Holly is hardy and may be grown in many places for ornamental purposes. It may be propagated by planting the berries, which contain the seeds, or by transplanting young seedlings, which is considered the better and surer way, as germination is exceedingly slow, not before the second year.

Mistletoe is less in demand than holly at Christmas, yet large quantities of it finds its way from the southern forests to the markets. The mistletoe is a parasitic evergreen plant with white berries which ripen in late autumn. The one-seeded berries are glutinous and readily adhere to any surface, like a bit of wax. Fruit-eating birds are especially fond of these berries, and they are carried long distances by the birds which drop the undigested seeds on tree branches, where they adhere. The seeds germinate and use up what food supply they have in getting the feeding threads into crevices in the bark, and thus into contact with the rich sap that flows between the tree's bark and its wood. Thereafter the mistletoe plant, a parasite, draws upon the tree for sustenance. The first branchlet from a seed always turns toward the tree to which the seed is clinging and soon the tiny plant is firmly attached. In this way the trees in the southern forests are sown each year with mistletoe. The black poplar, the chestnut and the oak are favorite hosts of the mistletoe.

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Woman and Her Needs

At Home and Elsewhere



The Most Acceptable Gift

[By JULIA R. DAVIS

I ASKED several of my friends: "What is the most acceptable gift you received or gave last Christmas?" and the following are some of the answers:

A young girl said: "One of the best Christmas gifts I ever sent was a calendar letter, as I called it. It was sent to a friend, a girl, sojourning in a foreign land. I wrote 52 letters, one for every Sunday of the year. Of course, I began a long time ahead, so that I would have something interesting to say. Then I got a box of stationery, and on this I pasted kodak scenes of her home town, and selecting 12 of the envelopes, pasted a calendar leaf of the different months on each of them. Then I put as many letters as there were Sundays in each envelope. If there was a birthday or some special holiday when gifts are exchanged, as Easter, some little gift went in also. All the envelopes were laced together with red ribbons."

A college boy said: "I received a set of motto towels, last Christmas that afforded much fun, and also proved very useful. There was a different one for each day of the week. Amusing mottoes were selected, and outlined in colors. This is one of the mottoes:

"My Friend: You will get more tough wipes from the world outside than you will ever get from me."

A little girl said: "Mamma gave me a book last year that I liked better than any gift I ever received. It was made of ten sheets of unlined, heavy note paper covered with cream-colored bristol board, tied with cherry-colored ribbon, and had this title printed in gold ink: 'Books I Have Read,' on the cover. On the pages inside were ruled columns. The first was headed, 'Author'; second, 'Title'; third, 'Year'; fourth, 'Opinion.' I take great pleasure now in keeping a record of my reading, and it helps me to remember the authors of the books. I am sure any little boy or girl would like one of these books."

A housekeeper said: "The most appreciated simple gift I ever received was a newspaper rack to hang on the wall. Cover a cardboard roll or a light pine stick, the length to fit the width of your daily paper, with suitable silk, or any chosen material. Attach a ribbon about 30 inches long to each end to hang up by and finish with pretty ribbon bow at each end. On it the daily paper may be put as it is received, and it will put an end to the weary search when the man of the house comes in and says, 'Where's today's paper?'"

A young girl said: "A delightful gift came to me in the shape of little bran bags for bathing the face. There were one dozen, tied together with blue ribbon, and put in a Christmas box."

The woman who likes to cook said: "The best Christmas gift to me was many kinds of modern helps for the kitchen. I had often longed for just such things but had never hoped to own so many."

A young bride said: "A most serviceable gift was a very simple one. Circles of pink cotton batting, loosely up which should be catered to as brier-stitched in pink were tied to-

gether with pink ribbon in groups of 11. They are for use between plates to prevent scratching."

A college girl said: "A box of stationery with a stamp on each envelope, and a dozen post cards in the box has been a great comfort to me. Money goes so fast that there is never much left for postage."

A busy mother said: "I appreciated the thoughtful gift of a little bundle of sachet pillows, tied together with a satin ribbon. I do not take time to make such things for myself."

RECIPES.

Chestnut Stuffing for Turkey or Goose.

Take one pint of fine bread or cracker crumbs, one pint of shelled and boiled chestnuts, chopped fine, or run through the food grinder, a little salt, pepper and chopped parsley to season, one-half cup of melted butter to which has been added a few drops of onion flavoring.—M. A. P.

Cranberry Tarts.

Cover the outside of patty pans with puff paste and bake in a quick oven until nicely browned. Lift carefully from the patty pans and set away until wanted. Put one quart of cranberries with a pound of sugar in a baking dish, and bake until clear like jelly. At serving time, fill the shells,

dust with powdered sugar, bake long enough to make them hot and glaze the top. Serve with a spoonful of whipped cream on top.—M. A. P.

Bread Cakes.

Over one and one-half cups of bread crumbs, pour enough hot milk to soften to paste, and set aside to cool. When ready to cook, add two eggs well beaten, a tablespoon of Karo syrup, one-half cup flour and one-half cup of cornstarch, into which two teaspoons of baking powder and a pinch of salt have been sifted. Beat thoroughly, mashing all crumbs that have failed to disappear, stirring in at the same time a good tablespoon of melted butter. Bake on aluminum griddle. The syrup will make them brown quickly, but they should be baked slowly, as they are hard to cook through. Also, as they are very tender and rather hard to turn, the cakes themselves should be rather smaller than most other hot cakes.

Graham Pancakes.

Take one cup of flour, two tablespoons of cornstarch, one cup of graham or whole wheat flour, and, with one and one-half pints of milk scalded and cooled (in which a quarter ounce of yeast has been dissolved), make a sponge as for bread, stirring in one teaspoon of salt and two teaspoons of Karo syrup. Let rise over night in a cool place. When ready to bake, add one saltspoon of soda dissolved in two tablespoons of milk. Stir in well and add milk until batter is right consistency. Bake on hot aluminum griddle.

SOMETHING DIFFERENT IN XMAS GIFTS.

BY FLOY SCHOONMAKER ARMSTRONG.

Something new and novel in the line of Christmas gifts originated last year in the fertile mind of a country woman, and the genuine pleasure conveyed to the lucky recipients of the clever and surprising gifts warrants the spreading abroad of Mrs. Countryman's innovations.

The persistent and perplexing "Annual," "What shall I give them this year?" found her with limited means and lagging enthusiasm. In former years she had given the usual gifts, books, calendars, fancy articles, embroidered linens, etc., to the friends and relatives whom she loved to remember, and now her active and imaginative mind cried aloud for something new or different to bestow upon them. She found it in the bin of fine white pop-corn and the box of choice flower and vegetable seeds that she and her household had so joyfully harvested. Instead of selling the corn and seeds to swell the Christmas funds, as had long been planned, she would convert them in their original state, into surprising gifts for the friends who were city and village dwellers.

The germ of "something different" gave birth to other charming ideas, all of which materialized into artistic and satisfying Christmas gifts that brought to Mrs. Countryman heartwarming praise and gratitude. Small double bags, about 11x8 inches, were made of stout white crepe paper, and across the bottom of each bag was neatly pasted a two-inch strip of holly paper headed by a narrow band of gilt. Each bag bore in red, green and gilt lettering the label,

COUNTRYMAN'S BEST.

XXX

1915.

The bags were then filled within two and one-half inches of the top with shelled and cleaned pop-corn, and tied with holly ribbon. To one streamer of the ribbon bow was fastened a small envelope addressed to the one for whom the gift was intended, and containing a sheet of paper on which, written in red and green inks, appeared the following original jingle:

"To the House of greetings
For the merry Christmas morn,
And to swell the Yule-tide pleasure
Add this bag of gay pop-corn.
'Tis a gift that fits the season,
'Tis replete with hidden mirth,
For within each tiny kernel
Laughs the voice of Mother Earth:
Spring-time showers and summer sunshine,
Singing birds and dew of morn,
All are stored within the fastness
Of the merry popping-corn.
Long before the days of tinsel
And the shop-grown things of Now,
Strings of pop-corn decked the Yule-tree,
Festooned high from bough to bough,
And—and—and"

"We had thought to make this longer,
Gr-and and fit for Christmas-time,
But we find we've gone and used up
All the words we know that rime.
So 'tis best to 'drop the curtain,'
This extravaganza stop
By wishing you a Merry Christmas
And hoping that the corn may pop."

Tiny holly boxes were used to hold the choice flower and vegetable seeds that were sent to greet and gladden the friends who boasted small flower or garden plots about their village

Make Duty Look Pleasant

ISN'T it a pity that really beautiful word Duty should look so ugly to most of us? And it's all due to the way it is shown to us by our first teachers.

As a matter of fact, there isn't a better word in the language, nor one we crave more when it is shown us first in its other form, privilege. But, unfortunately, most of us see it in the "shorter and uglier" way first, last and always. When we are children 'instead of being shown it is really a privilege to do things we don't like to do, we are solemnly assured it is our duty to do them. As wee tots, instead of being gleefully shown what a fine chance we have to show how much we love mother by the privilege of filling the woodbox or washing the dishes, we are told it is our duty to help poor, tired, long-faced mother. Children are not overly fond of long faces and sighs and groans, and duty, all too early, becomes associated in their minds with unhappiness, lack of cheer, and often with scolding and nagging.

Duty is often made to mean everything that is disagreeable and nothing that is unpleasant. It is a duty to like melancholy, doleful individuals who think life too solemn a thing to devote any part of it to play, and an equally important duty to shun foolish-minded folk who actually neglect their work occasionally to have some fun. Our mentors never forget that it is our duty to work, but they do forget that many-sided Mother Nature put a large play element in our makeup which should be catered to as much as the more serious work side.

We are told as we are coming along that it is our duty to be good. But we are never told that it is our duty to be happy while we are about being good, and all too often being good is connected in youthful minds with cheerless individuals who make a necessity of their virtue and get no fun out of it. Clearly it is a duty to be good, but does it necessarily follow that being good is such a hardship that we can't smile while we are about it?

If grownups would only remember that it is a duty to be cheerful! What a difference that would make in the childish interpretation of duty. Certainly if it is a duty to do disagreeable things, it is even a more important duty to do them cheerfully, not with such a wry face that everyone wishes you would let duty go hang. In common with other philosophers I have long held that to do a duty ungraciously is worse than refusing to do it at all.

Dependents are so often made to feel the sting of their dependency. We take care of our helpless ones because it is a duty, but we never see it is a duty to do it gladly, do it with a sunshine which will take the bitterness out of their helplessness. We sacrifice for the children, but we remind them every so often of how much we are giving up for them. In every way we make Duty look disagreeable to the onlooker, and then wonder why more do not follow our righteous example. If we could make Duty look pleasant, if we would spell it Privilege, we would need to preach fewer sermons.

DEBORAH.

homes. And with the flower seeds went these lines:

"I wished for something beautiful—
Some lasting gift for you,
The blossoms hidden in these seeds
Asked, 'Please, ma'am, will we do?'"

PRETTY HOME-MADE RUGS.

BY MRS. EARL TAYLOR.

More small rugs are used now than ever. There are many places that require them, where a large rug is not used. The bathroom, bedrooms, halls and doorways of a house are the main places for such rugs. Many of these may be made at home, and at little expense. Among them are braided rugs and star rugs, both of which were made by our grandmothers.

To make a star rug, procure some stout, heavy cloth and cut into eight-inch squares. Good parts of old suits, coats, etc., may be used by cleaning properly and pressing. For the star make a pattern out of stiff cardboard or, better yet, a piece of tin. It should have six points and each point should curve in a little as it nears the center. This prevents it from looking bungling in the center. When the star is worked the curve will not be noticeable. The star should be about six or six and a half inches across. The patterns should be placed in the center of the block and worked over with coarse yarn. The star may be worked all in the same color, in two contrasting colors or shades.

We will suppose our star is to be worked in cream and light blue. Then it would be made in this way: Make a knot in your yarn (which should be double unless very coarse), and draw the yarn up through from the wrong side of cloth, draw yarn across tip of one of the points and put needle back through to wrong side of cloth. Take as small a stitch as possible on this side and put your needle back up through the block and recross the point. Work back and forth in this manner until the point is all covered up. We will use the cream colored yarn for this. Now take the blue yarn and go over in the same manner, working close to the cream colored yarn. When you have all of the points of the star covered with both colors of yarn, cut down through the center of each point with the shears and remove the pattern. With a hot iron press the cream colored ends of yarn back toward the center so as to cover up the place where the pattern has been, and press the blue outward. Now your star is finished for the little place in the center is not to be worked.

Work enough of these squares to make the desired size for rug. Sew together and line with any durable lining. For the ends of the rug take a strip of cloth like the rug and make scallops on one edge of it. Sew the straight ends in between the top and lining of rug and work the scalloped edge in buttonhole stitch with yarn of a color to match the stars.

When making the braided rugs the rags should be cut very coarse so the rugs will not kick up easily. If the material is thin goods, it should be cut six or seven inches wide, and if thick goods, three or four inches. Pretty effects may be obtained in hit-and-miss or plain stripes. Two strands may be dark and the third of a contrasting color, etc. These rugs may be made in various shapes, round, oval, square or long with square corners. The shape of the rug all depends on how the center is started.

Perhaps the square cornered ones are the most unusual, so I will explain how they are made. Suppose you want your rug to be twice as long as it is wide. We will braid a strip 24 inches long, cut off and fasten the ends. Now make another braided strip of the same length and sew onto the first. Work in this fashion until it is 12 inches wide. Now you have your center twice as long as it is wide

and you can commence to work around it. We will suppose that your center was black and white and that you want to put three rows of dark red around it. Braid a strip of red rags and commence to sew around the center. Do not braid too long a strip as you may have more than enough to make your three rows, and a very long strip is also not so easy to handle. It is also much handier to sew the rags as the braid is made, for braiding with three balls of rags is very inconvenient. Keep on braiding and sewing on the strips of various colors until you have the desired size for your rug. If you want your rug to be perfectly square, the middle would, of course, be made square, and then proceed as for the oblong way.

RECIPE FOR HAND LOTION.

BY ELLA E. ROCKWOOD.

Since the cold weather is here, chapped hands and roughened lips may be expected. A most excellent lotion which is both soothing and healing in its effects, and which finds many uses in my own family, follows. If purchased at a drug store under an attractive name it costs several times the sum represented.

Soak one-eighth of an ounce of gum tragacanth in one pint of soft water for three days, or until partially dissolved. At the end of that time add to it one gill of alcohol, one gill of glycerine and one-fourth gill of cologne. Shake well and it is ready to use. Men find this excellent as a face lotion after shaving.

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No. 1445—Ladies' Dress. Cut in 6 sizes, 34, 36, 38, 40, 42 and 44 inches bust measure. It requires 8 yds. of 36-inch material for a 36-inch size. The skirt measures about 3½ yds. at the foot. Price 10c.

No. 1436—Ladies' and Misses' Basque Costume. Cut in 7 sizes: 3 sizes, 16, 18 and 20 years for misses, and in 4 sizes for ladies, 36, 38, 40 and 42 inches bust measure. It will require 5½ yds. of 40-inch material for an 18-year size. The skirt measures about 3¾ yds. at lower edge. Size 38 will require 6½ yds. of 40-inch material and measures 4½ yds. at its lower edge. Price 10c.

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Flesh Foods

BY FLOYD W. ROBISON.

The item of greatest consideration in our diet, or at least the one which gives us the greatest concern is the question of flesh foods. Here we have to deal with that exceedingly interesting and all important element, nitrogen, which lies so at the extremes in nature. Practically every energy in agriculture, and in the industries having for their immediate basis, agriculture centers around some consideration of this element nitrogen. The flesh foods are peculiar in that they present nitrogen from a food point of view in its most concentrated form. For practical purposes we may consider flesh foods to be essentially protein compounds. Meat consists of a grouping of muscle fibres which in themselves are almost pure proteid compounds, and a proteid compound is one which has nitrogen bound up in it in a practically uniform percentage content.

Lean Meat is Pure Protein.

Lean meat is almost pure protein and water, and in a young growing animal which, due to its muscular activity and life vigor, has practically no fat on it, the amount of true protein will figure with the water which accompanies it to be 100 per cent practically. There are no other food compounds; fat, sugars, and salts in meat but these are present in lean meat in very small quantities. It is the protein portion which makes it so valuable. Aside from protein and fat, meat contains a substance called glycogen which is sometimes called animal starch. It also contains some sugar and a great variety of the simple nitrogen compounds.

Composition of Average Cuts of Meat.

The chief constituents of meats from various sources are very similar and it is exceedingly difficult to differentiate one from the other, particularly in case of a combination of comminuted meats. The familiar cuts of meat are, in the beef, divided as follows: Neck, chuck, ribs, shoulder clog, fore shank, brisket, cross ribs, plate, navel, loin, rump, round, second cut round, hind shank. According to Atwater the analyses of these different portions are as follows:

	Av. Lean and Fat.			Fuel Value
	Water.	Pro.	Fat.	Calories per lb.
Beef:				
Chuck	68.00	19.00	12.00	865
Ribs	55.00	17.5	26.00	1450
Loin	60.00	18.5	20.00	1190
Rump	57.00	17.00	25.00	1400
Round	65.00	20.00	13.50	950
Veal:				
Chuck	73.00	20.00	6.50	640
Ribs	73.00	20.50	6.00	640
Loin	69.00	20.00	11.00	825
Leg	70.00	20.00	9.00	755
Mutton:				
Chuck	51.00	15.00	34.00	1700
Loin	50.00	16.00	33.00	1695
Leg	63.00	18.50	18.00	1105
Lamb:				
Chuck	56.00	19.00	24.00	1350
Leg	64.00	19.00	16.50	1055
Loin	53.00	18.70	28.00	1540
Pork:				
Shoulder	51.00	13.00	34.00	1690
Loin—lean cut	60.30	20.00	19.00	1180
Loin—fat cut	42.00	14.50	44.50	2145
Ham—lean cut	60.00	25.00	14.50	1075
Ham—fat cut	34.00	10.70	43.50	2035

Relation Between Protein and Water in Meat.

It is interesting to observe in studying the composition of these different average market cuts of meat how such close relationships exist between the water content and the amount of protein. As a matter of fact, the water is associated almost entirely with the lean meat. The fat itself carries no water, or but traces of it. What little it does contain exists in the membranous tissue which does contain some nitrogenous or proteid matter.

Relation Between Fats and Fuel Values.

Another interesting feature shown by the analytical figures is the close

relationship existing between the caloric, or fuel, value and the fat content. The fat is much more valuable as a heat producer than is protein. It contributes more than twice as much heat when consumed in the body. Not only this, but it is usually much cheaper than is the protein and consequently economical considerations would warrant the restriction of the amount of protein to the actual bodily needs and the use of the cheaper fats, etc., for the purposes of heat production. As a matter of fact, centered around this point lies the science of the balanced ration and the balanced diet.

Sound Meats.

What is sound meat? Sound meat is that which is perfectly wholesome in every way, in which decomposition has not set in. It is perfectly free from odor and has a firm and elastic touch. Fresh, sound meat should not be alkaline in reaction. It should have a bright color and a healthy appearance.

According to the standard established by the Food Standards Committee, meat is defined as follows: "Standard meat is any properly prepared edible part of animals in good health at the time of slaughter. The term 'Animals' as herein used includes not only mammals, but fish, fowl, crustaceans, mollusks, and all other animals used as food. Standard fresh meat is made from animals recently slaughtered or preserved by refrigeration only. Standard salted, pickled, and smoked meats are unmixed meats preserved by salt, sugar, vinegar, spices or smoke, singly or combined, whether in bulk or in packages. Standard manufactured meats are meats not included in the above divisions, whether simple or mixed, whole or comminuted, with or without the addition of salt, sugar, vinegar, spices, smoke, oils, or rendered fat.

Preservation of Meat.

Meat is most advantageously, for ultimate food purposes, preserved by refrigeration. This refrigeration may consist in actually freezing the meat or in keeping it in a refrigerating room at or near the temperature of freezing. Curing is another method of preserving that consists in drying, pickling, smoking, corning, etc. These processes lend a variety of flavors

flavor of the ham was very much injured. This practice of pumping or painting the ham is not now so common as at that time.

In corning the meat is put in a solution of salt containing salt petre. This process of pickling the meat leaves certain decisive characteristics such that corned beef is very readily recognized and can scarcely ever be mistaken. It has been considered that these processes of pickling, particularly corning, influence in a detrimental way, the digestibility of the product.

Chemicals Have Been Used to Preserve Fresh Appearance.

Various preservatives, such as sodium sulphite, boric acid, and calcium and sodium bisulphites are frequently used. We think, however, there is no question but that these processes are inferior to the ones more popularly known and more popularly resorted to, such as smoking and drying.

In the preservation of fresh meats certain antiseptics, such as boric acid, are frequently applied to the exterior surface of the meat. This is expressly permitted by the food laws when it is applied in such a way that in the ordinary preparation of the food in the home for use the preservative could be easily discarded or worked off. When this can be done it has certain decidedly advantageous features. It protects the meat during transportation and in this way permits of its arrival at its destination in an uncontaminated condition. The use of sulphites, however, which is more particularly confined to comminuted meats, is without a satisfactory excuse, and in our judgment should be vigorously condemned.

Cooking and Canning of Meats Becoming Very Popular.

Aside from these methods of preservation of meat the canning, cooking and sterilizing makes it possible for the portions which would otherwise become wasted, to be utilized and therefore practically all of the packing industries have their cooking and canning departments to utilize these portions which would otherwise be wasted.

INCREASED USE OF FUR.

For the past two years the use of fur has been exceedingly limited. There has been practically no market for any except the exceedingly rare and beautiful skins. The styles did not call for it.

Farmers who had been accustomed to earn several hundred dollars by trapping during the winter months gave it up in disgust. They couldn't get enough for their pelts to pay for the shoe leather wasted in making the round of traps. Fur buyers were in a bad way. They couldn't sell, so they didn't buy.

But fickle Dame Fashion has changed her mind—and now look. It is a reign of fur. Fur collars, fur cuffs, fur coats, muffs, capes and shawls, and hats.

Fur is proper everywhere. It is combined with velvets, linens, silks, satins, organdies, brocades and velours. There are fur reverses, fur lapels, fur piping, edging, flounces, bands. It's proper on the dancing frock, the reception dress, the tailored suit, the house gown and the negligee.

Pick up any fashion periodical; any woman's magazine; any newspaper that has a fashion page; any recent mail-order catalog, and you will find that no woman is considered fashionably dressed unless she wears fur morning, noon and night.

As a consequence, for furs of all kinds the demand is far greater than the supply and prices have gone sky high. At the recent United States government auction sale in St. Louis, prices were bid 175 per cent higher on blue foxes, for instance, than they were two years ago. And buyers are begging for more.

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Grange.

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

THE PLAY'S THE THING.

Three of the perennial questions that are always asked in the Grange are: How to get new members? How to furnish music? What to do with the young people? I give here two letters. One from Mrs. T. E. Niles, wife of State Grange Steward, and a member of Mancelona Grange Orchestra, and the other from Mrs. Leslie Burch, Lecturer of Rockford Grange. They need no comment, yet I cannot forbear adding, "Haven't I always told you so?"

If your Grange needs new members, needs stirring up, wishes to interest the young people, if you want money, give a play.—Dora H. Stockman.

Dear Mrs. Stockman:

Our Grange bought a piano and some bells, also the drum for the orchestra, which is one year old this month, and we are to give a banquet on the seventeenth to celebrate our anniversary.

I am enclosing a card showing the characters in a play given by the Grange. The proceeds \$(42) finished paying for our piano. The play is a court scene. I represented an old maid passing as a schoolgirl, and have sued Henry Leshor for \$50,000 damages for breach of promise. My lawyer sits back of the table, his law-



Plays Keep Grange Interest Alive and Help the Exchequer.

yer at end of table. Judge and clerk are back of the lawyers. Four witnesses at left corner. Jury at right. Mrs. Doyle represents Frau Bumbles-burger-horffendor-fenstein. She has in her basket cabbage smearcase and frankfurts. The latter you can see hanging over the edge of the basket. The militant holds the bomb.—Mrs. T. E. Niles.

My Dear Mrs. Stockman:

I have been thinking of writing you but we have been very busy with our play. We gave it at three different places and always had a full house. We made a little better than \$40 at our own Grange hall. Our contest is ended and our side was the winner. We have 50 new members to our Grange and still more coming. At our last meeting we had nearly 100 members present. Last meeting we had a play by eight ladies, "How the Story Grew." It made a great hit.—Mrs. Leslie Burch.

AMONG THE LIVE GRANGES.

Grand Traverse Grange is remodeling its home. The hall, which has been in constant service for many years, is being moved a few rods so as to be upon a more desirable site. A basement divided into a dining-room, kitchen and furnace room, will be placed beneath the building. A modern heating system is being planned, also a new roof. "It is hoped that the improvements will be continued until the building is resplendent in a new coat of paint. When the executive committee are through with their work the organization will be provided with the best and most up-to-date Grange home in northwestern Michigan.—R. H. E.

Farmers' Clubs

OFFICERS OF THE STATE ASSOCIATION OF FARMERS' CLUBS.

President—R. J. Robb, Mason.
Vice-president—C. J. Reed, Spring Arbor.

Secretary and Treasurer—Mrs. J. S. Brown, Howell.

Directors—Alfred Allen, Mason; Joseph Harmon, Battle Creek; C. B. Scully, Almont; C. T. Hamline, Alma; W. K. Crafts, Grass Lake; Edward Burke, St. Johns.

Address all communications relative to the organization of new Clubs to Mrs. J. S. Brown, Howell, Mich.

CLUB DISCUSSIONS.

Favor County Agricultural Agent.—On November 24 the Essex Farmers' Club was pleasantly entertained at "Sunnyside," the home of Mr. and Mrs. Elbert Matter. The opening number was a song by the Club, "Our Flag," in which patriotism was plainly in evidence. "The Lord's Prayer" was repeated in unison, after which the minutes were read and approved. Delegates to the twenty-third annual meeting of the State Association of Farmers' Clubs, which is to convene in the senate chamber at Lansing, on December 7-8, were elected, Messrs. Elbert Matter and A. E. Cowles being named, with J. T. Daniells and R. J. Ferguson as alternates. The dinner hour having arrived, adjournment was taken that this important function might receive the attention which each and every member of the company appeared willing, and even anxious, to bestow. The afternoon exercises were introduced with the singing of "Old Black Joe," by the entire

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This Year's Bargain Offer—the Michigan Farmer three years for \$1 or five years for \$1.50. See page 518.

Farm Commerce.

A Survey of Bean Prices

NOTWITHSTANDING insistent statements to the contrary, the great economic law of marketing is supply and demand. Definite instances may be pointed out where a man or group of men have, by withholding stores from the market or by circulating wrong information caused the establishment of prices that are not in harmony with the rule of supply and demand, but these incidents merely go to prove the general rule that supply and demand not only fix prices, but largely determine the course of distribution.

Understanding this, it would certainly prove valuable to make a survey of the course of bean prices during the past five years. Such a survey ought to give the farmers who now have beans in their possession confidence in the market for the coming months. At the present time, growers are in the best position they have been for a long while to realize a substantial portion of the price that the consumer will ultimately be obliged to pay for this year's crop of beans.

Prices Weak in Spring of 1911.

Going back to 1911 and taking the cash quotation in Detroit as our guide, we observe that the year opened with

the amount of beans grown that year at 5,266,296 bushels.

Steady Market for 1912.

The year 1912 opened with values at \$2.30, and prices remained between this figure and \$2.44 until the last of April. During May they advanced from \$2.50 to \$2.70 and remained between these figures until the last of October following. The new crop which our state reporters calculated at 5,254,311 bushels, then began coming onto the market, and values gradually declined until they reached the \$2.20 basis at the close of the year.

The Lowest Quotations.

During the first three months of 1913 prices declined from \$2.20 to \$1.85 and then advanced to \$2.05, where they held until the last of July when another decline occurred. While the state crop report for 1913 placed the new crop at 4,932,621 bushels, which was a little less than the yield for each of the two preceding years, private figures indicated that the crop must have been much larger than this, in addition to which the yields of competing states furnished a heavy supply of beans. With this, values generally declined from the beginning of marketing in September and Oc-

gradually advanced up to the second week of May, when the quotation had reached \$2.10. Then prices fell off to \$1.95 by the first of August following, at which time there was a sudden advance by reason of the European war to \$2.75, where it remained until the last of September, when the appearance of the new crop enabled the dealers to crowd values down. By the middle of October they reached the \$2.10 basis, from which time to the end of the year the steady demand and smaller output, together with the impossibility of making importations, advanced the quotation to \$2.55 per bushel. The state crop report for the year 1914 placed the number of bushels of beans raised in Michigan at 4,670,314.

Small Crop of 1915.

The year 1915 so far is a record for average values. The quotations started in January at \$2.55 and advanced to \$3.15 by the middle of February. Values then remained above \$3.00, except for a brief period in April, until the last of June, when the general condition of the growing crop promised an abundant harvest and prices were gradually reduced until the first of August. At this time reports began circulating that wet weather was damaging the beans, and quotations were gradually advanced, reaching \$3.00 the first of September, and remaining near this level until the second week in October, when it jumped to \$3.25. Following this a further advance was made to \$3.50 by the last of the month. After a decline of 20 cents the first of November, the market recovered the loss and remains at the present time at the highest point it has occupied during the five years under discussion. The state crop report places this year's yield at 3,834,714 bushels, which is 32 per cent less than the average yield during the past ten years. Estimates made by the Michigan bean growers at Flint during September placed the yield of the state at 2,700,000 bushels.

Prices Should Help Make up for Small Yield.

A study of the accompanying illustration showing the changes in bean values during the past five years, with the prices generally depressed when the yield was heavy, and elevated following light harvests, ought to increase faith in a continuation of the present high values for this winter. The 1914 crop was well cleaned up so that there is no competition from that source. None of our Michigan jobbers are in Europe engaging shipments for use in this country, as was the case when prices were up a few years ago. The value of beans as a sustaining and energy-producing diet, increases the demand when business is prosperous like the present and the abnormal call for foodstuffs by European agents is being heard in every corner of our country.

The market should not be injured by curtailing consumption excessively through high prices, but this year the final buyer is going to pay just all he will stand, regardless of what the farmers may sell for, and our position is that the farmers should get their share. They can do this by selling only on an advancing market and withholding when prices decline.

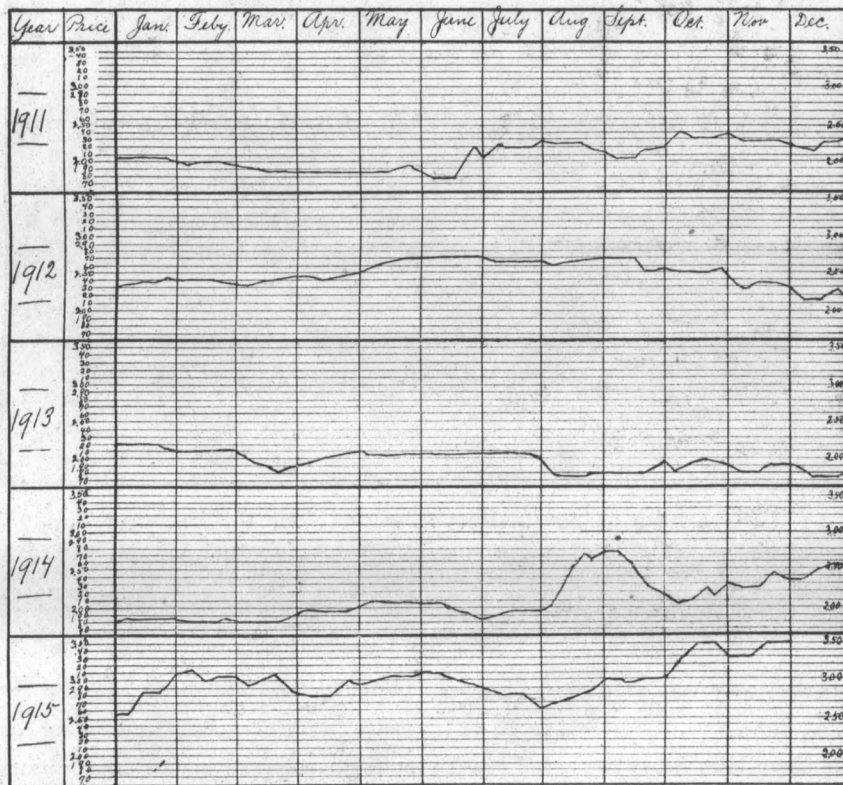


Diagram illustrating the changes in Bean Prices from 1911 to date. The irregular lines follow the fluctuations in prices for cash beans at Detroit for the twelve months of each of the five years. Each space between parallel lines represents ten cents.

beans quoted at \$2.05 per bushel. The crop of 1910 proved to be a slightly larger one than the growers and jobbers thought, and as a consequence prices gradually declined from the basis of sales during the previous months of November and December. The quotation continued through January on the \$2.05 basis, dropped to \$2.00 in February, and down to \$1.88 in March. It was then maintained between \$1.95 and \$1.97 until the last of May when it again went over the \$2.00 mark, but dropped back to \$1.88 in June, then advanced and held throughout July and August at around \$2.20. Early in September there was a decline in anticipation of the new crop, but continuous rains so damaged the beans during harvest time of 1911 that values advanced to \$2.40 in October, from which time they declined slowly and closed the year at \$2.27. The state crop report for 1911 gave

tober until the close of the year, which showed the quotation at \$1.75 per bushel, the lowest point recorded during 1911-1915 inclusive.

Influence of War.

In 1914 values started at \$1.80 and

The Present Bean Situation

By JAMES N. McBRIDE.

IN the German states margin dealing is absolutely forbidden by law. It would be well if it were so in this country on the whole, and this year it would have saved some bean speculators real money. When the 1915 crop was planted there was an unusually large acreage and with but few exceptions the crop came up well, and was promising enough for the speculative element to take a chance

on October beans at \$2.50. There are a few timid people who were solicitous about the farmers violating some law when they made a price on the crop of beans after the government had made the estimate and the crops condition was known, but who have been so long used to speculative deals in the crop almost from the time of planting, and setting the price on what the farmer is growing, that it

has appeared as the expected, and was to be considered as part of the acts of nature along with other adverse conditions and to be patiently endured. It was at this point that the Michigan bean growers won a signal victory for right price making of their own property. The legitimate merchandising elevator men who make up the great majority of the Michigan Bean Jobbers stood with the growers and the prices set by the growers were found to be a proper minimum.

Speculators Guessed Wrongly this Year.

Practically no deliveries were made of beans sold for October and November, which means that the error of judgment on the part of the speculators was settled in cash at the prices fixed by the growers. Heretofore the preponderating strength of the speculative element has been able to make their judgments come true, this year they were unable to do so. The fatal dip in prices did not occur. When the prices of beans were made by the growers there was much talk that the price was too high, that consumption would be decreased, and that the crop of beans was very much larger than expected. In the market notes of a farm paper published outside of the state, under date of October 3, forecasts of the bean price at \$2.50 per bushel were made. Whether this was inspired misinformation, with a purpose, or merely an error of judgment, it is immaterial at the present time. However, the Michigan Farmer, in its editorial columns and through its news articles, was the mainstay of the bean grower in the fight for better prices. In each county there was also the willing expression of the country press which is really the local expression of the best community thought. The critical time in price making on the bean crop is right at the beginning, for from self-interest alone the dealer, when once a holder of the crop, stands exactly on the same ground as the grower, stable or advancing prices are to his advantage.

The Conscientious Dealer.

There are many of the elevator men who are of the highest type and are serving their communities well. These men enjoy the esteem of the farmer and preserves as high a standard of conduct as any of the professions. An increased yield of grains or seeds are to his gain as well as the farmer's, and he searches diligently for such stock. The sale of low germination stock or impure and adulterated seed which might temporarily yield a profit is in the end a loss. The samples of beans brought to the elevators measure quite as much the resourcefulness of the elevator man as they do the farmer in constantly preaching good seed. I know of several elevator proprietors who are searching diligently for good seed beans for next year, and they do not trust entirely on their own judgment but send samples to the agricultural college to have determinations made of seed stock.

The Ban on Cull Beans.

Speculation was the main cause of the government's edict that put a ban on cull beans for canning. Futures on canned goods had been sold and at a price which, with the advanced prices of beans left the profit at the vanishing point, and like the old rule in political economy, competition tends to drive all to the plane of the lowest competitor. A good grade of cull beans had been canned by soaking the stock and then picking. In this way the dead beans would float and when swelled the impurities or blemishes were exaggerated, and in the end it was a question whether these were not picked beans. The better grade of canners were, however, like old dog Tray, caught in bad company, and now no cull beans can leave the state unless ground, in

which condition their only use is for stock feeds and calf meal.

There are several ways of looking at the ban on cull beans. This year there is a large amount of beans which are such high pickers that the cost of picking is prohibitive. This grade of beans has heretofore been machine-picked and gone to the canner. As beans get high-priced there is a tendency to pick exceedingly close and the resultant culls are low grade. Another very broad minded view is that the first cost of the beans in a can is very small. Cooked beans will take up about their own weight in water. One half-pound of beans in a pound can at present prices of beans would be around three cents, while a cull bean would be something over one cent at the prices formerly paid for a canning grade of culls. The guarantee of a good grade of beans ought to be worth the difference in the start. The moral is that there ought to be package beans in grocery stores and the person who is obliged to save in every way possible could and should buy four times as much food value in the dry stock as in the canned, and then add water himself.

True Co-operation.

Co-operation is a word that is often used to designate the working together of one class of people, with hostility implied, if not expressed, toward those not of their class. An example of the higher meaning is found in the bean situation this year. The growers worked together with a majority of the dealers in support of a plan of merchandising opposed to speculation. The Agricultural College Experiment Station, under the direction of Dean Shaw, has employed Mr. Muncie to work on the problems of bean diseases and improved seed stock. When there was an echo of the speculative people to underestimate the disaster to the bean crop, Prof. Shoesmith promptly sent out press bulletins setting forth the real facts and also advised as to next year's seed. Too much praise can not be given to county Agricultural Agent Earl P. Robinson, of Saginaw county, who organized in his country the strongest sector of growers in the state. L. P. Hagerman, of Clinton county, agricultural instructor and secretary of the St. Johns Businessmen's Association, was a worker and marks the accomplishment of the younger set of men who are of the new school of thought. This, together with the papers of the state mentioned before, is an example of the true spirit of co-operation as distinguished from that which is feeble and suspicious.

Cash beans have passed the minimum fixed by the bean growers' convention for October and November. The wisdom of the plans for price-making has been more than justified. Growers have been posted as to the crop conditions as never before, and while weather conditions were menacing, prices were advancing and an added incentive to use every possible means to save the remnant of the crop. Elevator men have been putting in drying appliances to care for the beans coming to market over-wet. Twelve pounds of moisture in beans, or an excess of what is legal in butter-making, is not uncommon this year. The statement of a large bean buyer at the convention, was that the making of the market was wholly up to the growers this year, has proven true. In approval of the plan of marketing conservatively and at an advancing price he also remarked that he had paid for coal on the same plan that the bean growers had evolved and if it was good business for the anthracite coal dealers he could not see why it was not good for the bean growers.

A NEW SERIAL

Starts this week on page 501. You will pronounce this the best serial you have ever read—wholesome and inspiring. The author is Zane Grey.



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Markets.

GRAINS AND SEEDS.

November 30, 1915.

Wheat.—The commandeering of a lot of wheat by the Canadian government for the Allies early this week caused an advance of two cents in the local market on Monday. It was expected that heavy receipts at northwestern centers would influence lower values, but this official action, together with reports of heavy buying by European agents, was sufficient to overcome the large increase in our visible supply, the liberal primary deliveries and the blockade of traffic at eastern shipping points. European figures are bullish—Liverpool having less stock than a week ago, while the quantity on passage also decreased. The price for No. 2 red wheat here in 1914 was \$1.13½ per bushel. Last week's local prices were:

	Red. No. 2	White. No. 1	Dec.
Wednesday	1.11	1.08	1.13
Thursday	1.11	1.08	1.13
Friday	1.11	1.08	1.13
Saturday	1.11	1.08	1.13
Monday	1.13	1.10	1.15
Tuesday	1.12½	1.09½	1.14½

Chicago.—December wheat \$1.05; May \$1.07½ per bushel.

Corn.—Corn values have followed closely the trend of wheat prices, and during the week quotations in Chicago touched the highest level this season, notwithstanding the receipts are gradually increasing. With so much inferior grain the position of the trade looks strong. United States visible supply increased 415,000 bushels. A year ago No. 3 corn was quoted at 63½¢ per bushel. Last week's local prices were:

	No. 3 Mixed	No. 3 Yellow
Wednesday	65	66½
Thursday	65	66½
Friday	65	66½
Saturday	65	66½
Monday	66½	68
Tuesday	65½	67

Chicago.—December corn 64c; May 68c per bushel.

Oats.—The market is firm at better prices. There was an active demand on Monday from agents purchasing for the seaboard trade. The general demand is also good, and colder weather will likely stimulate further buying. The local price for standard oats a year ago was 50½¢ per bushel. Last week's prices were:

	Standard	No. 3 White
Wednesday	40	38½
Thursday	40	39
Friday	40½	39
Saturday	40½	39
Monday	42	40½
Tuesday	42½	41

Chicago.—December oats 41.2c per bushel; May 43.2c.

Rye.—Slow demand resulted in further declines and No. 2 cash is now quoted at 94¢95c per bushel.

Peas.—Prices steady, quality good, receipts small, with new crop moving at \$2.35@2.60 per bushel, sacks included.

Barley.—Malting grades are higher at Milwaukee at 63¢69c. At Chicago the range is 59¢70c per bushel.

Beans.—Further advances have resulted from conservative marketing by farmers, a good demand and general knowledge of the small crop. At Detroit cash beans are quoted at \$3.60 per bushel; December \$3.50; January \$3.40. Chicago market also higher, with supply small and demand fair. Michigan pea beans, hand-picked, new \$4@4.10; prime do. \$3.70@3.80; red kidneys \$4.75@5 per bushel.

Clover Seed.—Easy, with prime spot and December at \$12; March \$11.95; prime alsike \$10.25. At Toledo prime cash \$12.05; March \$11.90; prime alsike \$10.27½.

Timothy Seed.—Steady at \$3.65 per bushel for prime spot.

FLOUR AND FEEDS.

Flour.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$5.90; seconds \$5.70; straight \$5.40; spring patent \$6.20; rye flour \$5.80.

Feed.—In 100-lb. sacks, jobbing lots are: Bran \$28; standard middlings \$25; fine middlings \$30; cracked corn \$30; corn and oat chop \$28 per ton.

Hay.—No. 1 timothy \$18@19 a ton; standard timothy \$17@18; light mixed \$17@18; No. 2 timothy \$15@16; No. 2 mixed \$10@13; No. 1 clover \$10@12.

Straw.—Wheat and oat straw \$6.50@7; rye straw \$8@8.50 per ton.

DAIRY AND POULTRY PRODUCTS.

Butter.—Best creamery has advanced 1c on account of scarcity; other grades remain unchanged. Extra creamery 32c; firsts 30c; dairy 21c; packing stock 19c.

Eggs.—Scarcity of the fancy fresh goods continues and buyers have to bid up market to get supplies. The price, based on sales, is 33c.

Chicago.—The feeling is firm, especially of the fancy grades, and prices have advanced 1c. The scarcity of good stock is forcing the use of June storage goods. Extra creamery 32c; extra firsts 31@31½c; firsts 26@30c; extra dairies 30c; packing 19@20c.

Eggs.—The supply of fresh eggs does not equal the demand. Market is firm at last week's prices. Current receipts are quoted at 30c; candled firsts 31c.

Chicago.—The market continues firm at last week's prices. Fresh laid eggs are in light supply and sell at premium prices. Firsts 28½@29½c; ordinary firsts 26½@27½c; miscellaneous lots, cases included 20@29c; refrigerator April extras 21@21½c.

Poultry.—The market is firm with springers higher and ducks and geese lower. The demand is good. Turkeys 16@17c; spring turkeys 20c; fowls 9@13c, according to quality; spring chickens 13½@14c; ducks 14½@15c; geese 13½@14c.

Chicago.—A fair demand existed and supply is good. Prices are lower except for fowls and springers. Light weight turkeys not wanted. Turkeys, young and old 14c; fowls 9½@11c; springs 12c; ducks 11@11½c; geese 10@11½c.

FRUITS AND VEGETABLES.

Apples.—In good demand. Greenings \$3@3.50; Spys \$3@3.75; Baldwins \$3.25@3.50; Steel Red \$4@4.50. At Chicago choice fruit is selling well but common stock is easy. Bulk apples moving freely. Prices are slightly higher. No. 1 Greenings \$2.50@3; Jonathans, No. 1, \$2.75@3.25; Baldwins \$1.75@2.50; Wageners \$2.25@2.75; Spys \$1.75@3.75; bulk apples \$1.50@2.50 per car, depending on the quality.

Potatoes.—Market is firm with no change in prices. Minnesotas are now quoted at 65¢70c; Michigan 60¢65c per bu. At Chicago the trade is active and market firm at advanced prices. Fancy goods in demand. Michigans are quoted at 55¢64c. Other prices range from 55¢68c. At Greenville the farmers are being paid 50c.

GRAND RAPIDS.

Dairy butter is firm at 25c, while fresh eggs continue scarce with dealers bidding up to 34c. Beans are still inclined to go higher, with \$3.25 bid and many farmers inclined to hold for further advances; red kidneys are worth \$4, and some are predicting \$5 a little later. Potatoes have not shown material change since last week but are firm in most outside markets at 50¢55c. Grain prices at the mills are as follows: No. 2 red wheat \$1.03; rye 90c; corn 72c; oats 37c; buckwheat 70c.

DETROIT EASTERN MARKET.

The market was fairly active Tuesday morning. Apples offered freely at 60¢@1.25; potatoes scarce at 75¢90c; cabbage around 65c; onions 75¢@1.25; carrots 75¢90c; parsnips 75¢80c; chickens 50¢60c each; eggs 45c; pork \$10@10.50 per cwt; loose hay selling at \$18@22 per ton.

LIVE STOCK MARKETS.

Buffalo.

November 29, 1915.

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

Receipts of stock here today as follows: Cattle 120 cars; hogs 125 d. d.; sheep and lambs 55 d. d.; calves 700 head.

With 120 loads of cattle on our market here today, trading started off brisk this morning on all kinds of cattle except the little common stockers. Butcher cattle sold quarter higher and some of the best cattle a strong half dollar higher, but there were four loads of better cattle here than there was last week. The good feeders sold strong and there could have been a good many more sold if they had been here today. Now the poultry is out of the way, we think we will have a better market from now on. The good market today may bring a heavy run here next week, but we think the butchers will be able to take more cattle, as they will have a chance to get rid of their beef this week.

We had a moderate supply of hogs today, about 125 double decks, demand good from all sources and prices higher for everything. A few selected

loads of hogs sold at \$7.10, with the bulk of the yorker and light mixed selling around \$6.90@7; pigs and lights \$6.25@6.50; roughs generally \$6; stags \$4.50@5.50. Everything was sold at the close and looks like we should have a fairly good trade the balance of the week, but would not advise buying hogs to sell any higher.

The lamb market was active today. Prices 5c higher than the close last week. All sold and we look for steady to strong prices balance of the week. We quote: Lambs \$9.15@9.30; cull to fair \$7@9.10; yearlings \$6.75@7.50; bucks 4@4.75; handy ewes \$5.25@5.50; heavy do \$5.25@5.50; wethers \$5.75@6; cull sheep \$3.50@4.25; veals, good to choice \$11.75@12; common to fair \$8.50@11.50; heavy \$6@9.

Chicago.

November 29, 1915.

Cattle. Hogs. Sheep.
Receipts today..24,000 48,000 22,000
Same day 1914..12,510 30,346 21,222
Last week.....45,128 196,222 83,008
Same wk 1914..25,343 140,631 67,191

Shipments from here last week embraced 5,531 cattle, 29,175 hogs and 2,737 sheep. Hogs received averaged only 180 lbs., the lowest of the year. The cattle market opens this week firm for desirable lots and weak to a little lower for other kinds. Hogs are a good dime higher, with sales at \$5.70@7. Sheep and lambs are firmer, with prime lambs at \$9 and prime ewes selling up to \$5.85.

Cattle prices suffered sharp declines early last week. But by Wednesday buyers purchased so freely that all desirable cattle sold decidedly higher. The bulk of the steers received during the week brought \$7@9.50, with sales of the choicer class of heavy cattle at \$9.50@10.55, the top price being 25c higher than the top the preceding week. No steers of good quality were offered under \$9, and no strictly prime yearlings were marketed, good yearlings going at \$9 and upward and choice lots of such steers at \$9.50 and over. By the middle of the week a large part of the short-fed and warmed-up steers went for \$7.50@8.75, those below \$8 showing no great amount of corn feeding. Inferior to medium grassy cattle \$4.40@6.75; butchering cows and heifers at \$4.60@8.50; best cows \$7.50; only prime yearling heifers sold above these figures. Cutters went at \$4@4.55, canners at \$2.75@3.95 and bulls at \$4.25@6.75. Calves averaged lower, with sales of the coarser heavy offerings at \$4@7 and the better class of light vealers taken at \$9@10.10. Stockmen have been preparing their best cattle for the Christmas trade when the demand is usually good. Cattle closed strong to 25c higher on Saturday than a week earlier.

Hogs were in unexpectedly good local and shipping demand during most of last week, and despite liberal supplies, some fair rallies in prices took place. There was a widening tendency in hog prices, with bulk of daily sales sales at a range of 75c, while the extreme range was about \$1.25. November receipts of hogs and pigs were extraordinarily large, but weight was remarkably lacking. The week closed with hogs selling at \$5.50@6.85, comparing with \$5.60@6.75 a week earlier, while pigs sold at \$4@5.65. Light bacon hogs brought \$5.50@6.20, heavy packing hogs \$6.30@6.70, heavy shipping hogs \$6.70@6.85, light shipping hogs \$6.25@6.55 and stags \$6@6.50.

Moderate receipts last week of lambs, yearlings, ewes and wethers resulted in a genuine boom in prices for desirable fat flocks, with prime lambs of medium weight leading off. The numerous offerings of thin lambs had to go at a big discount, and heavy lambs sold much below prices paid for the best medium weights, the same being true of too heavy yearling wethers. Fat live muttons brought far higher prices than in former years. After prime lambs sold up to \$9.40, a sharp break in prices took place following a heavy Friday supply, with lambs selling at \$6.50@9; yearlings at \$5.75@7.60; wethers at \$5.75@6.50; ewes at \$3@5.85; bucks and stags at \$4.25@4.75. The week's top for yearlings was \$7.85.

Moderate receipts of horses tending to prevent a bad break in prices. The demand for the French army was good at unchanged prices, but otherwise trade dragged, with sales of the cheaper class of horses at \$25@95, while drivers with any quality were valued at \$100@200. Wagoners sold at \$150@200, and a few expressers sold up to \$210. A few chunks brought \$175@195, while drafters were largely nominal at \$220@285, few being offered.

Crop and Market Notes.

Missouri.

Warren Co., Nov. 22.—There has been a large acreage of wheat sown

and a fair acreage of rye, and both are doing well now as we have just had some much needed rain. The yield of corn and potatoes is heavy and the quality good. The farmers have plenty of feed on hand for their own use. Not much feeding stock on hand. Wheat \$1.05; corn 65c; timothy hay \$10; potatoes 50c; apples 50c; butter 30c; eggs 28c.

Colorado.

Kit Carson Co., Nov. 22.—Weather is ideal for fall work, no snow yet. More than an average amount of fall grain sown. Corn average yield 25 bushels; potatoes 125 bushels per acre. Some of the corn is soft; potatoes good. No feeding stock on hand to amount to anything. Farmers all have more than enough feed for their own use. Spring wheat 68c; fall wheat 83c; corn 40c; barley 40c; beans 3c lb; potatoes 30c apples \$1 per bushel; butter-fat 25c; eggs 25c.

Kansas.

Crowley Co., Nov. 24.—There is a somewhat smaller acreage of wheat sown than usual because of the fly. Wheat and rye came up well but are needing rain. Corn is yielding 30 to 40 bushels per acre; some fields much better and the quality is very good. There is a great deal of feed in the country and a shortage of stock.

Pennsylvania.

Lancaster Co., Nov. 22.—There was more wheat than usual sown. Yield and quality of corn slightly affected by severe wind storms; however, the crop was good. Potato yield fairly good, though many did not reach maturity. More feeding stock than usual on hand and farmers have enough feed for own use. Fall work is late, much corn yet to husk. Fair crop of apples and other fruits.

New Jersey.

Monmouth Co., Nov. 22.—About the usual amount of wheat and rye sown. We had a good crop of potatoes, all of fine quality. Corn short and poor quality. Farmers have sufficient feed on hand for home use. Very little feeding stock kept. Wheat \$1@1.05; corn 80c; hay \$15; potatoes 70c; apples 50c@1 per bushel.

New York.

Genesee Co., Nov. 22.—There was a large acreage of wheat sown and it has made a fine growth. Yield of corn good and quality fair. Potatoes about half normal yield and quality rather poor. Plenty of feed and some have it in spare. Some farmers have obtained their feeding stock. Wheat \$1; beans \$3.50@4 per bushel; loose hay \$12@14; potatoes 60c; apples \$2@2.50 per bbl; milk \$1.60 per cwt; butter-fat 31c; eggs 35c; dressed hogs \$8.50@9; calves \$9@9.50; cabbage \$2.50@3 per ton.

Michigan.

Jackson Co., Nov. 22.—Cold, bluster weather, with some snow. Rather less than usual acreage of winter grain, with some very late seeding, owing to delayed threshing. Corn is the poorest crop ever known in this county, with very little hard corn. Potatoes short owing to frost on lowlands, and blight and rot elsewhere. Hay is plentiful, the best selling for \$12. Many farmers will be obliged to buy grain for feed, owing to short corn crop. Cattle looking well, but hogs being sold in poor condition, and only breeding stock being carried over. Butter-fat 30c; potatoes 40c; very little produce being marketed.

Berrien Co., Nov. 22.—Less than the usual acreage of wheat and rye sown and looking well. Clover meadows looking fine, but no pasture. Corn has dried out some but is still in poor condition and most of it is not fit to crib. Hog cholera is prevalent in some sections, and the scarcity of hogs will be a disadvantage in disposing of poor quality corn. Yield of clover seed light. Potatoes 80 per cent of a crop and rotting badly. There will be plenty of feed to winter stock. Wheat \$1.05; oats 30c; beans \$2.50@3; hay \$14@15; potatoes 40@50c; apples 60@90c for good stock; butter 30c; butter-fat 32c.

Cheboygan Co., Nov. 22.—About twice the usual amount of wheat and rye sown. A great deal of corn planted. (Continued on page 513).

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To our old and new subscribers who desire to be put in touch with city families to arrange for selling farm produce direct, we are offering free service. Simply send your name and address to the Michigan Farmer, Detroit, Mich., and a list of the things you desire to sell direct to these families, and we will get your name to them.

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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 MARKETS.

Thursday's Market.

December 2, 1915.

Cattle.

Receipts 2831. There was another record-breaking run of live stock at the local yards this week. Starting Sunday they never stopped and at noon on Thursday were as shown above, with a large number of cars still out. The various Detroit railroads seem to have taken notice of the way stock has been handled and this week there was considerable improvement noticed, especially so with the Grand Trunk.

The Michigan Central contemplates making some much needed improvements at the yards and this week all the officials, from the vice-president to the superintendent of terminals, were on the ground looking the situation over, and in a short time the work of enlarging will be under way.

In the cattle division the quality was generally common and prices were from 10@25c per cwt, lower than last week on all grades and a large number was still unsold at this writing. The stocker buyers from the country were not very anxious for anything and those they bought were at a very low figure. Milch cows were dull and generally about \$5 a head lower. The close was dull as follows: Best heavy steers \$6.50@7.50; best handy weight butcher steers \$5.50@6.50; mixed steers and heifers \$5@6; handy light butchers \$4.75@5.50; light butchers \$4.25@5; best cows \$5@5.25; butcher cows \$4.25@4.50; common cows \$3.75@4; canners \$3@3.65; best heavy bulls \$5.25@5.50; bologna bulls \$4.50@5; stock bulls \$3.75@4.50; feeders \$6@7; stockers \$4.50@5.75; milkers and springers \$4@8.

Roe Com. Co. sold Mich. B. Co. 4 butchers av 760 at \$5.50; 7 do av 1003 at \$6; 2 cows av 1140 at \$4.50, 1 bull wgh 1450 at \$5.40; to Breitenbeck 5 feeders av 858 at \$6.25; to Bresnahan 7 butchers av 612 at \$5; to Crom 10 stockers av 683 at \$6.25, 1 bull wgh 640 at \$4.75; to Bresnahan 7 butchers av 720 at \$5; to Stevenson 2 feeders av 920 at \$6.25, 5 do av 820 at \$6.25; to Burbank 5 do av 870 at \$6.25; to Kamman B. Co. 8 butchers av 990 at \$4.85; to Sullivan P. Co. 8 cows av 1017 at \$4; to Bresnahan 7 butchers av 670 at \$5; to Schurman 10 stockers av 759 at \$5.50; to Newton B. Co. 5 cows av 1240 at \$4.40; to Sullivan P. Co. 13 do av 1010 at \$5; to Breitenbeck 4 bulls av 922 at \$5; to Prentiss 3 feeders av 877 at \$6.75; to Crom 7 stockers av 660 at \$5; to Newton B. Co. 7 butchers av 836 at \$5.25.

Veal Calves.

Receipts 684. Good veal calves brought steady last week's prices and a few extra at \$11; bulk of good was at \$10@10.50; common and medium \$7@9; heavy, coarse grades very dull.

Sandel, S. B. & G. sold Sullivan P. Co. 4 av 145 at \$9.50; to Nagle P. Co. 2 av 190 at \$10, 6 av 185 at \$9, 2 av 130 at \$9.50, 4 av 150 at \$9, 9 av 150 at \$10, 3 av 140 at \$9, 2 av 245 at \$9, 2 av 250 at \$7, 1 wgh 160 at \$10, 1 wgh 180 at \$10.50; to Rattkowsky 2 av 115 at \$7.

Sheep and Lambs.

Receipts 8833. The run of sheep and lambs was fair and the quality good. Prices were 10@15c higher on lambs than at the opening Monday, a few bunches of choice bringing \$9. Best lambs \$8.85@9; fair do \$8@8.50; light to common lambs \$6@7.50; fair to good sheep \$4.75@5.50; culls and common \$3@4.

Roe Com. Co. sold Sullivan P. Co. 15 lambs av 75 at \$8.50, 17 sheep av 125 at \$5, 20 lambs av 70 at \$8.75, 31 do av 55 at \$7, 18 sheep av 80 at \$5; to Nagle P. Co. 17 sheep av 100 at \$3.75, 22 lambs av 80 at \$8.50, 111 do av 65 at \$7.75, 32 sheep av 110 at \$5, 23 lambs av 80 at \$8.25.

Reason & R. sold Nagle P. Co. 11 sheep av 95 at \$5.25, 17 lambs av 70 at \$8.50, 17 do av 75 at \$8.40 do av 75 at \$9, 40 do av 74 at \$8.90, 42 do av 98 at \$5.25.

Sandel, S. B. & G. sold Sullivan P. Co. 64 lambs av 75 at \$8.35, 43 sheep av 100 at \$3.75; to Nagle P. Co. 86 lambs av 65 at \$8, 47 do av 65 at \$8, 7 do av 85 at \$8.50, 14 do av 68 at \$8.50, 5 sheep av 108 at \$4.50, 30 do av 125 at \$4.75, 21 do av 110 at \$4.50, 6 do av 95 at \$4.50, 16 do av 110 at \$4.25, 38 lambs av 80 at \$8.25.

Hogs.

Receipts 20,428. There was a record breaking run of hogs and prices were 20@25c lower than they were a week ago, \$6.25 being the extreme top, with bulk of the good around \$6.20. Pigs \$5.50@5.75. Thursday noon the yards were filled.

CROP AND MARKET NOTES.

(Continued from page 512.)

tically worthless. Potatoes hardly a half a crop. Most farmers have plenty of hay. Feeding stock very scarce. More fall plowing than usual. Not many apples. Wheat 95c; beans \$1.90 @2; hay \$12@14; potatoes 50c; cream at creamery 28c; butter 28c; eggs 32c; no corn for sale.

Eaton Co., Nov. 22.—Not as large an acreage of wheat sown as last season. The corn crop is below the average, and the quality also poor. Potatoes about half a crop and considerable rot. Plenty of hay and grain in farmers' hands for own use, but corn fodder will be of little value. Quite a large number of sheep and hogs in the country. Hogs, live \$6; cattle \$5 @6.50; wheat \$1.15; corn 70c; beans \$3; potatoes 60c; chickens 11c; butter 25c; butter-fat 30c.

Mecosta Co., Nov. 20.—Most farmers have fall work done, except some fall plowing. Corn a poor crop and mostly soft. Fat cattle are scarce, but a good lot of hogs around here. Fall seeding looks good. Butter-fat 29c; eggs 30c; beans \$3.25; rye 90c.

Tuscola Co., Nov. 20.—Weather is favorable for fall work. Acreage of wheat and rye sown small. Potatoes very poor. Corn about half a crop much soft corn. Feed rather scarce and a great deal of stock being sold. Sugar beets about all harvested and about 75 per cent of a crop. Bean threshing well along and beans yielding from three to 10 bushels per acre, and pick from 16 to 20 lbs. per bushel. Wheat \$1; oats 33c; rye 60c; shelled corn 60c; barley 80c per cwt; beans \$3.25; potatoes 80c; apples 90c; eggs 30c; butter 25c; hay \$11@15.

Ohio.

Hancock Co., Nov. 23.—Not as much wheat and rye sown this fall as usual. Corn not a large yield but quality is good, though farmers have been delayed in corn husking. Potatoes not a good yield on account of blight. There have been a few loads of feeders of good quality shipped in here from Kansas City at \$7 per cwt., but not many heavy cattle will be fed. Some hay being sold. There has been a great deal of hog cholera so there are not many hogs in the country. Wheat \$1; hay \$15; potatoes 75c; apples 50c; chickens 11c; ducks and geese 11c; eggs 32c; butter 25c; cream 33c.

Sandusky Co., Nov. 23.—Cold wet weather, and corn husking is slow, being only half done. The yield is more than expected but the quality is poor. Wheat is doing fairly well, though not as good as a year ago. Live stock is being put on dry feed, which is plentiful. Quite a number of cattle will be fed, but not many hogs. Apples were a very big crop and many went to waste. Wheat \$1.08; oats 35c; corn 70c per cwt; butter 26c; eggs 34c; timothy, baled \$12.

Kansas.

Marion Co., Nov. 22.—Less wheat and rye sown than usual. Early planted corn good quality, but late corn is soft. Average yield of corn about 30 bushels per acre. No potatoes. Apples scarce and retail for \$1@1.20 per bushel. There is a surplus of feed and it is very cheap. Cattle not very plentiful, a good many farmers expect to buy later on. Wheat \$1; oats 32c; hay \$3@5; potatoes \$1; butter 30c; eggs 28c; hogs \$5.90@6; cattle \$5@8.

Missouri.

Nodaway Co., Nov. 22.—Corn harvesting is the order of the day, and the yield is fair. Not much small grain sown. Fall pastures good and live stock is in good shape, though some sickness is reported. Not much stock being fed as most farmers are selling off their surplus stock. Corn 65c; hay \$10; eggs 25c; butter 25c; chickens 10c; cattle \$5@9.

Indiana.

Daviess Co., Nov. 22.—Acreage of wheat and rye larger than usual, and the crop looks well and is in fine shape for winter. Corn about harvested and yield above average. Potato crop better than usual. Plenty of feed but live stock scarce. With favorable weather, farmers have fall work well in hand. Lots of hay being shipped out at \$10 per ton for good grade; wheat \$1; potatoes 50c; apples \$1 per bbl; butter-fat 30c; eggs 30c; hogs about \$6.50; cattle \$7@9.

Colorado.

Weld Co., Nov. 20.—More wheat than usual sown and looking fine. Not so much rye sown. Threshing just finished, and yield of wheat will average around 20 bushels per acre, but quality is not very good. Corn is poor and not much raised. Potatoes first-class and a good yield. Farmers have plenty of feed and quite a number of cattle and hogs being fed. Wheat \$1.42 per cwt; eggs 40c; butter 30c; butter-fat 36c; hogs \$6.50@7.50; turkeys plentiful and no market for them; bring only 12@13c per pound, alive.



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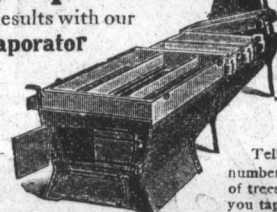
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During all these years I have never asked a single poultry raiser or farmer to buy my Pan-a-ce-a on claims or say-so, but on a genuine money-back guarantee. Here it is:

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1½ lbs. 25c; 5 lbs. 60c; 25-lb. pail \$2.50 (except in Canada and the far West). Pan-a-ce-a costs only 1c per day for 30 fowl.

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Fall and Winter Care of Turkeys

WHEN fall comes, and crops from field and meadow are safely garnered, then the last of the straying turkey mothers comes up with her brood, and after some shrill argument and an occasional battle, the turkeys are roosting together, and for the first time, really ready to be counted.

Now one should be able not only to count the birds, but to reckon approximately the returns from the crop. As the farmer reckons his cattle, deciding to turn off a couple of steers before winter, so he, or she, who has charge of the turkeys should now be able to say, we will sell turkeys to the value of a steer or two this fall, and keep breeding stock so that next season we may double the income. But so many losses occur in November and December that people hardly dare count their turkeys after they have come home to roost, lest the holiday market should give scant returns, not on account of small demand or of low market price, but because of unexpected losses of mature, or well grown turkeys while fattening.

Far be it from us to mention those turkeys that go early to market, lest at the later marketing time there should be none at all to sell.

Wild Turkeys Healthy.

These facts are known, so why not discuss them, with a view to preventing the waste of unnecessary disease.

The wild turkeys with which Michigan abounded forty or fifty years ago were apparently not subject to disease in the fall, but grew and developed and became fat and juicy as the flocks wandered at will over the woods. They became healthily fat on a varied diet, but not over-fat as the pampered market now expects its poultry. They were not penned or

corn is distributed with generous hand. Cribbs are bursting with plenty, and where can corn return such profit as when turned into fat chicken at 20 cents a pound; fat goose at 18 cents; fat yellow, tender turkey at 28 cents? Yes, and if you have access to the right market, 40 cents a pound. Farmers may scoff at the women's poultry and the corn they consume, and urge the claims of the pigs that have first mortgage on all corn grown, but what logic can argue for pork at 10 cents a pound when a pound of turkey at 30 cents is more cheaply made, and under intelligent management, made with no more risk and much less labor.

The fault is "not in our stars, but in ourselves." Chickens, yes, and ducks and geese, too, have been the slaves of man for a thousand years, and more, subject to his whims and caprices of feeding, sheltering and imprisoning. You may fatten that poultry as you fatten your stall-fed ox, it is made for the butcher's block.

Turkeys do not Stand Confinement.

But, subject the turkey to cramped quarters, to a man-made fattening diet, to a roof over his free head, to foul air, to the doubtful "common drinking cup" and dirt of the poultry yard, to the ever-lasting corn, often contaminated by lying on the ground, and the result is some fat turkeys, and probably some dead ones.

People write and ask the writer what to give turkeys for cholera. I do not know, but I know how to avoid it. As far as my knowledge extends my own have never had it, though I have raised them with unflinching pleasure and profit for the last ten years. Occasionally one dies, even as late in the season as this, but I see no trace of cholera. The cause, as near as I can make out, is the same as most children's diseases, over-eating, usually a spree in a corn field. But I count my turkeys, and estimate the returns from the flock with as much precision as we reckon returns from horses or cattle or other farm products.

Good Results from Light Feeding.

The good health of the flock, which is the most important element of success, I attribute to their scant rations, as far as hand-feeding is concerned. Many times, in the columns of the Michigan Farmer, I have advised scanty, or no feeding, for the young. Our entire flock is now in winter quarters at night, our orchard trees. Yet they have not been fed grain a dozen times this fall, and no new corn. A slice of stale bread, or a handful of dried crusts, is enough to feed the flock for "old acquaintance sake." As long as there are weed seeds to range for, and dried berries to pick, and scattered grain in the fields, the turkeys are better off glean-ing their own living. They grow, and thrive and fatten sufficiently for health. Yes, or for show, for our birds went to the exhibition this fall and won all firsts, too, without a grain of corn or other special feeding. Yet they grow very large. One in the hands of a customer went to the block this fall weighing 41 pounds. Our own, being sold only to breeders, are never fattened, but develop great bone and frame on range.

Women's Turkeys vs. Man's Pigs.

The turkey is seldom the chief poultry product of his civilized owner. He must usually take his chances with a large flock of chickens, with the yard he lives in often shared by ducks and geese. After a period of no feeding, as far as grain is concerned—in clean woods and fields in the late summer, he finds himself in a land of plenty about the farm yards. The poultry that grew along somehow on a land generous with insects and nature products in summer, must be fattened and turned off on the holiday market. So twice or three times a day, the



Children Enjoy Feeding Poultry.

stuffed, or fed continually on grain, but gathered here an ear and there an acorn or a late insect.

So these hardy wild creatures, impelled by a wanderlust that irresistibly urged them onward, even when enjoying an occasional stolen feast in a farmer's cornfield, kept a digestive system that handled their varied diet, stimulated by an immense amount of exercise, and by alternate wind and rain, cold and ice and snow.

Is it any wonder that this free, cleanly bird, as liberty-loving and typically American as any eagle that soars the air, should succumb to the influences that surround him for the month or two before market time?

Women's Turkeys vs. Man's Pigs.

Whoever overfattens a turkey flock this fall, will almost surely overfeed the turkeys he saves for next year's breeding stock. Then from these enfeebled birds, with weakened digestive systems, will come the poults that hardly live long enough to be counted, even after they are hatched.

Saginaw Co. E. H. McDONAGH.

A NEW SERIAL

Starts this week on page 501. You will pronounce this the best serial have ever read—wholesome and inspiring. The author is Zane Grey.

Veterinary.

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

Indigestion—Wrinkled Hoofs.—I have a gelding that sweats easily, is dull, has poor appetite part of time and his fore hoofs are wrinkled. I am inclined to believe that he has been over-heated and I would like to know what to do for him. D. G., Fennville, Mich.—First of all you should clip him and give a tablespoonful of the following compound powder at a dose three times a day: Mix equal parts ground ginger, gentian, bicarbonate of soda and charcoal. Apply wool fat or any other good commercial hoof ointment to fore hoofs daily.

Suppurating Head following Dehorning.—I have a five-year-old cow that freshened some time in March; cow caught cold at calving. Had to have Vet. remove afterbirth and I thoughtt she would die. When she recovered I had her dehorned, since then pus has come from stump and although she has been bred three times she fails to get with calf. J. L. W., Kingsley, Mich.—Apply equal parts oxide of zinc and powdered alum to stump of horn twice a day. Dissolve 1 oz. of bicarbonate soda in a pint of tepid water and wash out vagina six hours before she is served.

Cow Gives Bloody Milk.—I have a fresh cow that gives bloody milk, but is not sick. V. V. K., Allyn, Mich.—Bed her well, don't let calf suck her, and apply one part tincture of arnica and eight parts water three times a day. If you will make an investigation and find out how she bruises udder, then remove the cause and she will soon get well.

How to Dehorn Cattle.—Am writing you in regard to my Holstein heifer which I dehorned last April. Since the operation one of the horns has been discharging matter and I wish you would tell me what to do for her head. W. A., Carsonville, Mich.—The writer is frequently called to treat this kind of case, which is generally the result of not cutting off horn close enough to head. It may be necessary to remove some of diseased horn, or curette away all diseased tissue, then apply equal parts oxide of zinc, powdered alum and tannic acid to sore twice a day. Equal parts iodoform and powdered charcoal to sore twice daily. It is perhaps needless for me to say that she should be kept in a clean place.

Seedy Toe.—I have a horse with good strong foot, but center hoof bulges out and he goes tender and lame. Have been told this horse has been lame for 12 months. The farmer of whom I bought him said he shod this horse himself, and my shoer informs me that it is true. He is now shod level with long shoes. W. A. R., Posen, Mich.—Shoe him level, using a wide-webbed shoe and apply moisture to foot. A skillful horseshoer should know best what to do for him.

Loss of Appetite.—Sow little more than one year old seems to have lost her appetite and is not thriving. Bowels costive, some bloated, she has been in this condition for the past six weeks and I might say she has been treated for worms, without results. J. K. A., West Branch, Mich.—Give her 3 ozs. of castor oil, one dose only, also give her 30 grs. of hyposulphite soda at a dose three times daily. Change her feed and keep her in a clean dry place.

Out of Condition.—I have a ten-year-old horse that has not thrived since last spring; several local swellings have appeared on different parts of body, especially on head, under belly and hind legs. The swelling on head has disappeared, but there yet remains a little swelling under belly and stocking. A. W. S., LeRoy, Mich.—First of all your horse should be well fed, kept in a clean, well ventilated stable and not worked hard. Give ½ oz. of Donovan's solution at a dose three times a day; also give 2 drs. acetate of potash at a dose twice a day. Bathe local swelling with one part alcohol and two parts warm water twice a day.

Cribbing.—I have a three-year-old colt which seems to spend a portion of his time sucking rails and fence posts and I would like to know what to do for him. J. B., Wayne Co.—Cribbing is very often the result of gastritis or indigestion. Give him a teaspoonful of hyposulphite soda and a tablespoonful of ground gentian in feed twice a day. Arrange stable so as to make it nearly impossible for him to get hold of corners of boards to bite on. I would suggest that you look after his grinder teeth, at his age he may have dental trouble.

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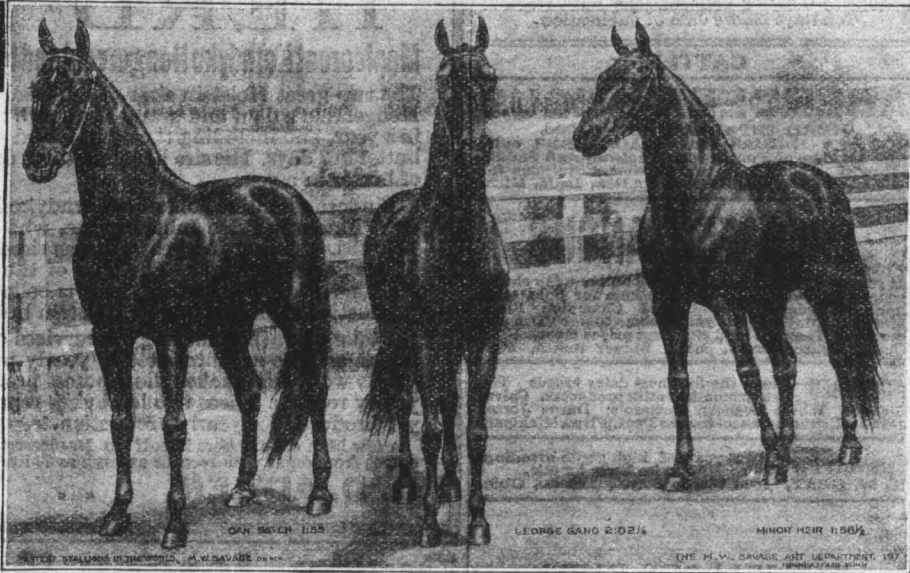
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Trapped 15 years. 60 first prizes, 15 big shows. Large, vigorous, laying, breeding, exhibition stock \$1.50 up. Shipped C. O. D. or on approval. Satisfaction or money back. 36 page free catalog gives prices and particulars. Write for it and save money. FERRIS LEGHORN FARM, 934 Union, Grand Rapids, Michigan.

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Rose Comb Minorca Cockerels, Hens and Pullets, \$1.00 each until Jan. 1. Farm raised. E. D. VanNatter, R. No. 3, Standish, Mich.

R. C. and S. C. RHODE ISLAND REDS from prize strains, fine layers with long bodies and rich red color. JENNIE BUELL, Ann Arbor, Michigan.

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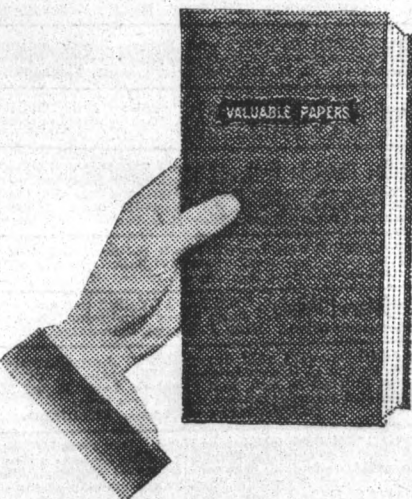
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The buyer of breeding stock should know that the
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GUERNSEY BULLS FOR SALE, ready for service from A. R.
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REGISTERED Young Guernsey Bulls, great grand-
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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
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REGISTERED Holsteins—Herd headed by Alma Bonte Butter
Boy. His dam has A. R. O. records as follows: at 2 yrs. milk
430, but or 18.85; 4 yrs. milk 604.8, butter 27.03; at 6 yrs. milk
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The Two Greatest Bulls

KING OF THE PONTIACS
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I have young bulls from cows having high official
records and Granddaughters of above bulls. Stock
extra good. Prices reasonable.

BIGELOW'S HOLSTEIN FARMS,
BREEDSVILLE, MICH.DAIRY TYPE PLUS PRODUCTION
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Holstein Friesian Cattle

Two very Good young Bulls for sale. Sired by Beauty Walker
Pieterje Prince 2nd. No. 107658. Dam, Hengerveld DeKol's
Best Daughter. Butter 33.62, milk 582.70. Write for Pedigree
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Choice Holstein Bull Calves: One to 20 months old.
Sired by Smithdale
Alcatraz Pontiac, whose dam is the famous Alcatraz
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Only \$150. One of the best bred bulls, 3 years old.
Sure breeder. Out of 25 lb. butter
cow. ½ White. A beauty.
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\$75 Gets 6 weeks old Hazel-Let grandson of Maple-
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butter 7 days. Dam's sire is a son of Johanna Korndyke
DeKol (280 lb. daughters). Her dam's a 18.48 lb. daughter
of Calamity Jane's Paul A. M. L. McLAULIN, Redford, Mich.

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Maplecrest Korndyke Hengerveld and Finderne Pontiac Johanna Korndyke

The two great Holstein sires at the head of the herd. Maplecrest Korndyke
Hengerveld's dam and grand dam each made more than 1200-lbs. of butter
in a year, and including the great grand dam each made more than 30-lbs. of
butter in 7 days. His sire has sired three daughters that averaged over 1200-lbs.
of butter in a year.

Finderne Pontiac Johanna Korndyke is the son of the world's champion
cow, Finderne Pride Johanna Rue, who gave 28,403-lbs. of milk and made
1470-lbs. of butter in a year. He was sired by a brother to the 40-lb. 4 yr. old
Mable Segis Korndyke. The dam of the sire is a 30-lb. daughter of Pieterje
Hengerveld Count DeKol. This is believed by many to be one of the most
productive combinations in Holstein breeding.

I take pride in tendering the services of these animals to the breeders of
Michigan who are interested in yearly production. Many people feel it is the
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yearly records. These two herd sires represent the highest culmination ever
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A few high class heifers in calf to Maplecrest Korndyke Hengerveld, and a few bull
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The Record of this Herd at Detroit Proves Conclusively that Our Durocs Have the
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Choice Spring Pigs and Mature Stock. A large herd gives ample opportunity for
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I Have Holstein Bulls, Bull Calves and Cows
that I offer for sale.
I can show breeding records, individuality and attrac-
tive prices. L. E. CONNELL, Fayette, Ohio.

Espanore Farm,
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Offers for sale five Holstein Bull Calves sired by
the great bull Pledge Spofford Calamity Paul and
out of good A. R. O. cows. This sire has more
daughters with records of over 30 lbs. than any
bull in the state. If you are looking for this kind
of breeding, write for prices and pedigrees,
CHASE S. OSBORN,
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Top Notch Holsteins!

Before buying your bull look ahead and think of the
fine herd you hope to own in a few years. Fifty per-
cent, or over, of its value depends on your bull. There-
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about the price if you can be sure of the quality. McF.
Farms Co. sells bulls of strictly high quality. Write
them for a good bull or come and see their "Top-
Notch" bulls for yourself. McPherson Farms Co., Howell, Mich.

HOLSTEIN BULL—Average dam and sires dam
26 lbs. Sire's dam 32.94 ex-state
champion. \$100, delivered, safe arrival guaranteed.
Mostly white, month old. Breeding and individuality
will surprise you. Write for pedigree and photo.
HOBART W. FAY, MASON, MICHIGAN.

Guernseys reg. for sale, Watervliet, Mich. May Rose
Seven A. R. cows in herd.
Address J. K. Blatchford, Auditorium Tower, Chicago, Ill.

\$75 Buys registered Holstein Bull. Blumfield Korndyke
Johanna No. 147706. 14 mo. old. Evenly
marked. B. B. REAVEY, Akron, Mich.

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YPSILANTI, MICHIGAN

Registered Holstein-Friesian sires, grandson's of
World's greatest dairy sire, out of choice A. R. O.
dams and King Pontiac Jewel Korndyke. Brother of
K. P. Pontiac Lass 4.15; average record of 50 dams
in his pedigree 31.25 in 7 days; average per cent of fat
three nearest dams 4.37; of his own dam 4.93. Sires in
first three generations already have over 600 A. R. O.
daughters. A few females bred to "King". Prices
reasonable.

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

Reg. Holstein Friesian Bull Calves
From heavy producing dams. Bargain prices.
DEWEY C. PIERSON, H. diey, Michigan.

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Choice pigs of both sex now ready to ship. Prices
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Purebred Holsteins Young bulls of best individuality
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Write us. G. L. SPILLANE & SON, R. D. 7, Flint, Mich.

Choice Holstein Bulls. All from A. R. O. Dams. Semi-of-
ficial yearly records 720 lbs. butter in Jr.
4 yr. old class to over 1000 lbs. in mature class. Breeding: Cross
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HOLSTEIN Bull one year old. Sire, D. D. Aitken's Maple Crest
Korndyke Hengerveld. Dam 25 73 Butter. Dam of 28.73
Butter 2 year old daughter. John A. Rinke, Warren, Mich.

Registered Holstein BULL CALVES 2 to 8 mo. old
from heavy producing dams at
reasonable prices. Fred J. Lange, Sebawaing, Mich.

MAPLE Lane R. of M. Jersey Herd. Tuberculin tested
by the U. S. Government. For sale R. of M.
cows, bull calves and heifer calves from R. of M.
dams and grand dams and Hood Farm Sire.
IRVIN FOX, Allegan, Michigan.

THE WILDWOOD Jersey Herd. Registered Jersey
Cattle of Quality. Herd headed by Majesty's Won-
der 9717, one of the best sons of Royal Majesty. The
daughters of Majesty's Wonder are mated to a son of
Majesty's Oxford King. Herd tuberculin tested. We
have for sale a few choice young bulls for fall service
from high producing cows. Alvin Balden, Capac, Mich.

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

Jerseys. Bulls ready for service, extra quality sired
by Jacoba's Fairy Emanon. No. 10711, from high
producing dams. SMITH & PARKER, Howell, 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.

HILLSIDE Farm Jerseys, yearling bulls, solid
color, half brothers to ex-world's-record senior 2yr
old and from R. of M. dams, with records from 400 lbs.
to 800 lbs. C. and O. DEAKE, Ypsilanti, Michigan.

Now Is Your Chance. JERSEYS—We are over
Reg. of Merit Stock. Cows, Heifers, Heifer calves—
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is the farmer's cow. She's his
friend and pride—the beauti-
ful, gentle, ever-paying milk machine that lifts
the mortgage, builds up the fertility of the
farm, and puts the whole business on a sound,
paying, permanent basis. She adapts herself
to all climates and all feeds and does not
need fancy care. She matures early and
lives long. And she's so sleek, clean cut and
handsome, as to be the family pet and
pride. She produces well
and sells well. Learn
about her in our fine, free
book, "About Jersey Cattle." Write for it now.

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846 West 23d St., N. Y. City

MILKING SHORTHORNS. Bull 10 months old \$125.00,
7 months \$100.00. 2 cows,
DAVIDSON & HALL, Tecumseh, Michigan.

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

BIDWELL SHORTHORNS

For "Be f and Milk"
Registered Bulls, Cows
and heifers. Scotch-
topped roans, and reds
for sale. Farm at
N. Y. Central Depot,
also D. T. & L. R'y.
BIDWELL STOCK FARM
Box B, Tecumseh, Mich.

Shorthorns For Sale 8 young bulls also female, farm
A. A. R. B. W. B. McQUILLAN, Howell, 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.

Dairy Bred Shorthorns of best Bates Strains. Young
Price \$100 each. J. B. HUMMEL, Mason, Mich.

Shorthorn and Polled Durhams for sale. Have
white. C. CARLSON, Le Roy, Michigan.

For Sale—Fall blood Brown Swiss Bull calf, 9 months
old. A good one at a bargain (if taken at once).
Walter Frederick, R. No. 10, St. Johns, Mich.

HOGS.

Durocs & Victorias—Grand bunch of Gilts
due March and April.
Comprising the blood
of Superba, Defender, Much Col., Orions and others.
A few young boars. M. T. STORY, Lowell, Mich.

BERKSHIRES Two Spring Boars left. A
choice lot of fall gilts for sale.
A. A. Pattullo, R. No. 4, Deckerville, Mich.

Berkshires—sons, daughters, grandsons, granddaugh-
ters of such noted boars as Rival's Champion, Baron
Duke 170th, Symbelee's Star 2nd, Grand Champion
breeding at farmers' prices. T. V. Hicks, R. 1, Battle Creek, Mich.

Royalton Bred Berkshires—April boar well marked.
also the fine mature boar
Royalton Emperor. Both registered with papers at fair
price. Write to D. F. Valentine, Supt., Temperance, Mich.

SWIGARTDALE BERKSHIRES

Are the kind that win at the Fairs and also produce
the litters as all of our show stock are regular breeders.
They have the size with the bone to carry them and
their breeding is unsurpassed. All the leading families
are represented. We have a few choice Spring Boars
now crowding the 300 lb. mark, for sale, prices from
\$20 up. We are now booking orders for Fall pigs for
January delivery. Can furnish choice Trios not akin,
for \$15 to \$30. We Guarantee Satisfaction.

Swigartdale Farm, Petersburg, Mich.

DUROC JERSEYS—A few choice
spring BOARS
ready to ship. Carey U. Edmonds, Hastings, Mich.

Duroc Jersey—March pigs either sex, also am book-
ing orders for fall pigs for Nov. ship-
ment. Inspection invited. E. D. Heydenberk, Wayland, Mich.

Capitol Herd Duroc Jersey Swine. Established 1888
Spring pigs for sale, satisfaction guaranteed. Ex-
press prepaid. J. H. Banghart, East Lansing, Mich.

Duroc Jerseys—Big Type, Heavy Boned Boars ready
for service, real herd headers Sired by
Volunteer Grand Champion. E. J. Drott, R. 1, Monroe, Mich.

Durocs of the best of breeding. April farrow either
sex or pairs for next 30 days \$20 each. Two fall
boars. Oct. farrow \$30 each. Also Holstein bull one
year Oct. 6. H. G. KEESLER, Cassopolis, Mich.



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

DUROC JERSEY BOARS a choice lot of spring boars,
not akin. W. C. TAYLOR, Milan, Michigan.

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

J. W. KEENEY, Erie, Mich. Breeder of Duroc
Swine D. M. & T.
local from Monroe or Toledo, Keeney Stop.

DUROC Jersey, Mar. & Sept. pigs either sex sired by
a son of Volunteer. And two Holstein bull calves
and 2 Holstein cows. E. H. Morris, Monroe, Mich.

Big Heavy Boned Duroc Jerseys for sale of all ages.
Write your wants. M. A. BRAY, Okemos, Ingham Co., Michigan.

For Sale. Registered Duroc Brood
Sows at farmer's prices.
E. J. ALDRICH, R. No. 1, Tekonsha, Michigan.

DUROC JERSEYS—A few choice sows bred or
open. Also two extra good
spring boars. Wm. W. Kennedy, R. 3, Grass Lake, Mich.

Chester Whites—Special prices on March boars for
next 30 days. Fall Pigs.
F. W. ALEXANDER, Vassar, Michigan.

CHESTER WHITES—The long type, prolific kind,
either sex. Write your wants.
Meadow View Stock Farm, R. 5, Holland, Michigan.

Registered Chester White males and females. Reg.
Holstein male calves, herd bull and cows.
Farham's Pedigree Stock Farm, Bronson, Mich.

HAMPSHIRE SWINE. A few choice March and
April boars. Also two
good yearling boars. Yearling and Spring Gilts sold
open or booked, to be bred for March or April farrows.
Fall pigs single, pairs or trios not akin. Price to sell.
Write me your wants. Floyd Myers, R. 9, Decatur, Ind.

Hampshire Boar Bacon's choice, 6 months old.
Perfect belt. Sired by Tolby
Tiler. A. E. Bacon & Son, Sheridan, Mich.

O. I. C. SWINE—Are you on the
market for a
choice bred sow to farrow the last of Aug. or for
part of Sept.? If you are, write me, I have them.
A. J. GORDEN, R. No. 2, Dor, Mich.

O. I. C. Serviceable boars, choice Gilts not bred, Spring
pigs not akin, also Toulouse Geese. Write for
low prices and photo. Alvin V. Hatt, Grass Lake, Mich.

O. I. C's—Bred sows, bred gilts, spring pigs
both sex. Service Boars. Price low.
A. R. GRAHAM, Flint, Michigan.

REGISTERED O. I. C. BOARS & GILTS
High class fall pigs at reasonable prices.
J. CARL JEWETT, Mason, Mich.

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

O. I. C. SERVICEABLE BOARS. Priced to
sell, and recorded in buyer's name.
H. W. MANN, Dansville, Michigan.

O. I. C's STRICTLY BIG TYPE.
March, April and May pigs Sired by Lengthy Prince,
White Monarch and Frost's Choice, all big type boars
and sows weighing from 500 to 700 lbs., with quality
second to none. Can furnish in pairs not akin. Prices
reasonable.
Newman's Stock Farm, Marlette, Mich. R. 1.

O. I. C's two yearling boars and a lot of last Spring pigs
not akin. Also a lot of this fall pigs at \$10 each
at 8 to 10 weeks old. Good stock. ½ mile west of depot.
Otto B. Schulze, Nashville, Mich. Citizens phone 124.

O. I. C's. Spring Boars ready for fall
service. Write.
JULIAN P. CLAXTON, Flint, Michigan, R. 8.

O. I. C. SERVICEABLE BOARS From best of stock.
Priced to sell. Reg.
free. E. B. MILETT, Fowlerville, Michigan.

O. I. C. Choice 18 mos. old boar. Grand Champ. at West
State Fair 1915 also Mar. and Apr. gilts.
A. J. BARKER, BELMONT, MICH. R. No. 16.

O. I. C. and CHESTER WHITE
SWINE

Boars that have not been beat at the big state fairs
this fall. We also have the unbeaten, young herd of
Six State fairs, choice boars and gilts for sale, any age.
Rolling View Stock Farms, Cass City, Mich.

O. I. C's One March and one April Boar.
Spring Gilts, June and July Pigs,
either sex. C. J. Thompson, Rockford, Mich.

Registered O. I. C's, and last spring gilts. All from
large litters. Elmer E. Smith, Redford, Mich.

Way Brothers Stock Farm. The home of the big
for sale. Registered free. J. R. Way, Pompeii, Mich.

O. I. C's. Gilts old enough to breed for May
sure baeeder. Stock recorded free. Also, White runner
drakes and Dorcus line Regal White Wyandotte ckl's. \$2
each. Write at once. Dike C. Miller, Dryden, Mich.

O. I. C. serviceable boars, tried sows, gilts bred for
March and April farrow, summer and fall pigs.
I pay express. G. P. ANDREWS, Dansville, Mich.

POLAND-CHINAS

From our thousand pound Grand
Champion Boar and Big Stretchy
Sows, of best breeding. Spring Boars
at a bargain.

Hillcrest Farm, Kalamazoo, Mich.

BIG TYPE P. C. Either sex, pairs or trios not akin.
Bred sows and gilts. Have several 1000 lb. boar pro-
spects. Absolutely no larger breeding. Every thing
guaranteed right. FRANK KRUGER, Ravenna, Mich.

Big Type POLAND CHINA all ages. Herd boar
Bargains in spring boars. Satisfaction
guaranteed. G. W. Holton, R. 11, Kalamazoo, Mich.

POLAND CHINAS of the big type. Boars ready for
service. Barred Rock Cockerels.
A. A. WOOD & SON, Sallie, Michigan.

Breeders' Directory—Continued on page 517.



**1916
STATE FAIR
CHAMPION**

I BUILD CHAMPIONS

JUST LOOK AT THESE WINNERS!



**1916
SEPARATOR
ENGINE
SPREADER**



Pay Jewel Beauty, Holstein cow, twice Grand Champion at National Dairy Show 1911-12; Grand Champion Minnesota State Fair, Waterloo Dairy Show, St. Louis Fair, Senior Champion Iowa State Fair, 1915.



Nona Spencer, Grand Champion over all females at Minnesota State Fair, Waterloo Dairy Show, Junior Champion St. Louis, 1915.



Archenbrain, Good Gilt, Yorkshire bull, Grand Champion Iowa State Fair, Waterloo Dairy Show, St. Louis, 1915.



King Segis Pontiac Ormsby, my \$10,000 Holstein bull, 23 months old, winner of Grand Champion at St. Louis, Junior Champion at Minn. Fair and Waterloo Dairy Show 1915.

The illustrations in this ad represent winners! I believe in breeding winners, manufacturing winners and selling winners. I would not breed from a poor cow, nor would I manufacture a poor cream separator, gasoline engine or manure spreader.

GALLOWAY SANITARY BATH-IN-OIL CREAM SEPARATORS

The best separator on the market today and I have seen them all. For beauty, simplicity of design, workmanship and mechanical perfection, and years of service built into it, positively it can not be equalled. If you knew all there is to know about building cream separators and built one for yourself, it would not be a better machine, would not run any easier, nor skim any closer, and could not be built of better material, nor have more long wear and satisfaction built into it, nor would it be more perfectly sanitary. If you built as good a machine you could not build it at a lower price than my new, low 1916 figures. Not built down to a price, but built up to a high standard and sold to you at one small factory profit based on tremendous quantity. My new catalog is free for the asking.

THE NEW 1916 MODEL GALLOWAY MASTERPIECE 6 H. P. ENGINE

is taking the gasoline engine field by storm. My other masterpiece models from 4 h. p. to 16 h. p. models are power kings of their kind. My 1 1/2 to 2 1/4 h. p. pumping and light work engines have never been equalled. When you buy an engine insist on heavy weight (because it costs more to build a big, heavy, long-life engine) insist on large bore, long stroke and low speed. These Galloway features mean lifetime service at hard, tough, power-eating jobs. Do not get fooled. One cylinder, high speed, light weight engines won't give you the satisfaction that heavy weight, long stroke and large bore engines will give you. My new 160-page four-color catalog will tell you in detail about every style and size Galloway engine from 1 1/4 h. p. up to these giants that tackle any and every job.

NEW 1916 MODEL NO. 8 LOW DOWN MANURE SPREADER

built and thousands of customers say it's the best in the world, and they ought to know. My spreader factory is running full blast, turning out my new 1916, No. 8 Low Down spreader with the cut under front wheels, steel beater and new V-shaped rake. Its equal has never been produced for light draft, ease of operation, simplicity and sound mechanical construction. Catalog describes it fully.

WILLIAM GALLOWAY COMPANY, 187 Galloway Station, Waterloo, Iowa



9875
Galloway 6 h.p. Masterpiece engine, with 1916 improvements. A champion on every farm where used.



6475
Galloway 16 h.p. portable. Handles biggest, toughest, hardest jobs anywhere. A champion of power, simplicity and design.



6475
Galloway No. 8 Low Down Spreader, the machine to make champion corn crops on every farm.

1916 PRICES LOWER 1916 QUALITY HIGHER

CATTLE

CHOICE JERSEY BULL

READY FOR IMMEDIATE SERVICE.

Brookwater Eminent Lad 128246, Sire, one of the best sons of **Oxford Lad**. Dam, a high class imported daughter of **Eminent**. Splendid solid colored individual. Breeding unexcelled. Calved Feb. 9, 1914. A bargain for quick sale. Write or better come and see the bull and herd. Address, Dairy Cattle Dept.,

BROOKWATER FARM, ANN ARBOR, MICHIGAN.

FOR SALE

Registered Holstein bulls ready for service; and registered Holstein bull calves, the best breeding in the world, grandsons of Grace Fayne and's Homestead. Pontic Kornelke, King Fayne Segis and Hengerveld De Kol. The dams of these bulls and calves, have large advanced registry records. For prices, write Callam Stock Farm, 204 Bearinger Bldg., Saginaw, Mich.

Choice Holstein Bull Calves

Ready for service, **World's Champion Parentage** **HILLCREST FARM - Kalamazoo, Mich.**

HOGS

Large Strain P. C. two extra good Summer Yearling Spring pigs that are beauties, sired by Big Defender, the boar that everybody goes wild over. Come and see him. **H. O. SWARTZ, Schoolcraft, Mich.**

Large Type P. C. Largest in Mich. Boar pigs ready for service good enough to go anywhere. First order gets first choice. Priced to sell. Sired by two largest boars in State. Free Livestock visitors. **W. E. LIVINGSTON, PARMA, MICH.**

LARGE TYPE P. C. Some very choice April and May in February. **W. J. HAGELBAW, Augusta, Mich.**

BIG Type Poland Chinas, boars as big as good as grow in Iowa with quality to please you. **ROBERT MARTIN, R. F. D. No. 7, Hastings, Mich.**

Heavy BONED POLAND CHINA Spring Boars and gilts not akin. Also older stock. Prices right. **CLYDE FISHER, St. Louis, Mich.**

Spring Pigs at Half Price—Bred from the strain of Poland Chinas on earth, none bigger. If you ever expect to own a registered Poland China, this is your opportunity. Get busy and order at once. Pairs and trios not akin \$15 each. A few bred sows at \$25. **J. C. BUTLER, Portland, Mich. Bell Phone.**

Big Type Poland China—Western bred extra large not akin. Satisfaction guaranteed. **W. BREWBAKER & SONS, Eisle, Mich. R. No. 5.**

Big Type Boars all sold. Have several good Gilts bred to Smooth Jumbo, Jr. Top Boar of J. D. Collin Sale. Priced right to go quick. **A. D. Gregory, Ionia, Mich.**

Poland Chinas. Spring Pigs either sex, both medium and big type from large litters. Prices right. **L. W. Barnes & Son, Bryon, Michigan.**

25 BIG TYPE POLAND CHINA boars sired by Big Smooth Jumbo 810 lbs. at 20 mos. and Giant Des Moines 743 lbs. at 17 mos. At farmers' prices. Sent C. O. D. Write or come and see 130 head of good big types. **Wm. Waffle, Coldwater, Michigan.**

For Sale Poland Chinas either sex, all ages. Some bargain prices. Also, B. P. Rock Cockerels. **ROBERT NEVE, Pierson, Michigan.**

Heavy Boned Poland Chinas. Both sex and all ages at bargain prices. Also, B. P. Rock Cockerels. **ROBERT NEVE, Pierson, Michigan.**

"Large Type Poland China"—high class spring boar and grower, sired by the thousand pound Long Wonder. If you want something good here it is. **E. J. MATHEWSON, Burs Oak, Michigan.**

A. G. Meade, Stanton, Mich. Colby's Ranch, has for sale 100 head of Registered Poland China Boars and Sows. Prices reasonable.

For Sale—P. C. pigs six weeks old from thoroughbred prolific stock \$7.00 each. **R. S. HOOPER, So. Lyon, Michigan.**

REGISTERED YORKSHIRES
Imported Strain. Both sexes. Prices Reasonable. Hatch Herd, Ypsilanti, Michigan.

Yorkshire Service Boars—Also sows and fall pigs, pairs not akin. No Cholera. Send for Photos. **CHAS. METZ, Ewart, Mich.**

Large Yorkshires. Gilts bred for spring boars. Pigs all ages. Prices Reasonable. **W. C. COOK, Route No. 1, ADA, MICHIGAN.**

Mulefoot Hogs—Fall Pigs, Brood Sows and Gilts. Young service Boars, Pairs not akin. Write for prices. **C. F. Bacon, R. 3 Britton, Mich.**

MULE FOOT HOGS REGISTERED 2 very large boars right. **LONG BEACH FARM, Augusta, Mich.**

Berkshires of best breeding. Special price on two Spring Boars. **D. W. SMITH, Wixom, Michigan.**

Berkshire Spring Gilts \$15.00. Fall pigs \$8.00 either sex. Holstein Bull Calves under one month old \$35.00. **Riverview Farm, R. No. 2, Vassar, Michigan.**

HAMP SHIRE HOGS the belted beauties. One yearling boar and spring pigs, either sex. Write your wants. **John W. Snyder, St. Johns, Mich., R. No. 4.**

SHEEP.

Oxford Down Sheep. Good Yearling Field Rams to sell. **M. F. GANSSLEY, Lennon, Michigan.**

Oxford Down Sheep and Polled Durham Cattle For Sale. **J. A. DeGarmo, R. No. 25, Muir, Mich.**

For Sale—A registered Oxford Down Ram. Ram Lambs \$10 each. Also a few ewe lambs. Registered Berkshires b th sex. **Chase's Stock Farm, R. 1, Marlette, Mich.**

Registered Oxford Down Sheep. Ram Lambs. Yearling Ewes. **L. N. OLMSTED, J. SPAANS, Muir, Mich.**

OXFORDS—no more for sale. **O. M. YORK, MILLINGTON, MICHIGAN.**

Shropshires Ewes and Ram Lambs for Sale. **DAN BOOHER, R. 4, Ewart, Michigan.**

Big Robust Wool-Mutton Shropshire Rams Priced right and satisfaction guaranteed or money back. Write today for Special Price List 24. **A. H. FOSTER, Allegan, Michigan.**

Start the Boy

Shropshire and Oxford ewes bred to imported rams. **KOPE KON FARM, Kinderhook, Michigan.**

LINCOLNS RAMS and EWES from the unbeaten flock of Amer. Cotswolds, Leicester and Dorset. These sheep have been shown at the biggest state fairs in the country and some have never been beaten. **HARRY T. CRANDELL, Cass City, Mich.**

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

Merinos and Delaines. Rams, few choice young ewes, Ram and Ewe lambs. **S. H. SANDERS, ASHTABULA, OHIO.**

HORSES

LOESER BROS.

We have 100 head of Belgian and Percheron Stallions and mares. Imported and home bred. We have sold pure bred horses in Michigan for the last 25 years, and have the right kind, and at the right price. We can supply any number of work horses, both geldings and mares. Get in touch with us.

LIGONIER, INDIANA.

Percheron Stallions and Mares

75 Head

Buy at home of the largest and oldest breeders in the state. We can beat importers and dealers prices.

Try Us. **A. A. Palmer Sons** (R. R.) Orleans. (P. O.) Belding, Mich.

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

Registered Percherons Brood mares, Fillies and Young Stallions. Priced to sell. Inspection invited. **L. C. HUNT & CO., Eaton Rapids, Michigan.**

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

Shetland Ponies—All ages from \$50 to \$75. Fine specimens. Holstein Bull calves \$25 each. **E. Brackett & Sons, Allegan, Michigan.**

One Percheron STALLION of good breeding for sale. Cheap if taken at once. For particulars address **F. D. Nichols, Homer, Mich.**

Farms and Farm Lands For Sale

FOR Sale—80 acre farm in Charlevoix Co. good house, 12 w. barns, good orchard, near thriving town, good roads, R.F.D. & Telephone, church and school, good soil, spring water. Fine place for stock and fruit. Price and terms reasonable for quick sale. **A. B. Needham, care D.U.R. office, Flint, Mich.**

MOVE TO MARYLAND

Delightful, healthy climate. Good Land. Reasonable prices. Close to big markets of large cities of the East. Send for free descriptive booklet and map. **STATE BUREAU OF IMMIGRATION, 65 A Hoffman Bldg., Baltimore, Md.**

The South—The Homeland

FOUR TO SIX TONS OF ALFALFA, 50 to 100 bushels of corn to the acre, \$100 to \$500 an acre from fruit or truck, opportunities for the stock raiser and dairyman, a climate which means two to four crops a year, pleasant home locations, attractive land prices, are things the South offers homeseekers. Our publications and special information on request.

M. V. RICHARDS SOUTHERN Ind. and Agr. Com'r, Southern Ry. Room 78 Washington, D.C. Mobile, Ala. Ga. Sec. Bldg.

Fertile Virginia Farms

Along Chesapeake & Ohio Railway

At \$15 an acre and up on easy terms. Mild climate, rich soil, abundant rainfall, plentiful and cheap labor. Convenient to Eastern markets, also to good schools and churches. Write for free illustrated farm home booklet, "Country Life in Virginia", and low excursion rates. Address

K. T. Crawley, Indus. Agt., C. & O. Rwy., Room 1022, Richmond, Va.

Do you want 350 Acres, 250 tons hay, 100 Hol- horses, 2000 hens, 3500 bushels grain, 100 tons straw, \$1,000 bull, \$10,000 worth of tools, 4 milking machines, two silos, 1100 tons capacity? Will make income of \$1,500 per month. All for \$40,000, part cash. Cost \$90,000 as it stands. Send for photos. **HALL'S FARM AGENCY, OWEGO, TIIOGA CO., NEW YORK.**

WHY PAY RENT when you can buy the best farm land in Michigan at from \$12 to \$20 an acre on easy terms. Write for particulars. **STAFFELD BROTHERS, Owners, 15 Merrill Bldg., Saginaw, West Side, Mich.**

Money Making Farms throughout 15 Eastern States: 1 acre to 1,000 acres, \$15 per acre up; several with livestock, tools, and crops included, to settle estates; big illustrated catalogue free. **E. A. Strout Farm Agency, Dept. 101, 47 W. 34th St., New York.**

Fruit Farm FOR SALE—105 Acres beech and maple land, four miles from Kalamazoo, good location for summer home, substantial double house, three barns, thirty acres fruit and excellent location for more. Will divide if buyer wishes. **L. H. Stoddard, Owner, 1311 West North St., Kalamazoo, Michigan.**

Own a Farm In Gladwin Co., Mich. Fall and Winter bargain list of Improved farms, Stock Ranches and unimproved farm lands. **U. G. REYNOLDS, Gladwin, Michigan.**

Hog and Cattle Farm 1000 Acres, wire fence, 15 miles from Charleston, S.C. Fine climate. Big profits. Price \$10,000. One-third cash. **F. Q. O'Neill, Charleston, S. C.**

WANTED—To hear from owner of good farm or unimproved land for sale. **H. L. Downing, 104 Palace Bldg., Minneapolis, Minn.**

When Writing to Advertisers Please Mention The Michigan Farmer.

Our "Quick Action" CHRISTMAS PRESENT

A 106-Piece Christmas Selection, Including a Three Panel
American Beauty 1916 Calender in Colors
Size 22 x 3½ Inches.

The Selection Consists of
Christmas Greeting Cards, Stickers, Tags, Labels, Etc.
106 In All, Postage Paid

Given to Every Subscriber——New or Renewal
Whose Order Reaches This Office On or Before Decemeber 20th,
Whether It Be Sent to Us Direct, Through An Agent,
Or In Combination with Other Papers.

Get This Clear--No matter how your order reaches us if it gets here on or before **December 20th** one of these selections will be mailed to you immediately the order reaches this office but if it gets here after December 20th no selection is sent. Better send your order **Now** and get it so you can use it when you want to.

REMEMBER THE PRICE:

50 Cents A Year

\$1.00 for 3 Years

\$1.50 for 5 Years

SPECIAL
BARGAIN
PRICES

Send Us Your Order NOW.

You Will Find an Envelope Subscription Blank in this issue of the Michigan Farmer. Use it in sending your order; we will guarantee its safe arrival, providing it is properly sealed and stamped with a two-cent stamp. The handiest amount to mail is a **One Dollar Bill**. It will get you the Michigan Farmer for **3 years**, 156 issues. **One Dollar and a Half Will Pay For 5 years**, 260 issues, to one person, or 50c for one year, 52 issues, and all combinations at prices at which they are offered.

Large remittances should be sent by post office or express order or check.

It Makes No Difference—When your present subscription expires, your new order will date from the present one. No matter how long your present subscription runs, you can send us another order now and get one of these beautiful Christmas selections absolutely free of charge.

The "Christmas Set" offer is not a premium inducement, for the Michigan Farmer is too good and too cheap to require it. Our object is to induce subscribers to send their orders early thus saving us in time, labor and expense through being able to avoid a big rush at the end of the year.

Take a Thought For Your Neighbor—Take on the Christmas spirit and tell your neighbor of this wonderful offer. Tell him about the Michigan Farmer and say you will send his order with yours. He will also get one of these selections including **the 1916 Calender** mailed to his address. A year's subscription to the Michigan Farmer makes as fine a Christmas gift as you can give--a 52 time reminder.

Don't Forget the Date—December 20th

➡ See Clubbing List on Opposite Page.

The Rest of this Year Free to New Subscribers. Time will begin Janurary 1---Old Subscribers date from their present time.

Looking Forward Michigan Farmer's Club List.

The progressive publisher, like the progressive farmer, devotes considerable time and energy to planning his next season's campaign in addition to carrying out plans for the immediate future; and in work of this kind progressive publishers and progressive farmers study practically the same problems with a view to their economic solution. The truth of this statement will be at once recognized when it is remembered that the optimum of success for an agricultural paper depends upon the maximum success of its patrons in a business way. And farming, today as never before, is being subjected to the application of business principles, both in the laying and the execution of the season's plans. It is thus natural that the publishers of progressive farm papers should devote more energy to the investigation of purely business problems relating to farm management and devote more space to their discussion.

Getting Down to First Principles.

A comprehensive grasp of any business must depend upon the thorough understanding of the basic principles involved. This is as true of agriculture as of any other business, and it is with a view of further promoting the business prosperity of its readers that the publishers of the Michigan Farmer have determined to emphasize the essential phases of business success upon the farm during the coming year. These include primarily the proper financing of the farm; the conservation and improvement of the fertility of the soil, so that under judicious methods of culture maximum yields may be secured; the solution of the problem of farm management in such a manner as to lower the cost of production, and the marketing of the products of the farm in such a way as to give a maximum return or labor income to the owner or operator thereof.

We have in store for our readers a series of practical articles from the best authorities on these special agricultural topics. The economic value of these articles to any farmer in the state who will read them carefully, will be many times the cost of a subscription to the Michigan Farmer. They will aid any farmer in reducing the operation of his farm to a better business basis, which is the first step toward the end of opening up a broader and richer farm life from every viewpoint.

Service.

In connection with this plan and in addition to the free personal service which has already been extended to Michigan Farmer subscribers, we will this year offer valuable additional free service to subscribers, by the analysis of a sample of soil to determine its lime requirement by a process recently developed for the determination of this important question with a degree of accuracy hitherto unknown. This will be in addition to the free service previously rendered with which our readers are familiar and which will be continued.

Besides the special matter and service above noted, the usual seasonable and timely matter pertaining to every department of agriculture will be presented to the reader in the most concise and readable form, while the magazine and other educational features will be continued and further improved. In addition to this, the market and veterinary service should not be forgotten, any one of which important features are worth more than the small price for which the paper can be obtained if ordered for one or more years. In order to avoid missing any numbers, readers whose subscriptions expire this month should renew without further delay. Note the inducements offered on the pre-

For the benefit and convenience of our subscribers we have arranged the following list of papers. Besides the money saved they save the trouble and expense of sending each order separately.

EXPLANATION.—The first column gives the paper's regular subscription price. The second column price is for the Michigan Farmer and the other paper, both for one year. Add 50 cents when the Michigan Farmer is wanted three years, or \$1.00 if the Michigan Farmer is wanted five years. All combination orders may be handed to our agents or sent to us, as is most convenient.

Write for prices on publications not listed.

Subscribers to the Michigan Farmer whose time is not up for one year or more, may have as many other papers as wanted by deducting 50 cents from the second column price. This takes care of those who subscribed for three or five years a year or two ago.

We send sample copies of the Michigan Farmer only.

Mention if you are a new or renewal subscriber. Renewals will be dated ahead from their present date.

NAME OF PUBLICATION.	See explanation above
Daily, (6 a Week) on R. F. D. only.	
Free Press, Detroit.	2 50 2 50
Journal, Detroit.	2 50 2 50
Times, Detroit.	2 00 2 00
Herald, Grand Rapids, Mich.	2 50 2 50
News, Grand Rapids.	2 00 2 00
Press, Grand Rapids.	2 00 2 25
Courier-Herald, Saginaw, Mich.	2 50 2 50
News, Saginaw.	2 50 2 50
Tribune, Bay City, Mich.	2 00 2 10
Blade, Toledo, Ohio.	2 00 2 05
News-Bee, Toledo, Ohio.	2 00 2 05
State Journal, Lansing, Mich.	2 00 2 00
Tri Weekly Newspapers	
World, N. Y. City.	1 00 1 20
Semi Weekly Newspapers	
Journal, Detroit, Mich.	1 00 1 15
Weekly Newspapers	
Blade, Toledo, Ohio.	1 00 1 00
Commoner, Lincoln, Neb.	1 00 1 05
Enquirer, Cincinnati, O.	1 00 1 05
Cattle, Sheep, Swine, Poultry, etc.	
American Bee Journal, Hamilton, Ill. (w)	1 00 1 05
American Poultry Journal, Chicago, (m)	1 00 1 20
American Poultry Advocate, Syracuse, N. Y. (m)	50 75
American Sheep Breeder, Chicago (m)	1 00 1 35
American Swineherd, Chicago, (m)	50 75
Breeders' Gazette, Chicago, (w)	1 00 1 45
Green's Fruit Grower, Rochester, (m)	50 70
Hoard's Dairyman, Fort Atkinson, Wis.	1 00 1 20
Jersey Bulletin, Indianapolis, Ind. (w)	1 00 1 35
Kimball's Dairy Farmer, Waterloo, Ia. (s-m)	25 70
Poultry Keeper, Quincy, Ill. (m)	50 75
Poultry Success, Springfield, O. (m)	50 75
Reliable Poultry Journal, Quincy, Ill. (m)	50 75
Swine Breeder's Journal, Indianapolis, Ind. (s-m)	50 80
Michigan Poultry Breeder (m)	50 70
Popular Magazines	
Everybody's Magazine, N. Y. City, (m)	1 50 1 80
Etude, Philadelphia, Pa. (m)	1 50 1 50
McClure's Magazine, N. Y. City, (m)	1 00 1 50
Musician, Boston, Mass. (m)	1 50 1 55
National Sportsman Boston, Mass. (m)	1 00 1 15
People's Home Journal, N. Y. City, (m)	50 85
People's Popular Monthly, De Moines, Ia.	25 65
Red Book Magazine, Chicago, Ill. (m)	50 1 55
Review of Reviews, N. Y. City, (m)	30 80
Ladies' or Household.	
Delineator, N. Y. City, (m)	1 50 1 60
Designer, N. Y. City, (m)	75 1 05
Housewife, N. Y. City, (m)	50 80
Ladies World, New York City (m)	1 00 1 25
McCall's Magazine and Free Pattern, N. Y. City, (m)	50 75
Mother's Mag., Elgin, Ill. (m)	50 1 55
Pictorial Review N. Y. City, (m)	1 50 1 50
Today's Magazine and Free Pattern (m)	50 70
Woman's Home Companion, N. Y. City, m	1 50 1 60
Woman's World, Chicago, (m)	35 60
Religious and Juvenile.	
American Boy, Detroit, Mich. (m)	1 00 1 50
Boys Magazine, Southport, Pa. (m)	1 00 75
Little Folks, Salem, Mass. (m)	1 00 1 25
Young People's Weekly, Elgin, Ill. (w)	75 90
Youths Companion, Boston, Mass.	2 00 2 25

ceding page for such early renewals. Do not miss the special offer of the three years for \$1.00, or, better still, the five-year offer for \$1.50. Address your order today to the Michigan Farmer, Detroit, Mich.

HOW IT FIGURES.

A monthly farm paper, to be as cheap as the Michigan Farmer at 50 cents a year, would have to sell for 12½ cents a year, and a twice-a-month farm paper to be as cheap would have to sell for 25 cents a year. Markets, veterinary advice and other features would be of the same comparative value.

LEGAL QUESTIONS ANSWERED.

For the accommodation of our subscribers, we have arranged with Mr. Allan Campbell, a competent attorney, to answer legal inquiries for our subscribers. For this service a fee of 25 cents for each question will be charged to insure that only questions of importance will be asked. This will

SPECIAL BARGAIN CLUBS

We have arranged here a list of special bargain combinations which will save you considerable on your reading matter. No substitution of other magazines which are the same price can be made. You must take the entire combination as it is. You can make up your own club from the club list if none of these suit you.

Orders may be sent direct to us or through any of our agents. Order by number. Address all orders to the Michigan Farmer or hand to our agents.

EXPLANATION.—Wk. means the paper comes each week, mo. means each month, S.-mo. semi monthly. Dailies on R. F. D. only.

Publishers of other papers will not allow us to quote their paper single at less than their regular prices, but Subscribers to the Michigan Farmer whose term does not expire for 1 year or more will be allowed reduced prices on other papers at any time if they will write us the ones wanted; this also applies when other papers are wanted not in the clubs they select.

NOTE.—The Michigan Farmer is figured in "Our Price" at the special season price of only \$1 for 3 years, 50 cents only may be deducted if the Michigan Farmer is wanted for but 1 year.

No. 1.	
Michigan Farmer, 3 yrs., wk....	\$1.25
Boys' Magazine, mo.....	1.00
The Ladies' World, mo.....	1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 2.	
Michigan Farmer, 3 yrs., wk....	\$1.25
The American Boy, mo.....	1.00
Woman's World, mo.....	.35
American Poultry Advocate, mo..	.50

Regular price\$3.10

OUR PRICE ONLY \$2.00

No. 3.	
Michigan Farmer, 3 yrs., wk....	\$1.25
American Poultry Advocate, mo..	.50
The Ladies' World, mo.....	1.00

Regular price\$2.75

OUR PRICE ONLY \$1.60

No. 4.	
Michigan Farmer, 3 yrs., wk....	\$1.25
Pictorial Review, mo.....	1.50
Boys' Magazine, mo.....	1.00

Regular price\$3.75

OUR PRICE ONLY \$1.80

No. 5.	
Michigan Farmer, 3 yrs., wk....	\$1.25
Youths' Companion, wk.....	2.00
McCall's Mag. and Pattern, mo..	.50
Poultry Success, mo.....	.50

Regular price\$4.25

OUR PRICE ONLY \$2.95

No. 6.	
Michigan Farmer, 3 yrs., wk....	\$1.25
American Swineherd and book, mo	.50
McCall's Magazine & Pattern, mo	.50
Poultry Success, mo.....	.50

Regular price\$2.75

OUR PRICE ONLY \$1.75

No. 7.	
Michigan Farmer, 3 yrs., wk....	\$1.25
Choice of any daily in Detroit or Grand Rapids except Detroit News	\$2.00 to \$2.50
People's Popular Monthly.....	.25
Everyday Life, mo.....	.25
Woman's World, mo.....	.35

Regular price\$4.60

OUR PRICE ONLY \$3.00

The Michigan Farmer in these Clubs is figured for 3 years. Take this into consideration when comparing with Club prices offered by others.

No. 8.	
Michigan Farmer, 3 yrs., wk....	\$1.25
Mothers' Magazine, mo.....	1.50
McCall's Mag. and Pattern, mo..	.50
Ladies' World, mo.....	1.00

Regular price\$4.25

OUR PRICE ONLY \$2.15

No. 9.	
Michigan Farmer, 3 yrs., wk....	\$1.25
Choice of either:	
Breeders' Gazette, American Sheep Breeder, Hoard's Dairyman	1.00
Poultry Success, mo.....	.50
Boys' Magazine, mo.....	1.00
Ladies' World, mo.....	1.00

Regular price\$4.75

OUR PRICE ONLY \$2.70

No. 10.	
Michigan Farmer, 3 yrs., wk....	\$1.25
Today's Magazine, they also give choice of one May Manton pattern free with first issue.....	.50
Poultry Success, mo.....	.50
Boys' Magazine, mo.....	1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 11.	
Michigan Farmer, 3 yrs., wk....	\$1.25
Any Detroit Daily (except the News)	2.50
Poultry Success, mo.....	.50
Boys' Magazine, mo.....	1.00
People's Popular Monthly.....	.25

Regular price\$5.50

OUR PRICE ONLY \$3.00

No. 12.	
Michigan Farmer, 3 yrs., wk....	\$1.25
Any Grand Rapids Daily, 1 yr..	2.00
Kimball's Dairy Farmer, S-m ..	.25
Reliable Poultry Journal, mo....	.50
People's Popular Monthly.....	.25

Regular price\$4.25

OUR PRICE ONLY \$3.00

ATTENTION.—On any one of these combinations you save the price of the Michigan Farmer three years and on some considerably more.

bring a personal letter of advice from the attorney, to whom the questions are referred. Address Legal Department, Michigan Farmer, Detroit, Mich.

A RAZOR SNAP.

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

The razors are made of the best German 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, postpaid, or a half-dozen at \$2.00, postpaid.

A Strop Bargain, Too.

We also have a new lot of Presto All-in-One razor strops that dealers

sold at \$1.00 each. These strops are made of finest horsehide leather and one side is treated with All-in-One solution which makes it possible to put a hair-splitting edge on the dull-est razor. It combines the strop and hone in one.

The special price on the strop alone, while the supply lasts, will be 50 cents, postpaid, but if ordered together with one of the above razors the price of both will be only 75 cents postpaid, or \$1.15 with the Michigan Farmer one year; \$1.60 for three years.

This would make a nice present, worth double the cost.

and \$2.10 for five years.

MICHIGAN NEWSPAPERS IN CLUB.

We will accept orders from our subscribers or agents for the following three publications for \$1.25:

Michigan Farmer, weekly.....	\$0.50
Home Life, monthly.....	0.25
Poultry Success, monthly.....	0.50

And your selection of any one of the following Michigan newspapers for \$1.35:

Express, Schoolcraft, Mich.	
Sentinel, Clare, Mich.	
News, Woodland, Mich.	
Review, Richmond, Mich.	
Times, Grand Ledge, Mich.	

COUPONS POURING IN

By the Thousands
on My Great
60 Days'
Feeding
Offer

SIDNEY R. FEIL,
Pres.
The Feil Mfg.
Co.



I'll Feed Your Stock 60 Days Before You Pay

Hundreds of thousands of farmers have already accepted my remarkable offer to rid their stock of worms or no pay. The coupons are still pouring in by the thousands. Now I want **you** to accept this remarkable offer if you have not already done so. You will find it a money-making move. All you need to do is to fill out the coupon below—tell me how many head of stock you have and I will supply you enough SAL-VET to last them 60 days without a cent of pay in advance. I want you to see for yourself what a wonderful help this great Worm Destroyer and Live Stock Conditioner is in keeping farm animals free from internal parasites, in good thrifty condition and more profitable to you.

**The Great
Worm
Destroyer**

SALOVET

**The Great
Live Stock
Conditioner**

—is a medicated salt—with which your farm animals can doctor themselves. Your worm infested stock get the medicines they need in the salt they crave, and the disease-breeding, profit-eating worms are driven out. Could anything be more simple? There is no bother or trouble for you. This simple, wonderful discovery has conquered the deadly

stomach and intestinal worm troubles which have caused so many millions of dollars in losses among hogs, sheep, horses and cattle every year. When the leech-like grip of these blood-sucking parasites is released from the tender linings of the stomach and intestines, the animals take on new life—have better appetites—digestion improves—they gain in flesh faster because they get more good of all your feed—they grow into profits fast. Read the letters at the right. See what a change SAL-VET makes—how it keeps off disease—saves the loss of thousands of dollars worth of stock, and increases stock profits.

Send No Money—Just the Coupon

I don't ask you to send me a cent in advance. Just get out your pencil and write in the coupon the number of sheep, hogs, horses and cattle you own. Fill in your name, address and shipping station and mail the coupon to me at once. I'll do the rest. When you get your SAL-VET, feed it according to directions for 60 days. At the end of that time, make a specific report of the results—if SAL-VET has not done what I claim, the test will not cost you a cent—you will not be out one penny. Fill out the coupon, mail it to me today and accept this remarkable feeding offer. Address

SIDNEY R. FEIL, Pres.

THE FEIL MFG. CO., Chemists, Dept. 80, CLEVELAND, OHIO

THE FEIL MFG. CO.
Dept. 80-12-4-15 CLEVELAND, OHIO

Supply me enough SAL-VET to last my stock sixty days. I agree to pay the freight, feed it as directed, and will then pay for it if it does what you claim. If it fails and I so report specifically in 60 days you are to cancel the charge and I will owe you nothing.

I have.....hogs.....sheep

.....horses.....cattle.

Name.....

P. O.....

Shipping Station.....State.....

Thousands of Farmers Who Accepted My Offer Write Like This:

"After feeding SAL-VET to pigs, I find it a splendid worm exterminator. The last bunch of pigs I killed, were entirely free from worms, whereas those I killed before using SAL-VET were full of them."—Ernest Lorenz, Rt. 5, Mt. Clemens, Mich.

"I had a bunch of registered sheep that were dying. I commenced feeding SAL-VET to them, since which time I have lost only two. I also had about two thousand head of western sheep, to which the SAL-VET was fed. They all came through in good shape."—W. R. Hamlin, Hatton, Mich.

"My hogs were sick when I sent for SAL-VET and before the preparation arrived, most of them had died. To those that were still living, I fed SAL-VET and saved them; have had no trouble with my hogs since."—Mrs. E. O. Abbott, Rt. 5, Battle Creek, Mich.

"SAL-VET is good stuff. I did not lose a hog since I have been feeding it, although when I got it, I had one that had what we thought was cholera, but it recovered all right."—A. J. Gilbert, Buchanan, Mich.

Look for this Label on every SAL-VET Package. Never sold in bulk.



PRICES
40 lbs.....\$2.25
100 lbs..... 5.00
200 lbs..... 9.00
300 lbs..... 13.00
600 lbs..... 21.12

No order filled for less than 40 lbs. on the 60 day trial offer. Shipments for 60 days' trial based on 1 lb. of SAL-VET for each sheep or hog and 4 lbs. for each horse or head of cattle.