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VOLUME CLVIX NUMBER TWO

DETROIT, JULY 8, 1922

CURRENT COMMENT

THE MICHIGAN FARMER SAYS:

Plodding mediocrity usually accomplishes more than a variable brilliancy.

Modesty is not a matter of clothes; it is an attitude of mind.

He who spends for false pleasures loses what he had and gets less than nothing in return.

Even the rich should be conserving of the natural resources as extravagance on their part makes less for others to use, and adds to them the burden of higher prices.

Electricity on the Farm

Even the rich should be conserving of the natural resources as extravagance on their part makes less for others to use, and adds to them the burden of higher prices.

There is one fundamental question involved in bringing current from some central plant to the farmer's premises. This question is the cost of installation and maintenance. At a conference of representatives of farmers' organizations of the state and of electric power companies held in Lansing last week it was reported that the average cost of maintaining lines running to farms would be around forty dollars per annum. This does not include the cost of current which, it is estimated, would bring the total cost for the average amount of service per farm up to about seventy-five dollars each year. In spite of this comparatively high cost it was the opinion of the farmer representatives present that some plan could be worked out to the mutual advantage of the farmers and the electric companies. The companies now report an unusual demand for such service from farmers who live within a reasonable distance from service lines.

But this is not the only source of electric current for rural folks. The isolated electric plant operated by gasoline, water, or wind is becoming rapidly popular with the farm people and they are being installed by the hundreds in every part of the state. Like his city cousin, the farmer has developed an appreciation for electric power, light and heat. Cleanliness, availability and economy have been qualities which have captured his attention and that of his family. In some manner this desire will be satisfied. In all

probability centrally developed current will be used where it is more readily available while the isolated plant will find favor on farms more remote from the big generating plant or transforming station.

Better Egg Marketing

A WIDE interest is being taken in methods of marketing eggs. Just now cooperative marketing of this product seems to be developing much more rapidly than along any other line. On the Pacific Coast a merger of the four leading cooperative egg marketing associations is now being completed. Minnesota reports that six hundred thirty cooperative creameries in that state have started buying eggs. In Nebraska egg marketing organizations are about to be launched in forty-seven counties. There are now two hundred seventy-five cooperative exchanges in Missouri, while eight cold storage plants will handle two thousand carloads per year. Four counties in Wisconsin will be organized this year. In southern Illinois six counties have an association each. The New England states, together with New York and New Jersey, have awakened to possibilities along this line. Connecticut, New York and Massachusetts are conducting educational campaigns to acquaint farmers with the fundamental principles of cooperative marketing of poultry products. In all, it would seem that there is likely to be a change in the general plan of handling poultry products. We are wondering just what effect all the activity will have upon the egg market. We are inclined to be optimistic since an improvement in the quality of eggs as they are delivered at retail stores is quite certain to stimulate consumption.

Playing the Game

THE first thing necessary, if we expect to be successful in playing the game, is an understanding of the rules and regulation by which it is played. No amount of strength, or mental alertness, or skill of hand will make us a good sportsman unless we know how to take our part.

Then to this knowledge must be added skill of hand, head and heart to put the rules into execution. Often there are men in the bleachers who can repeat every word of the rule book forward and backward, but who cannot play a single position on the team. They may preach, but they do not

practice, while the game was planned to exercise the body as well as the mind.

Finally, we must cooperate and not knock. If we insist on having our way regardless, then we are likely to be put out of the game, even though we may have a knowledge of the rules and the physical and mental ability to play.

And these suggestions apply to the great game of life. First, we should learn the golden rule and then fit ourselves to practice it, which means cooperation with our neighbors.

Our Bug Burden

IF we are picking potato bugs, using a whisk broom, or handling a spray gun, we are doing our share in a war that is greater than we realize.

This war is not one in which we can hope for a decisive victory, but it is a struggle in which we must stay on top, for it means either the bugs or us.

In a way this struggle is one which we have brought upon ourselves for, under natural conditions, there would be a balance between things which would prevent any one insect becoming a pest. But we have changed the face of the earth to suit our convenience and must therefore pay the price.

This price means about \$10,000,000 a year for the control of the little San Jose scale, about \$200,000,000 worth of each year's cotton crop to feed the boll weevil, and other losses too numerous to mention.

The total annual loss in this country is two billion dollars, which is the price we pay in order that we may retain an appreciation of Mother Nature's bountiful response to our efforts to get nourishment from her bosom.

More Deaths in Country

STUDENTS of vital statistics find that there are likely to be more deaths from typhoid fever in rural districts than there are from our cities. The main reason generally ascribed for this is that cities have made adequate provision for the proper disposal of sewage. In country places, this generally has not been well cared for.

The situation, however, is being gradually improved. The farmer is much better acquainted with the advantages of a good sewage system through the general education he has obtained by visiting his city cousin. This first-hand knowledge and general propaganda showing the dangers of

the old system and the advantages of modern improvements, have led to a rather urgent demand for information on the erection of farm septic tanks. In order to supply farmers with directions, the farm mechanics department of the Agricultural College, at East Lansing, has prepared blue prints and sufficient descriptive matter to enable the handyman to go ahead and construct at low cost one of these septic tanks. County agents also devote time in helping farmers in their respective counties to solve problems connected with the installation of these health conservers.

This may be the wrong time to urge action along this line, but withal, we believe that at the present charges of undertakers the installation of one of these tanks and the necessary appurtenances may be much cheaper than a funeral.

One Fourth

LIKE our birthdays, the anniversary of the birth of our country comes once a year, whether we want it or not. But maybe it is all right, 'cause it gives folks a chance to work off a accumulashum of what you call patriotism.

I paid homage to this Land of Freedom by buying one-fourth of a dollar's worth of gasoline so me and the family could see the parade, which had for its special attraction Jason Gould,

drum major of the village band. Jason surely kin swing a wicked stick. Maybe he gets practice usin' the yardstick in Smith & Johnson's dry goods store.



Next we listened to John Cavanaugh, the aspirin' young lawyer who won the case for the electric company against the city. He talked on "Our Duty to Our Government, this Land of Freedom." It sure was perspirin' talk.

Next I got a man to sell me balloons at wholesale, gettin' three of them for one-fourth of a dollar. I also a quarter's worth of Son-of-a-Guns, which cost a cent apiece, but sounds like the Revolutionary War. Then I bought one-fourth of a dollar's worth of them Roman candles and pinwheels so I could fill the night air with beauty.

We ate our lunch in the park, gettin' one-fourth of a dollar's worth of hot dogs to go with it. And, after we talked about nothin' in peticular with nobody in peticular, and seen Jim Munson ketch the greased pig, and George Mackey win the fat man's race, we went home to give our strenuousity a rest.

After milkin', when it was dark, I shot off the fireworks with a lotta "ah's" from the kids, and then went to bed feelin' like we done our duty.

After a while I got thinkin' about the birth of our country. It was born just like us folks, through a lotta pain and sufferin'. But what gets me is that, while we hear a lot about the father of our country, we hear nothin' of its mother. Maybe she was what you call in disrepute. But, if Great Britain was the mother, Daddy George sure did treat her rough, and it seems like they got a divorce before the child was born. George was fightin' for freedom and it looks like he got it, alright.

You know, I can't see why we gotta spend a lotta money to celebrate our holidays. In all, I spent a dollar and didn't get no satisfaction out of it, and I don't think my country did either. It just seems like we are commercializin' too many of our feelin's of significance.

Anyway, I spent one-fourth like I oughten to. The quarter I gave the fellow for the balloons was plugged.

HY SYCKLE.

Vote in the Good Will Election

THE American Committee for Devastated France, with the co-operation of the Detroit News, is conducting a popular contest in Detroit for the selection of a delegation of business women to visit the devastated section of France, carrying a message of good will to the unfortunate victims of the war, and particularly to the orphaned and suffering children, and to lay the foundation for more substantial aid. In this campaign a contribution of ten cents or more qualifies the contributor to vote in the contest, one vote for each ten cents contributed.

There are many candidates in the field, from whom the successful few will be chosen, according to the votes cast for them. Among these candidates is one farm girl from western Michigan, Miss Jean Bronkan, in whose candidacy many who are interested in or

identified with agriculture have taken an interest. Mr. George W. Dickinson, secretary-manager of the Michigan State Fair, is contributing his services as her campaign manager. The Michigan Farmer is co-operating by giving its readers an opportunity to contribute as they may desire to this worthy cause, which is more than a charity, and which will be rewarded by first hand information from Miss Bronkan on conditions in the regions which she will visit, if she secures the votes to qualify her as a Good Will representative.

Fill in the coupon and mail with your contribution to the Michigan Farmer, and we will turn contributions and votes over to the proper representatives of the committee. Do this today, as all votes must be filed by July 15, to count in the contest.

The Michigan Farmer, Detroit, Michigan:

Enclosed find.....for the Good Will fund of the American Committee for Devastated France. Please forward it to the committee, together with.....votes for Miss Jean Bronkan in the Good Will contest.

Signature

Address

The Missing Link In Feeding

How This Link Was Discovered and What It Means to Farmers

By Earle W. Gage

NOT long ago investigation showed that some fakers were actually selling farmers ground cocoanut shells as a special cattle food. A good many of the fattening and conditioning preparations were not very much better, it was found. But the shell of the cocoanut is practically hard wood, and it does seem abominable to give poor, ailing, breeding or growing brutes, ground hardwood, as a medicinal food. And it was certainly hard upon the feeder to swindle him into paying his hard cash for such trash.

But, come to think of it, there is a place in our feeding bins for the shells of nuts—some nuts at any rate. The little oblong nuts on the wheat plant, for the wheat itself has a shell of its own, composed of what is much like wood. Everyone knows how valuable a stock feed this shell, husk, or bran is, used in reason. For many years—back to times immemorial, bran has been used as a feed. But never so intelligently as since the latter half of the past century.

It was a lot of pigeons experimented upon by some scientists interested in feeding problems that made known to us the real value of bran and some other cattle feeds. The birds were fed with the polished rice, which is often sold in the stores and often tempts the good housewife by its handsome appearance. It is a fine old proverb which warns that "handsome is that handsome does," and so is that other which warns against judging by the outward appearance.

In a few days the pigeons fell sick. They developed the disease known commonly as beri-beri in men. Since in the case of human beings, this ter-

ribly fatal disease is caused by an unbalanced food ration, the scientists set about restoring the balance in the pigeon's food by feeding them with rice-bran. It is unlikely looking stuff to use as food, but this rice-bran turned the trick. The doves got well speedily and that set men to work to try to find out just what food substance it is in bran which gave it such value.

That was how it occurred that what are called by the rather clumsy name

imals, or man. For lack of better names they are usually known as vitamins A, B and C.

Vitamine A concerns growth. Without its growth is slow, the bone poor and resistance low.

Vitamine B is an anti-neuritic, a sort of nerve sustainer. Without it beri-beri and similar diseases of the nerve government, lack of virility, may be expected.

Vitamine C is an anti-scorbutic.



The Wheat Field Furnishes an Abundance of Vitamines.

of "vitamines" came to be discovered. There was something lacking in the polished rice ration, as sailors found long ago there was something lacking in a preserved food ration. Green vegetables, and lime juice completed that latter ration it was discovered, and prevented scurvy.

But green vegetables and fruit juices could not prevent beri-beri from setting in. Nor could the bran—or a yeast which was found to have similar effect—that cured beri-beri, prevent scurvy.

Different things were lacking in the food rations it will be noticed. So far we have discovered three of these, the lack of which upsets the health of an-

Without it scurvy and such troubles may occur.

Vitamines Essential to Life.

Evidently these vitamins are, and always have been necessary to animal life. Wild things get them naturally. It is because our animals are no longer wild, and no longer live and feed in their natural countries and manner, that we have to look after them artificially.

All animals whether meat-eaters or vegetable feeders, get their vitamins from plant life. It is true that meat, animal fats and milk contains vitamins, but they all come from vegetable life.

All food of animals must contain car-

bohydrates (sugar, starch or cellulose-fats), proteins—albuminoids, and certain salts. We have known that all our lives. To be perfect they must contain vitamins as well. Naturally we look for these first in vegetables. There is a lot to be found out yet about these principles. The farmer is, in fact, never going to be done with learning. And it looks as though the chemist is going to be his best teacher for a good many years to come. It might be a good thing to insist upon having chemistry taught in all the schools, instead of "dead languages" (which are seldom used by farmers).

In the future, the country which has the most competent, best trained farmers is going to take the lead when the war-tossed world settles back into its old, or should we rather say, settles well into its new stride. And the best trained farmers will be those who, among other necessary things, know their chemistry best.

We have already found out that certain vegetation is richer in vitamins than others. Cabbages—or the cruciferous as their family is called—are very rich in vitamin C, for example. Young plants are much richer in vitamins than others. Dead-ripe plants contain practically none at all. Is that a fact worth remembering at haying time?

Therein is a most important argument for the silo. With labor at present prices, and Adam's ever-present curse of weeds, it is not easy to make it pay to grow roots. But silage is an admirable substitute, perhaps a more valuable food.

In fact, the silo is one of the principles. (Continued on page 39).

Picric Acid for the Fall of 1922

Government Gives Further Encouragement to Land Improvement

By A. J. McAdams

THE scourge of picric acid will again prevail on stumps of Michigan this fall. During the winter the Bureau of Public Roads made a re-allotment of the war salvage picric acid stored at Fort Wingate, New Mexico, and the state of Michigan is to receive about a million and a quarter pounds. This material is being distributed through the Land Clearing Division of the Michigan Agricultural College, with L. F. Livingston, Land Clearing Specialist, M. A. C., in charge of the distribution.

Last fall the Michigan Agricultural College distributed 624,000 pounds of this war salvage explosive at a saving of about \$60,000 to the farmers. Figuring an average saving of eight cents per pound on the picric acid, the 1,250,000 pounds to be distributed this fall should effect a saving of \$100,000 to Michigan farmers. It is estimated that the new allotment of picric acid should add about 30,000 newly cleared acres to the state.

Picric acid is a fine, dusty, yellow, crystalline powder which is non-freezing and non-headache. It does not contain nitroglycerine and for that reason it has no definite percentage. This powder was originally designed for war purposes, but extensive experiments and field tests proved that it was also suitable for land-clearing work. As a war salvage material, picric acid competes with dynamite, but as a commercial product the price of dynamite is much less than the price of picric acid. This explosive is put

up in cartridges resembling dynamite and is handled in the same way that dynamite is used. Because it is so powdery, picric acid runs about three sticks to the pound. Each hundred-pound box contains about 270 sticks.

Picric acid is very much more insensitive than dynamite and for that reason it requires a No. 8 blasting cap to make it explode completely. It very often happens that a No. 6 cap will cause it to explode, but upon closer investigation it will be found that the explosion is not complete. A No. 6 cap will blow part of the picric acid away and cause a lemon colored smoke,

while the No. 8 cap will give a light gray smoke which disappears very rapidly. It is suggested that every effort possible be made to secure the large-sized caps to explode the picric acid.

The distribution of the picric acid is being handled by the county agricultural agent system of the Michigan Agricultural College and by the various farm bureau organizations of the state. Delivery is made in carload lots only. It is suggested that farmers desiring picric acid this fall get in touch with their county agent or their farm bureau organization as soon as possible. The material will cost seven cents

per pound, plus the freight from Fort Wingate, New Mexico, to the local distributing points. In counties where there are neither county agents nor farm bureau organizations, the county clerk has been supplied with information regarding the distribution of this material.

Mr. Livingston has been in touch with several thousand farmers who have been using picric acid this spring and he has yet to find one who was in any way dissatisfied with the explosive. As far as he has been able to ascertain, this material will do the work stick for stick with dynamite. Mr. Livingston says: "It should be borne in mind that the farmers are being supplied with picric acid at a cheap price because it is a war salvage material. If picric acid was purchased on the open market, one pound of it would cost as much as three pounds of dynamite. The farmers are being supplied with this explosive at the cost of cartidging plus the freight to their local station. I would also like to impress on the various agencies of the state the necessity for early orders. We are a long distance from New Mexico and although we are guaranteed shipment forty-five days after the cartidging plant receives the order, I would like all of this material to be in the state for use this fall. My office at Marquette is being flooded with inquiries regarding picric acid, so I would suggest early action on the part of those who wish this war salvage explosive."



This Picture Gives the Reader an Idea what Picric Acid will do to a Healthy Pine Stump.

LATE AGRICULTURAL NEWS

ORGANIZE TO GET LOANS ON FARMS.

TWENTY farmers near Sandusky, Sanilac county, recently completed the organization of the Sandusky Mutual Farm Loan Association. These men have made application for loans aggregating \$87,000 for periods ranging from five to forty years. The interest rate is five and one-half per cent. The organization is a branch of the Federal Land Bank of St. Paul, Minn. Mr. Summers, of Deckerville, is president, and County Agent John Martin is secretary-treasurer. Professor Elliott, of the Michigan Agricultural College, aided in perfecting the association. The farmers are able to loan up to fifty per cent of the cash value of their land, and twenty per cent of the valuation of their buildings.

SHIP SUBSIDY.

AS an argument for the farmer's support for a ship subsidy, Chairman Lasker asserts that "the farmer is vitally interested in the merchant marine in many ways. It is probable that the great carrying nations of the world owing large sums of money, may attempt, so far as they can, to buy their agricultural needs elsewhere. We must insure under our flag such speed and prompt delivery to their shores of our agricultural products as will force them to buy from us."

CONTINUE WORK AT MUSCLE SHOALS.

THE house by a vote of 145 to 105 voted for the senate amendment appropriating \$7,500,000 to continue the work of building the dam at Muscle Shoals, with the provision added that work should not begin until October.

This is regarded as a victory for the friends of the Ford offer. It was supported by the friends of the Ford proposition in the house, and by the American Farm Bureau Federation.

When the house action was referred back to the senate for concurrence, Chairman Norris, of the Senate Committee of Agriculture, who is leading the fight for government development and operation of the Muscle Shoals power and nitrate fertilizer plant, made a vigorous attack on the house proposition to postpone work on the dam, charging Gray Silver, legislative agent of the American Farm Bureau Federation, with attempting to coerce congress into a position where it would be compelled to accept the Ford offer. Senator Norris undertook to secure a vote of the senate against concurrence with the house, but in this he was defeated, and the senate concurred with the house upon the amended amendment, and the bill is ready for the President's signature.

FOREIGN WHEAT CROP.

A SMALLER production of wheat in Europe is indicated in a report received by the department of agriculture from the International Institute of Agriculture at Rome. This is due to reduced acreage and unfavorable weather conditions. In British India there is an increase of 3,076,000 acres over last year, and an increase in production of 120,288,000 bushels. The Australian wheat crop previously estimated at 136,168,000 bushels has been reduced to 132,288,000 bushels, which is 91.9 per cent of last year's yield. The production of corn in the southern hemisphere is 261,940,000 bushels

against 285,874,000 bushels in 1920-21. Samples of honey are being received by the department of agriculture from bee-keepers in all parts of the country, in connection with work of establishing reliable color grades for extracted honey.

MR. NOON TO DIRECT MEMBERSHIP CAMPAIGN.

MR. M. L. NOON, prominent county farmer, and vice-president of the State Farm Bureau, will direct the State Farm Bureau's second member-



Mr. M. L. Noon.

ship drive which opens August 1 in Allegan county, according to Clark L. Brody, secretary of the State Farm Bureau.

"Beginning this fall," said Mr. Brody,

"State Farm Bureau memberships signed with 97,000 Michigan farmers in 1919 and 1920 begin to expire. The coming campaign will seek renewal of these membership contracts. The present three-year farm bureau membership has built a great cooperative service, sales and purchasing organization with headquarters in Lansing. The bureau handles seed, markets grain, hay and beans, purchases supplies, pools wool and represents its vast membership in legislative, transportation, taxation and other matters of public interest. It is affiliated with the American Farm Bureau Federation, which speaks for 1,500,000 organized American farmers."

CAPPER-TINCHER BILL PASSES.

THE Capper-Tincher bill to regulate grain exchanges, known as the "Grain Futures Trading Act," passed the house on June 27, after a lengthy debate. The bill is designed to correct the grain futures act in its defects wherein it was held unconstitutional by the supreme court on May 15. It was opposed by several members of the grain exchange bloc, representing the Chicago, Minneapolis and Kansas City districts, but the farm bloc held firm control of the situation, and every amendment proposed by the grain exchange representatives was voted down, while a few minor amendments supported by the farm bloc were adopted.

Speaking of the former law, Congressman Tincher, of Kansas, said that "in no time in the history of our government was there less manipulation of the grain market or less complaint of manipulation of the trading than

during the time when this law was in force. No man ever heard a complaint.

"I have never said that the sale of wheat for future delivery should be entirely wiped out or the sale of futures should be wiped out, but I have always said that to let a few gamblers manipulate the grain market was not only unfair to the consumers, but unfair to the legitimate trade," said Mr. Tincher.

"The question of false crop reports that have been given out from time to time have been the means of more losses in the grain market to the producer than any other means that have been used in this country, and that is one of the very things this bill intends to correct," said Congressman Fred B. Gerner, of Pennsylvania. "Where anyone connected with an exchange knowingly sends out information that he knows is not accurate, but is intended to deceive and mislead and create a false situation in the market, it is wrong, and there ought to be somebody for that reason under whose control the stock exchanges should be placed, and there is no other instrumentality in this country that can control that situation better than the secretary of agriculture."

NATIONAL BUTTER STANDARD BILL.

AFTER a brief hearing on the federal butter standard bill, the house committee on agriculture reported out a bill defining butter as a food product, which is made exclusively from milk or cream, or both, with or without salt, and with or without coloring matter, and containing not less than eighty per cent to milk fat. The proposed clause limiting the maximum amount of water to less than sixteen per cent was eliminated.

If this bill passes we shall have a law fixing the butter-fat content at eighty per cent, and a ruling under the Internal Revenue Bureau, now in force, limiting the moisture content to sixteen per cent.

The farm bureau representatives favored the eighty per cent butter-fat limit, but thought it should apply only to commercial butter manufacturers and not to farmers making dairy butter. It was contended that while the farmers aim to make good butter, mostly running above eighty per cent fat, few of them are equipped for regulating the butter-fat or moisture content of butter, to an exactness required by the proposed law.

WORK TO RETAIN FORESTRY DEPARTMENT.

THE American Farm Bureau Federation and the National Lumber Manufacturers' Association are cooperating in a movement to prevent the removal of the forest service from the department of agriculture to the interior department.

In accepting the aid of the lumber manufacturers, Gray Silver, of the Farm Bureau Federation, states that if the forest lands were to be sold off, he would be willing to agree that they should be in the department of the interior with the rest of the public domain, but the farmers of the country are unanimously in favor of inaugurating a general forest policy that would insure a future timber supply and make silviculture a permanent industry. He is convinced that we must have adequate fire protection and a system of taxation that will promote the removal of forests.

Auto Touring Camp

THE above map indicates the location of the score or more of free camping sites in Michigan. The sites marked "S" are State Free Parks, while those marked "F" are free but have been provided by local municipalities or through the generosity of private parties. Any good road map of Michigan will give the necessary information for reaching these camps. Should one desire more data a letter to the editor of this journal will bring it.

A few simple rules should be followed by the users of these parks in order to make them of the greatest value to the people of the state and to our visitors from other states and countries.

You may camp in the public parks one week or less without a permit; for longer periods a special permit is required.

Deadwood can be used for fireplaces.

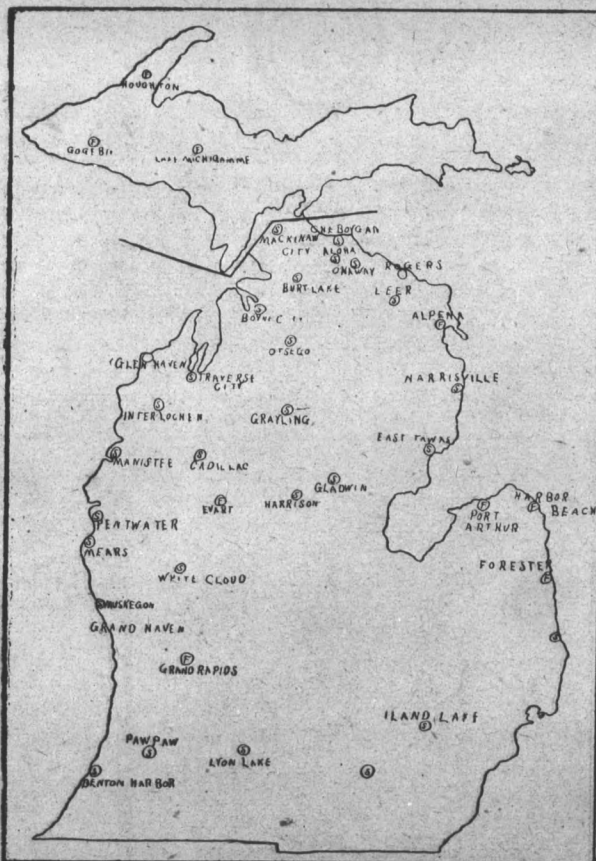
Fish may be caught in accordance with the statutes of the state.

Use of firearms is forbidden, as is also the killing or disturbing of wild animals, birds, or bird's nests.

Rubbish caused by visitors should be placed in the receptacles provided

for the purpose, or, if preferred, burned or buried.

Care must be used with fires. In extreme dry times they should not be built. At other times they may be made in acceptable sheet-iron or stone fireplaces. Fires should never be left



alone and on leaving they should be put out.

Respect property and other people and follow directions of the caretakers.

Hopperburn on Potatoes

Its Cause and Prevention

WITHIN the last year or two potato growers all over the country have been noticing an increasing loss in their crops, due to an apparent blighted condition of the fields. Especially during the hot, dry weather the plants were observed to turn brown and to die as if struck by a severe attack of blight.

Certain indications, however, pointed to something else besides blight. When the progress of the disease was watched it was seen that the leaves turned brown at the tips and died back along the edges which curled upward towards the center of the leaf. This was very characteristic of the disease. Often the entire leaf was killed. This disease has recently been named "hopperburn."

Hopperburn is caused by the potato leafhopper. This is a small, pale greenish insect about one-eighth inch long when full-grown. The leafhoppers are found on the underside of the leaves and when numerous the adults, if disturbed, fly out literally in clouds. The hoppers feed on the larger veins of the leaves, extracting the juices by means of the fine needle-like bristles of the back. Apparently some poisonous substance is injected which kills the tissues, thus cutting off the sap supply from the rest of the leaf and eventually resulting in its death. Even one or two leafhoppers can produce sufficient hopperburn to kill an entire plant.

Although the potato leafhopper is present almost all over the United States and in parts of Canada, hopperburn seems to be confined for the most part to the middle western and eastern states. During the past three or four years hopperburn has been most severe in Michigan, Wisconsin, Minnesota, Pennsylvania, New York and Ohio and the trouble is apparently on the increase.

Copper Sprays Prevent Damage.

Extensive field tests have shown conclusively that hopperburn can be successfully and profitably controlled by the use of Bordeaux mixture or other good copper sprays. Thoroughly covering the leaves with such materials prevents the adult hoppers from feeding and laying eggs and kills many of the young insects.

Three sprayings last year in Iowa gave 110 bushels per acre of first-grade potatoes, while unsprayed fields yielded on the average only about fifty bushels of mixed grade. The sprayed potatoes were of superior quality and sold for \$1.00 per bushel, field run,

while the unsprayed potatoes did not bring ninety cents per bushel and then only when they were graded. The net gain per acre from spraying was \$53.75 after deducting cost of materials, labor and depreciation on the spray machine. These results were entirely due to the effective control of the leafhopper.

In Ohio in 1921 hopperburn was the principal potato trouble. Forty-seven growers in nine counties made sixty tests. The average increase from control of hopperburn was thirty-one bushels per acre and four applications showed a net gain of \$55.70 per acre over unsprayed fields.

Last season was one of the driest on record in Pennsylvania and hopperburn was severe. Over ten thousand acres were sprayed under careful supervision. Spraying gave an average increase in yield of seventy-four bushels per acre, or nearly fifty per cent increase over the unsprayed fields.

In Wisconsin the yield has been increased over 100 per cent on early potatoes and over fifty per cent on late potatoes by proper spraying to control hopperburn.

How to Obtain Results.

If you really mean business, hopperburn can be profitably controlled, but strict attention must be paid to the following points:

Spray Under Side of Leaves.—Since the potato leafhopper feeds on the underside of the leaves it is particularly important that the spray be applied to that part of the leaves.

Use High Pressure.—One hundred fifty pounds pressure or more is necessary to break the spray up into a fine mist, thus coating the entire surface with a protective covering. Seven-

Use Three Nozzles to the Row.—It is absolutely essential that three nozzles be used to each row, so arranged that one sprays downward on top of the vines and one from each side inward and upward. For the "backyard gardener" a good type of hand-sprayer which can be carried on the back will give satisfactory results, provided it is equipped with an extension rod and angle nozzle so that the underside of the leaves can be thoroughly covered.

Use Enough Material.—Fifty gallons of material per acre is the minimum—100 gallons or even more is better.

When to Spray.—Spray at least three times at intervals of about two weeks, beginning when the hoppers first appear on the vines. A fourth application should be made if the season is hot and dry and leafhoppers are still abundant.—M. D. Leonard.

Now Is the Time to Make Corn



Time Devoted Now to the Proper Cultivation of the Corn Crop is More Efficiently Spent than if Given to this Work Later.

7 1/2¢
RELOADS YOUR
HOFSTRA GUN
FROM 60¢ BULK PACKAGE



HOFSTRA
NON POISONOUS INSECTICIDE

Loaded Metal Guns—

Dandy, permanent spray gun with strong coil bellows; liberally loaded; can be refilled; lasts all season **15c**

30c Bulk Package—

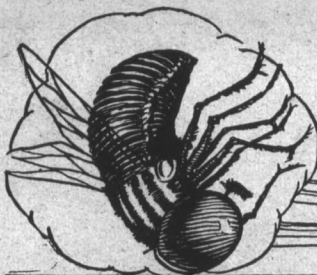
Containing enough genuine Hofstra to reload gun at least 3 times; this size reloads gun at cost of **10c**

60c Bulk Package—

More than twice as large as 30c size; enough powder to reload gun at least 8 times at cost **7 1/2c** of

\$1.20 Bulk Package—

A great big supply of powder; enough to reload gun at least 20 times; reduce cost of reloading gun **6c** to only.....



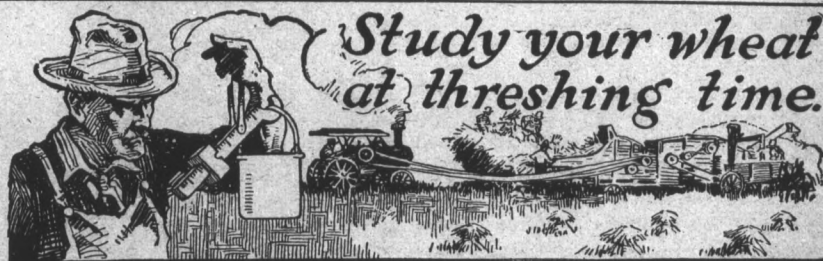
Get Powder You Know Will Kill—It's Cheaper in Bulk

The raw insect powder used in Hofstra is the very best, pure, full-strength Pyrethrum. This is especially vital this year, when the crop is short and many brands have been cheapened by inferior powder. You can depend upon Hofstra. It has the real, high-powered strength and quality.

Not a Poison—Yet Sure Death to Most Filthy Insect Pests

Don't be afraid to use Hofstra freely in any part of your home, garden, chicken yard, dairy or flower beds. It is harmless to humans. It kills insect life by closing skin-pores through which they breathe. Get the genuine Hofstra for 100% results. At Drug-gists and Grocers in metal guns and bulk packages for refilling. If dealer can't supply you, send 15c for loaded metal gun direct to

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Study your wheat at threshing time.

OF course, you are very busy then but it will pay you to take time to find out not only the yield but the real quality. Is the weight per struck bushel up to the standard? Does it grade high enough to bring the top price in your market? Is the weed seed box free from light chaffy wheat grains?

Has the clover and grass made a good set in the stubble? If not, why not?

Six years of potash starvation has had its effect on wheat lands. Enough German Potash has now come forward, so that those who wish can buy wheat fertilizer with 4 to 6 per cent. of potash. Potash prices are now much lower.

Tell your dealer now what you want and insist on having it.

Potash Pays

SOIL AND CROP SERVICE, POTASH SYNDICATE, H. A. HUSTON, Mgr.
42 Broadway New York

OUR SERVICE DEPARTMENT

THRESHERS.

What is the threshing law, or is there any? Suppose a thresher threshes all the jobs on one street except one man. Is there no law to compel him to thresh his grain?—F. S. G.

There is no law requiring a person offering to do threshing to do work for every applicant. Like other persons, he may work for whom he pleases.—Rood.

BUYING BEES.

I would like a little information on bees. I have one swarm and would like to get more but don't know where to send for them, or the price of a good swarm. There is no one here that has them for sale.—R. C. S.

Before answering the above inquiry, I would say that there is always serious danger in purchasing bees of beekeepers who are not making a living from the raising of bees and selling of honey. This is because of the prevalence of bee diseases in various parts of the state. These beekeepers who do not pay much attention to their bees often have disease among them and do not know it. The bees die out in the winter because of disease and the owner often ascribes it to "winter killing."

I would, therefore, suggest that you purchase your stock from some of the breeders whose yards are under the supervision of the state apiary inspectors.—B. F. Kindig.

PRIVATE ROAD BECOMES PUBLIC.

Is there any law that, after a road has been used for several years, it can be opened to the public, there being a laid-out road eighty rods away. This road is to avoid a hill.—Subscriber.

In reply to your inquiry, please be advised that Section 20 of Chapter 1 of the General Highway Law provides that:

"Roads that shall have been used as such for ten years or more, whether any record or other proof exists that they were ever established as highways or not, shall be deemed public highways, subject to be altered or discontinued according to the provisions of this act."

You will therefore understand that a road which has been used ten years or more by the public becomes a public highway and can only be abandoned or discontinued by proceedings in accordance with the statute.—Partlow.

RYE AND VETCH FOR PASTURE.

I have five acres of corn on sandy and gravelly soil, which I would like to sow to rye and vetch early this fall, for early spring pasture, to be plowed under in June and sowed to buckwheat and seeded to sweet clover. Would it be the proper thing to sow the rye and vetch in the corn in August and cultivate it in before the corn is cut, or wait until the corn is cut and then sow it? How much vetch should I sow to the acre, and can it be mixed with the rye and both sown at the same time? Some of my neighbors have sown vetch, but had trouble with it winter-killing. Is it because it was not sown early enough in the fall? What stage of maturity should rye and vetch be plowed under to be of most value to the ground?—R. N.

If you have sufficient moisture at the time of the last cultivation of your corn, it is a splendid practice to sow the rye and vetch then.

In fact, many people sow them even if the ground is dry, because rye and vetch are pretty hardy seeds and will lay in the ground for a considerable length of time and then germinate when the rain comes, but it is possibly safer, if the ground is so dry that the seeds cannot germinate, to wait until

the corn crop matures and then seed. You will have to be your own judge of the moisture conditions.

From fifteen to twenty pounds of vetch, and from one to one and one-half bushels of rye, depending somewhat on the condition of the soil, is about the right amount to sow. The vetch can be mixed with the rye and the seeding done at one operation.

Hairy vetch is a hardy plant and usually winters as well as any forage plant you can grow.

I am surprised to learn that your neighbors have had difficulty in this respect, and I apprehend your idea is correct—that it was sown so late in the fall that it did not get properly established before freezing weather.

All green manure crops give the best results if they are allowed to grow practically to maturity before they are plowed under. At this stage of the development they contain much more vegetable matter to be plowed under, and in the case of the vetch, much more nitrogen would be added to the soil than would be if the plants were plowed under earlier in the spring.

COVERT ROAD ACT.

Is there a law in Michigan against Covert roads running parallel, being built one mile apart?—O. Y. Z.

There is no law which prohibits the construction of so-called Covert roads lying one mile apart.

The 1921 legislature provides that no Covert Act road should be constructed without the approval of the state highway commissioner, and the commissioner and his advisory board have adopted a ruling where no Covert Act road will be approved unless they are on the proposed county road system adopted by the board of county road commissioners.—H. H. Partlow.

SWEET CLOVER FOR PASTURE.

I must change pasture next spring and am wondering if sweet clover sown in corn at the last cultivation,

would make growth enough to turn in first thing in the spring. Soil is rather light, what would you advise?—C. M.

If you sow biennial sweet clover this spring this will make about as early a pasture next spring as you could get. In fact, almost as early as the June clover.

The annual sweet clover which would have to be sown next spring, starts rather slow and makes its greatest growth later in the season.

I apprehend that you have not sown the ground yet and this should be done at once. It takes the biennial sweet clover, the same as red clover, the first season to get established, then the next season it makes its vigorous growth and matures.

These clover plants are usually sown in the spring on wheat or with oats or barley, but you can prepare the land now and seed to biennial sweet clover and get it well enough established so that you will have a fairly early pasture next spring.

GARNISHMENT.

I sold a saddle to my neighbor's hired man for \$12. He paid me \$5.00 down and promised to pay the rest on pay-day. Instead he went away and has not been heard of since. His employer told me that he has \$16 coming of his wages. Have I the right to collect the amount due me?—F. T.

There is a right of action for the balance, and if the man is not married all but \$8.00 would be liable to garnishment, which would leave something to be credited on the account after paying the costs.—Rood.

DAMAGE TO PASTURED LIVE STOCK.

A friend gave me a fifteen-year-old horse to pasture. I kept her in the barn for a few days and then put her to pasture. On the same day I missed her. We looked over the farm, but failed to find her. I inquired of the neighbors, notified the owner, and the next day called on the neighbors in the whole community and placed an advertisement in the paper. On the

fourth day I found the horse mired in the pasture and three days later she died. I cared for the horse as though she were my own. Am I liable for the horse? I did not solicit for the horse, my friend made the suggestion, and I did not make any promises of any kind as to safety, etc.—J. D.

Persons receiving live stock to pasture are liable only for ordinary care, the same care they would give to their own stock, in the absence of express agreement imposing a greater liability.—Rood.

SUPPORT OF FAMILY.

If a husband leaves home on other business and the wife has to hire a man to take his place on the farm, can the husband compel her to pay him out of her household allowance? Can a husband sell all the stock off the farm and use it besides what he makes elsewhere and not give anything to the support of his family? If husband refuses to support family, what course can the wife take?—M. H.

The husband can sell the personal property without consent of the wife. She is not liable for his debts, nor to maintain his property. To protect herself she should see a local attorney.—Rood.

CONTROLLING BINDWEED.

I have a fine patch of strawberries which are being smothered out with wild morning glory and another weed that forms a carpet on the ground and nothing can grow through it. It has a small white flower of five split petals which form a hull and has tiny brown seeds in. Could I spray this vine and kill it after the berries are through bearing? I have another piece of ground that is covered with this weed and I am plowing it now; will that kill it?—D. B. M.

The description fits rather well the field bindweed, which is a close relative of the wild morning glory. Neither of these weeds can be controlled by spraying, for the same sprays that will kill them will also kill the strawberry plants. If it is desired to save the strawberries, it will be necessary to dig out all of the roots by hand and then to go through the patch at least every four or five days and by means of a sharp hoe chop off as deeply as possible every new stem that pokes its head up through the soil.

If it is not intended to save the strawberry plants for another year, and if the patch can be fenced off so that no stock can get into it, the following poison spray may be used:

Five pounds of white arsenic, five pounds of soda ash, (carbonate of soda), ten gallons of water. Boil until the solution is clear or nearly so, usually about fifteen minutes. Dilute to make 100 gallons. You do not have to make so much concentrated solution if you do not need so much of the diluted.

This should be applied with a spray rig such as is used for potatoes so as to have a fine mist deposited on all parts of the plants. This will kill the plants down within a week or so and kill part of the roots. Any shoots, however, which come up should be sprayed again as soon as the leaves are well developed. It may be necessary to make a third application early in September. This should kill out most of the weeds so that if cultivated crops are placed on that field next year the pest can be controlled.

In using this spray be exceedingly careful to keep it away from animals or small children, as it is very poisonous.

For the field that is covered with the weed, plowing alone will not kill it, unless it is cultivated as frequently as any new shoots appear.—Bessey.



On the Dairy Farm

Does Good Breeding Pay?

What a Livingston County Breeder Did

THE picture shows what has been done by a Livingston county enthusiast, Robin Carr, in the way of constructive breeding. This was the result of a cross made with the view of getting type, as he already had some creditable records. The mating of sons and daughters from his old herd sire has produced this show stock and he need not be bashful about mentioning some of the records. As a junior three-year-old, one made twenty-six pounds of butter, 540 pounds of milk in seven days, and at five years of age, made over 1,000 pounds of butter, 27,000 pounds of milk in 365 days. Now a son of this 1,000-pound cow is

being used as herd sire where the results are appearing equally as good. The first offspring which came the past winter, are individuals to be proud of and all are anxiously waiting to see what the effects will be from a producing standpoint.

Note the uniformity of type he has developed, and the creditable records made by these animals have proven to the owner that his efforts have not been in vain. Livingston county, no doubt, can show a large number of animals just like these, which have been the results of constructive breeding. The army of men who believe in good breeding is growing.—C. L. B.



These Eight Cows Owned by Mr. Carr All Show the Influence of Same Sire.

Silage Cuts Milk Costs

Experiments and Experiences Prove It

DAIRYMEN have found that the cow's board bill is the largest item connected with cost of milk. The man who buys a first-class dairy herd is inclined to believe that the original cost of the cows is the expensive part. After he has a few years of experience he changes his mind. It is the feed bill, in season and out, year after year, that totals up the big expense.

Our experiment stations have conducted many tests to determine the value of silage in the ration. The figures vary to quite an extent, but they all show the economic value of silage. The Ohio Station several years ago showed that corn silage saved the dairy farmer ten cents a pound on the cost of producing a pound of butter, and forty cents on the cost of producing 100 pounds of milk. Many of the early cow-testing associations demonstrated that the silo was one of the most important factors in lowering the cost of milk. All of these experiments and tests, however, is only a small part of the proof of the economy of the silo. The most important proof is the fact that one-half million silos are now being used by our most progressive farmers.

Silage is a succulent grass-like feed. It is cooling in effect, aids digestion, stimulates appetite and is an excellent balance for high protein concentrates. A dairy cow requires such a feed because she is doing hard work when producing a good flow of milk. The cow by nature is a user of roughage, and when fed in an artificial way on grains of high nutritive value there is need for a cooling grass-like feed, and silage comes in to fill this valuable place. Silage has a high-water

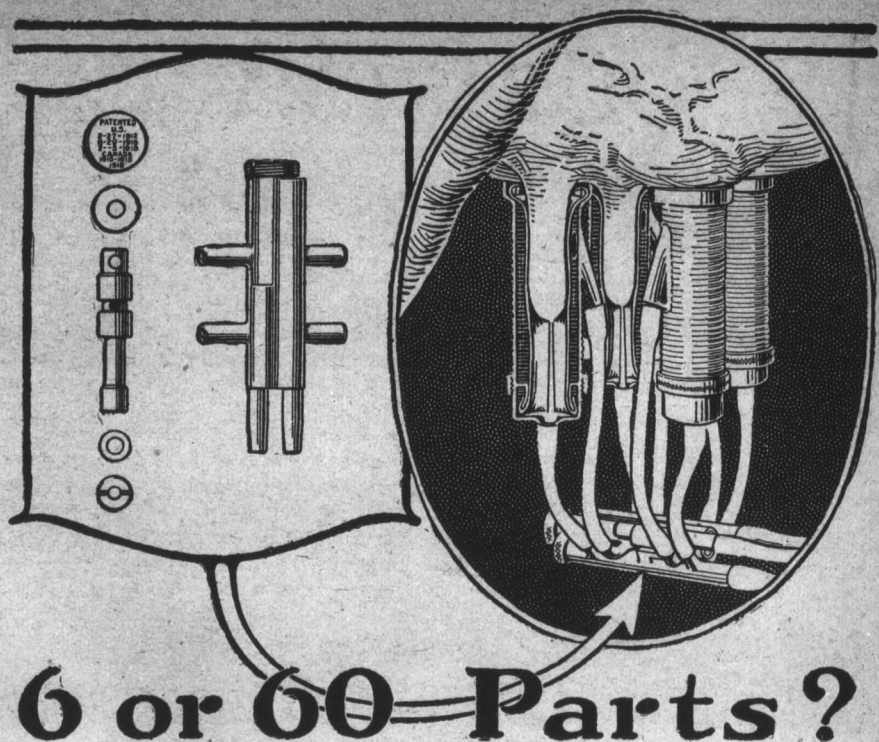
content, but water is an important item of the ration. Milk is eighty-seven per cent water and beef over fifty per cent.

Many dairymen who complain over the high cost of producing milk could quickly correct this trouble by feeding more silage. This feed not only lowers the cost of producing the stock and stock products, but it also serves as an insurance for many crops. There are few forages, grains or grasses grown on the farm that cannot be made into silage. Plants producing large tonnage can be turned into a food supply for the cows and growing stock and silage has the advantage of always being in a succulent and edible form.

In times of drought a liberal ration of silage will stimulate large production and will keep the cows in a good condition for fall and winter producers. Those who have had the most experience will tell you that the silo should be used for summer as well as winter, especially by the dairy farmer. A crop safely stored in a silo is a sure and dependable asset to the stock-keeper. As for the dairyman, every test has proven that silage is a most important item in economic milk production.—A. H.

THE DAIRYMAN'S DREAMS.

No T. B. bugs.
Easy milkers.
A clean barnyard.
Cows all profit-makers.
A steady worth-while market.
A hired man who doesn't need a guide book of the farm.
Methods of production that will be approved by the cost accountant.



There are just six parts to the De Laval Pulsator—only one of which moves, and it never requires oiling.

A pulsator is a very important part of a milking machine. It governs the periods of suction and squeeze or massage, which must be of correct frequency and exact and uniform in duration, in order that the cow's milk-producing organs may be stimulated to greatest activity and production. With the De Laval these periods are just right and absolutely uniform, which means that your cows are milked the same morning and night, year after year.

The De Laval Pulsator cannot be adjusted by the operator. It is thoroughly reliable, run-

ning years without attention. It is practically fool-proof.

Compare the De Laval with pulsators on other milkers which have from 30 to 60 or more parts, consisting of spring, screws, adjustable devices, etc., and you will realize its greater value. Then keep in mind that the same thought and care in designing the De Laval Pulsator have been put into the entire milker, all other parts being just as superior.

On thousands of dairy farms the De Laval Milker is proving that it is "The Better Way of Milking"—faster, better, cheaper, cleaner, and more profitable and pleasant than any other way. It soon pays for itself. Sold on easy terms.

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Sooner or later you will use a

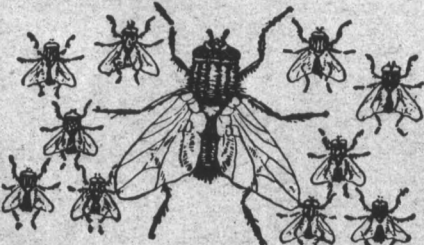
De Laval

Milker and Cream Separator

EASY NOW TO RID YOUR PLACE OF FLIES

Widely Known Scientist Discovers Wonderful Chemical That Is Fatal to Flies. Not a Poison—Harmless to Stock.

Flies are one of the most dangerous and annoying things with which the farmer has to contend. Now, through the discovery of E. R. Alexander, widely known scientist, you can rid your house and barns and livestock of these pests almost instantly, and with no trouble at all. This discovery is in the form of an organic chemical that is fatal to flies, and similar pests, such as chiggers, mosquitoes and moths.



This new discovery which is called Alexander's Rid-O-Fly, is not a poison. Though it kills flies like magic, farm animals and human beings are not affected by it at all. In addition to killing these insects, Rid-O-Fly is a strong repellent. Flies will not come near stock or buildings where Rid-O-Fly has been used. Rid-O-Fly is particularly valuable for cows and horses, as it is a known fact that flies do untold harm to these animals.

So confident is Dr. Alexander that his discovery will rid your house, barns and livestock of these pests that he offers to send a \$2.00 supply for only \$1.00 on the guarantee that if Rid-O-Fly does not solve your fly problems it will cost you nothing. Two big Kansas City banks guarantee the reliability of this offer.

SEND NO MONEY—just your name and address to the name below and this introductory offer will be mailed at once.

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FARM HELP

Wanted Position

Having sold our large farms, we desire to place our superintendent. He made good in every way. Is 35 years of age, widower, no children. Is man of finest character; well educated, a real man 6 ft., 200 lbs. and a hustler. Address him, Herman R. Bransen, Ephrata, Pa.

Opinions and Comment

from Michigan Farmer Readers

HOW TO GET MORE FOR MICHIGAN WHEAT.

THERE has been a great deal of propaganda coming out of the northwestern and southwestern states to make the consumer of soft wheat flour believe that good bread can not be made from our home-grown soft wheats. It is perhaps true that it is a little easier to bake with hard or western wheats, but it is not true that they will produce a better loaf of bread.

Furthermore, the Michigan mill that is wide-awake can, by careful selection and a slight blending of strong western wheats with Michigan wheats, produce a more desirable type of flour for general purposes than any flour coming from either the northwest or southwest. Mills failing to do this in their local territory are doing themselves and the farming community an injustice.

Many elevators in Michigan have been led, by this propaganda, to buy western flour in carload lots and, strange to say, you will find this to be the case among many cooperative elevators. This policy is so shortsighted that it is almost unbelievable—that cooperative elevators would consider for a moment the purchase of western flour. Surely, they must realize that every time they dispose of a sack of western flour they lower the value of the very grain their members are raisers of.

If this were brought to the attention of the individual farmer, particularly the managers of cooperative elevators, this shortsighted policy would certainly be discontinued.

Even the up-to-date bakers are beginning to realize that to produce a fine loaf of bread they must give up the idea of taking into consideration only the grade of wheat that will absorb the most water and they realize they must blend our choice soft wheats to produce the best bread and they are blending more heavily each year, particularly this year with the great difference in the price of the two grades of flour.

If the commercial baker sees this opportunity surely the farmers and consumers of flour in Michigan should patronize their home industries. If they will do this you will see Michigan wheat selling nearer to \$1.50 per bushel than the \$1.00 it is bringing today. We would suggest that the farmers of Michigan and cooperative institutions give this matter serious consideration. —George A. Amendt.

FAVORS CENTRALIZER.

AS a reader of the Michigan Farmer, I am inclined to believe that the Farmer can be of great help to enlighten its readers on how to improve their herds and reap a harvest out of their dairy cows, providing the local or cooperative creamery does not trim them out of what is rightfully theirs. I am inclined to believe that there are few local creameries to be found who give a correct test on the farmer's cream; at least, that is the situation in my locality. It is my firm belief that the Michigan dairyman can overcome this evil by preaching centralizing, thus helping its readers to test their own cream and learn that the cream delivered to the local creamery should test thirty-six instead of twenty-eight.

Under the present system of all the creameries I ever had dealings with, I am fully convinced that the only thing left for the farmer is to encourage the centralizers, and deliver their milk to them. And the sooner the better. This will help the farmers of

Michigan to swell their bank accounts. —J. C. Fillman.

(We feel that Mr. Fillman has a wrong impression of local creameries in general. Would like to have some further discussion of the subject.—Eds.)

THE RURAL MAIL BOX.

SOMEBODY who has not traveled far and wide, seems to carry an idea that all rural routes are in the backwoods. Evidently, also, they forget that rules of the road were established before any one thought of building left-hand "drives." They should save their wrath to pour on their own heads, as the post office department is not guilty of establishing the one or building the other. Nor are they too blame for the mud and water in front of our own gates. Nor should we worry about the carrier's pants.

All this is what we think. What we know is quite another matter. Some of us know that not all the rural routes are located in the back country, or that some are graveled, some stoned, some built of concrete. We also know that near centers of population rural routes divide the road between rural carriers and some metro-

politan traffic, traffic of no mean proportion where hundreds of autos and trucks use the roads at a free-for-all speed, not counting the slow horse or the heavy teams or the cloud of dust that hangs over the roadway like a pall. We know the road is somewhere ahead; we also know it is somewhere behind. We also know there is a ditch on each side of the road which we are forbidden to use for travel, not by order of the post office department but by the law of self-preservation.

We know there are autos ahead—we know there are autos behind, traveling at unknown speed. What sane man would use the left side of the road? Let alone cross and recross the road twenty to forty times in a stretch of four to six miles of the most congested road, at the busiest hours in the afternoon.

Only about one-half of the rural patrons are affected by the order of right-hand delivery. What is the other half kicking about? Ask the carriers what they would prefer under circumstances as set forth above. Fifty per cent would probably say the right-hand delivery is all right. The other fifty per cent would prefer the left-hand delivery if it was not for that rule to keep to the right. Laws and rules are observed by a majority of the people when life and limb are at stake, and broken by a few highfliers who are a menace to public safety. Laws and rules are made for all and should be observed. —Val Katzenberger.

An Improved Horticulture

Changes in Horticulture Department at M. A. C. Will Mean Closer Cooperation with Fruit Growers

ACTION taken by the State Board of Agriculture in approving recommendations of President David Friday to reorganize and expand the horticulture department of the Michigan Agricultural College represented a complete victory for the Michigan State Horticultural Society. In some respects it is more than a victory. Not only will the department be revamped to better serve the fruit growers, but also is to be made second to none in the United States.

The expansion program as approved by the board calls for the hiring of additional instructors and at least one professor. The new men will be authorities in their line. Professor V. R. Gardner, of the University of Missouri, one of the leading pomologists in the country, will head the improved horticultural department, while Prof. C. P. Halligan will have charge of the newly created Department of Landscape Gardening.

Prof. V. R. Gardner is the son of a prominent Lansing attorney and a graduate of the horticulture department of the Michigan Agricultural College in 1905. Since the day he was handed his sheepskin at East Lansing, he has been actively engaged in teaching or doing horticultural research work. He has been associated with, or over, some of the leading pomological specialists of the country, and has trained and developed many of the country's largest and most influential commercial orchardists and fruit growers.

Professor Gardner came into the pedagogical field at Iowa Agricultural College in the fall of 1905 as an instructor. He studied as he worked, and two years later received his master's degree from the horticulture department of that college.

The University of Maine was looking for a professor of horticulture in 1907 and its college officials were attracted by the exceptional work which Mr. Gardner had done along horticultural lines in Iowa—a corn state. He accepted their offer and until he resigned four years later he served that insti-

tution as head of its horticulture division and part of the time as assistant dean of agriculture.

A desire to take up research work prompted him to leave Maine and become associate professor of pomology at the Oregon Agricultural College. At that time Oregon was in the field to build one of the strongest horticulture departments in the country. It brought twenty of the leading experts of the nation into its faculty, among them Prof. E. J. Kraus, at one time mentioned for this post, and Prof. C. I. Lewis, who has just accepted an invitation to become editor of the American Fruit Grower. Research work was extensive and a number of discoveries in pruning, pollination, strawberry breeding, fertilization, nutritional problems were released to the industry.

After getting the training he felt necessary for his future work, Professor Gardner next moved to the University of Missouri, where he became head of the horticulture division. Here he showed his ability to take young men among his staff of workers and mold them into efficient research men and instructors. In four years time he has built up a strong horticulture department in Missouri, almost entirely of young men.

Mr. Gardner now is thirty-eight years old.

Professor Gardner visited the college early in April and made an inspection of the experimental projects at the Graham Farm near Grand Rapids, and the other projects at South Haven and Paw Paw. While Missouri attempted to hold his services, he was so thoroughly impressed with the opportunities awaiting him here that he accepted the Wolverine offer.

President Friday can see a bright future for the fruit industry. He estimates there are 5,000,000 bearing apple trees in Michigan and that in the next decade 15,000,000 more will be planted. These will replace half of those killed in the middle west during the last decade by frost and scale. He declares Michigan must supply the

middle west with apples and fruits.

The new college executive is planning to go before the next session of the legislature and ask for an appropriation of \$400,000 for a new horticulture building, unless some alumnae should donate that much for such a building. In that case work would begin at once on the structure.

MISSING HILLS NOT A TOTAL LOSS.

THE yield of the two plants on either side of a missing hill in the potato field is increased sufficiently to make up about one-half the yield that would have been obtained from the blank space if a potato plant had grown there, say experts at the Geneva Experiment Station, and support their claim with evidence from experiments conducted on the station grounds. These blank spaces, therefore, are not a total loss, as might be supposed, but represent a loss in yield of only about one-half a normal hill of potatoes.

TEACHES METHODS OF PREPARING EGGS.

THE details required in assembling eggs in carload lots for distant markets are now being taught by the extension experts of the University of Minnesota. Model methods of grading and packing eggs are demonstrated. Eggs from country merchants are studied to determine the condition in which they ordinarily reach market and how the product can be improved through care in handling.

LIME NECESSARY FOR BREEDING STOCK.

WHERE marsh hay has been grown in districts deficient in calcium or lime, trouble in breeding animals has been observed. Investigations have led to the general suggestion that the cause may be due to a deficiency of calcium in the diet. Supplementary investigations indicate that young animals from mothers who have received .45 of a pound of calcium oxide per day are strong and healthy where other conditions have been normal.

POTATO SCAB IN THE SOIL.

IT has been learned that the potato scab disease persists in the soil for a long time after potatoes have been grown there. This is particularly true of clay and loam soils. Less trouble is experienced on sandy land. Seed tubers should be disinfected in the usual way with corrosive sublimate or formalin. This treatment will prevent scab in soil that is free from the disease, but if the soil is already badly infected, then the seed treatment is likely to be of little benefit. In such instances the best course is to grow other crops on the land for a few years and probably plow under a green manure crop, such as clover or rye. The decomposition of these crops develops an acidity which will prevent growth of potato scab.

NEW POTATO GRADES.

THE potato industry was not fully satisfied with the old grades as established by the government. In response to a widespread demand for modifications, the department of agriculture has now modified these grades. This revision provides for the elimination from the "United States Number One" grade, misshapen potatoes and potatoes affected by hollow heart. The change also provides for the addition of a grade known as "Number One Small." The new rulings become effective July 1 this year.

July Garden Planting

By G. M. Taylor

THERE are some varieties of garden truck which must have the entire season in which to mature. These will not be ready for use until autumn, but the early planted, early maturing garden truck, or those which are fit for use before their maturity are now ready for use and will soon be gone. It is now time to plant more of these for fall and winter use.

Winter cabbage plants should be set out during the first part of July. If you have not grown your own plants, be sure and purchase plants of the winter variety, as the keeping qualities of earlier strains are not good. Danish Ballhead, Danish Roundhead and late Flat Dutch are some of the most popular of the late varieties.

String beans, peas, beets and sweet corn are all fit for table use before they reach their maturity. A planting of these now will insure a good supply for table use in the fall. Probably there is more Golden Bantam sweet corn seed used for July plantings than any other kind. There are several varieties of string beans which may be planted as late as July, as nearly all kinds are fit for use in six or seven weeks from date of planting. Beets, too, will be fit for use in about the same length of time as the string beans, therefore there are many varieties of them which may be sown in July, but many gardeners believe the long and half-long kinds to be the best to sow for fall and winter use. These varieties may be sown even as late as the very last of July or first of August. Of the peas, the "Telephone" is one of the most common of late varieties although there are several other good ones.

Don't forget a patch of turnips. They are good as fertilizers, good for the stock and nice for the table. With the exception of one or two of the very early sorts, almost any variety will do well when sown in July.

In July, too, should be sown the winter radish. This, as its name implies, is the radish which keeps for winter use. There are a number of varieties of these and they may be had in three colors—rose color, white and black.

Swiss chard, kale, kohlrabi, corn salad, endive and parsley are some of the other things we may plant in July in our garden. These are perhaps not as commonly grown as some of the other things in our garden, but you will want them again, once you become acquainted with them. Swiss chard and kale are used as greens while young and tender. Later the midribs of the Swiss chard are cooked like asparagus or made into pickles. Corn salad, endive and parsley are used in salads and in garnishing dishes. Parsley is also often used in soups. Kohlrabi must be used while young and tender. Later the bulbs become tough and woody. These bulbs, while young and tender, are sliced and cooked like turnips and are very appetizing.

FARMERS TAKE OVER BIG FRUIT EXCHANGE.

APPARENTLY our fruit growers are a little more adept than are the grain growers in putting across their national marketing program. Instead of trying to inspect and build new every item in a selling organization from the bottom up, the fruit men

simply looked over the ground and finding the one concern that seemed to meet their own requirements, purchased it. This, in brief, is the manner in which Federated Fruit Growers, Inc., a farmers' cooperative selling organization fostered by the American Farm Bureau Federation effected a great national fruit marketing exchange.

A contract has been completed for taking over the North American Fruit Exchange to become effective January 1, 1923. The Federated Fruit Growers, Inc., was organized in Chicago last April, with James Nicol, president of Michigan State Farm Bureau, as its president, and James S. Edwards, of the California Fruit Growers' Exchange, as general manager. Arthur R. Rule, who has been manager of the North American becomes the manager of the new institution.

Fruit Farm Notes

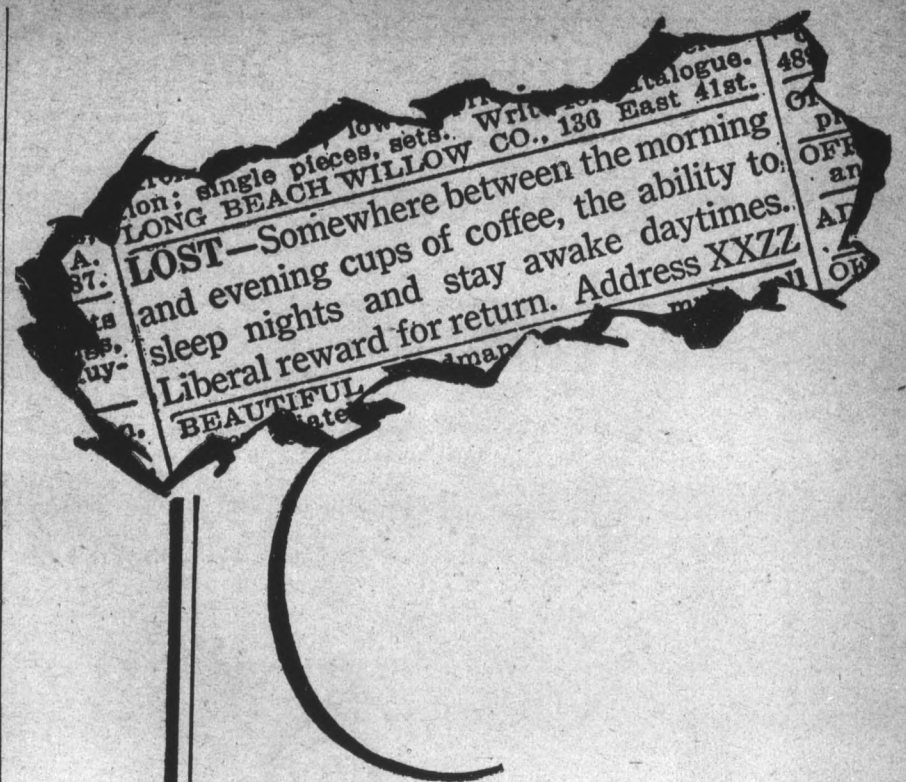
By L. B. Reber

THIS has been a wonderful growing season so far but there is more twig blight than usual. Blackcaps seem to be especially susceptible to twig blight this year. I note that the Cumberland caps are badly blighted, while the Plum Farmer does not blight though it grows very near to the Cumberland. Cuthbert and Marlboro raspberries are about wiped out in this section because of curl leaf and leaf mosaic, but King raspberry seems to be resistant. I note, though, that the Kings are becoming less resistant every year. We shall soon have to seek another variety of raspberry. The Syracuse is highly recommended but the nurserymen want five dollars a dozen plants and that is a prohibitive price.

Corn will have to go some to be knee high by the Fourth of July. At present, my corn is about knee high to a grasshopper. Yes, I got stung again. That much heralded Chinese cabbage all went to seed almost as soon as the plants were set out in the garden. Now I read that the plants should not be set out until September 1 so that the cool weather will prevent them going to seed. I shall save some seed from these first plants and try again this fall. The seed man did not print such directions on the packet.

The usual onslaught of striped beetles, Colorado beetles, rose chafers and leafhoppers are making life interesting for the fruit farmer while the plum curculio is busy cutting down the plum and peach crop. Isn't Emerson's law of compensation a beautiful thing? That looks like a diversion from my theme but it isn't. If it was not for the bugs and slugs we should have such a fruit crop that the markets would be flooded and the prices vanish below the profit point. Well, the sun is shining again and the man with the hoe must get busy. This will be a fine time to mow off a lot of weeds and sumach which are bothering me in odd corners. Did you ever see the time when a farmer couldn't find something to do?

Remember that the strawberry is a shallow-rooted plant and therefore needs frequent shallow cultivation; a two-inch dirt mulch is ideal.



LOST—Somewhere between the morning and evening cups of coffee, the ability to sleep nights and stay awake daytimes. Liberal reward for return. Address XXZZ. BEAUTIFUL

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a delightful and satisfying mealtime beverage, with no element which can harm nerves and digestion—or cause wakeful nights and dull days.

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Calling on farmers. We offer an attractive proposition, part or full time selling a product having real demand. **V. SMITH & CO., PORTLAND, INDIANA**

Wanted--Salesmen!

We desire to secure the permanent services of local representatives to act as county agents. Prefer men qualified to deal with farmers. We manufacture a high grade line of Paints, Enamels, Varnishes, Roof Coatings, Lubricants, etc. Our prices are reasonable. We pay liberal commissions weekly. With us you can build up a business of your own that will increase your earnings yearly. Write for particulars.

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BINDER TWINE

Get our low 1922 price. Club orders and car lots our specialty. Farmer Agents Wanted. Samples and circular free. **THEO. BURT & SONS, Melrose, Ohio.**

CORN HARVESTER cuts and piles on harrow and horse cuts and shocks equal Corn Binder. Sold in every state. Only \$25 with fodder tying attachment. Testimonials and catalog FREE showing picture of Harvester. **PROCESS HARVESTER CO., Salina, Kansas**

Radio Department

Conducted by Stuart Seeley

RADIO ON A VACATION TRIP.

THE summer time is not the best season of the year for radio, it is true; nevertheless a great deal of enjoyment and actual benefit can be derived by packing up the radio set and taking it along when the family goes on the summer vacation trip. Several of the large broadcasting stations include news and current events in their daily program and the radio receiving set may be made to serve as a substitute for the daily paper.

At first thought there might seem to be too many things to hinder taking the set along, but it is not such a task as it may seem. If one has a good outfit at home it is a simple matter to disconnect such parts as are necessary for the vacation set, pack them in a small box and set them up for temporary use. The biggest item as far as weight is concerned is, of course, the storage battery, but it is not necessary to take it along. If the trip is made by automobile two wires may be run out to the car and the lighting and starting battery in the car made use of, or if this is impractical four dry cells will serve the purpose and they may be purchased at the hardware store of any small town. It is best not to try to install an amplifier with the temporary set and if only one tube is used four dry cells will last nearly a month.

The aerial is a big consideration, of course, and yet it is surprising the good results that may be obtained from a makeshift antenna. Tie a stone to one end of a wire and throw it up into the highest tree; connect the other end to the set and it will be found that in dry weather the signals will come in quite as well as with the aerial at home and only a slight decrease will be noticed in wet weather. Drive a pipe five or six feet into the ground for the ground connection.

If the trip is made by automobile and a stop made each night with a tent, the set may be grounded to the car and left connected up. The body of the car is not connected to the earth it is true, nevertheless it will act as a "counterpoise" ground and will be found to work very well. Good results are oftentimes obtained by stringing wires back and forth over the car a few inches above the top and using this for the aerial.

As has been mentioned before in this column, the ordinary regenerative receiving set may be made to act as a

transmitter for short distances (one-quarter of a mile or less). In order to transmit, it is necessary to have the bulb oscillating and this condition may be recognized by a mushy sound in the receivers. When this occurs it is merely necessary to talk into one of the receivers and the speech will be heard over short distances. A low resistance microphone placed in the ground will give slightly better results. It is not necessary to throw any switches when changing from transmitting to receiving, but it is necessary to alter the plate variometer a little in order to cut out the mushy sound when reception is being carried on. If this were not done the incoming speech would be distorted and unrecognizable. Two camping parties located near together will find that they may communicate in this way quite easily.

AFTER THE RAT.

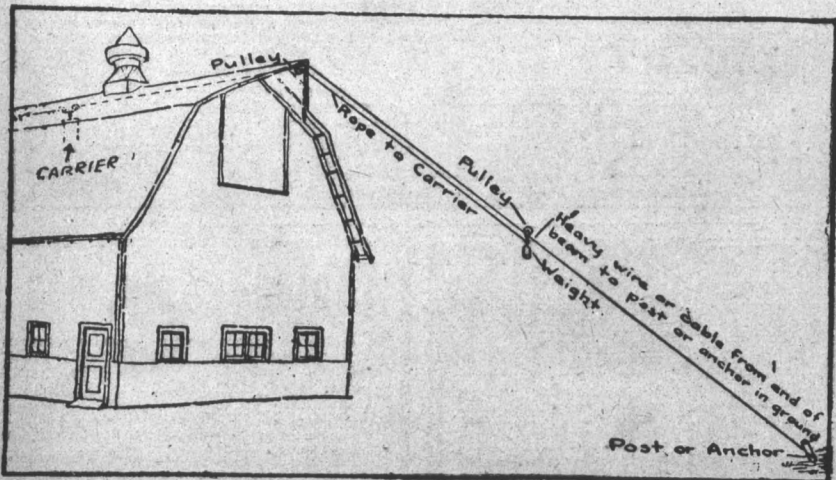
A VIGOROUS campaign has been started against the rat, and if all the forces work together we will greatly reduce his numbers. The Department of Agriculture recently reported a rat-killing campaign where 670,000 rats were destroyed. County agents cooperated in this work, and the results were startling and most beneficial.

All kinds of poison, asphyxiating gas and animal rat destroyers have been brought forward. But we should keep in mind that one of the most important methods of rodent extermination is to take away his food supply, and we should do this also for the sake of economy, sanitation and many other vital and economic reasons. Corn and grain of all kinds should be so housed on the farm that rats and mice will be prevented from eating and otherwise destroying the crops. Metal and cement bins can be used to this end.—A. L. H.

POTATO LEAF HOPPER.

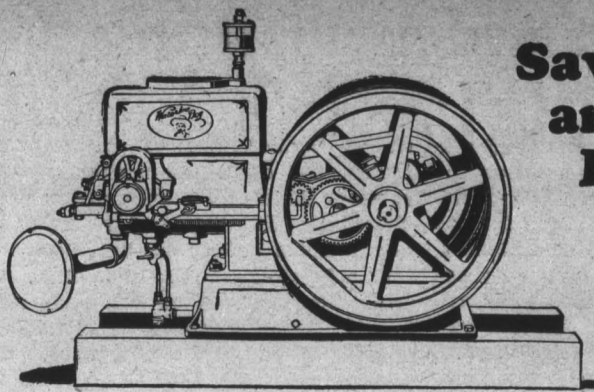
YOU can get the potato leaf hopper by using Bordeaux mixture. The formula employed consists of four pounds of copper sulphate, four pounds of unslaked lime to fifty gallons of water. The spray should be applied to the under side of the leaves thoroughly, using at least 150 pounds pressure. This pressure gives a fine mist spray. At least three applications are recommended and a fourth might be given to advantage. Both sides of each row should be thoroughly sprayed to make the job complete.

Device Returns Hay Fork

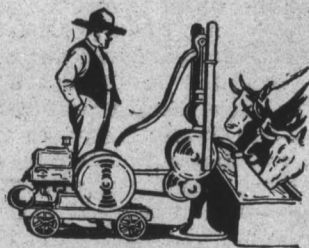


THE job of pulling the hay carrier and fork back after each load has been dumped in the mow can be eliminated. Use a heavy wire cable about twenty-five feet longer than the barn, attaching it to the end of the hay beam. The other end should be secured to a post or anchor in the ground,

as shown in illustration. A pulley carrying a weight operates on this cable. A rope attached to the weight and passing through a pulley at the end of the hay beam has its other end attached to the carrier. A bucket of gravel makes an easily adjusted weight.—E. W. G.



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and Labor
Every Day
in
the Year**



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Perfectly balanced—no vibration at any speed. Magneto equipped—insures dependable ignition and easy starting in all kinds of

weather. Sight feed lubricator; grease cups; and spring cap oilers—all easy to get at. Simple mixer, equipped with needle valve; fuel strainer; governor; speed easily changed while engine is running—these are a few of the refinements on Waterloo Boys.

You can get Waterloo Boys, either stationary or portable, in two types. Gasoline burning type in 2, 3 and 5 H.P. Kerosene burning type in 2, 3, 5, 7, 9, 14 and 25 H.P.

Ask your John Deere dealer to show you how smoothly the Waterloo Boy runs—how well it is built and its many refinements which make a better-running, longer-lasting engine for farm work. Let us send literature describing these better engines. Ask for package EA-722.

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Wheels, equipment half usual prices. SEND NO MONEY—Write for marvelous prices and terms.

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calling on farmers. We offer an attractive proposition part or full time selling a product having real demand. V. SMITH & CO., Portland, Indiana

Wanted: Freak animals or poultry. Submit price and photographs. CHARLES BROWNING, Riverview Park, Chicago

Ten Extra Fine fox bound pups three months old, none better, males \$15, females \$10. W. E. LECKY, Holmesville, Ohio.

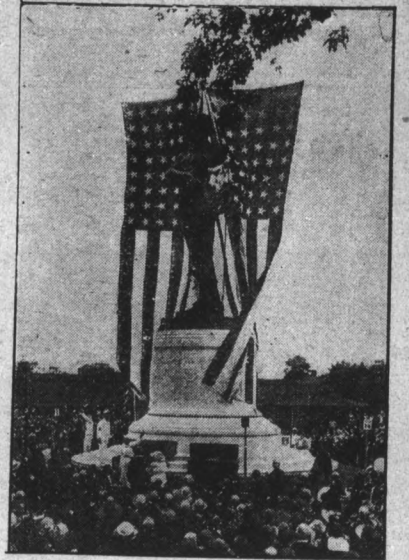
WORLD EVENTS IN PICTURES



Hunting for gold in the Caribo district of British Columbia, latest gold field to attract attention.



The recent fire at Arverne, Long Island, destroyed over 400 buildings and made over 10,000 people homeless; \$400,000 damage was done in half a square mile of the best residential section.



The memorial recently unveiled at Washington, D. C., to author of "The Star Spangled Banner."



Starving Russians in Vasiliewka, kneeling in thanks to George M. McClintock, of the American Relief Commission, as he arrived with a load of American corn.



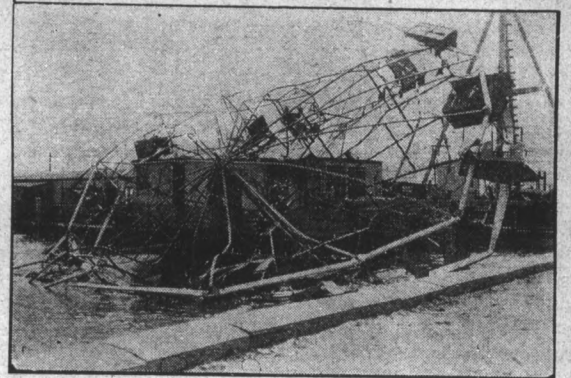
The annual Vassar daisy chain which was shown by students on Class Day. Several Michigan girls are in this group of Vassar University students.



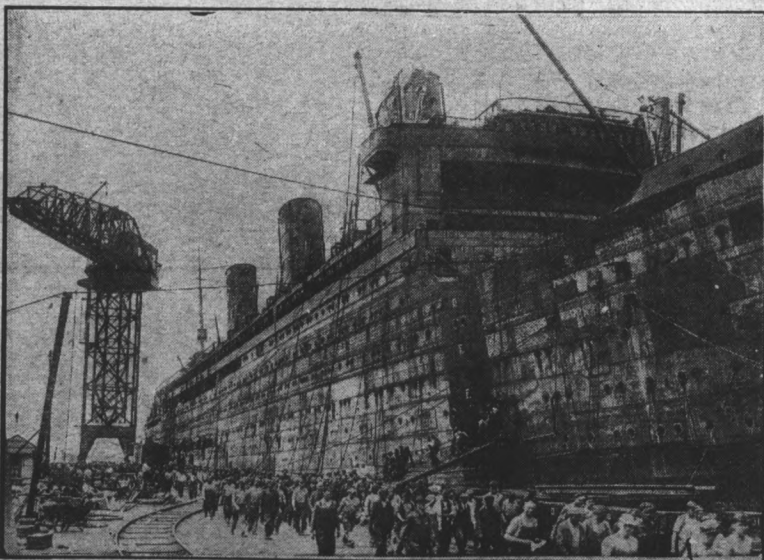
The remarkable nature photo of two rare bald American eagles, taken in the wild state, in the state of Maine.



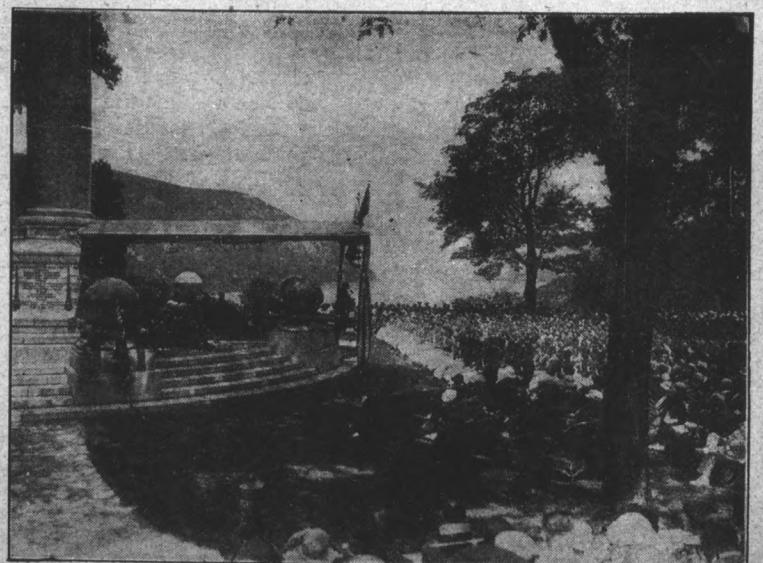
Secretary of the Navy, Edwin Denby, of Michigan, displays his well-known smile.



A five-minute gale in New York caused the death of fifty-three, seven of which occurred on this amusement park Ferris wheel.



Preparing the S. S. Leviathan for sea again. This was formerly a German ship, the Vaterland, and a troop ship, which is now being re-fitted for passenger service.



A general view of the Commencement exercises of the West Point Military Academy. Secretary of War Weeks is delivering the graduation speech. The Hudson River in the background.

THE CROSS-CUT —By Courtney Ryley Cooper

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CHAPTER V.

IMPATIENTLY Fairchild awaited Mother Howard's return, and when at last she came forth from the kitchen, he wrew her into the old parlor, shadowy now in the gathering dusk, and closed the doors.

"Mrs. Howard," he began. "I—"

"Mother Howard," she corrected. "I ain't used to being called much else."

"Mother, then—although I'm not very accustomed to using the title. My own mother died—shortly after my father came back from out here."

She walked to his side then and put a hand on his shoulders. For a moment it seemed that her lips were struggling to repress something which strove to pass them, something locked behind them for years. Then the old face, dim in the half light, calmed.

"What do you want to know, Son?"

"Everything!"

"But there isn't much I can tell."

He caught her hand.

"There is! I know there is. I—"

"Son—all I can do is to make matters worse. If I knew anything that would help you—if I could give you any light on anything, Old Mother Howard would do it! Lord, didn't I help out your father when he needed it the worst way? Didn't I—"

"But tell me what you know!" There was pleading in Fairchild's voice. "Can't you understand what it all means to me? Anything—I'm at sea, Mother Howard! I'm lost—you've hinted to me about them—but that's all. Isn't it fair that I should know as much as possible if they still exist, and I'm to make any kind of a fight against them?"

"You're right, Son. But I'm as much in the dark as you are. In those days, if you were a friend to a person, you didn't ask questions. All that I ever knew was that your father came to this boarding house when he was a young man, the very first day that he ever struck Ohadi. He didn't have much money, but he was enthusiastic—and it wasn't long before he'd told me about his wife and baby back in Indianapolis and how he'd like to win out for their sake. As for me—well, they always called me Mother Howard, even when I was a young thing, sort of setting my cap for every good-looking young man that came along. I guess that's why I never caught one of 'em—I always insisted on darning their socks and looking after all their troubles for 'em instead of going out buggy-riding with some other fellow and making 'em jealous." She sighed ever so slightly, then chuckled. "But that ain't getting to the point, though, is it?"

"If you could tell me about my father—"

"I'm going to—all I know. Things were a lot different out here then from what they were later. Silver was wealth to anybody that could find it; every month the secretary of the treasury was required by law to buy three or four million ounces for coining purposes, and it meant a lot of money for us all. Everywhere around the hills and gulches you could see prospectors, with their gads and little picks, fooling around like life didn't mean anything in the world to 'em, except to grub around in those rocks. That was the idea, you see, to fool around until they'd found a bit of ore or float, as they called it, and then follow it up the gorge until they came to rock or indications that'd give 'em reason to think that the vein was around there somewhere. Then they'd start to make their tunnel—to drift in

and late that night, I heard him and his two drinking partners, Blindeye Bozeman and Taylor Bill—they just reverse his name for the sound of it—talking in Blindeye's room. I'm a woman—" Mother Howard chuckled—"so I just leaned my head against the door and listened. Then I flew downstairs to wait for your father when he came in from sitting up half the night to get an assay on that float. And you bet I told him—folks can't go sneaking things around me and get away with it, and it wasn't more'n five minutes after he'd got home that your father knew what was going on—how Squint and them two others was figuring on jumping his claim before he could file on it and all that.

"Well, there was a big Cornishman here that I was kind of sweet on—and I guess I always will be. He's been gone now though, ever since your father left. I got him and asked him to

only to grow serious once more. "Those days were a bit wild in Ohadi—everybody was crazy with the gold or silver fever; out of their head most of the time. Men who went to work for your father and Harry disappeared, or got hurt accidentally in the mine or just quit through the bad name it was getting. Once Harry, coming down from the tunnel at night, stepped on a little bridge that always before had been as secure and safe as the hills themselves. It fell with him—they went down together thirty feet, and there was nothing but nature to blame for it, in spite of what we three thought. Then, at last, they got a fellow who was willing to work for them in spite of what Rodaine's crowd—and it consisted of everybody in power—hinted about your father's bad reputation back east and—"

"My father never harmed a soul in his life!" Fairchild's voice was hot, resentful. Mother Howard went on:

"I know he didn't Son. I'm only telling the story. Miners are superstitious as a general rule, and they're childish at believing things. It all worked in your father's case—with the exception of Harry and 'Sissie' Larsen, a Swede with a high voice, just like mine. That's why they gave him the name. Your father offered him wages and a ten per cent bonus. He went to work. A few months later they got into good ore. That paid fairly well, even if it was irregular. It looked like the bad luck was over at last. Then—"

Mother Howard hesitated at the brink of the very nubbin of it all, to Robert Fairchild. A long moment followed, in which he repressed a desire to seize her and wrest it from her, and at last—

"It was about dusk one night," she went on. "Harry came in and took me with him into this very room. He kissed me and told me that he must go away. He asked me if I would go with him—without knowing why. And, Son, I trusted him, I would have done anything for him—but I wasn't as old then as I am now. I refused—and to this day, I don't know why. It—it was just woman, I guess. Then he asked me if I would help him. I said I would.

"He didn't tell me much; except that he had been uptown spreading the word that the ore had pinched out and that the hanging rock had caved in and that he and 'Sissie' and your father were through, that they were beaten and were going away that night. But—and Harry waited a long time before he told me this—'Sissie' was not going with them.

"I'm putting a lot in your hands,"



on the vein. I'm telling you all this, so you'll understand."

Fairchild was listening eagerly. A moment's pause and the old lodging-house keeper went on.

"Your father was one of these men. 'Squint' Rodaine was another—they called him that because at some time in his life he'd tried to shoot faster than the other fellow—and didn't do it. The bullet hit right between his eyes, but it must have had poor powder behind it—all it did was to cut through the skin and go straight up his forehead. When the wound healed, the scar drew his eyes close together, like a Chinaman's. You never see Squint's eyes more than half open.

"And he's crooked, just like his eyes—"

Mother Howard's voice bore a touch of resentment. "I never liked him from the minute I first say him, and I liked him less afterward. Then I got next to his game.

"Your father had been prospecting just like everybody else. He'd come on float up Kentucky Gulch and was trying to follow it to the vein. Squint saw him—and what's more, he saw that float. It looked good to Squint—

help. And Harry was just the kind of a fellow that would do it. Out in the dead of night they went and staked out your father's claim—Harry was to get twenty-five per cent—and early the next morning your dad was waiting to file on it, while Harry was waiting for them three. And what a fight it must have been—that Harry was a wildcat in those younger days." She laughed, then her voice grew serious. "But all had its effect. Rodaine didn't jump that claim, and a few of us around here filed dummy claims enough in the vicinity to keep him off of getting too close—but there was one way we couldn't stop him. He had power, and he's always had it—and he's got it now. A lot of awful strange things happened to your father after that—charges were filed against him for things he never did. Men jumped on him in the dark, then went to the district attorney's office and accused him of making the attack. And the funny part was that the district attorney's office always believed them—and not him. Once they had him just at the edge of the penitentiary, but I—I happened to know a few things that—well, he didn't go." Again Mother Howard chuckled,

AL ACRES—Al Finds An Easy Way to Make Slim Work Hard.

—By Frank R. Leet



he told me, 'but you've got to help us. "Sissie" won't be there—and I can't tell you why. The town must think that he is. Your voice is just like "Sissie's." You've got to help us out of town.'

"And I promised. Late that night, the three of us drove up the main street, your father on one side of the seat, Harry on the other, and me, dressed in some of Sissie's clothes, half hidden between them. I was singing; that was Sissie's habit—to get roaring drunk and blow off steam by yodelling song after song as he rolled along. Our voices were about the same; nobody dreamed that I was any one else but the Swede—my head was tipped forward, so they couldn't see my features. And we went our way with the miners standing on the curb waving to us, and not one of them knowing that the person who sat between your father and Harry was any one except Larsen. We drove outside town and stopped. Then we said good-bye, and I put on an old dress that I had brought with me and sneaked back home. Nobody knew the difference."

"But Larsen—?"

"You know as much as I do, Son."

"They told me nothing and I asked 'em nothing. They were my friends and they needed help. I gave it to them—that's all I know and that's all I've wanted to know."

"You never saw Larsen again?"

"I never saw any of them. That was the end."

"But Rodaine?"

"He's still here. You'll hear from him—plenty soon. I could see that, the minute Blind Bozeman and Taylor Bill

began taking your measure. You noticed they left the table before the meal was over? It was to tell Rodaine."

"Then he'll fight me too?"

Mother Howard laughed—and her voice was harsh.

"Rodaine's a rattlesnake. His son's a rattlesnake. His wife's crazy—Old Crazy Laura. He drove her that way. She lives by herself, in an old house on the Georgeville road. And she'd kill for him, even if he does beat her when she goes to his house and begs him to take her back. That's the kind of a crowd it is. You can figure it out for yourself. She goes around at night, gathering herbs in graveyards; she thinks she's a witch. The old man mutters to himself and hates any one who doesn't do everything he asks—and just about everybody does it, simply through fear. And just to put a good finish on it all, the young 'un moves in the best society in town and spends most of his time trying to argue the former district judge's daughter into marrying him. So there you are. That's all Mother Howard knows, Son."

She reached for the door and then, turning, patted Fairchild on the shoulder.

"Boy," came quietly, "you've got a broad back and a good head. Rodaine beat your father—don't let him beat you. And always remember one thing: Old Mother Howards played the game before, and she'll play it with you—against anybody. Good night. Go to bed—dark streets aren't exactly the place for you."

(Continued next week.)

Rural Health and Sanitation

Conducted by Dr. C. H. Lerrigo

SUPERFLUOUS HAIR.

THERE is at least one manly characteristic longed for by boys and young men with great anxiety which is never coveted by any women of however masculine type; that is the growth of hair upon the face. I know of no facial disfigurement that creates in a man so much complacency or in a woman so great consternation.

What can a woman with a tendency to superfluous hair do about it? Must she just give up and let it grow?

It depends very much upon the amount and character of the hair. If there are only a few strong, aggressive hairs, the electric needle will make short work of them. The needle must go to the follicle of each hair, so it is a tedious job if there are very many, and I do not advise that it be attempted unless the hairs are so few that they can be readily counted.

Where there is a large surface, covered with vigorous hair, I do not advise the use of the needle, neither do I think it is worth while to try to remove such a growth of hair with drugs. I have often wondered what objection there can be against shaving in such a case. It is true that shaving will make the hair firmer and stronger, but, even so, it is seldom indeed that hair growing on a woman's face is as aggressive as the softest type of beard in a man, and the man with a mild beard can easily keep his face clean by applying the safety razor daily. I would much prefer to see a woman with a clean face that gave some evidence of acquaintance with a razor blade than one with a straggling growth of nondescript hair.

Drugs known as depilatories are familiar to all doctors. Some very good ones are made. It is a mistake to try to use them in cases that call for a razor, and neither should they be used when the hair is removable by the

electric needle. But there are many cases in which the hair is not very vigorous nor does it cover any great surface. In such cases a good depilatory, applied by a careful doctor, gives very satisfactory service.

BORIC ACID SAFE.

I am recommended by a friend to soak the nipples that I use on the baby's bottles in a boric acid solution. She says that it makes them safer for use in hot weather. Is it a safe thing for the baby, or is there possibility of poisoning?—Young Mother.

A solution of five per cent is strong enough for such purpose and is perfectly safe. A rough method of estimating this is to mix one level teaspoonful of boric acid in one pint of warm water. When you take the nipples from the solution for use it is best to rinse them in clear water because babies sometimes object to the antiseptic taste, but it is quite harmless.

LUNG TROUBLE.

Would like to ask if one's lung would sink from any cause except tuberculosis? Can it be cured, and if so how? Can one lung be affected and the other sound? I have a pain under my right shoulder blade and it hurts worse when I throw my shoulders back and when I hold my head down without bending my shoulders down. It seems to draw. I have a baby nineteen months old. Can T. B. be inherited?—Questioner.

An abscess of the lung of non-tuberculosis origin would explain the deformed appearance as well as tuberculosis, but it is more likely the latter. Tuberculosis is not inherited but quite contagious. Your baby should be carefully protected from contagion. Tuberculosis is curable by the use of rest in bed in the "open air"; good nourishing food and freedom from worry and care. Medicines cut very little figure in the treatment.

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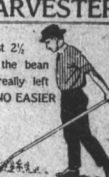
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How to Make Jam and Jelly

With Positive Success

New Process Requires Only
1 Minute's Boiling and
Never Fails

By Ann Proctor

The greatest cooking authorities in this country—Good Housekeeping Institute, Boston Cooking School, Modern Priscilla Proving Plant, government experts, domestic science teachers, etc.—and housewives everywhere are hailing with delight the New Certo Process of making all kinds of jam and jelly. Anyone, even a child, can now make jam or jelly of excellent quality, with any kind of fruit in a few minutes. Only one minute's boiling is required, and the result is one-half more product from the same amount of fruit.

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Recollect that trifles make perfection, and that perfection is no trifle.—Angelo.

Woman's Interests

Canning Helpers

By A. L. L.

THE memory of the oldest inhabitant will have to be stretched a great deal to match the present fruit season. Here in early July strawberries and cherries are gone, and berries of all kinds are obtainable. Watermelons are on ice, and the July fruits are coming along with a rush which promises to engulf all but the swiftest moving housekeepers.

Instead of proceeding on a leisurely way, doling out canning recipes once a week, it looks as if the Household Editor had better lump them all in one article, lest corn canning season arrive and go by before the raspberry recipes are in type.

The process of cold-pack canning has been given so many times that it does not seem necessary to repeat it here. Remember to blanch greens with steam; do not dip in boiling water. This may be done by suspending the cheesecloth like a hammock over the water in the canner.

If asparagus, beans, peas, and corn are allowed to stand too long before canning, a sour taste often develops. They should be canned as soon as picked. Never let more than two or three hours elapse before canning.

Corn turns dark for three reasons: Using corn too old; canning with water that contains iron; blanching too long.

Corn becomes waterlogged for four reasons: Allowing it to stand too long in the cold water after blanching; letting the cans stand on the table after they are packed. Always plunge immediately into the canner; heating corn in warm water over a slow fire; opening cans to serve and allowing the ears to stand in the cold water. Remove cans as soon as opened.

Beets lose their color because tops and tail are cut too closely. Leave on at least an inch of the top and all of the tail while blanching. Then scrape instead of peeling.

Peas turn cloudy for three reasons: Cracking the skin of the pea; blanching too long; using very hard water or mineral water.

Be sure to make currant jelly. Do not pick currants after a rain. Look over carefully and remove bits of leaf, wash and drain, but do not stem. Put in a porcelain, or acid-proof, kettle and cover with water. Cook until currants turn white, then drip through a jelly bag, boil juice ten minutes, add sugar which has been heated in the oven, allowing cup for cup of sugar and juice, and boil for three minutes. Then test by taking a little juice in the spoon and pouring off the side. When two thick drops form on the side of the spoon it is done.

Raspberry, blackberry and strawberry jelly may be made by adding equal measures of apple juice, or by using a commercial pectin.

In making jams allow three-quarters of a pound of sugar to every pound of fruit. Crush the fruit and put it on stove to heat slowly while the sugar heats in the oven. When berries are heated through add one-third of sugar and boil ten minutes. Then add one-half remaining sugar and boil for ten minutes. Now add all the sugar and cook until thick enough to spread. Store in glasses like jelly.

A glass of jam added to a pint of whipped cream makes a delicious mousse. Pack in equal parts of ice and salt and let stand three hours to freeze.

Studies in White and Gold

WHY not let the color scheme for your meat dish during these warm summer days be white and gold? The housewife who has given little or no thought to the composition of eggs has much to learn of their nutritive food value. Care must be taken in their cooking, however, if this food value is retained. In the words of the poet,

"O, egg, within thine oval shell,

What palate tickling joys to dwell."

One of the simple things to remember in the cooking is that the albumen in the egg coagulates at a high temperature. In order to have that soft creamy consistency so much desired, the egg should not be subjected to extremes in heat or length of time in cooking.

Hot or warm water makes a much more tender omelet than milk and there is little excuse for failure of these toothsome dainties if one is reasonably careful. A good omelet pan is necessary. This steel spider must be smooth and at the right temperature to insure success.

Following are some of the various ways of making eggs palatable:

Plain Omelet:—Put one tablespoon-

ful of butter in a steel spider and heat slowly. Break four eggs into the bowl and only beat enough to thoroughly mix the whites and yolks, add four tablespoonsful of warm water, a little nutmeg and salt. Draw spider to the hottest part of stove and when butter is hot, not browning, add the eggs. Let cook a moment and then with the spatula, loosen the omelet at the edge, allowing the uncooked part to run under and continue until the omelet is "set." Now sprinkle with finely chopped parsley and with the spatula turn over one-third of the omelet, then fold once as you turn out. Serve at once. This omelet may be varied by adding chopped ham, peas, tomatoes, bacon or cheese, just before folding.

Creamed Egg:—Chop five or six hard-boiled eggs, not too fine. Make a white sauce of a cup of milk, a tablespoon of butter, a tablespoon of flour and salt and pepper. When this is cooked, put in the eggs and stir gently for a few minutes. Serve hot on a dish with suitable pieces of toast.

Egg Gems:—Use one cup of chopped cold meats, one teaspoonful of melted butter, one cup of bread crumbs, salt and pepper. Mix together meat and

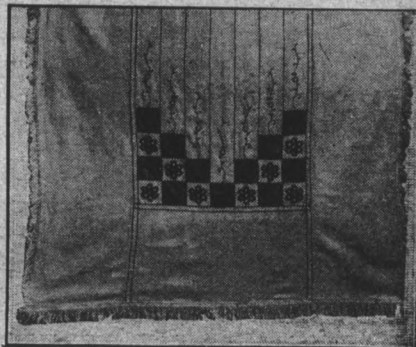
bread crumbs. Add the butter, salt and pepper and enough milk to bind it together nicely. Have ready gem pans well greased and fill with the mixture. Break an egg on the top of each, season with salt and pepper and sprinkle with cracker crumbs. Bake eight minutes.

Egg Salad:—Boil the number of eggs required for twenty minutes. When cold shell and remove whites carefully from the yolks. Chop the whites and leave the yolks whole. Serve on lettuce leaves with a boiled dressing and small balls of cottage cheese.

Escalloped Eggs:—Moisten bread crumbs with milk or meat broth. Place a layer of this in a well-buttered baking dish, slice some hard-boiled eggs upon it with bits of butter here and there. Then place a layer of minced ham, veal or chicken, then bread crumbs. Bake until well heated and crumbs are browned.

PATCHWORK SPREAD IN CONVENTIONAL DESIGN.

THE bedspread illustrated may be easily copied without stamping. It is of honey-comb cloth, the heavy material commonly used for bedspreads. The patches are four inches square, of dark blue Peter Pan cloth, placed four



inches apart, and are sewed on with the over-and-over stitch. The flowers are all French knots, worked in two shades of blue, a dark blue matching the patches and a very pale blue. The vine is a simple running stitch. Any color may be used, yellow, rose, pink, but the floss should always match the color of the patches.

LET US HELP YOU.

THE Michigan Farmer offers a service to its subscribers in the Household Department similar to that given in the other departments of the journal. If you have any question regarding your home or community problems, clothing, styles, cookery, canning, etc., or any problem of interest to women, we are ready to help you in any way possible. Why pay for something and not use it, for this service is free to our subscribers. Just enclose a stamped self-addressed envelope and a personal reply will be forwarded to you. The queries of general interest will appear in the columns of the department. Only initials will be published, but please give name and address for reference.

Never allow butter to stand in a wooden container. Keep it in porcelain, stone jars, or glass.

Nebuchadnezzar's Dream

Our Weekly Sermon—By N. A. McCune

THE book of Daniel is one of the most interesting books of the Old Testament. In fact, if many people had their choice of all the books prior to New Testament times, they would choose Daniel. It breathes courage, its pictures appeal to the imagination, its stories grip the heart, its belief in a world kingdom to come, stir all readers. Modern study has made Daniel more meaningful even than it used to be. We now know pretty definitely that it was written about one hundred sixty years before Christ, and it was written for a very specific purpose, namely, to encourage the people to hold fast to their faith, no matter what the consequences might be. The situation was something as follows:

Palestine was under Greek domination, and Antiochus Epiphanes was the king. He reigned from 175 to 164 B. C. Antiochus was determined to introduce Greek ideas and the Greek religion everywhere in his dominions, including Palestine. To this end a corrupt and money-loving high priest was placed in office.



This high priest, Menelaus, paid for the office with a huge sum of money. He raised the money by plundering the temple treasury. In 169 B. C. Antiochus resolved to make the subjugation of the Jews complete, and he took Jerusalem by a sudden attack and placed soldiers within the very precincts of the temple. Next he forbade the observance of the Sabbath and the practice of circumcision. All books of the law that were found were destroyed. As the climax of profanation, he set up a heathen altar in the temple, and sacrificed swine on it. (See Matthew 24:15, the "abomination of desolation, spoken of by Daniel the prophet.")

BY this act the Jews were stung to fury. The holy religion that had been theirs since Moses had led their fathers out of Egypt, and which was part of the very blood that coursed in their veins, was made a mockery, and the crown of indignities was heaped upon it. Rebellion was inevitable. The leadership for this rebellion came, as it so often does, from a very unexpected source. An old priest, Mattathias, living in a village, killed a man who attempted to profane the altar at which he ministered. It was the call to war.

People flocked to his standard. Dwelling in caves, and carrying on a guerilla warfare, the Jews under Mattathias, began to achieve military success. Mattathias soon died, but he left five of the most heroic sons who ever lived, known as the Maccabees, from the name of Judas, whose other name was Maccabeus. Some of the victories of Judas Maccabeus against overwhelmingly large forces, seem almost incredible.

It was as the rebellion of Mattathias and his sons began, that the book of Daniel was written. Its purpose is plain, namely, to encourage the Jews to faithfulness under all circumstances. As one writer puts it, the book "sprang from the deepest necessities and the noblest impulses of the age." The method is simple. The story opens with a Hebrew youth who lived three hundred years before, and who had been taken to Babylon, as a slave. There he is honored by being selected as one of the personal attendants of the king, but he refuses to give up his

religious belief, and will not eat of the forbidden food that was set before him. In the face of death he is true to his God. Lions' dens, fiery furnaces, have no terrors for him. He never gives up, and in the end he is immensely honored and becomes second ruler in the kingdom. Among other things, he prophesies that certain kingdoms will fall, and that there is an "everlasting kingdom, and his dominion is from generation to generation." One can readily imagine what an effect such writing would have on people who were suffering the hell-fires of persecution. It was stay, then. It would sustain and comfort them. It would nerve them to endure anything. The fact that the author was unknown would add to the mystery and power of the book.

THE book is written with the avowed purpose of being mysterious, except to those who understand the times. It can only be understood now by a fair knowledge of the circumstances under which it was written. But we may be certain that the veiled references were very plain to the people living then. The king, who is the monster who has caused the persecution, is not named. That would be dangerous. But the allusions to him would be understood by the people of the day. And as to that, the book of Daniel is mighty good reading. Its message is needed now. There are many people who face difficult, sometimes heart-breaking situations, and these need courage. They need to be told and told again that there is a just God in the world, greater than all Nebuchadnezzars, whose kingdom will never end. They need reminding that it pays to do right, and it never pays to compromise with wrong. They need, too, to have it told them once more that prayer will fortify the soul to the point of resisting all attacks of temptation.

THIS brings us to Nebuchadnezzar's dream. The kingdoms that are seen in the dream are five: The gold is the Babylonian; the silver is that of the Medes, who came next; the brass represents the Persians, and the iron is that of the Greek. But the author of Daniel also mentions another kingdom, which is yet to come, the kingdom of the Messiah, that will never come to an end. This kingdom interests him more than the others. Thus in the pages of the Old Testament there is a hint, more than a hint, of the kingdom of which Christ taught.

Is this kingdom present or future? Christ's vision of it is, of course, clearer than that found in the prophets, and He teaches that it is both present and future. "Repent, for the kingdom of heaven is at hand" (right now). One finds churches where the members have a much greater nearness to real kingdom conditions than in other churches. The same holds for homes. Some homes have an atmosphere about them that makes you want to stay there. Others make you want to get out. Of course, there will never be an ideal society until kingdom conditions prevail. And that is what the church member should work toward. It is not a question alone of getting to heaven. Salvation is a dynamic force, not a through ticket to paradise.

SUNDAY SCHOOL LESSON FOR July 9.

SUBJECT:—Daniel Interpreting Nebuchadnezzar's Dream.
LESSON:—Daniel II.
GOLDEN TEXT:—The kingdom of the world is become the Kingdom of our Lord, and of His Christ; and He shall reign forever. Rev. 11:15.



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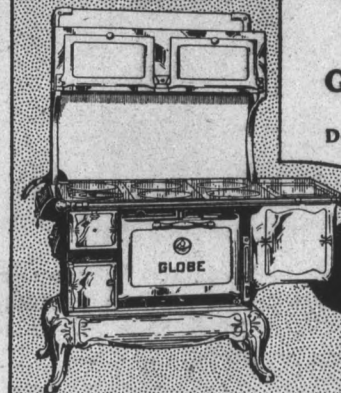
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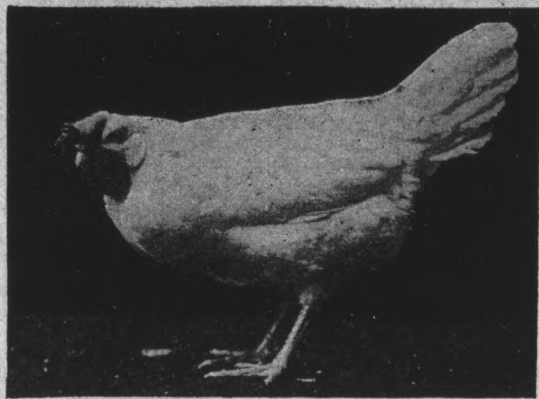
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BARRED ROCKS ENGLISH WHITE LEGHORNS

ROCKS. Official Records 213 to 257 at M.A.C. In Dec. at Nat'l Laying Contest No. 4 Pullets averaged 24.5. I have won 5 specials so far at this contest, some records. WHITE LEGHORNS. Won cup best utility pen Zeeland [22 pens]. Mr. Foreman Judging. 1st and 2nd pens Holland Fair. 1st Hen West Mich. State Fair. Why take chances when you can buy stock of this kind at bargain prices. Special prices on May, June, July chicks. Write for catalogue.

G. CABALL, Box M, Hudsonville, Mich.



Day Old Chicks and Pullets

From our S. C. English type White Leghorns. This hen is a full sister to our two hens that made records of 218 and 207 each at Mich. Agr. College. Notice the close feathering, fine shape and vigorousness of these birds. This is an unretouched picture. Our chicks will produce birds of this kind, and you will be sure of getting big strong chicks; 9c each by prepaid parcels post, 100 per cent alive guaranteed. Special prices on pullets.

Riverview Poultry Farm & Hatchery,

Route 2, Zeeland, Mich.

Baby Chicks

\$12.00 per 100 and up

Hatching eggs, \$1.50 per setting to \$15.00 per 100. We are listing 17 varieties of pure bred fowls; Chickens, Geese, Ducks & Guinea, also breeding stock. Send for prices and circular. Booking now for early delivery. **CLINTON HATCHERY & POULTRY FARMS, Wilmington, Ohio.**

Barred Rocks egg contest winners, eggs from strain with records to 230 a year. \$2.00 per setting prepaid by P. P. Circular free. **FRED ASTLING, Constantine, Mich.**

SINGLE COMB WHITE LEGHORNS

baby chicks and hatching eggs from our flock of high producing hens raised on free range. Write for circular. **RALPH S. TOTTEN, Pittsford, Mich.**

Barred Rock. Hatching eggs from Parks 200-egg strain from stock direct from Parks best pedigreed pens. \$2 per 15, \$6 per 50, \$12 per 100. Prepaid by parcel post in non-breakable containers. No chicks for sale. **R. G. KIRBY, Route 1, East Lansing, Mich.**

Our Boys' and Girls' Page

How I Raised My Pig

By Floyd Brown

OUR county club leader, Miss Ann Banks, wanted me to join the County Pig Club, which I decided to do. I know what it means to get good breeding stock, which I did, knowing of a good Duroc-Jersey breeder in Ohio, Mr. Eli Miller & Son. I wrote him and bought the best male and gilt that he had out of his spring litter of fifty head.

The sire of the male pig weighed 1,005 pounds at that time, being the largest hog that had ever been recorded in the Duroc-Association. His name was Giant Top Lad, known by all breeders. My pig's name is Wolverine Giant and he is some pig. He won first at the Cheboygan County Fair in the open classes and in the pig club in the breeding class. So he got two blue ribbons. I think a lot of my Wolverine Giant and I think that he will make a wonderful large hog as he is getting larger and higher. I want to show him at the fair next year. Boys come and see him and get interested. I like to see good ones.

I think that more boys should join the pig club. Just a little good feed, a good brush and warm water, and then stand back and watch your bank account grow. My brother, Ray, and I are in the hog business now. I think that there is room for quite a number

more Cheboygan county boys and girls in this business.

Now, I am quite well pleased that Miss Banks got me interested in the club work. Miss Banks, with the help of Mr. Jewell and Mr. Baltzer, from M. A. C., trained the stock club members in judging. I stood fourth in the contest, scoring 300 points out of 400. Don Williams, of the State Farm Bureau, was the judge, and Mr. Musselman, from the club department, conducted the contest with the assistance of Miss Banks. We met several times for judging and heard Professor Reed, Mr. Waldron and Mr. Baltzer talk on "Better Sires at the Train."

I will say no more about Wolverine Giant at this time.

Expense.

Value of pig at beginning of work	\$25.00
Value of feed	4.35
Value skim-milk and waste feed	1.32
Value of labor at 10c per hour ..	1.70

Total expense.....\$32.57

Receipts.

Pig for breeding purposes, its weight in lbs. 284, and value...\$100.00

Summary.

Weight at beginning, lbs.....	52
Weight at end of contest, lbs.....	284
Total gain in weight, lbs.....	232
Number of days fed.....	120
Average daily gain, lbs.....	1 7/8
Cost per pound of gain, cents....	4 1/2
Final net profit	\$67.43

Why I Like the Farm

By Wayne Church, Hudson, Michigan.
Age Sixteen.

Where we live we expect to work and farm life means pretty much of outdoor work, while city life means mostly inside work. Out of doors there is always plenty of good fresh air, often scented with sweet blooming flowers, while inside the air cannot be perfectly fresh and is often scented with stale tobacco and coal smoke.

On the farm the wonders we see are made by God. In the cities nearly everything is made by man. Although man has made wonderful and beautiful things they do not compare with the works of nature.

The farmer never knows his exact income. There is always little mysteries being worked out. One year one crop will do extremely well and another will nearly fail. The same way with the stock increase. There is always wonder and expectancy that keeps one hoping. The city man can figure everything in plain dollars and cents, but loses much in anticipation.

The farm is the ideal place for children. Here they can run and play over acres of green fields without being in danger of losing their lives by the traffic. They can gather beautiful flowers by the wayside without fear of rebuke. Running brooks are free for their pleasures. They learn many lessons from nature and learn to fear God instead of the cop.

Give me the farm life for all around natural existence.

By Gertrude McKibbin, Cloverdale, Michigan. Age Sixteen.

I have always lived on a farm and will tell you why I like it.

The air is pure and healthful and void of disease germs. A great variety of amusements can be found on a farm. I like the woodland swing, horseback riding, and even riding cattle—which some folks find difficult.

I like the farm because I like farm

animals. It is a pleasure to gather eggs and hunt nests, feed the stock, milk, and drive cattle to and from the pasture and water.

I like to pick berries and work in soil, drive a team and dress as a boy and roam at will all over the farm.

I find real fun in picnics in the woods and a plunge in the lake on a hot, dry day.

The birds make music to wake me in the morning and the hill back of the house furnishes excellent coasting in winter. The lake over the hill furnishes skating.

The farm gives you a broader mind and good judgment. It makes you think clean thoughts and you are not always spending money on movies.

I enjoy telling visitors about the farm and explaining about the use of each thing.

I find many things to like about a farm, but very few to dislike.

DUROCS FOR PIG CLUB MEMBERS.

THE first shipment of Duroc-Jersey pigs, shipped by the recently formed Benzie County Duroc-Jersey Association, moved recently from Beulah to Midland county. All of the stock shipped was raised by boys or members of the Honor Pig Club, and went to Midland county boys who are in a club being formed by County Agent McMurtry, of Midland.

The Honor Pig Club was formed by County Agent J. L. Kraker, of Benzie county, and has been in existence for two years, and at the start of the third year, felt that they wanted to take in some of the older men of the county who have become interested in Durocs. Therefore on May 29 the Benzie County Duroc-Jersey Association was formed, with Ellsworth Joy as president, and Walter H. Smith, Benzonia, Michigan, secretary-treasurer.—J. K.

Our Letter Box

THIS letter box will be where the boys and girls can express their views, tell of themselves and things about the farm, or ask advice. The most interesting letters each week will appear here. Address your letters to me.—Uncle Frank.

Dear Uncle Frank:

I received your letter and the check for one dollar yesterday. I can not tell you how pleased I was to get both. You can see my motto is, "If at first you don't succeed, try, try again."

I live in town but I read my uncle's Michigan Farmer.

I have one brother, he is twelve years old and enters high school next year. He took two grades last year. I passed my grade, and have had good marks all the year. I like music and take lessons. I like your contests very much, but the Read-and-Win Contest makes you think and teaches one to be a careful reader.

Thanks again for the prize money.—Your friend, Anna I. Salmon, Pittsford, Michigan.

That motto worked with you all right, didn't it? It usually does if you try to do a little better each time you try.

Dear Uncle Frank:

We have taken the Michigan Farmer for some time and I have always been interested in the Boys' and Girls' Department, but have failed to see any letters from Ohio. That is why I have never written before, but I hope I may be permitted to join your pleasant circle.

I am sixteen years old and will be a senior this term. We live on a large farm in a beautiful farming district. Raising chickens and flowers is my hobby. We have about 300 little chicks.

I am very fond of athletics and have played on the first basketball team for three years and have also played at the county tournament three years.

Wishing all the boys and girls of this department the best success.—Your Ohio Niece, Cleo Moore, Hoytville, Ohio.

You certainly are welcome, Cleo. I think it would be fine if you and some of the Michigan young folks corresponded. Also, please write me again.

Dear Uncle Frank:

We have taken the Michigan Farmer for a long time. We live on a farm of 160 acres. I like to live on the farm.

My mother lived here when the Indians were here. When Indian Chief Ogemaw was alive he visited her parents' home quite often. Our county was named for him. There was an Indian graveyard about a mile and a half from her home.—Vera Andrus, West Branch, Michigan.

Can't you write us more about what your mother has told you about the Indians? I know we would all be interested.

Dear Uncle Frank:

I am sending the words I found. I hope I win, for I've tried several times but am just not going to give up, that's all.

My school is out now so that I'll be a junior next year, as I passed in all my subjects in the finals. Next year I plan to take English XI, plain geometry, American history and chemistry. Is chemistry hard? Lots say so, but I think it will be interesting.

This year I took biology. It was the most interesting thing I ever studied. I love to study about plants and animals, catch butterflies and other insects, and learn about one's body and how to care for it. Today I caught a very pretty butterfly which I will add to my collection. Wouldn't you like to see it?

I could tell you lots about my school and farm life, but must close.—Sincerely, Dorothy Wellfare, Sunfield, Michigan.

I truly like your attitude regarding the contests. To some, chemistry comes hard; to others it is easy. It depends much upon one's inclination. Write again, Dorothy.

Dear Uncle Frank:

I am twelve years old and in the seventh grade. I had some rabbits for pets but some dogs got in one night and killed them. We have two kittens and three old cats. The mother cat will stand on her hind feet and catch the milk as you milk in a stream from the cow towards her. If you don't

milk she will reach for it with her paws.—Earl Johnson.

Your cat must be interesting, but you were unfortunate with rabbits.

Dear Uncle Frank:

I enjoy the contests as much as ever, also the letters and essays which appear each week.

Strawberry and gardening time brings more opportunities for everyone to be with Mother Nature.

We have ten varieties of roses and

Our Poetry Contest

FOR this week I am going to use another suggestion from one of my Pals. This is to be a Poetry Contest. Any original poem by a boy or girl under eighteen years of age can be entered in this contest. Preference will be shown poems not over twenty-five lines in length.

Please address all letters to Uncle Frank, Michigan Farmer, Detroit, Michigan.

This contest closes July 13.

it is my privilege to care for them. I have many bouquets, so I can remember a lot of friends, as well as giving my teacher a bunch to put on the desk in our room at school. Wish that you lived near enough so I could send some to you.—Best wishes, your pal, Helen Moerdyk.

I am glad you find opportunities to enjoy Mother Nature when picking strawberries. About all many people find when doing this, is the backache.

Dear Uncle Frank:

We have been taking the Michigan Farmer for several months and we are much interested in the paper, especially the contest department. I have six brothers and the youngest is two years old. I am fifteen and my brother John is seventeen. The paper comes to my brother, Bernard, who is ten, and he used his spending money to subscribe.

There was an article about raising geese in a recent number, and we read it all because we have a pair of Toulouse geese and six little goslings. The gander is pretty mad if we come too close to his little family, and he takes a good nip at us if we are not careful.

I am going to high school this fall, because I want to be a teacher.—Yours truly, Arthur O'Neill, Paris, Michigan.

Your brother, Bernard, seems to be a wise spender as all of you can enjoy his purchase for a whole year. Write again, Arthur. I would also be glad to hear from your brothers.

THE RIDDLE WINNERS.

Here are the names of those who gave the correct answers to the riddles, gave their answers most concisely, and had their papers the neatest.

Clara Lyons, Elsie, Mich.
Mary E. Dodge, Romoe, Mich., age twelve years.

Abbie Brouwer, Kalamazoo, Mich.

Walter Ninke, Kibbie, Mich., age eleven years.

Boyd Zacharias, Marne, Mich.

ANSWERS TO RIDDLE CONTEST.

The following are the correct replies to the riddle contest which appeared in our issue of June 24:

1. The Sandwich Isles.
2. He always has a pupil under the lash.
3. Lady's Slipper.
4. Because the others are all week (weak) days.
5. The Beach.
6. Blast of a horn or echo.
7. They are stationery (stationary).
8. Because it is most useful when most widely extended.
9. Heartsease.
10. Only one, because then the stomach would not be empty.



Blood Will Tell

antee safe arrival and satisfaction, or your money back.

17,000 Chicks Every Week Till August 15th.

Prices for June and July 1922.

S. C. English type White Leghorns, are good and profitable layers, and our extra selected are of the very best layers.

It has never been our aim to put out cheap chicks, but to give our customers chicks that will be good layers and bring our customers a good profit.

We have been in the poultry business eleven years and are offering you chicks of the best layers at a very reasonable price.

	Per 25	Per 50	Per 100	Per 500	Per 1000
S.C.Eng.Type W.Leghorns,extra selected	\$3.00	\$6.00	\$12.00	\$57.50	\$115.00
S. C. English Type White Leghorns	2.50	5.00	10.00	50.00	100.00
S. C. Brown Leghorns, extra selected	3.00	6.00	12.00	57.50	115.00
S. C. Brown Leghorns, standard	2.50	5.00	10.00	50.00	100.00

We ship chicks by parcels post and pay the postage up to your door, and guarantee safe arrival. Our terms are cash with order, but we will book your order if you send one-fourth of the amount with the order, and the balance just before chicks are to be shipped.

Prompt Shipment

Order from this adv. to save time and we will write you at once when to look for the chicks and also will mail you our instructive catalogue, or write for catalogue before ordering.

The Wolverine Hatchery,

H. P. Wiersma, Proprietor,

Zeeland, Mich.

Ancona Baby Chicks

The S. C. Anconas have proved to be the most valuable fowl for the farmer today. We have the Bred-To-Lay Sheppard Strain, and are offering these chicks at extremely low prices, let us have your order and prove to you the wonderful laying ability of our birds.



For those who prefer S. C. White Leghorns we have some of the very best stock obtainable. Get some of our chicks and you will be on the road to success. We pay all Parcel Post charges and guarantee chicks to reach you in first-class condition.

Prices of Selected Chicks from June 20 to August 1.

	per 50	per 100	per 500	per 1000
S. C. Anconas	\$5.75	\$11.00	\$52.50	\$100.00
S. C. White Leg.	\$5.25	\$10.00	\$47.50	\$95.00

Order direct from adv. Prompt shipment. Satisfaction guaranteed. Write for prices on yearling hens.

M. D. Wyngarden,

R. 4,

Zeeland, Michigan

POULTRY

BABY CHIX

The Old Reliable Breeds
S. C. WHITE LEGHORNS
English and American Strains

Barred Rocks Anconas
S. C. Brown Leghorns

HERE we are, just a few hours from your door, with baby chicks from the best breeds. Our growth from one small incubator to 22,000 egg capacity has been steady and denotes honest dealing. Get our prices on chicks from our healthy, free range, heavy laying stock. Send today for handsome catalog in colors.

CITY LIMITS HATCHERY & POULTRY YARD,
Route 5, Box 11 Holland Michigan

CHICKS



From Michigan's Old Reliable Hatchery. American and English White Leghorns, Anconas, Barred Plymouth Rocks and R. I. Reds. Strong sturdy chicks from Grand bred to lay, Hoganized, free range breeders. Sent by Insured Parcel Post, prepaid. 100% live delivery at your door. Guarantee satisfaction, or your money back. 15,000 each week, 14th season. Get my low price and valuable illustrated 1922 free catalog and place your May and June orders where you get best quality at lowest prices.

W. Van Appledorn, R. 7, Holland, Mich.

BABY CHICKS

Barron White Leghorns 100, \$10.00; 500, \$47.50; 1000, \$95.00.
Park's Strain Barred Rocks 100, \$12.00; 500, \$57.50; 1000, \$110.00.
Good healthy, chicks, odds and ends 7c each.
100% live delivery guaranteed. Parcel post paid.
PINE BAY POULTRY FARM, Holland, Mich.

PULLETS

If you want fine Pullets for fall and winter eggs, we can furnish

Leghorns, Anconas, Rocks, Reds, Buff Orpingtons

Eight weeks and three months old; also other breeds, Yearling Hens and Cockerels

Write us for description and price list. We will send you stock from our Pure Bred Practical Poultry—stock that will make money for you on your farm.

STATE FARMS ASSOCIATION
201 Chase Building, Kalamazoo, Mich.

200,000

Baby Chicks

FOR 1922

Shepard's Anconas, English Type White Leghorns and Brown Leghorns and Barred Rocks. Why pay two prices when you can buy direct? Our chicks are from strong, vigorous flocks of fine quality and excellent layers. Chicks are shipped prepaid with 100% live arrival guaranteed. Order now, catalogue free.

KNOLL HATCHERY,
R. 12, Holland, Mich.

DAY OLD CHICKS

White Leghorns \$12 per 100; \$6.50 for 50; and \$3.75 for 25. Barred and White Rocks, White Wyandottes and Rhode Island Reds \$17 for 100; \$9.00 for 50; and \$4.75 for 25. Order from this ad, terms cash with order. Custom hatching 5c per egg, hatchery capacity 9600. Hatchery 4 miles east of Mt. Morris on Mt. Morris road one mile north and one east. Valley Phone No. 14-5. ROSS WADE, Prop. Meadow Brook Hatchery, Mt. Morris, Mich.

Large Type Cockerels and Pullets

Now Three Months Old

WHITE LEGHORNS AND MOTTLED ANCONAS Also Black Leghorns, Brown Leghorns, Buff Leghorns, Black Minorcas, R. O. Rhode Island Reds, Barred Plymouth Rocks, White Plymouth Rocks, Silver Wyandottes, White Wyandottes. WE HATCH eggs from Hoganized flocks on free range on separate farms. Where our chicks are raised.

Send for Price List
CRESCENT EGG COMPANY
Allegan Michigan

DOWN GO THE PRICES

Of Superior

Baby Chicks and 8 Wk. Pullets

NOW IS THE TIME TO ORDER

TOM BARRON ENGLISH WHITE LEGHORNS
BROWN LEGHORNS ANCONAS

Thousands of satisfied customers are making money with Superior Baby Chicks and Stock.

Read This One.
Mr. R. L. Holmes of Easton, Missouri says:—The 300 Tom Barron chicks arrived here on March 29 in fine condition. There were 12 extras and all were alive. I would like 500 or 800 more.



Read This.
Earl Denton of Mantion, Mich., says:—Received my order of chicks all O. K. and they surely are a fine bunch. There were 1020 and they are starting fine. I want to congratulate you on the stock you put out. Will want 2500 next year.

This Hen Imported Direct From Tom Barron By Us.
Trapnested and Pedigreed 272 Eggs One Year.

Baby Chick Prices for June, July and August delivery.

ORDER DIRECT FROM THIS AD.
AT THESE BARGAIN PRICES

	per 50	per 100	per 500	per 1000
Amer. White Leghorns.....	\$5.00	\$10.00	\$50.00	\$100.00
Brown Leghorns.....	5.00	10.00	50.00	100.00
Anconas.....	6.00	12.00	57.50	110.00
Tom Barron Ex. Sel. Eng. White Leghorns.....	6.00	12.00	57.50	110.00
Tom Barron Spec. Pen Star Mating Chicks.....	8.00	16.00	75.00	
Broiler or mixed chicks, Odds & Ends.....	4.50	8.50	40.00	80.00

Remember these are not just ordinary stock but purebred. The best that money can buy. 8 weeks old pullets at bargain prices. Send for free Bargain list. We guarantee you complete satisfaction and live arrival.

Superior Poultry Farms & Hatchery, Box 2053, Zeeland, Mich.

POULTRY

Look Guaranteed
Baby Chicks

White Leghorns and Anconas exclusively from the largest chick producing center in the world. Remember this is not just ordinary stock. Our females are all selected birds and are bred for egg production. Our flocks are culled by M. A. C. experts, and are headed by vigorous pedigreed males. We are getting testimonies every day from our customers such as this, "The best lot I ever got from any hatchery." One order will convince you. Write for catalog at once.



Barron English White Leghorns, extra selected \$10.00 per 100. English White Leghorns, Standard stock \$9.00 per 100. Anconas, extra selected \$10.00 per 100; Anconas Standard Stock \$9.00 per 100.

SILVER WARD HATCHERY
Box 252, Zeeland, Mich.

Pure PULLETS Bred
S. C. W. LEGHORNS
OUR SPECIALTY

2000 April Hatched Pullets for July delivery. We sell our own stock only. Bred and raised on our own farm from our strain of American English Leghorns carefully bred for Egg Production. None Better anywhere at our price.

8 Weeks Old Pullets \$1.00
Choice Breeding Cockerels 1.50
Yearling Hens 1.00

SIMON HARKEMA & SONS,
HOLLAND, MICHIGAN

CHICKS

Three Leading Breeds. Tom Barron English White Leghorns. Parks Barred Rocks. S. C. R. I. Reds.

	25	50	100	500	1000
White Leghorns	\$2.50	\$5.00	\$10.00	\$47.50	\$95.00
B. Rocks & S. C. R. I. Reds	3.00	6.00	12.00	57.50	115.00
Broiler Chicks	7.00	35.00			

Selected Pens \$1.00 extra per hundred. We can fill orders for Leghorns the same week received. Strong healthy chicks from tested heavy producing stock correct in plumage and color as well as being excellent layers. 100 per cent live delivery guaranteed. Interesting catalogue free. Importer. BRUMMERS POULTRY FARM, Holland, Mich.

Box 30, Holland, Mich.

JUST-RITE LOOK!
Baby Chicks

Get our low June prices, June chicks for December layers.

POSTAGE PAID, 95¢ live arrival guaranteed. MONTH'S FEED FREE with each order. A hatch every week all year. 40 Breeds chicks, 4 breeds ducklings, select and exhibition grades. Catalog free, stamps appreciated. NABOB HATCHERY, Dept. 15, Gambier, O.

July, Aug. and Sept. Chix

Order now. Barred on White Plymouth Rocks, R. I. Reds, Black Minorcas, White Leghorns or Anconas \$14.00 per 100 prepaid, 15¢ each in 25 or 50 lots. 100% live delivery guaranteed. Our 12 year producing chick that please. Order direct from this ad. Green Lawn Poultry Farm, R. 3, Fenton, Mich.

July and August Chix. Order now. S. C. White Leghorns 25 or 1000 at 10¢ each. R. I. Reds, Barred Rocks, White Wyandottes, \$14 per 100, \$65 per 500, \$120 per 1000. Prepaid guaranteed delivery. GORET BROS., Corunna, Mich.

Thoroughbred Chicks. Leghorns 11¢. Barred Rocks, Reds 13¢. Broilers 10¢. Postpaid. Arrival guaranteed. Cat. free. Hayes Bros. Hatchery, Decatur, Ill.

WHITTAKER'S R. I. RED CHICKS

CUT PRICES FOR JULY. Grade "A" Both Combs, \$20 per 100. Grade "B" Rose Comb, Hatches of July 5th and 12th, \$15 per 100. July 19th, \$14 per 100. July 26th, last hatch, \$13 per 100. Single Comb one cent per chick less than Rose Comb. Add one cent per chick on all orders for only 25. Michigan's Greatest Color and Egg Strain. All breeding stock blood tested for white diarrhoea by Dr. H. J. Stafseth of M. A. C. Order from this ad. to secure prompt delivery, or write for free catalog and culling chart. INTERLAKES FARM, Box 39, Lawrence, Mich.

Useful Anconas To install new blood in your next years matings, to improve their laying qualities, to increase their beauty, your cockerels early, a grand lot of youngsters from prize winning Hogan tested layers at bargain prices, sent on approval. Utility breeding hens at reduced prices to make room for pullets. Order now before it is too late. My 13 page booklet "Useful facts about Useful Anconas" furnishes real information and tells you all about them. College View Farm, R. 3, Hillsdale, Mich.

Buy Chicks Where Quality Counts.

All my flocks culled. You get chicks from nothing but best layers. Safe arrival guaranteed by prepaid parcel post. Ask about 8-week pullets. HERMAN J. COOK, 133 W. Main St., Zeeland, Mich.

BABY CHICKS 1922 delivery now ready. White Leghorns, White Rocks, Buff Orpington, Buff Rocks, Barred Rocks, R. I. Reds, Black Minorcas, S. C. Anconas Guaranteed pure bred and live arrival. Postage paid. DURAND HATCHERY, Fenton, Mich.

Barron White Leghorn pullets 10 each. Park's Strain Barred Rock pullets 10 weeks old \$1.10 each. Write for special prices on large lots. ROBT. CHRISTOPHEL, R. 4, Holland, Mich.

NOW IS YOUR CHANCE

Put in your order for June chicks at 9¢ cents. And April hatched pullets. Bred from Heavy English Strain from our own free range poultry farm. 100% live delivery guaranteed. Village View Poultry Farm, R. 3, Zeeland, Mich.

RHODE ISLAND WHITES win over all breeds at the egg laying contest. 30 eggs \$5; 50 \$8; 100 \$15 order from this ad. Some chicks, H. H. JUMP, R. 5, Jackson, Mich.

S. C. Black Minorca Hatching Eggs. Our choice strain, settings \$1.50; for 50 \$3.00; 100 Eggs \$5.00. C. J. DEEDRICK, Vassar, Mich.

Single Comb Buff Leghorn Early hatched chicks. Willard Webster, Bath, Mich.

Top Quality Chicks Spanish, Minorcas, Rocks, Reds, Wyandottes, Orpingtons. TYRONE POULTRY FARM, Fenton, Mich.

WHITE WYANDOTTES 207 egg average. Eggs all matings, \$2.00 per 15, \$10.00 per 100. Cockerels, hens and pullets \$5.00 each. FRANK DELONG, R. 5, Three Rivers, Mich.

Bourbon Red Turkeys We have them. Order your Birds and Eggs now. SMITH BROS., R. 3, Augusta, Mich.

Farm Poultry

POULTRY PARAGRAPHS.

Capons are fine food for the home table but a set of instruments is not a sure road to poultry profits. Capons take a lot of feed to make their growth. The cost of this feed must be deducted from the selling price. Capons are not appreciated on many small-town markets. The producer must find the right kind of a market where a premium is paid for capons. Capons are well worth the trouble for home use. But when you make it a business proposition on a fairly large scale you must study that business and keep careful records or it may not be profitable.

Crosses sometimes produce very good market fowls in the first generation but their progeny is seldom of any unusual value. The best results in breeding poultry have come when one breed has been carefully bred for one purpose. Crosses of two good breeds will be apt to spoil a lot of good breeding work that has been done separately with each breed.

The breeding cockerel business is not all profit. You must consider the meat value of the bird plus the cost of shipping and correspondence. Occasionally a customer will not be satisfied but expects a cockerel from a two hundred egg hen fit to win at Madison Square Garden, for about two or three dollars. The only salvation of the pure-bred poultry business is the fact that most people are honest and this keeps poultrymen from becoming too discouraged.

There is a great difference in the quality of birds that can be obtained from different breeders at the same price. Sometimes the price a breeder asks depends more on his nerve than the breeding of his stock. Often the owner of very fine birds does not have the confidence to ask the amount they are worth. It pays a breeder to keep buying until good ones are obtained and then raise nearly all of his own stock. It is the man who sells poultry that gets good money.

GOOD FEEDING NECESSARY.

POOR feeding is pretty certain to put a lot of good hens into the cull list. A mash is necessary to keep up egg production in hot weather. Grain alone will not do it. This mash should carry some protein feed, such as milk. Here is a suggested mash for summer feeding: An abundance of milk, say a gallon per day for thirty hens, fed in a trough, and then fifty pounds of bran and fifty pounds of middlings mixed together and fed dry. If milk is not available, then thirty pounds of high-grade tankage should be added to the bran and middlings.

The important thing to watch during the summer is to get the hens to properly balance their ration. They should eat as much of the mash as they do of the grain. This cannot be done by the self-feeder method. The hens like the grain better, and will fill up on it and neglect the mash.

Here is a plan of feeding that gives

good results: Feed a light grain ration in the morning, then put extra mash in troughs in the shade where the hens stay during the day. Have water close to the mash. Feed no grain at noon. This will encourage a larger consumption of the mash and thereby promote heavier production.

CAPONIZE LATE COCKERELS.

THE late-hatched cockerels will not bring high enough prices to make them very profitable, but as capons they will make a very desirable size for the season when capons are in demand from New Year on until broilers come again. You can get a good price for your late cockerels thus and at the same time have a much greater total product. While I think it pays to sell the very early cockerels as broilers when the price is high, it is a lot of trouble to rear them while small only to have two pounds each to sell. With the late cockerels they may be kept until, for the same care as the little chicks, we get from eight to twelve pounds to sell.

The new implements for caponizing are much better than the old sets and the work can be done easier and with more certainty. Directions come with the sets and the operation is not difficult nor very cruel.

MASH FOR CHICKS.

What should I use in mixing a dry mash to feed growing chicks? They are eight weeks old now. What else should I feed in order to give them a balanced ration? Please give the approximate cost of the mash. Can buy a good commercial mash here for \$4.50 per hundred pounds. Would you advise using this? The chicks have plenty of range.—H. A. H.

A good dry mash for chicks from six weeks of age until laying time can be made of three pounds each of wheat bran, cornmeal, wheat middlings and meat scrap, and one pound of bone meal. The scratch grain mixture can consist of equal parts wheat and cracked corn.

It is difficult to figure the approximate cost of the mash for publication as prices change rapidly and there is a variation in the prices charged for the materials at different points. The best grade of beef scrap costs the most but is usually considered the best investment.

Unless you have a large flock it will pay you to buy the mixed mashes, especially if you have to buy all the separate ingredients. If you have home-grown grain that changes the situation. You can figure the cost of the items in the mash at your elevator and can easily determine which is the best by comparing that price per one hundred pounds with the cost of the mixed dry mash.

This season we have never had to pay as high as \$4.50 per one hundred pounds for commercial growing mash. We can obtain mashes for \$3.50 and less which have proven very satisfactory.



At this Demonstration Prof. E. C. Foreman Convinced City Farmers that he Could Cull Hens Accurately, as their Trap Nest Records Indicated.

Francisco Farm Notes

By P. P. Pope

IF Thou Seekest a Beautiful Peninsula, Look Around." How often, when we can pause in our work long enough to look up and away over the Michigan landscape, do we repeat either audibly or to ourselves the motto of the great state of Michigan. There is text enough for dozens of articles, lectures, sermons, or whatever one may choose to make of them, in those few words. Ever since we first entered the state twenty years ago, we have been especially appreciative of the beauties of the Michigan landscape. There have been times, of course, when the everyday hum-drum problems of existence have weighed heavily, and have kept our attention centered closely on the ground at our feet, almost to the exclusion of all thoughts of the beauties and glories of the great outdoors. One who can live through a Michigan summer, however, and not find time to just look up from his work occasionally and drink in the wonders of the big world about him, is missing a lot of the best there is in life. Michigan is at her best just at this time. She is glorious, of course, all the year round, even her snow drifts and her ice storms are wonderful, but for six months in the summer she is simply incomparable. Of all these months, June is the best.

It has been our privilege just at this time to take the family and view her farms and woods and pastures from the car as we bowled over many, many miles of her smooth roads. How did we ever find the time this busy season? We just took it. It may cost us something, but it is worth something. We are combining business with duty this trip, and incidentally getting a heap of pleasure out of it. As I write these lines we are with the home folks two hundred miles from the farm. We will soon be back, however, rested and refreshed in body and mind and ready for a fresh grasp on the affairs of the farm. In addition to the beneficial effects of a little vacation on each member of the family, we will have gained a broader knowledge and a keener appreciation of this great state of ours than ever we have had before.

Along the route we noted many interesting things. Very few fields of wheat are to be seen. The best beets on the whole route were on the corner of West Shepherd, where M-14 turns north. Some fields of beets have been torn up, and the ground planted to beans. I think I have never seen such a large acreage of beans, especially in the central counties, as there is this year. Some stands are suffering from the ravages of the bean maggot. The warm wet weather has recently been favorable to the development of this pest where the ground has been plowed late and a sod or manure turned under. The insect breeds in decaying organic matter, and the best remedy seems to be plenty of cultivation to break up their breeding places. Corn seems to be rather later than usual and while we saw many good fields of corn we also saw many poor ones. There are many poor stands and much replanting has been done, especially in the southern part of the state and in northern Ohio. In only a comparatively few instances have we seen corn larger than that on Francisco Farm, and in many fields even these two hundred miles south the corn is much smaller. This is unusual.

The wheat back home will ripen earlier this year on account of the red rust, which is quite generally prevalent, but will be perhaps a week later than here. There appears to be a more liberal acreage of all the small grains this year than usual, and for the most part they look good. Along the upper

end of our route the first cutting of alfalfa was going into the barns. Half way down the making of the clover was in full swing. Here the timothy alone remains.

The farms and scenes in Michigan are all interesting, look which way we may, and although we may not at all times be privileged to "look around" from a fast-moving automobile, if it is the beautiful in nature that we are looking for we will find it by just living up to the motto of our great state and looking around from where we are.

THE MISSING LINK IN FEEDING.

(Continued from page 23).

cial answers to the chemists's demands for vitamins to perfect the ration. Something to prevent the loss of flesh and the lack of growth, all our farmers have for many years looked for. It may be that it is only now the answer to this desire is reaching the feeders of live stock, who seek to fulfill this new demand for vitamins.

Vitamins and Spring Food.

Heretofore, science has been considering these food elements as applied to human feeds. It is about time we found out just what vitamins mean to the animal world, though we know enough about them already to assure us that no ration is perfect without them properly balanced.

All animals, man as well as the lower animals, need a definite quantity of vitamins to maintain health. Young animals require much greater proportions of vitamins than do mature animals. On this basis, let us consider the question from the farmer's standpoint. He has to maintain in a healthy condition all his stock, both young and old, and in all probability vitamins play an unexpected large part in this.

All the young animals draw their vitamins—and their requirement is heavy—from their mothers in the first instance. The food supply of the suckling mother has thus to be rich in vitamins as well as in other nutriment. The milk supply of the mother is also affected by the vitamins supplied. In some cases where the vitamin supply is low, the milk supply will decrease so as to maintain its vitamin content. In such cases the young animal will starve, and perhaps die, or will, if it survives, be stunted, while the health of the mother suffers.

In other instances the milk supply will remain unchanged, but the vitamin content drops. Here the young animal suffers from lack of vitamin, in which case its growth is seriously affected, and a rickety animal will at best survive the ordeal. Usually the young animal dies, however.

An animal suckling young should have its food adjusted so that a good supply of vitamin, to meet its own and the needs of its young, may be insured. The old custom, of giving a breeding cow as much green fodder as possible, is one we now know to be wonderfully correct. It is interesting to see how, with the progress of science, many old customs based primarily on observation and experience and handed down by tradition, have been found to be correct.

CANNING DOES NOT DESTROY VITAMINES.

CLOSELY following the announcement of Dr. E. V. McCollum, of Johns Hopkins University, at the Holstein-Friesian breeders' convention, that a fourth vitamin, a vital food which prevents rickets in children had been found, comes the statement by H. M. Loomis, of the National Canners' Association, that vitamins are not destroyed by the canning process. In fact, canning protects the vitamins in foods rather than robs them of this element of nutrition.



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Champions
For Every Engine Everywhere



Champion Regular now 75c
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Champion construction is simple and effective, and the ribbed core is truly unbreakable and practically foul-proof

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THESE make the "Indiana" the recognized leader among silos. Feed put into an Indiana Silo comes out 100% in quality and quantity. Ask any of our 100,000 customers. In silos the best is always the cheapest. Late corn will be frosted, save it in an Indiana Silo.

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Free Catalog in colors explains how you can save money on Farm Truck or Road Wagons, also steel or wood wheels to fit any running gear. Send for it today.
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POULTRY

WHITE LEGHORN BARGAINS

Get famous Ferris White Leghorns and increase your poultry profits. Pedigreed, trap-nested, egg bred for 22 years. Eggs—chicks—pullets—hens—males. Records to 313 eggs. Shipped C.O.D. prepaid and on approval. Large, vigorous. Great winter layers. Good for FREE catalog and list of amazing bargains—FREE.

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CHICKS 9c.

for July 5th and 12th delivery. Sheppards Anconas and Barron Strain S. C. W. Leghorn chicks. These are our last hatches so order while they last. 8-week-old pullets, cockerels, and year old hens. These are from trap nested stock. We guarantee safe delivery and prepay shipments. Citizen's Phone. Byron Center Poultry Farm. Byron Center, Mich.

BABY CHICKS

We have just the chicks you have been looking for, the large, strong, vigorous kind from free range flocks that have been culled for heavy egg production. Shipped prepaid parcel post. Safe arrival guaranteed. Ask about 8 wk. pullets. Catalog free.
Gilt Edge Poultry Farm, Zeeland, Mich.

Barred Rocks S. C. Reds, W. Wyandottes, Bred-to-lay stock, Baby chicks, eggs, cockerels. Howard Grant, Marshall, Mich.

Bred-to-Lay White Wyandottes 59 hens laid 1170 eggs in Jan. Eggs \$2.00 per 15; \$10 per 100. EVERGREEN POULTRY FARM, Blanding & Sons, Greenville, Mich.

100,000 Chicks 10c & Up. Of pure bred finest egg directly from laying and exhibition contest winners hatching eggs. Ducklings. Catalog. 20 varieties. Early bookings avoids disappointment. Beckman Hatchery, 28 E. Lyon, Grand Rapids, Mich.

ANCONAS "Superior Quality" Baby chicks and fertile eggs from M. A. O. selected 250 egg strain hens, mating list free. MANNINGS ANCONA FARM, Coldwater, Mich.

ANCONA PULLETS

I have 300.3 months old, utility selected Ancona pullets which I will sell at \$1.30 each. Order at once and avoid disappointment. Thomas Beyer, R. 4, Zeeland, Mich.

CHICKS, Have shipped thousands each season since 1904. Let us send our prepaid prices. Freeport Hatchery, Box 12, Freeport, Mich.

Pullets WANTED S. C. White Leghorns. Give price, age, weight and lowest cash price in reply. Address, Leghorn, Box 466, Sycamore, Ohio.

W. Chinese goose eggs 40c each, Pekin duck \$1.50 for 8. R. C. Br. Leghorn \$1.50 for 15 \$8.00 per 100. Mrs. Claudia Betts, Hillsdale, Mich.

CHICKS—BRED-TO-LAY

S. C. W. Leghorns, S. C. Anconas and Barred Rocks. Quality chicks that please, guaranteed full count, 100% alive on arrival, parcels post paid. Circular.
SUNNYBROOK POULTRY FARM, Hillsdale, Mich.

HA! HA! { 75,000 } CHICKS 10c and up. Buy Hi-grade Profit Paying Bred-to-Lay Chix. From tested egg strain. Best foundation stock ever produced. Hatching eggs, ducklings, 10 varieties. Cir. stamps app. Laurence Poultry Farm, R. 7, Grand Rapids, Mich.

Additional Poultry Ads. on Page 43

BREEDERS' DIRECTORY

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Edgar
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George
Henry

They possess the Marked Degree of
Inimitable Quality

They are Distinctly Handsome.
They are Obviously High Class.

The Name
Edgar of Dalmeny

is an assurance of quality in the world of Angus cattle just as the name

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presupposes excellence in Belgian Draft Horses. The services of our Grand Champion Stallion, George Henry are available. Your Correspondence and Inspection are invited.

Wildwood Farms
ORION, MICHIGAN
W. E. SCRIPPS, Prop. SIDNEY SMITH, Supt.

REGISTERED Aberdeen-Angus. Ten heifers, six bulls from eight to fourteen months. Best of breeding, the growthy kind that make good. Reasonable. Inquire F. J. WILBER, Ohio, Mich.

Brookwood Guernseys

Birmingham, Mich.

During the past year, we have completed Advanced Registry with 7 Guernsey Cows—two of which were heifers with their first calves.

The average butter-fat production of these cows was 650 pounds, and three of them were leaders of their respective classes for the State of Mich.

We have for sale a number of good bull calves from these cows and their daughters, sired by Rosetta's Marshall of Waddington, No. 54420, Grand Champion Bull at the Michigan State Fair last year.

Our herd is not large, but it is select. Visitors are always welcome at the farm. Prices are reasonable, considering the quality of the stock.

JOHN ENDICOTT, Proprietor

Registered Guernseys

Another crop of calves. Choice bull calves \$75, their breeding and records will please you. J. M. WILKINS, No. Adams, Mich.

GUERNSEYS—REGISTERED BULL Calves. Containing blood of world champions. A. R. cows. Federal inspected. HICKS' GUERNSEY FARM, Saginaw, W.S. Mich.

C. E. and J. B. Evans Breeders of Guernsey Cattle. 4 bulls ready for heavy service for sale. Ship anywhere, all T. B. Tested. Good ones. Butternut, Mich.

WINNWOOD HERD

Registered Holsteins

It was through the daughters of **Flint Maplecrest Boy** that **Sir Ormsby Skylark Burke**

Our Junior Herd Sir: produced the Junior Champion and Reserve Grand Champion Heifer, at the Michigan State Fair this year, in a class of 38.

His get won first in Calf Herd, also first in get of sire, in a class of 13.

A son of either of these great bulls will help the individuality and production of your herd.

We have bulls at dairymen's prices, and we also have bulls at the breeder's price, from dams with records up to 38 lbs. of butter in seven days, and 1168 lbs. of butter in one year.

Ask us about a real bull, a Maplecrest or an Ormsby.

JOHN H. WINN, Inc., Rochester, Mich.

Holstein-Friesian pure-bred bull calves, tuberculin tested. Prices are right. Larro Research Farm, Box A, North End, Detroit, Mich.

A Good Note accepted in payment of finely bred registered Holstein bull calves. Quality of the best, and at prices within reach of all. Write: GEO. D. CLARKE, Vassar, Mich.

The Traverse Herd

We have what you want in BULL CALVES, the large, fine growthy type, guaranteed right in every way. They are from high producing A. R. O. ancestors. Dam's records up to 30 lbs. Write for pedigrees and quotations, stating about age desired.

TRAVERSE CITY STATE HOSPITAL
Traverse City, Mich.

\$100 EACH

Bull calves ready for service. Grandsons of King of the Pontiacs. From dams with A. R. O. Records of 27 to 29 lbs. for seven days—Federal Tested.

J. B. JONES FARMS
Romeo, Mich.

Holstein Friesian heifer and bull calves, purebred registered and high-grade. Price \$20 up. Splendid individuals and breeding. Write us your requirements. Brownroft Farms, McGraw, N. Y.

Registered Holstein Bull

born Nov. 2, 1919. Dam at 8 yr. 22, 920 milk, 895 lb. butter; at 7 yr. 305 days 16,281 milk, 654 lbs. butter. She has three A. R. O. daughters, one above 25 lbs. in 7 da. 99 in 30 days. He is sired by a 24 lb. grandson of Colantha Johanna Lad. Also three heifers 2 yr. old, one fresh heifer calf by side. Other two due in May. Bred to sire above. State and Federal full accredited herd. Priced for quick sale. Pedigrees and photo on request. **VERNON E. CLOUGH, R2, Parma, Mich.**

Whitney Farms Holsteins

We are offering our herd sire, Wallana Forbes Colantha, a good grandson of Colantha Johanna Champion. An excellent individual and prepotent sire. Also offer several bull calves of good type from high producing dams. Priced to sell. Fully accredited herd. **WHITNEY FARMS, Whitney, Mich.**

For Sale King Segis Breeding

Bulls of show type that are out of A. R. O. Dams.

Grand River Stock Farms

Cory J. Spencer, 111 E. Main St.
JACKSON, MICHIGAN

32 Lb. Bull, \$150

Pure bred, registered, federally tested. Dam, a daughter of King Segis Pontiac, 37 lbs. of milk, good individual, mostly white, 1 yrs. old. Guaranteed healthy and breeder. Priced to sell quickly. Pedigree on request. **ALBERT G. WADE, White Pigeon, Michigan.**

BARGAIN PRICES

for three young pure bred Holstein bulls, whose dams all have high milk and butter records. Send for pedigrees and prices. **JOSEPH H. BREWER, Grand Rapids, Mich.**

Registered Holsteins for sale at all time both sexes best of breeding and priced right. Our herd sire a 26 lb. grandson of Maplecrest Korndyke Hengerveld. Herd under state and federal supervision. **HENRY S. ROHLFS, R. 1, Akron, Mich.**

\$75.00 Buys A yearling bull ready for light service. The six nearest dams of sire average 33.34 lbs. butter for 7 days. Dam has 18.35 lb. record made at three years old. **OSCAR WALLIN, Unionville, Mich.**

810 lb. butter 20190 lb. milk largest Jr. 3 yr. semi-official record made in Wayne Co. For yearly production get a Hazel-let daughter of Maple Crest Korn. Heng. M. S. McLAULIN, Redford, Mich.

250 Money-Making HEREFORDS

At St. Clair, for sale and ready for immediate delivery.

50 Registered Cows and their 50 Sucking Calves

Registered 75 Bred Heifers—Registered 25 Yearling Heifers—Registered 50 Grade Cows Unregistered and their 50 Sucking Calves 10 Extra Good Bulls, various ages.

Our Detroit Packing Co. Hereford Baby Beef Contract and the Southern Hereford Auction System guarantees our customers profitable cash outlet for all increase and we can help finance responsible purchasers. Come, wire or write, right now.

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[Cattle Business Established 1835]
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Repeaters, Beau Donalds, Fairfaxes, and Farmers represented in our herd. Repeater 173rd, a son of old Repeater, at head of herd. Both sexes and all ages for sale.

ALLEN BROS.,
(Farm at Paw Paw, Mich.)
Office 616 So. West St., Kalamazoo, Mich.

HEREFORDS for sale. A few extra good fall calves for sale. **RALPH CALHOON, Bronson, Mich.**

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Bred sows and gilts, boar pigs. Jersey bulls from tested dams. Tuberculin tested. Come to the farm or write for prices.

BROOKWATER FARM, Ann Arbor, Michigan
H. W. Mumford, Owner, J. B. Andrews, Lessor.

Jersey Thoroughbreds

Few cows and bull calves. Best breeding line. Guaranteed. Tuberculin tested twice a year. If you have no money will take bankable note. **E. W. VASARY, 509 Free Press Building, Detroit, Mich., Main 1267.**

JERSEY BULLS nearly ready for service. **Spermiel Owl breeding. Herd tuberculin tested. FRED L. BODIMER, Reese, Mich.**

BUTTER BRED JERSEY BULLS FOR SALE **CRYSTAL SPRING STOCK FARM, Silver Creek, Allegan County, Michigan.**

For Sale Jersey Bulls ready for service; Lad, Majesty breeding. **WATERMAN & WATERMAN, Packard Rd., Ann Arbor, Mich.**

Lillie Farmstead Jerseys. For sale, 12 heifers bred to freshen this fall, 6 bull calves, 8 to 9 mo. old. **Colon C. Lillie, Coopersville, Mich.**

Milking Shorthorns Bull calves for sale. Also 2 cows. **ROSEMARY FARMS, Williamston, Mich.**

Central Mich. Shorthorn Breeders' Assn. offer for sale both milk and beef breeding, all ages. Write **M. E. MILLER, Sec'y, Greenville, Mich.**

FRANCISCO FARM SHORTHORNS

FEDERAL ACCREDITED HERD

One red Scotch bull ready for service. Two bull calves ten months old. Poland-China weanling pigs ready to ship. **P. P. POPE, Mt. Pleasant, Mich.**

The Maple's Shorthorns

Kirk Levington Lad, by imported Hartforth Welfare, in service. Bulls and heifers for sale.

J. V. Wise, Gobleville, Mich.

Stock Farming

VITAMINES IN MEAT.

SCIENTISTS now tell us that vitamins also exist in the muscle fiber of beef, veal, mutton, lamb and pork. The latter meat is said to be particularly well supplied with these vitamins.

Various cuts of the different kinds of meats were fed to rats and pigeons. In every instance pork was found to be relatively rich in vitamin content. It was fed in the form of pork tenderloin, fresh ham, smoked ham and pressed boiled ham. The results were much the same in each instance. In lamb, the amounts varied greatly, while beef and veal showed a relatively lower content.

In considering this evidence the reader should not be led to the conclusion that certain meats are low in nutritive value because they may be deficient in vitamins. Even though none was found in meats they would still have the distinction of ranking among our most important foods.

WHY PIGS DIE.

ONE of the chief reasons given for the heavy loss of spring pigs during March and April is the ration which the sows had been supplied during the winter. Corn was cheap and protein feeds were comparatively high. The result was that farmers naturally fed little muscle and bone-building material in the rations. Fat sows usually farrow weak and improperly nourished pigs.

DIPPING THE LAMBS.

THE presence of ticks on lambs and sheep often cause much annoyance and occasionally result in stunted growth, and even a loss in bodily weight. These ticks can be easily discovered by parting the wool.

The insect is killed by dipping. One dipping will kill all the living ticks, but the eggs then on the sheep will hatch when a second dipping is necessary. This should be given about ten days after the first one is made.

There are a number of standard dips on the market, any of which are good. Directions are always given on the package and these should be followed closely. Where many sheep are being dipped a tank should be provided. This will save much time. In case only a few are treated, a barrel or tub can be employed. The water should be heated slightly and the mixture thoroughly stirred into the water before using. The bottom of the tank or barrel should be kept well agitated. Hold the sheep in the mixture for one or two minutes before removing. The work should be done on a warm day, preferably right after the sheep have been shorn.

KEEP THE LAMBS GROWING.

IT is an excellent practice to have growing some palatable forage near the regular sheep pasture for the lambs to feed upon while they are still suckling the ewes. If the forage crop is sown in an adjoining lot, a small opening can be made through the fence so that the lambs have access to the supplemental feed. They will soon learn the trick of running to the forage feed and in this way will stimulate flesh and bone growth. Rape is an excellent forage for this purpose. New clover is splendid. I like the rape because it can be sown at any time and comes on very rapidly.

A regular grain ration materially as-

sists in balancing up the green forage. A grain ration composed of equal parts by measure of coarsely cracked corn, oats and wheat bran make an excellent feed. The lambs may be supplied with a light ration twice daily before weaning. Place it in a low trough, either in a small pen adjoining the pasture or at the barn.—L. C. Reynolds.

THE HEAVY VS. THE LIGHT HOG.

WHILE there are but three months of the year, November, December and January when the heavy 300-pound and heavier hog enjoys any prestige over his lighter rival of 180 to 225-pound rival in regard to price. During those months they sell around ten to twenty cents per hundred above the lighter variety. The remaining nine months the heavy hog suffers a serious jolt, dropping from five to sixty-five cents below. It would appear that he was losing favor, too, as feeders are learning that it requires more corn to produce the third hundred than either of the first two.

I considered the method followed by my father an ideal one. Our hogs were farrowed in April. They run at large in the orchard, where they grew rangy upon the roughage that they were able to salvage for themselves. Weaning them in season they reached the fattening age at corn husking time.

It was my father's practice to husk corn by hand. In unloading at the cribs we always sorted the corn by hand, throwing the large sound ears in the crib, laying out the very choice ears for seed then driving over to the hoghouse we scooped the soft and nubby corn overhead to be fed to the hogs.

While this method consumes a little extra time, it fills the cribs with sound, uniform ears, free from silk or husks to be ground into feed during the winter months.

Before the low grade corn had been consumed and when the husky porkers had reached a weight of approximately 200 pounds, they were loaded into the wagons, taken to the depot and shipped. Of all farming operations, that resembled the finding of buried treasure more than anything else.

We feed the remainder of the soft corn to the sows and when that is gone draw upon the crib corn for the remainder of the winter and spring.—G. Everitt.

WATCH THE STAVE SILO.

AS the hot dry days of summer approach, the farmer who has a wood stave silo should give it special attention. The staves will dry out considerably when the silo is empty. This allows the hoops to become loose, and thereby weakens the structure. The hoops should be tightened in the absence of other supports to the staves. The tightening of these hoops keeps the staves firm and rigid. Such attention may prevent the silo from being blown down or twisted out of shape.

RIDING TO SAFE FARMING.

THROUGHOUT the west there is a general campaign on to bring about a change in farming methods. The leaders hope to take their followers to a more prosperous type of farming with a tandem team consisting of a cow, a sow and a hen. Without doubt these leaders are safe to follow and their program is sound.

Gombault's Caustic Balsam

The Standard Remedy

Human and Veterinary

As a veterinary remedy its curative qualities have been acknowledged for many years in cases of Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Spavin, Ringbone and other bony tumors.

A Perfect Antiseptic

Soothing and Healing

For treatment of Rheumatism, Sprains, Neuralgia, Lumbago, Sore Throat, Stiff Joints, Cuts and Bruises it is invaluable. \$1.50 per bottle at druggists, or sent by parcel post on receipt of price.

The Lawrence-Williams Co., Cleveland, O.

You Can Make Money Milling Flour

One of the best paying and most dignified businesses you can get in, or put your boy in now, is flour milling. On a comparatively small investment, and without any previous milling experience you can own and run the wonderful "Midget" Marvel Mill and make good money from the start.

"Midget" Marvel

Self-Contained Roller Flour Mill

Saves the high freight on wheat out and flour and feed in. The first eight months I made a net profit of over \$8000," says A. H. Ling, Jetmore, Kan. "My profits from the "Midget" Marvel average right around \$40 per day," says M. McKinney, Cooper, Tex. "Was \$6000 in debt when I bought my 25 barrel "Midget," and the little mill pulled me clean out of the hole long before I bought my 40 barrel mill from you," says M. A. Kamm, Oxford, Mich.

Capacities: 15, 25, 50 and 100 barrels of as fine roller patent flour a day as any mill can make. Write for free book, "The Story of a Wonderful Flour Mill," trial offer, terms, etc.

Anglo-American Mill Company, Inc.

2180-2186 Trust Building, Owensboro, Ky.

CAPITAL BRAND PAINTS

No better paint made. Compare our formula with any other.

OUTSIDE WHITE

- 75% Pure White Lead
- 20% Pure Zinc Oxide
- 5% Magnesia Silicate
- 90% Pure Refined Linseed Oil
- 10% Cooked Oil and Shelac Drier.

OUTSIDE COLORS

- 70% Pure White Lead
- 20% Pure Zinc Oxide
- 10% Ground Colors
- 90% Pure Raw Linseed Oil
- 10% Cooked Oil and Shelac Drier.

We guarantee our paint. Write for prices and free color card. Agents wanted. Excellent proposition in unoccupied Territory.

Consumers Paint Co.

1600 Herbert St.
LANSING, MICH

SELDOM SEE

a big knee like this, but your horse may have a bunch or bruise on his ankle, hock, stifle, knee or throat.

ABSORBINE

TRADE MARK REG. U.S. PAT. OFF.

will clean it off without laying up the horse. No blister, no hair gone. Concentrated—only a few drops required at an application. \$2.50 per bottle delivered. Describe your case for special instructions, and Book 8 R free. ABSORBINE, JR., the anti-septic liniment for mankind, reduces Painful Swellings, Enlarged Glands, Wens, Bruises, Varicose Veins, allays Pain and Inflammation. Price \$1.25 a bottle at druggists or delivered. Liberal trial bottle postpaid for 10c. W. F. YOUNG, INC., 268 Temple St., Springfield, Mass.



Please Mention The Michigan Farmer
When Writing to Advertisers

Veterinary.

CONDUCTED BY DR. W. C. FAIR.

Advice through this column is given free to our subscribers. Letters should state fully the history and symptoms of each case and give name and address of the writer. Initials only are published. When a reply by mail is requested the service becomes private practice and \$1 must be enclosed.

Indigestion.—My cow is inclined to bloat; after each attack she gives less milk. I feed her grain and grass. O. W. L., Lansing, Mich.—Give her a tablespoonful of powdered gentian and two tablespoonfuls of powdered wood charcoal in feed twice a day. Stable her when the grass is wet.

Cow Leaks Milk.—I have a fine large cow that leaks milk badly. She gives very rich milk, so I do not like to lose her. She leaked milk when nearly dry. What shall I do? L. J. LaB., Wolverine, Mich.—Milk her three times daily, or use teat plugs, or dry end of teats and apply flexible colloid each time after milking.

Acute Indigestion—Bloat.—I am anxious to know what ails my cow. She frequently bloats, bloat continues from one hour to several hours, but after she purges bloat goes down. She is in same pasture all the time. A. C., Hardwood, Mich.—Stable her part of the time, feed some dry feed and she will eat less grass and perhaps not bloat. She eats too much grass.

Infected Stifle Joint.—Colt six weeks old has stifle joint trouble. Local veterinary prescribed liniment, and he thought joint was inflamed. Also what had I better feed young turkeys? D. H. R., Linwood, Mich.—Apply one part tincture of iodine and two parts camphorated oil to stifle three times week. Doubtless you have a case of bacterial navel infection and colt will be slow in getting well. Feed some corn, wheat, oats, and milk and let them run on grass.

Congestion of the Liver.—My hens don't seem to be sick very long, but some of them die very suddenly. The combs retain their reddish appearance. I opened one, her liver was very large, soft, and the color of blood. M. McC., Charlotte, Mich.—Doubtless the cause of death is due to an active congestion of the liver, followed by acute inflammation of the liver and death. The ailment is usually incurable, but less feed and more exercise will perhaps prevent other birds taking it.

Warbles—Blind Teat.—Is there any cure for little round bunches on the backs of cattle? If so, I would like to know the best treatment. I have a five-year-old that came fresh last March, while calf sucked her she went dry in one teat. J. K., Whittaker, Mich.—Restrain the animal, place a pint or pop bottle upside down over bunch, apply pressure, downward, then the grub will pop into bottle, kill the grub for, if not, it will grow and develop into the warble-fly and produce more of its kind. The teat will remain blocked.

Pericarditis.—Recently we killed a rooster which seemed to be in perfect health, was quite fat. When I had about finished cutting it up I discovered a sack around the heart, filled with yellow fluid and some substance much like the yolk of an egg. What ailed the rooster? M. H., Olivet, Mich.—Your rooster suffered from an inflammation of the pericardium, or heart sack; there is often an effusion about the heart, called dropsy of the heart. Treatment is unsatisfactory; numerous cases may occur in the same flock, but it is almost impossible to make a correct diagnosis during life.

Collar Galls—Horse Collars.—Kindly inform me how to treat and cure collar galls and sore shoulders. When horse loses flesh from hard work and the neck decreases in size, is it wise to use pads to make the collar fit properly? G. L. S., Birch Run, Mich.—First apply hydrogen peroxide to remove the pus. Dissolve quarter pound of acetate of lead, three ounces of sulphate of zinc, half-ounce of alum, in one gallon of cold water and apply to sore shoulders three times a day. I have always preferred a nice fitting leather-faced collar and if possible get along without sweat pads, but remember, the collar should fit, must not be too large or too small, and if pads are used, fewer different sized collars will be needed. I have thought it paid to have two pads for each collar, they can be kept dry and clean.

The bigger they are, the harder they fall. Get weeds when they're young.

CATTLE

Clayton Unit Shorthorn Breeders' Assn. Scotch, Scotch Top and Milking Shorthorns for sale all ages. W. J. Hinkley, Sec'y, Flushing, Mich.

Shorthorns for sale. White and Roan bulls by imported sires or from imported dam. J. A. BARNUM, Union City, Mich.

BIDWELL SHORTHORNS

that will put weight on your dairy calves—the difference will soon pay for the bull. Now selling good Scotch and Scotch-topped yearlings, reasonably priced. We guarantee every animal to be a breeder. Federal Test. One hour from Toledo, Ohio, N. Y. C. B. R.

BIDWELL STOCK FARM,
Box D, Tecumseh, Michigan

Fairacres Stock Farm
One light roan, two year old, Shorthorn bull for sale at reasonable price. Fine animal. Write George W. Miller, 1639 First National Bank Bldg., Chicago.

FOR SALE

Polled Shorthorn Cows & Heifers in calf and calf by side. Also a few young bulls. Herd headed by Victor Sultan and Royal Nonpareil. We can please you in richly bred cattle with quality at farmers' prices.
GEO. E. BURDICK, Mgr.
Branch County Farm, Coldwater, Mich.

RICHLAND SHORTHORNS

We are offering two splendid white yearling bulls by Imp. Newton Champion and a few extra good heifers and young cows at very attractive prices. For full particulars write to

C. H. PRESCOTT & SON,
Herd at Prescott, Mich.
Office at Tawas City, Mich.

Claradale Milking Shorthorns
We invite the discriminating breeder and farmer, who is in need of a real bull, that will transmit the combine qualities, beef, milk, high in butter fat, type, character, beauty. We do state official milk testing. Come and see us or write for circulars and reasonable prices. F. W. Johnson, Custer, Mich., Mason Co. Box 26

Milking Shorthorns of best Bates breeding, bulls, cows and heifers for sale.
E. H. KURTZ, Mason, Mich.

Don't you want a good Shorthorn, priced in keeping with the times?
ROBERT MARTIN, R. 3, Woodland, Mich.

For Sale Purebred Shorthorns, two cows, two heifers and two bulls, all good ones.
J. A. Batchelor, R. 3, Howell, Mich.

Registered Brown Swiss 1 bull ready for breeding. service best of breed.
H. J. CURE, Sunfield, Mich.

HOGS

BERKSHIRE SOWS bred for fall farrowing. priced reasonable. B. B. Reavey, Akron, Mich.



Spring pigs by Walt's Orion, First Sr. Yearling Detroit, Jackson, Gd. Rapids and Saginaw 1919
Phillips Bros, Riga, Mich.

Sows & Gilts

bred for July, Aug. and Sept. farrow for sale at reasonable prices. Also a few high class spring and fall boars ready for service and one 2 yrs. old boar, a grandson of Panama Special, at a bargain if you can use him. We guarantee satisfaction. Write for prices and description or better come and see them. Visitors always welcome. Sows bred for spring farrow all sold.
Thos. Underhill & Son, Salem, Mich.

Collinsdale Duroc Farm, Lyons, Mich., P. 1.
Greatest Blood Lines in Duroc Hogs

Herd Boars by Great Orion Sensation, Pathfinder, Duration and Great Wonder I Am. Now have for sale three yearling boars by Wolverine Sensation. For sale at all times, sows, gilts or boars registered. Sold under a positive guarantee and worth the money. Write for prices.
L. A. BURHANS, OWNER

AM SELLING

a great offering of bred Duroc sows and gilts March 4th. They are mostly bred to Orion Giant Col., son of Ohio Grand Champion. Get on mailing list for catalog.
W. C. TAYLOR, Milan, Mich.

Woodlawn Farm Duroc Hogs
A well kept herd, best of blood lines, with size and breeding qualities, stock of all ages for sale at reasonable prices.
W. E. BARTLEY, Alma, Mich.

Michigana Farm Durocs

Boars, open and bred sows and spring pigs. Satisfaction guaranteed.
MICHIGANA FARM, Pavilion, Mich.

Pure-Bred Duroc Jersey Hogs: we usually have good boars and sows of all ages for sale. Reasonable prices. Larro Research Farm, Box A, North End, Detroit, Mich.

DUROC JERSEYS: A few choice bred gilts for sale.
CAREY U. EDMONDS, Hastings, Mich.

Duroc Jerseys heavy boned, low down type breeding stock for sale.
CHAS. BRAY, Okemos, Mich.

Westvie v Duroc Bred Sows all sold. Have two spring boars left at a reasonable price. Will book orders for April & May Pigs.
ALBERT EBERSOLE, Plymouth, Mich.

Duroc Jersey Bred sows and gilts bred for Aug. and Sept. farrow. A few choice ready for service boars. Shipped on approval. Satisfaction guaranteed.
F. J. DRODT, R. 1, Monroe, Mich.

Oakwood Farm offers choice gilts of Orion Cherry King and Walt's Top Col. breeding bred to Pathfinder Orion for Aug. and Sept. farrow.
RUSH BROS., Romeo, Mich.

DUROC-JERSEYS Do you want a good Pathfinder boar pig?
E. D. HEYDENBERG, Wayland, Mich.

Here we are with a nice bunch of Duroc Pigs the big boned kind \$10.00 each with pedigree.
F. A. LAMB & SON, Cassopolis, Mich.

DUROC JERSEYS—Gilts bred for August. Matt Matthysse, Oulterville, P. O. Byron Center, Mich.

BIG TYPE CHESTER WHITES

The prize winner kind from the best prize winner bloodlines. Early developers, ready for market at six months old. I have started more breeders on the road to success than any man living. I want to place one hog in each community to advertise my herd. Write for agency and my plan.
G. S. BENJAMIN, R. F. D. 10, Portland, Mich.

O. I. C. and Chester White's. Strictly big type with quality. I have nothing to offer at present, as I have sold my largest herd and entire herd I was fitting for the large shows, to Earle Morrish, of Flint, Mich. I am confident Mr. Morrish, now has one of the very best herds in the State.
ALBERT NEWMAN, R. 4, Mariette, Mich.

O. I. C. December Gilts From Big Type Wonder's Dick. Bred to farrow in Oct. by Silver Horde, extra good young boar direct from Silver's. Bookings orders for spring pigs.
CHAS. H. STEEL, R. 3, Eaton Rapids, Mich.

Big Type Chester White March boars. Sired by Model's Giant and Hill's Big Buster. Out of granddaughters of Alfalfa Wonder.
LUCIAN HILL, Tekonsha, Mich.

CHESTER WHITES Start right with a Boar Pig from MONSTER No. 10735. They are hard to beat.
FRED L. BODIMER, Reese, Mich.

Chesters We are sold out of Boars. Bred sows and gilts. For immediate shipment of spring pigs, write WEBER BROS., Royal Oak, Mich., 10 mi. and Ridge Rds., Phone 408.

O. I. C. fall gilts ready to breed. Orders booked for spring pigs. Write or call and see our herd. We ship C. O. D. and Register free.
GEO. M. WELTON & SON, Middleville, Mich.

O. I. C. Gilts to farrow in Aug. and Sept. and March boar pigs.
CLOVERLEAF STOCK FARM, Monroe, Mich.

O. I. C. Bred gilts all sold. Orders booked for spring pigs.
A. J. BARKER & SON, Belmont, Mich.

O. I. C. Bred sows all sold. Booking orders for spring pigs.
H. W. MANN, Danville, Mich.

O. I. C. pigs at very reasonable prices for June and July shipment.
C. J. THOMPSON, Rockford, Mich.

O. I. C'S. last fall gilts due Aug. and Sept. Spring pigs not akin. Big Type. 1-2 mile west of Depot. Citizen Phone.
OTTO B. SCHULZE, Nashville, Mich.

L. T. P. C. Boars ready for service also gilts. They are right, so is the price. Nuf sed.
M. M. PATRICK, Grand Lodge, Mich.

L. T. P. C. Fall Boars

at bargain prices, Fall gilts open or with breeding privilege. Write or see them.
A. A. FELDKAMP, R. 2, Manchester, Mich.

Big Type Poland China Spring boars at \$15 each. Sired by Clansman Buster and Hovers Liberator. Also gilts bred for Sept. farrow at \$40 each. All stock shipped on approval. Come and see them or write.
DORUS HOVELL, Akron, Mich.

For 30 years we have been breeding Big Type Poland China hogs on the same farm. We have sold over 100 head each year for the last 15 years for breeding purposes. There's a reason! The farmer has found our kind very profitable. We now offer 25 sows and gilts bred for summer farrow \$30-\$50.
JNO. C. BUTLER, Portland, Mich.

L. T. P. C. Gilts bred for Spring litters all mer Gilts bred for June and July litters also Fall Boars and Spring Pigs. Clyde Fisher, R. 3, St. Louis, Mich.

L.T.P.C. \$15, \$20 & \$25

Spring pigs with real breeding at the above prices. We are also offering a few choice fall gilts bred for summer farrow. Hart & Cline. Address F. T. HART, St. Louis, Mich.

Large Type P. C.

Largest herd of individuals in state. Everything sold. Nothing to offer until spring pigs are ready to ship. I thank you.
W. E. LIVINGSTON, Parma, Mich.

Big Type Polands We have a fine bunch of spring pigs representing the best blood lines and all cholera immune. We raise them to sell. If in need of a real herd boar prospect, come over. Visitors are always welcome.
WESLEY HILL, Ionia, Mich.

Big Type P. C. some very choice boars double immune, out 1100 lb. sire and mammoth sows from Iowa's greatest herds. E. J. Mathewson, Burr Oak, Mich.

Large Strain P. C. nothing more for sale. H. O. SWARTZ, Schoolcraft, Mich.

Big Type P. C. Boar pigs that can't be beat in Mich. Sired by Big Bob Mastodon and Peter A. Pan, 50 head to pick from. C. E. Garnant, Eaton Rapids, Mich.

BIG TYPE Poland Chinas, leading strains at lowest prices. Both sex, all ages, and bred sows and gilts.
G. A. BAUMGARDNER, R. 2, Middleville, Mich.

LEONARD'S B. T. P. C. Herd headed by Leonard's Liberator. Orders booked for boar pigs at weaning time. Call or write E. R. LEONARD, St. Louis, Mich.

P. C. Swine. Sows and pigs, sows bred for Aug. and Sept. farrow, spring and fall boars, best of breeding, satisfaction guaranteed. R. W. Mills, Saline, Mich.

Hampshires book your order for spring boar pigs now. A few gilts, now ready for summer farrow.
JOHN W. SYNDER, R. 4, St. Johns, Mich.

SHEEP

Shropshires

that will win at the State Fairs. I have them for sale. A big bunch of yearling rams as usual and priced reasonably.
KOPE-KON FARMS,
S. L. Wing, Prop., Coldwater, Mich.

LATEST MARKET REPORTS

GRAIN QUOTATIONS

Wheat.

Detroit.—Cash No. 2 red at \$1.19; No. 2 mixed and No. 2 white \$1.17.
Chicago.—No. 2 hard \$1.18; No. 2 mixed \$1.12½; September 1.16½.
Toledo.—Cash \$1.20½; July \$1.18½.

Corn.

Detroit.—Cash No. 2, 67½c; No. 3 yellow 66c.
Chicago.—No. 2 mixed at 64½@64¾c; No. 2 yellow 64½@64¾c.

Oats.

Detroit.—Cash No. 2 white 41½c; No. 3, 39½c.
Chicago.—No. 2 white 38½@42¾c; No. 3 white 36¾@38½c.

Beans.

Detroit.—Immediate and prompt shipment \$9.
New York.—Choice pea beans at \$10.50; common to fair do. \$10@10.25; red kidneys \$9.25.
Chicago.—Michigan choice, hand-picked \$10.50@11; red kidney according to quality \$8.

Rye.

Detroit.—Cash No. 3, 88c.
Chicago.—89c.
Toledo.—89c.

Seeds.

Detroit.—Prime red clover, cash at \$13; alsike \$11.50; timothy \$3.25.
Toledo.—Prime red clover \$13; alsike \$11.75; timothy \$2.85.

Feeds.

Detroit.—Bran at \$25; standard middlings \$26; fine middlings \$30; cracked corn \$29.50@30; coarse corn meal \$27; chop \$24 per ton in 100-lb. sacks.

Hay.

Detroit.—No. 1 light timothy \$20@21; standard and light mixed \$19@20; No. 2 timothy \$18@19; No. 1 clover \$15@16; rye straw at \$14@14.50; wheat and oat straw \$13@13.50 per ton in carlots.

WHEAT

Tentative estimates of the reserves of old crop wheat above the domestic needs on July 1 in the United States, Canada, Argentine and Australia, the four countries which have furnished most of the wheat for export in the last several years, indicate total holdings of about 125,000,000 bushels, compared with an average of 145,000,000 bushels. Besides these four countries India also has a surplus of 55,000,000 bushels for export if her home needs are no greater than the average. But her preceding crop was so far below domestic requirements that invisible supplies undoubtedly were depleted and replenishment of these will cut down the quantity for export. Threshing is now fairly general in the southern part of the American belt and nearly all reports tell the same story of disappointing returns. On the other hand, spring wheat is improving.

RYE

Besides a heavy carryover of old rye the new crop appears to be about 20 per cent larger than that of last year. The European acreage also is comparatively large. The harvest of the new crop in the northwest will begin in another week or two. Owing to the greater abundance of rye as compared with wheat it is selling at a wider discount than its value for bread justifies. Unsettled political conditions in Germany are interfering with foreign outlets.

OATS

Although the oats crop is fairly good in some sections, most reports are unfavorable from Illinois, Iowa, Nebraska, Missouri, Ohio and Indiana. Private reports show a loss of about 100,000,000 bushels during June. Oats prices have responded to some extent to the poor outlook but demand is not exceptional.

CORN

The corn crop prospect appears to be slightly less than the initial estimates last year. Private estimates average about 2,800,000,000 bushels, as compared with 3,080,000,000 harvested in 1921. Exporters have been buying a good deal of corn recently and prices have been stronger than for other grains.

FEEDS

Offerings of wheat feeds are comparatively light, especially from the

northwest, but the demand is quiet and prices are unchanged. The cottonseed meal market is quoted lower in the east. Quotations on corn feeds and linseed meal are largely nominal as but little is being sold.

HAY

Only timothy hay is selling to good advantage at present. Pastures have become dry in a few sections but thus far demand for alfalfa and clover hay has been limited. Receipts of low grades remain heavy. Unless the dry area spreads the trend is likely to be slightly downward until the movement of new hay has been fully discounted.

BUTTER

The butter market reacted moderately from the extreme levels reached a week ago when the order for low grades for export was being filled. Receipts are falling off in spite of the attraction of relatively high prices confirming the general belief that the peak of the flush period has been passed. The supply is enough heavier than last year, however, to cut down steadily the shortage in cold storage holdings compared with a year ago. Prices on 92-score fresh butter on July 1 were: Chicago 36c; New York 38½c; Boston 38c; Philadelphia 38½c; Detroit 34@34½c.

CHEESE

Further advances were made in cheese prices last week due to the strength in country markets which have been setting the pace for the last month. Storage operators appear to have given up hope of being able to buy at lower levels and are purchasing rather freely. Storage holdings at the four leading cities are slightly less, while receipts are running about equal to the average for this season during

the three preceding years. The demand for white cheese has improved and small premiums have been paid recently on twins and daisies over colored cheese.

WOOL

Wool manufacturers appear to be playing a waiting game in the hope that the permanent tariff will be enacted in the next few months. Sentiment shows some revulsion against extremely high duties and this may show up in the tariff schedule. There are about 86,000,000 pounds of foreign wool in bond at eastern ports which will be available as soon as the tariff is settled. Wool prices have receded slightly but growers are resisting the decline so that only small sales to dealers have been made at country points in the last two weeks. There is a keen demand for fine wools in foreign markets but cross-breeds are not moving so easily. About 35 per cent of the stocks of Merino wools in Australia were disposed of in the first quarter of the calendar year, whereas only 10 per cent of the coarser grades were sold in the same period. In spite of the advance in prices, cloth markets are in good shape. Demand for worsteds especially has increased.

POTATOES

Potato prices declined last week and the trend still appears to be downward. Receipts are slightly above the average for this time of the year and a relatively heavy supply looks probable right along. Old potatoes now compose only about 10 per cent of arrivals. New stock is coming from states as far north as Kansas. Bliss Triumphs No. 1 are quoted at \$2.50@2.80 per 100 pounds sacked, with Irish Cobbler at \$3.90@4.75 per barrel in middlewestern consuming markets.

POULTRY AND EGGS

The egg market has become fairly stable again after the recent decline. Receipts at the leading cities have decreased 35 per cent or more from the high point of the season late in April and early in May but there is still a surplus to be placed in storage, and such accumulations generally continue until August. Cool weather will help to maintain production during the summer but under the most favorable conditions the supply is sure to decrease in the next sixty days and prices on fresh eggs should take an upward trend before long. Whether they will advance enough to make the season a profitable one for cold storage operators is another matter. Receipts of dressed poultry at the four leading markets since January 1 amount to 90,669,188 pounds compared with 78,665,643 pounds to the same date last year. Current arrivals are not sufficient to supply the entire demand, however, and cold storage holdings are being reduced.

Chicago.—Eggs, fresh firsts 21½@22c; ordinary firsts 20@20½c. Live poultry, hens 21c; broilers 26@35c; roosters 14½c; ducks 20@23c; geese 12@23c; turkeys 25c.

Detroit.—Eggs fresh candied and graded 23@23½c. Live poultry, broilers 42c; heavy hens 24c; light hens 22c; roosters 15c; geese 13c; ducks 20@22c; turkeys 30c.

BEANS

Prices for beans are largely nominal and changes in quotations sent out do not indicate any wide change in the situation. The market is in sellers' hands and the small holdings are held confidently. The new crop is coming good in Michigan, recent rains insuring a good start for the plant over a very large portion, at least, of the regular bean district. However, it will require a big crop to fill up the channels in the trade and take care of the wider demand that is developing for the Michigan product. Consumers are learning that the highest quality of navy bean is grown in this state.

GRAND RAPIDS

Many Grand Rapids folks were able to eat Michigan sweet corn and new potatoes on the Fourth of July this year as a result of small lots of corn and fair-sized loads of potatoes coming on the Grand Rapids markets late last week and early this week. New potatoes started at \$2.25@2.75 a bushel, but fell to \$1.80@2 when competition from southern-grown had a bearish effect on prices. Corn sold at 50c per dozen ears. Vegetables in general were lower, old potatoes sagging from \$1.40 a bushel to \$1; wax beans from \$5 a bushel to \$2; pears from \$4.50 to \$3; celery from 50c a bunch to 35 and 40c; hothouse tomatoes from \$1.40 to 90c@1 a seven-pound basket; carrots 20@25c a bunch; beets 30c a bunch; turnips 40c a bunch; cauliflower \$1.50@2 flat; asparagus \$1.50 per dozen bunches. Grains were steady with the movement of the new crop of wheat and oats expected next week. Live stock was mainly steady, with the movement of grasser cattle tending to weaken bidding locally. The markets were fairly steady on fruits. Sour cherries held at \$1.50 a case and the sweets had a range of \$2@3 a case. Red raspberries moved none too brisk at \$3.75@4 a case of 16 quarts, but blacks were steady at \$2.50@2.75. Other fruits were: Huckleberries \$3.50; gooseberries \$1.75; currants \$2; tag ends of strawberries \$2@3.50 a case. Eggs 19@20c. Poultry, fowls 18@22c; Leghorn broilers 22c lb; Rock and Red broilers 30@32c; ducklings 25c, but dealers would rather not buy ducks until later in the month.

FEEDER STEERS TRENDING LOWER.

July frequently is the month of lowest prices on stocker and feeder steers. Whether it will prove to be the low point this year cannot be told in advance but it seems doubtful. Those who have good pastures available may be able to pick up some snaps soon but there will be opportunity for wider selection when the range movement reaches flood tide.

Live Stock Market Service

Wednesday, July 5.

DETROIT

Cattle.

Receipts 571. Market opened slow, closed more active and steady.
Best heavy str., dry-fed.. \$ 8.50@ 9.00
Handyweight bu., dry-fed.. 8.00@ 9.00
Mixed str., hfrs., dry-fed 7.00@ 8.00
Handy light bu., dry-fed.. 6.50@ 7.00
Light butchers .. 5.00@ 6.00
Best cows .. 5.00@ 6.00
Butcher cows .. 3.50@ 4.00
Common cows .. 3.25@ 3.50
Canners .. 2.50@ 3.00
Choice light bulls, dry-fed 5.00@ 5.75
Bologna bulls .. 4.50@ 4.75
Bologna bulls .. 4.00@ 4.75
Stock bulls .. 3.50@ 4.00
Feeders .. 6.00@ 7.00
Stockers .. 5.00@ 6.00
Milkers and springers... \$ 40@ 70

Veal Calves.

Receipts 710. Market opened steady but closing 50c lower.
Best .. \$ 9.00@10.00
Culls and common .. 5.00@ 8.00

Hogs.

Receipts 1,213. Market 10c higher.
Mixed hogs and pigs... \$ 11.10
Roughs .. 8.50
Extreme heavies .. 9.50@10.25
Stags .. 5.50@ 5.75

Sheep and Lambs.

Receipts 334. Market steady on the good grades; common very dull.
Best spring lambs .. \$13.00@13.50
Fair spring lambs .. 10.00@12.00
Light to common .. 7.00@10.00
Fair to good sheep .. 5.00@ 6.00
Culls and common .. 1.00@ 2.00
Yearlings .. 5.00@10.00
Heavy sheep .. 3.00@ 3.50

CHICAGO

Hogs.

Estimated receipts today are 25,000; holdover 13,256. Market steady to 5c higher on better grades; others weak to 10c lower. Bulk of sales \$9.35@10.85; tops \$10.90; heavy 250 lbs up \$10.40@10.65; medium 200 to 250 lbs \$10.55@10.85; light 150 to 200 lbs at \$10.80@10.85; light lights 130 to 150 lbs \$10.25@10.75; heavy packing sows 250 lbs up \$9@9.50; packing sows 200 lbs up \$8.65@9.10; pigs 130 lbs down \$9.25@10.30.

Cattle.

Estimated receipts today are 13,000. Market steady to strong. Beef steers medium and heavyweight 1100 lbs up \$9.80@10.25; do med. good \$8.35@9.80; do common \$7.25@8.35; light weight 1100 lbs down \$9.10@9.85; do common and medium \$7@9.10; butcher cattle heifers \$5.50@8.75; cows at \$4@7.75; bulls bologna and beef at \$4.40@6.75; canners and cutters cows and heifers \$2.75@4; do canner steers \$3.50@5; veal calves light and handyweight at \$7.50@9; feeder steers at \$5.65@7.75; stocker steers at \$4.75@7.65; stocker cows and heifers \$3.25@5.75.

Sheep and Lambs.

Estimated receipts today are 8,000. Market mostly 25c higher. Lambs 84 lbs down \$12.50@13.75; do culls and common \$7@12.25; spring lambs \$9@11.75; ewes \$4.50@7.50; ewes cull and common \$1.50@4; breeding ewes full mouths to yearlings \$6@11.25; yearling wethers \$11.50@12.50.

BUFFALO

Cattle.

Receipts 80 cars. Dry-fed 25c higher, others steady; choice to prime shipping steers 1400 lbs and up at \$9.75@10.50; good to choice yearling steers \$9@9.50; light native yearlings, good quality \$9@9.60; best handy steers at \$8.50@9; handy steers and heifers \$8@8.50; western heifers \$7.25@8; light Michigan butchering heifers \$7@7.50; best fat cows \$5.50@6.25; cutters at \$2.75@3.50; canners \$1.50@2.50; best heavy bulls \$4.50@5; heavy bologna bulls \$4@4.50; common bulls \$3.50@4; best feeders \$7@8; medium feeders at \$6.25@6.75; stockers good at \$5.50@6; light common \$4.50@5.50; best milkers and springers \$65@75; mediums \$35@50. Calves, receipts 2,000; tops at \$10.

Hogs.

Receipts 70 cars. Market is strong. Medium and heavy \$11.15@11.25; mixed \$11.25; yorkers and pigs \$11.40@11.50.

Sheep and Lambs.

Receipts 80 cars. Market is strong. Top lambs \$13@13.50; yearlings \$8@10; wethers \$7@7.50; ewes \$4@5.

WITH THE COW-TESTERS.

IN Kalkaska and Antrim counties, Mr. Drake, county agent and extension fieldmen from the Michigan Agricultural College, have effectively gotten together fifty men for two new cow-testing associations. This is further indication that not alone will these counties be known as excellent potato-growing localities, but also that they have efficient economical production of butter-fat. Mr. B. C. Mellemcamp, who is finishing in the agricultural course at M. A. C. this month, will take up the testing work July 1.

Mr. Hans Kardel is the new tester for the Eaton County Cow-testing Association and has just started his work in the association. Eaton county is planning on a second association to begin early this autumn.

Mr. L. Simmons in the South Van Buren Cow-testing Association, has found the value of fall freshening, together with summer grain while the cows are on pasture. He is building up his soil fertility by getting the manure back into the soil and growing alfalfa.

L. D. Leisenring, the tester in Oceana county, accompanied the Jersey Breeders' Association on their Jersey tour. Four Jersey farms now in the Cow-testing Association were visited. Indications are that this association will prove Oceana county one of the leading Jersey sections in the state of Michigan.

Wayne County Cow-testing Association, Mr. Mathiesen testing, has finished its first year's work and is continuing right on to the second year. We are glad to see this interest on the part of members and the satisfactory service being rendered by the tester. It is possible that a second association will be working by autumn.

Prospects in Allegan county point to a "cashing in" on the dairy and alfalfa campaign held last November. Three new cow-testing associations are being planned by Mr. Alfred Bentall, county agricultural agent. Overisel and Fillmore townships are organized for a new association, the Burnips Cooperative Creamery in Salem township is lining up an organization, and the Hopkins Cooperative Creamery at Hopkins is making up the third new association. This is indeed good work and will give Allegan county a total of five cow-testing associations.

Mr. Watkins, manager of the Hopkins Cooperative Creamery, personally saw to it that thirty-five creamery members put in new seedlings of alfalfa this spring. This is just one little incident of the many definite results going on in many different counties where these dairy and alfalfa campaigns were put on during the past winter by the dairy and crops department of M. A. C.

HOT-WEATHER RULES FOR THE HORSES.

1. Load lightly, and drive slowly.
2. Stop in the shade if possible.
3. A sponge on top of the head, or even a cloth, is good if kept wet. If dry it is worse than nothing.
4. Water your horse as often as possible. So long as a horse is working, water in small quantities will not hurt him. But let him drink only a few swallows if he is going to stand still.
5. When he comes in after work, sponge off the harness marks and sweat, his eyes, his nose and mouth, and the dock. Wash his feet but not his legs.
6. If the thermometer is seventy-five degrees or higher, wipe him all over with a damp sponge, using vinegar water if possible. Do not wash the horse at night.
7. Saturday night, give a bran mash, lukewarm; and add a tablespoonful of saltpetre.
8. Watch your horse. If he stops

sweating suddenly, or if he breathes short and quick, or if his ears droop, or if he stands with his legs braced sideways, he is in danger of a heat or sunstroke and needs attention at once.

9. If the horse is overcome by heat, get him into the shade, remove harness and bridle, wash out his mouth, sponge him all over, shower his legs, and give him two ounces of aromatic spirits of ammonia, or two ounces of sweet spirits of nitre, in a pint of water; or give him a pint of coffee warm. Cool his head at once, using cold water, or, if necessary, chopped ice, wrapped in a cloth.

10. If the horse is off his feed, try him with two quarts of oats mixed with bran, and a little water; and add a little salt or sugar. Or give him oatmeal gruel or barley water to drink.

11. Clean your horse at night, so that he can rest well, and clean him thoroughly. The salt dandruff drying on his skin makes him uncomfortable, and often produces sores under the harness.

12. Do not fail to water him at night after he has eaten his hay. If you don't he will be thirsty all night.

13. If it is so hot that the horse sweats in the stable at night, tie him outside, with bedding under him. Unless he cools off during the night, he cannot well stand the next day's heat.

GOVERNMENT ECONOMY NEEDED.

NEED of retrenchment in government expenditures is emphasized in the statement by the treasury department that government tax receipts decreased more than \$1,000,000,000 during the eleven months of the past fiscal year, as compared with the previous year. Nevertheless the naval appropriation bill as agreed to in conference carries about \$293,000,000, and the army bill provides for an army of 125,000 enlisted men and 12,000 officers.

CARE OF CHICKS AND GOSLINGS.

We have had splendid luck with our hatches, but cannot seem to get the chicks started right. According to the directions with the incubator, we are not supposed to take them from the incubator until the twenty-second day, which we have never done, and have never fed them for forty-eight hours. I have read that one should not feed them until the yolk is all absorbed. Would like to know how many days it takes to absorb the yolk. I cannot say that they have diarrhea, but their wings begin to stick out and in a little while their heads get weak and are drawn back. They lie there in what I call spasms, give a peep and are soon gone. Would like to know what might be the cause of goslings getting poor and dying, when they are a few weeks old. They grow nicely for a few weeks, and the first thing we know begin to get poor, and in a day or two we find them dead. They have plenty of water around the buildings, and can go to a small pond. What is considered the proper feed for young goslings?—E. R. L.

I take the chicks from the machine the twenty-second day and after brushing the trays, I replace the chicks in the machine and keep it dark until the chicks have an average age of close to sixty hours. The egg yolk seems to be sufficiently absorbed by that time. Then we give them sour milk for the first drink, and also fine sand for grit.

After the chicks have had a chance to pick at the grit for a couple of hours we give them a little of the commercial growing mash as a starting food. Dry rolled oats are also good. Green food is essential and can be given in the brooder house in the form of fine-cut onions or mangels. We find the commercial mashers are economical in starting young chicks as they produce bone, blood and feathers rapidly and seem to help in cutting down the mortality rate.

Goslings may die because of weakness in the breeding stock or exposure to hot sun, or because of other reasons

which can sometimes be determined by a postmortem which will show the condition of the internal organs. Dried bread mixed with milk and squeezed nearly dry is a good feed for goslings. Some breeders give only fresh grass the first two days. Then a moist mash of one-third cornmeal and two-thirds wheat middlings is given four or five times a day.

HOW TO USE DISINFECTANTS.

IF housewives could realize the difference between the real work of a disinfectant and the merely cloaking of an offensive odor, there would be less sickness, and less work for the board of health. One of the most inexpensive disinfectants is wood charcoal. So great is its absorbent power that in twenty-four hours freshly burned and powdered charcoal will absorb ten to fourteen per cent of its own weight in moisture or gases, from the atmosphere. It acts quickly and effectively. If a thin layer is put over putrefying matter it will immediately absorb the effluvia and leave the air above it pure and sweet. Decay is not stopped, understood, but goes on without sending off gases or odor. It is well worth knowing that foul water may be rendered pure and sweet smelling by filtering it through a layer of charcoal.

Another very cheap and efficacious disinfectant right at the housewife's hand, is quicklime. It will render the premises sweet and wholesome. It takes up moisture in a wonderful way. It may be sprinkled on damp ground and it will restore grass which has grown mossy because of the wet ground becoming sour. It may be freely sprinkled in damp cellars in the dry unslaked form. For disinfecting close ill-smelling sick-rooms dilute the quicklime with a little water and place in shallow plates about the rooms.

Chlorine is still another ready disinfectant, but the odor is so penetrating and pungent that it may be used only where liberal ventilation is possible, and for this reason is not always popular in the sick-room. When fumigating unused rooms, its qualities are increased by adding a little vinegar.—M. C.

NEW COOPERATIVE ENTERPRISE.

ONE of the new cooperative enterprises of St. Clair county is that of the Marine City Farmers' Cooperative Elevator Association. This association is composed of 143 farmers in the vicinity of Marine City and Algonac. They have purchased the Baldwin elevator property. In addition to the hay and grain trade, they expect to handle coal, feed and such other supplies as may be purchased in large quantities.

At their first annual meeting held in Marine City, Wednesday, June 28, the following officers and directors were elected:

John Volker, Marine City, president; Robert Baker, Marine City, vice-president; H. A. Shaw, Algonac, secretary; Andrew Hahn, Marine City, director; Robert Folkerts, Algonac, director; Charles Reichle, Marine City, director; H. F. Labuhn, Fair Haven, director.

They have secured the services of Mr. L. Thomas as manager. Mr. Thomas, who is formerly of Grand Blanc, is considered one of the most successful cooperative elevator managers of Michigan.

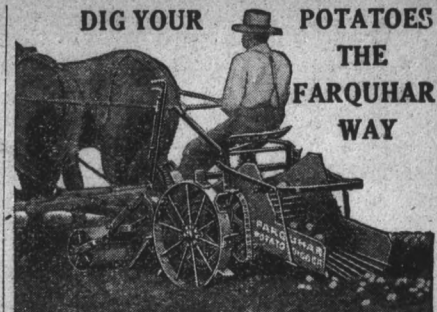
This territory comprises one of the best farming sections in St. Clair county. With this as a foundation on which to build, the Marine City Association bids fair to become one of the strongest cooperative marketing associations in this section of the state.—C. M. K.

ESTATE BY ENTIRETY.

A and wife have a joint deed to their farm. If A's wife should leave him, would she lose her rights to the farm, or could she still hold a share?—C. S.

The estate by entirety can be destroyed only by death, conveyance executed by both, or decree of court.—Rood.

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