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Agricultural News

WE SHALL SEE IF AMERICAN BUSINESS GETS WHAT IT ASKS.

THE position of American business interests on national economic questions has been put before the President by the United States Chamber of Commerce in a statement in which are recommended the repeal of income tax publicity, the creation of a national tax commission, systematic development of inland waterways, and an immigration commission which shall study the operations of the law and make recommendations.

SEED POTATO GROWERS ORGANIZE.

AT a meeting of representatives from Emmet, Otsego, Charlevoix, Antrim, Leelanau, Traverse, Manistee, Wexford, Benzie Oceana, Lake, Mecosta and Montcalm counties at Cadillac to complete the organization of a Michigan certified seed potato growers' association the following directors were elected: Frank Smith of Luther, president; David Inglis, of Van, vice-president; Robert Luther, of Traverse City; Allan Kesley, of Lakeview; Joe Zimmerman, of Traverse City; Ed. Stiver, of Copemish; Joseph Cox, M. A. C.; Fred Smith, Elk Rapids; H. L. Barnum, secretary-treasurer; James Weston, corresponding secretary.

TEMPORARY SECRETARY APPOINTED.

THE President has appointed Acting Secretary of Agriculture Howard M. Gore to succeed the late Henry C. Wallace in his cabinet. Secretary Gore will serve until next March 4, when he becomes governor of West Virginia. It is evident by the temporary appointment of Mr. Gore, that the President has decided to take his own time to survey the field of recommended candidates from which to select a secretary of agriculture when the permanent appointment is made March 4. Louis J. Taber, of Ohio, master of the National Grange; William M. Jardine, president of Kansas Agricultural College, and C. W. Pugsley, president of South Dakota Agricultural College, are leading the field at present.

NO SPECIAL SESSION IF UNNECESSARY.

SENATOR CAPPER does not think that the situation will necessitate the calling of a special session after March 4. "I think," he says, "that much beneficial legislation has already been enacted, but in spite of this legislation the farm situation is one of the greatest problems that we have in this country. If the President's commission is successful in helping the situation, it will have accomplished much, and no one realizes more than I do the importance of the work that we are now undertaking."

FOOD FAMINE PREDICTED.

GRAY SILVER, legislative counselor of the American Farm Bureau Federation, has joined the school of prophets who are predicting that we are facing a food famine in this country unless we largely increase our production. In an address before the Mississippi Valley Association he figured that we shall have 150,000,000 people in this country in another twenty years. To feed this larger population the present production of the farms must be increased twenty-five per cent per acre, as well as on 150,000,000 acres of additional land. Such an increase, he thinks, would swamp all our present transportation routes, therefore the country should plan for greatly enlarging its transportation facilities, especially its waterways.

Make Big Profits on Poultry
This New Buckeye Book Tells You How

How much money are you making from poultry? Mrs. John Schwengel of Champaign, Ill., made \$1,200 last year from a small flock of chickens. Mr. Hale Thompson of Williams, Ind., made a net profit of over \$3,200. Mrs. Fred Gassaway of Riverdale, Ind., made \$1,500. Mr. Everett Foster of Heltonville, Ind., realized \$300 profit last year from chickens. All these people are farmers with from 60 to 180 acres of land and are just a few cases taken from thousands of similar records.

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Write For Your Copy

There is information in it that has never before been published. It contains facts on feeding and culling. It tells how to get more eggs in winter when prices are high. How to have early broilers. How to develop a heavy egg strain—in a word—how to make money. This book was written for users of Buckeye Incubators and Brooders. Now we offer you a copy free. Write for it or just mail the coupon. Don't delay. Poultry can earn you big money this season if you get started now.

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MICHIGAN FARMER

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Porkers Grunt Their Approval

When Fed a Combination of Minerals and Good Ration, so Say the Men of Ames

INTERESTING things developed during the past year's feeding tests at the Iowa Experiment Station under the direction of John M. Evvard and C. C. Culbertson. The hog feeder who has been slipping a bit of salt to the animals on each full moon, with an occasional miss, will find in the results of these tests food for his mental digestion.

Fast growing pigs are the profit makers. Time and again practical feeders and experimenters have satisfied themselves that rapid gains require less feed; hence, lower feeding costs. This year's work at Ames again verified this conclusion.

In these tests, three show lots required 481 pounds of feed, over a period of 283 days to reach the so-called handy marketable weight of 225 pounds. On the other hand, the three fastest lots required only 371 pounds of feed and 199 days in which to reach the weight of 225 pounds. This means a saving of nearly three months' time and 110 pounds of feed per hundred pounds of gain.

Quoting from the summary of the experiment: "Speed counts heavily in enlarging the porcine dividends with the winter-fed pigs. To save at least 200 pounds of feed on the pig is worth while because, at present prices, that means about three dollars, and the eighty-four days in time saved means less care, less overhead, less risk, less insurance, more interest return and greater profits. It also means a better product to the packer, and the house-

wife is happier because the pork chops and hams are the more tender."

Salt is Cheap, But Important.

The hundreds and hundreds of farmers who keep salt away from their pigs are following a losing practice. For pigs, together with dairy cows, and horses, need salt. Growing pigs who do not have the necessary amount of salt in their ration not only gain less rapidly, but their gains cost more.

Salt kept before pigs constantly, as in block form, will not hurt them in the least; although, of course, if the pigs have access to a large amount of it after having been without salt for a long period, they may consume enough to be injurious.

Salt, "the white gold of the swine

kingdom," is what Professor Evvard calls it, and judging from the results of one experiment, he is justified in making so bold an utterance. Several lots of pigs were fed a ration consisting of linseed oilmeal, wheat middlings, soy-bean oilmeal, peanut meal and finely ground alfalfa, together with plenty of salt, while several other lots were fed exactly the same ration except that the salt was left out.

The results were startling, to say the least. The pigs not receiving any salt took 218 days to make 300 pound weights, while the pigs that had access to salt made the 300-pound mark at the end of 158 days, sixty days, two whole months, ahead of their brothers and sisters across the fence.

A pound of salt saved as much as 213 pounds of feed in fattening fall pigs. It not only saved 213 pounds of feed but it also saved labor and time; it reduced the days of risk; it made healthier and more contented hogs. This pound of salt also saved forty-seven days in the development of the pigs.

Mineral Feeds Save in Feeding Cattle.

All lots which had mineral mixtures added to the rations, made more rapid gains, and consequently more economical gains, than the groups not receiving minerals. In these experiments the amount of feed eaten was materially and noticeably reduced when the lots were fed mineral mixtures.

And mineral mixtures do not cost a lot of money, in spite of a prevailing opinion to the contrary. This experiment shows that the cost of the minerals for the hundred pounds of gain are relatively insignificant; at six cents a pound for the minerals, the cost per hundred weight would not exceed twelve cents, or would run less than three per cent of the total feed cost.

In dry-lot feeding, as in the case of feeding with blue grass pasture, mineral mixtures pay for themselves many times in rapid and economical gains. While feeding salt alone pays extra good dividends as compared with rations in which no salt has been fed, a complex mineral mixture will make even a better combination either on blue grass or in the dry feed lot. The
(Continued on page 513).



These Young Females Are Making Good Gilts on Pasture with Corn, Oats, Tankage and Salt.

Septic Tanks for Michigan

A Real Need for Sanitary Method of Sewage Disposal on Farms

By Frank A. Meckel

WHEN home conveniences are installed in the farm home a system of running water is usually the first one in line, but in a way, this is putting the cart before the horse.

Before a system of running water is absolutely practicable in the farm home, there should be provided some system of taking care of the waste water.

For this purpose a septic tank and its tile system is generally acknowledged to be the best. Such a system is to the farm what the sewer system is to the city, for it provides a very satisfactory method of disposing of the wastes of the kitchen, laundry and bathroom.

The operation of a septic tank is dependent upon the action of bacteria found within the sewage itself. These bacteria first break down the solid materials in the sewage and liquefy them. If the tank is covered and protected, no flies or other insects or vermin can have access to the sewage and no contamination of food or water supply is possible through that agency.

The cost of a septic tank is not at all prohibitive. It can be made right on the farm at practically no more cost than that of a concrete water tank for watering live stock.

The farm engineering department at

the Michigan Agricultural College has designed a tank which is commonly called the Michigan tank and which is particularly adapted to use in this state. It is the outgrowth of investigations and studies of nearly 100 different kinds of septic tanks extending over a period of eight years.

The Michigan tank consists of four distinct members. The first is the settling chamber, in which the solid sewage is converted into liquid form. The second is the siphon, or dosing chamber for the accumulation of sewage from the settling chamber in quantities large enough to insure effective distribution through the aerating tile system. The third member is the automatic siphon which intermittently empties this dosing chamber into the tile system, and the fourth is the aerating system of drain tile which distributes the liquid sewage through a large area of porous soil.

It is estimated that the per capita consumption of water in the average farm homes is approximately thirty gallons a day, so that the settling chamber is designed to receive between 200 and 300 gallons of sewage every twenty-four hours. As this sewage collects in the settling chamber, a

thick scum forms on the surface and as it breaks down, a blue-gray mud or sludge settles to the bottom of the tank. This collects very slowly and must be cleaned out at intervals. Ordinarily a tank does not require cleaning more often than once every year or two, depending upon the amount of sewage which has passed through it.

The dosing chamber is designed to receive from the settling chamber just about the same amount of sewage that enters that chamber in a day. As fresh sewage enters the settling chamber, the liquefied sewage of like amount runs over into the dosing chamber and when the water level in this second chamber reaches a certain height, the automatic siphon empties the dosing chamber entirely and the water runs out through the tiling system and is absorbed by the surrounding soil.

The siphon operates entirely automatically. Water is always held in the trap, or U-shaped portion below the tank. As the water rises in the dosing chamber, the air in the bell of the siphon is compressed which moves the water in the trap toward the outlet. As soon as the pressure becomes great enough to force the water around the bend in the trap, the com-

pressed air is released through the drain and the water follows through until it reaches the level of the bottom of the bell, when air again gets into the pipe and the siphon action stops until the next time the tank fills. An auxiliary safety outlet should always be provided in the dosing chamber several inches above the normal high water mark so that the sewage can run out, even though the siphon becomes clogged. The siphon can be made with cast iron pipe or small sewer tile and a common crock for a bell. It may also be purchased from most plumbing supply houses already made up. There is less chance of going wrong on one of these read-made siphons than there is on a home-made one, and they do not cost much either.

The extension department of the college is holding septic tank demonstrations in many parts of the state, and county agricultural agents can very easily arrange for such demonstrations in their counties. It would be an excellent plan for every community in a county to have such a demonstration and for farm folks who are planning on installing tanks to attend these meetings and see a septic tank built and a siphon installed. Farm sanitation is just as important as city sanitation. A septic tank will provide sanitation on the farm.

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CURRENT COMMENT

No Tax Scheme

IN some sections the notion has spread that the census of agriculture which the last congress provided to be taken this month and next is a scheme to aid government tax agencies.

This is a wrong idea. The revenue department of the government will not have access to the individual schedules. Every employe of the census bureau from the clerks in the bureau to the field men are under oath not to divulge any information obtained on the individual schedules under penalty of a one thousand dollar fine, or imprisonment not to exceed two years. Further, no data for areas smaller than a county will be published in the reports put out by the government.

Congress based its call for an agricultural census at this time on perfectly sound premises. Such rapid and far-reaching movements have taken place in the nation's farming industry, and the last census coming so closely upon the heels of the war, that it is highly important now to have more reliable data by which our farm folks and agricultural leaders may direct with greater intelligence the agencies dealing with this, the greatest of our nation's industries.

The Use of Leisure

IT is said that one of the seven great objectives in education is the training in a worthy use of leisure. This is becoming an objective of greater importance as the trend of the age is toward greater leisure. Modern machinery is enabling one to do his tasks quicker than in the days of crude methods. Thus, the working day is shorter for the working man, and even for the farmer, we believe.

But regardless of whether it is or not, there is a period of farm leisure which we are now approaching. It is the time when outdoor farming activities must usually be confined to the doing of chores and other necessary daily duties. It is the time when constructive activity can be greatly replaced by thought. The use of this time is what should receive consideration. It should be made valuable to us individually and to our work.

Leisure has helped accomplish many things. Lincoln made it help him get an education, many prominent authors have written their best books during

the time free from other activities. Leisure has helped many gain fortune and fame; it has also taken many to the dregs of despair and the mire of life because they did not know how to use it.

Time is the most precious element in our lives, for it is what we do with our time that determines what we get out of our lives.

It would be inappropriate for us to suggest what one should do with his time this winter but we write this suggestion regarding the use of leisure as a reminder that it can be wasted, it can be worse than wasted, or it can be made useful, helpful and interesting. Your use of it will determine what you get out of it.

A New Farm Board

NEWAYGO county is living up to its name. It established a new way of finding the value of cows by the organization of the first cow testing association in the country. This move has already established its value. It also was one of the first to employ a county agent.

Now, it is handling the county farm agent proposition in a new way. And from all indications it looks as if it would make this "new way go." In fact, present-day good judgment would lead one to believe that the new venture may rival the success of the first one.

The plan consists of the establishment of a county board of agriculture which will direct all of the public agricultural work of the county. The board will be made up of representatives of the various rural organizations in the county, and besides, will have a man to represent the chambers of commerce in the county and another to represent the board of supervisors.

There is no reason why a county as a political unit can not manage its agricultural affairs through a board as well as the state can. Furthermore, this new arrangement gives representation to all the factors which are interested in agricultural prosperity of the county. And in giving such representation, it will get the cooperation from all these factors.

In accord with many of our agricultural leaders, we bespeak the success of this democratic and efficient method of managing a county's public rural affairs. We feel sure that other counties will gain much by watching closely the pioneering that Newaygo is doing in this work, and by following example in the many good features this plan will develop.

The Broken Leg

IT is told of a cow in Ohio which was on a test, with all hope of establishing a new world's record. As the test was near the end she slipped and broke her leg. In order to complete the test, she was put in a sling, and came through with but a few pounds short of establishing a record.

That was apparently just a coincidence, that breaking of the leg. But when the cow was put on her feet again after the leg healed, the other leg broke. She was butchered and a postmortem revealed that her bones were honeycombed. They lacked the lime to give them strength and stamina.

Her owners had fed her to force every pound of milk and fat production possible. But, they forgot to include in the ration enough mineral matter to replace the lime that the production of milk took out. The lime in her body was thus drawn upon with serious results.

This is just an indication of the importance of diet. Every day investigators are finding the relation of feeds and feeding to the normal and abnormal conditions of life. Just the other day, the papers indicated that tuberculosis was due to the lack of certain

vitamines in the food. The lack of iodine is known to cause goiter. Insufficient mineral matter is proven to cause scurvy and other diseases. Lack of certain elements in food is said to cause cancer. Time will undoubtedly indicate that practically all of the abnormal conditions of life have their foundations in what we eat, breath or drink.

So, apparently, to the farmer's wife, who has the health and happiness of her family at heart, the study of diet is most important. And to the farmer, who has any kind of live stock to feed, the study of feeds and feeding is a vital matter in the success he has with his stock. Even the man who grows "just crops," the study of plant feeding is a very important subject.

So, it seems that all who live should make this a subject of consideration and study. And all who have living things under their domain have a double duty to themselves and the living things they control, to learn how to feed them right. Even from a selfish, dollar-and-cents standpoint a study of feeding will pay, for it will result in more profitable animals and a healthier family with fewer doctor bills to pay.

Apparently, it would be better to break a leg in the search for facts on feeding essentials, than to break one through ignorance of them.

May we suggest that the study of feeding will make a very profitable and interesting winter's occupation.

She Did A Good Job

WHAT a wonderfully complete job nature did when she invented and manufactured milk. So far as our knowledge goes, it appears to be the only product she made solely as a food. The wisecracks have fallen far short of reproducing it artificially.

In this wonder-work she seems to have gone so far into the endless realm of her creation when blending so delicately all the elements of this outstanding panacea for making strong and revitalizing the human body, that her strength and skill could not compound another equally nutritious and health-restoring product.

Fortunately, we find the leading races of men depending more and more upon this oldest of foods. But the maximum of its usefulness is still a long way off; and it will require more and more of education and promotion to attain the fullest benefit of nature's seeming excess when she put milk into the mouths of men.

Winter Repair Work

MANY farmers could profitably take a leaf out of the experience of city building contractors in the matter of repair and construction work during the winter months. Building operations do not stop in our big cities with the first flurry of snow, nor even with the advent of severe weather. They go right ahead to completion, from excavations for the foundation, to the erection of steel and cement frames and their enclosure and completion.

Winter construction work has come to be a habit in our larger cities, due to the urgent and constantly growing demand for office, shop and housing space. In the country exactly the opposite condition of mind prevails. Winter construction work of any kind is almost unknown. Farmers and mechanics have the same attitude toward the matter. It just isn't done in the country.

To a very considerable extent this attitude is justified. It would perhaps be questionable economy to undertake major building operations during the winter season in any except emergency cases. But this is not necessar-

ily true with smaller construction or repair jobs.

Concrete has come to be an almost universally employed material in farm construction work. There are many jobs involving its use which ought to be done on every farm, but are indefinitely delayed on account of unseasonable weather or because of lack of time for their accomplishment when seasonal conditions are favorable. Very many of these jobs could be done during the winter season if we were familiar with approved winter methods of handling concrete construction work.

It will pay to consider the proposition of winter repair and construction work on every farm at this season of the year, as it will make possible needed improvements which would long await a more propitious time for their accomplishment.

Inconsequential

I WAS cross-word puzzelin' the other day and I come across the word inconsequential. That's just the word I've been wantin' fer the present oc-cashun.

Seein' as Sofie had somethin' ta say last week, it is inconsequential that what I had ta say that week was left out, inasmuch as what Sofie said was inconsequential also. The space I gotta fill can't have nothin' but inconsequential matter in it, so I'm glad that Sofie lived up to the specificashuns.

Sofie showed me she could do somethin' I didn't know she could do. So maybe from now on I'll let her have her say when it is what you call inconvenient for me ta say anything.



She sure did make a strong defence fer the weak sex. But it seems ta me that the fact that man comes from the weak sex and gets as strong and mighty as he does after he gets away from apron strings, shows that he makes what you call a consequential accomplishment.

Man grows from weak sources ta be master of all he surveys. But, the trouble is, most o' them don't never survey. I don't know nothin' about surveyin', so maybe I ain't master of nothin'. Sofie says I ain't even master of myself. She musta surveyed me before we were married, so I guess she thinks she is master o' me now. She tries hard anyhow, and sometimes she thinks she is suckseedin', but I don't.

But I ain't goin' ta say nothin' about this man and woman questshun no more. Men and woman is inconsequential anyhow. Sometimes, lots o' us strut around like the world would stop if we wasn't livin', but the death o' the greatest of us don't make no difference. We're just little drops o' water in the ocean o' life what fulfill our purpose in life and then the sun draws us up ta nobody knows where. Life is everlastin' but lives ain't, so we must not think too consequent the inconsequential consequences of our lives.

Inconsequential things ain't ever lastin'. So, to keep this inconsequential discussun from bein' so, I guess I'll have to say "Amen" now.

HY SYCKLE.

There is a butter surplus of 49,138,000 pounds. That's quite a little, still it is not much. The whole surplus could be entirely wiped out if each rural person would eat one ounce per week more than he now does. Perhaps with the "flannel cake" season coming there will be a greater consumption of butter in the rural districts, to say nothing of the urban sections.

When a Manager Goes Bad

The Loss of Money and Confidence is Great, But is it Final Proof of a Wrong Policy?

By J. T. Horner

NOT long ago a cooperative organization handling grain, beans, hay and general farm supplies was considered very prosperous. The members were well satisfied with their business and felt proud of what they were able to accomplish. The manager supplied an auditor's report of the business monthly. Everything was going along nicely so far as members and the community knew.

One day the manager called a meeting of the directors and told them he would have to borrow more money. The manager indicated that the business was not going as well as had been thought. A new auditor was called in and it was found that there was a deficit of over \$30,000. Some of the produce which farmers had brought in had been sold and the money used for other purposes.

The bank called the loans which the farmer members had endorsed. Money for produce shipped could not be paid to the farmers. These members lost doubly—that is, what they had coming for produce and their share of the notes signed.

The business is now being handled by one of the members and it is going along after a fashion so that creditors will not lose everything they have coming. It is very doubtful whether this organization can be revived so that it can again serve the community.

Business concerns go bankrupt often. Failures in private business do not create a great deal of commotion. But the failure of a cooperative association affects almost every farmer in the community and causes loss. Not only money loss; but the loss of a business agency which is rendering them a service. There is another loss which is incurred and possibly this is the greatest of all the losses. This is the loss of confidence in cooperation as a business method.

No doubt, in this community cooperative enterprises will not get much of a hearing for a long, long time. The farmer will say that he has had one experience with a cooperative and does not want any more. Those interests which are desirous of combating the spread of cooperation will point with pride to the failure of this association. They will advise farmers to stick to private enterprise and let wasteful cooperation go begging.

There is no doubt but that these farmers lost money. This loss occurred because they were dealing with this particular cooperative organization. Their loss occurred because they, as individuals, backed this association with their private capital so that the community might benefit through cooperative effort. The loss is unfortunate. It will cause farmers to hesitate before they undertake another such enterprise.

Farmers should not be led to think that cooperation was the cause of this loss. This loss is nothing to the discredit of the cooperative form of doing business any more than the failure of a bank is evidence that private banking is unsound. This cooperative organization failed because of bad management and the failure of the board of directors to know definitely what was going on.

It is the height of folly for a community to discredit cooperation as a means of bringing benefits to it merely because of a failure. Grocery stores fail, but no one would advocate the discontinuance of such stores merely because of the failures.

Farmers need cooperative enterprises in many instances. The conditions of the market and supply agencies at local points often demand that these

functions be performed by farmers acting together. To bring about the desired results, strict attention must be given to the details and sound business methods must be followed. Failure of cooperative associations are not indictments of these agencies, but rather evidence of poor business.

I trust that the farmers of this community where the failure occurred will not be led into unsound thinking by those who are strenuously opposing all cooperative effort in agriculture. If this association had never been organized these farmers would not have lost the money at this time; but how can one measure the benefits which have accrued to this community in the years past? What would have been the loss to this community if this association had never existed?

It is impossible to conceive of the benefits which have come to both the country man and the city man during the past twenty years, because farmers have tackled their business problems together and conducted certain business activities on the basis of service rather than profit.

Agriculture is never going forward to a sounder economic status unless its leaders can analyze conditions correctly. Correct analysis of the failure of this cooperative business must lead one to see that poor business methods and not an inherent weakness of the system was the cause of failure.

These business activities of farmers are causing them to learn about business. They are learning of markets, customs, demands, and management methods. They are becoming business men as well as tillers of the soil. These activities are giving to farmers a breadth of vision and an understanding which not only make them better farmers but better citizens as well.

Surely the farmers of this country are too intelligent to let the business failure of a cooperative association turn them away from a method which, coupled with sound business practice, will yield them a greater return for their labor and a better standard of living.

BITS OF AGRICULTURAL NEWS.

Compilation of the production records of the last Michigan Egg-laying contest show by comparison with contests in other states that the records of the Michigan leading pens are higher. Mr. W. C. Eckard's winning pen produced at the rate of 262 eggs per hen for the year.

A. M. Berridge, of Greenville, has resigned as manager of the short courses at M. A. C. after ten years of service. He is succeeded by R. W. Tenny, who was county agent of Eaton county. Mr. C. C. Taylor, county agent of Newaygo county, takes Mr. Tenny's place in Eaton county.

The Biological Survey of the United States Department of Agriculture asks the farmer to be careful about shooting hawks. Many species of the hawk family are beneficial as they destroy rats and other rodents. Among the beneficial hawks are the red-shouldered, the Swainson, and the rough-legged hawks.

Lady Purdue, a White Leghorn at the Purdue Experiment Station, has broken the world's record for egg production. In eight years she has produced 1,341 eggs. Her yearly records are as follows: 217, 182, 150, 204, 187, 140, 163, and this year, up to September 11 when she beat the world's record, she laid ninety-eight eggs.



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THE first snow-storm—Mobiloil "E" in your engine. You go out in the morning to start up.

A few more turns with the starter, but that is all. Correctly lubricated, the engine turns almost as freely as in warmer weather. With judicious use of the choke and a slightly richer mixture, your Ford will give you the same reliable service in winter as in summer. And with the lightest possible burden to the battery.

For Mobiloil "E" flows freely in the coldest weather. The moment you press on the starter the oil splashes up and begins to feed to every frictional surface—including the close-fitting bearings and clutch plates.

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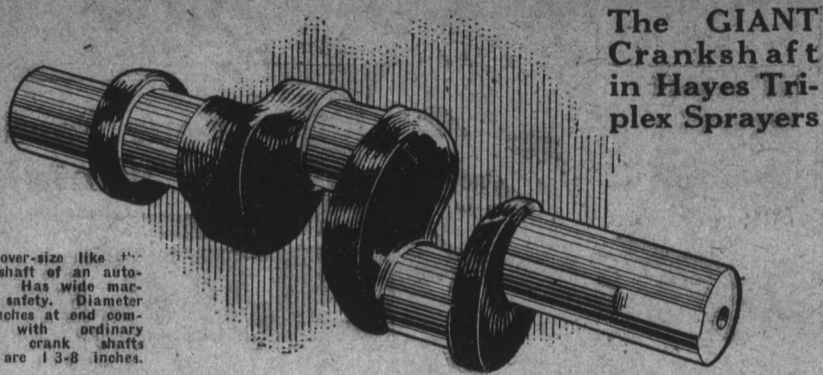
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Made over-size like crank shaft of an automobile. Has wide margin of safety. Diameter of 2 inches at end compares with ordinary sprayer crank shafts which are 1 3/8 inches.

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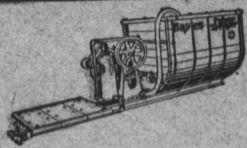
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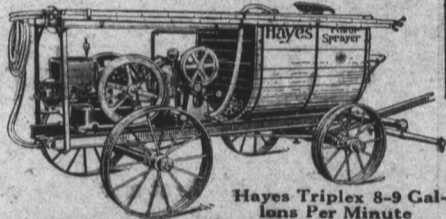


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If you wish, however, you can get any Hayes FRUIT FOG Sprayer without equipment, and get FRUIT FOG results at minimum cost.

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CITIZENSHIP.

If a Canadian citizen dies leaving widow and children, widow moves to Michigan and later marries a United States citizen before children become of age, are children citizens of United States or of Canada.—L. E.

The children do not acquire citizenship in the United States by the marriage of the mother.—Rood.

HUNTING ON SUNDAY.

In what counties of Michigan is the law passed which forbids hunting on Sunday? Does a hunter have to ask permission of owner of land to hunt same on Sunday?—A. G.

By compiled laws 1916, Section 7764, it made it a misdemeanor to work or be present at any dancing or at any public diversion, show or any public entertainment or to take part in any sport, game or play on Sunday; and this would include hunting. The only statute we find specifically mentioning hunting on Sunday is Public Acts 1923, Page 470, making it a misdemeanor to hunt on Sunday in Sanilac county.—Rood.

WHEAT MIDLINGS VS. DAIRY FEED.

Have just purchased some dairy feed, contents as follows: Protein, sixteen per cent; fat, four per cent; fiber, twelve per cent; carbohydrates, sixty per cent; nitrogen free extract, forty-eight per cent. How much more valuable is this than wheat middlings for feeding, or would middlings, which are protein, fifteen per cent; fat, four per cent; fiber, nine per cent, and carbohydrates, 55.8 per cent, be about the same in feeding value? The dairy ration costs \$2.25 and middlings \$2.20 per cwt. What would be the proper amount of silage to begin with for cows that have never been fed silage?—D. T. O.

Wheat middlings would be even a better feed so far as food value is concerned than the dairy feed mentioned, because it has less crude fiber, the indigestible part, and it has a food analysis almost equally as good.

But wheat middlings are not wholly satisfactory when fed alone because of their being sticky when moistened by the saliva. They will stick to the lips of the cows and also to the manger, causing some inconvenience in feeding. If they are mixed with bran or with corn meal, or in fact almost any other feed, this annoyance can be overcome also if they are scattered on the ensilage they will cause no trouble.

At the prices quoted middlings would seem to be the more economical feed to buy.

Start with four or five pounds of silage, a scoop shovel full, and if you have any trouble in getting any of the cows to eat it sprinkle their grain on it. In fact, the proper place to feed all grain is on the silage. The amount of silage can be quite rapidly increased in a day or two to as much as twenty-five or thirty pounds per day and then to all the cow will eat if you desire.

WHITE WHEAT VS. RED WHEAT BRAN.

How does the food value of bran and middlings made of white wheat compare with that made of red wheat? Some time ago I read an article which said the white wheat bran was lacking in vitamins necessary for growth of animals. What do you know about it?—T. J. F.

So far as the writer knows, no feeding experiments have ever been made that would warrant us in saying that the bran or middlings from red wheat contain vitamins that are absent in white wheat which would make the red wheat by-products more valuable than the white. All we can say is, we don't know.

Experiments have been made with white and yellow corn which seem to prove that the yellow corn has these vitamins and the white corn has not. The animals in the experiment that were fed on white corn had to be fed other foods known to contain these vitamins in order to have the animals do as well as they did on the yellow corn alone.

We might naturally suppose that the vitamins had something to do with the coloring. If this is so, then we might be warranted in assuming that red wheat had, at least more vitamins than white wheat. But with a variety of feed such as is usually fed in a ration it is fair to presume that the animal will get sufficient vitamins in the other food so one need not be concerned about this matter.

In the case of cattle, horses and sheep, there would usually be sufficient vitamins in the green leaves of clover or alfalfa hay for the whole ration.

With poultry it would be advisable, if feeding white wheat, to feed yellow corn with it, or supply plenty of skim-milk or green clover leaves. These latter foods should be in the ration anyway.

A FIVE YEAR LEASE.

I rented a farm for five years and have put in one year. Now the owner is building a house on the farm and wants to run it himself. He is going to live in the new house, and wants me to give up the place. Has he a right to come on the place, build a house and live on the place while I have the place rented, or can I keep him off until the five years are up?—Reader.

If the farm is being rented for money rent I would presume that the lessee would have exclusive right of possession during the term, there being a sufficient description of the premises leased. If it is a share arrangement it would be impossible to answer the question without seeing the so-called lease.—Rood.

SALE OF CAR.

Three and one-half years ago I purchased a car from a stranger; two and one-half years ago I sold said car to another party without title to ownership or deed to him. I told him at the time of sale that I did not know if the car was stolen or not, and I thought that the man I bought from was a bootlegger, and he bought with that understanding. About a month ago the car was recovered by an insurance company. Now he wants to recover from me or sue. Transaction took place in Wisconsin. Am I liable to him?—E. E.

Sale of personal property implies warranty of title unless there is an understanding to the contrary. If there is a warranty of title the person making it is liable in case of failure to the extent of the price paid.—Rood.

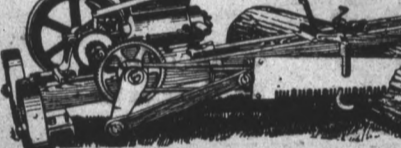
TRADE FOR CITY LOTS.

Last June two men came here and got me to trade some stocks I had in the Federal Discount in Detroit for a building lot in Detroit. They promised to send me a deed of the lot the next week. I have not received the deed, and they have disappeared and no one seems to know where they have gone. I have been informed that one of them bought three lots and paid cash for them and took receipts for the money and was to have deeds, but he has not called for the deeds yet. Could I put a claim on those lots for the money they got from me? If so, please tell me how and what to do.—E. M.

It is possible that investigation would disclose such facts as would enable establishment of a claim upon the property. If the amount is sufficient to warrant the expense it would be advisable to attempt discovery.—Rood.

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December Poultry Notes

By R. G. Kirby

BRONCHITIS is indicated when a bird has a whistling and rattling in the throat. It does not often occur in flocks protected in well ventilated houses and male birds seem more often afflicted. Possibly the act of crowing may irritate a small throat trouble and cause the bronchitis. Isolate the bird in a dry sunny place and it will often recover without other treatment. Place a large piece of menthol or camphorated ointment back in the throat. It will be dissolved and soothe the membranes and hasten recovery. Such troubles are largely due to exposure on the range on cold windy days and can be prevented by properly housing the flock for winter before cold weather arrives.

Straw For Litter.

Baled straw is handy to distribute over the poultry house floors but the process of baling crushes the straw and it is rapidly broken up by the scratching of the birds. Baled straw is very handy to replenish nesting material. A lot of it can be carried in a basket or tub and a handful added to each nest to keep the nest boards from showing in the center and possibly breaking eggs as they are dropped.

Rye straw is not advised for poultry house litter because of the possible presence of ergot. Dry leaves are sometimes used in small poultry houses but they break up rapidly. Shredded corn fodder makes a good poultry litter except for the danger of birds eating the tough leaves and becoming crop bound. This danger is reduced when the hens have a balanced dry mash and plenty of green feed so they will not gorge on the litter.

Feeding and Egg Production.

Winter egg production, especially in December, does not depend entirely on the number of hens you keep. Regardless of the size of the flock they will all do the same thing without a balanced ration. I think nearly everyone knows what is needed to feed hens a balanced ration. The problem is to keep all the different items on hand all the time. It really takes skillful management to do it, as many poultrymen work on limited capital and something is always running short when the cash is needed for other bills.

Furnish Grit.

As soon as the hens leave the range be sure the grit hopper is filled. The grit is needed to grind the feed. It may not be too late to store up a couple of kegs full of fine gravel to use as a source of grit. If this is lacking, the mica grit at about \$1.00 per hundred pounds is a good investment.

There are three cheap items in the hen's ration that should never be neglected. They are water, grit and oyster shells. All can be supplied at a very small cost and all of them are about as useful as the expensive items in the ration.

When corn is cut with a binder many ears are often thrown on the ground. If they are left long and the hens range over the field they may pick up mouldy or decayed corn and it is followed by serious digestive troubles. It pays to pick up this corn as soon as possible and cull out all the mouldy ears.

Feed Dry Mash.

Be sure the hens have a dry mash. The hens will not gorge on the corn. This helps to prevent bowel trouble. The hens will not gorge on the corn when they have access to mash and the bran in the mash helps to prevent digestive disorders that might be caused by the corn.

Semi-solid buttermilk is a valuable poultry feed, especially when there is no home supply of sour milk or buttermilk. My latest quotations place barrels containing 450 pounds at \$19. Kegs containing 140 pounds cost \$7.45.

A gallon can containing seven and one-half pounds sells for \$1.00. In some cases it pays to have this product on hand, even when there is a supply of skim-milk available. At any time that the milk supply is deficient the semi-solid buttermilk can be used to supplement the ration. Some poultrymen advise using about two or three pounds each day for 100 hens. The profit in using such commercial products in winter depends on owning a culled flock of high-producing pullets. They can pay for a lot of high quality feed. But a collection of old hens consisting largely of culls and near-culls cannot pay for anything.

Watch the Market.

It pays to follow the fall and winter egg market and know the prices the best local dealers are paying. Sometimes the local newspapers print the egg market and make note of advances several days after they occur. If you sell to private customers you cannot always depend on the price quoted. Some reliable commission dealers in cities like Boston and New York send out postcards telling the prices they are paying, with predictions on the future market, which are usually accurate. Strictly fresh winter eggs are the result of hard work and should go to buyers who are willing to pay for them.

Last spring when eggs dropped in price and baby chicks were being shipped by hundreds of thousands, some poultrymen began to think that the business would be overdone and even fall and winter eggs would be cheap. But where are the pullets raised by the purchasers of baby chicks. Evidently they are keeping them. I never knew high quality pullets to be more scarce and owners of good ones are keeping them. Buyers who wish to own good pullets find they cost \$2.00 each or more and are scarce at any price. Many city poultry keepers try to buy pullets at the old prices of about \$1.00 each. They obtain very few birds.

Buy Cockerels Now.

It is now time for the late buyers of cockerels to begin to hunt for good birds at \$2.00 to \$3.00 each. In some sections they will be scarce. I know poultrymen who had rather sell pedigreed cockerels for broilers in the spring at \$1.00 each than to keep them almost a year for a price of \$3.00 each. I think the poultry business has reached a stage where breeders must raise their cockerels, buy them in the summer and early fall or expect to pay about \$5.00 each for good breeders. With fall and winter eggs high in price the poultryman cannot afford to use his housing room for a lot of low-priced cockerels. The pullets deserve the most favors and the cockerel money is often needed for pullet rations.

TURKEY CROP SHORT.

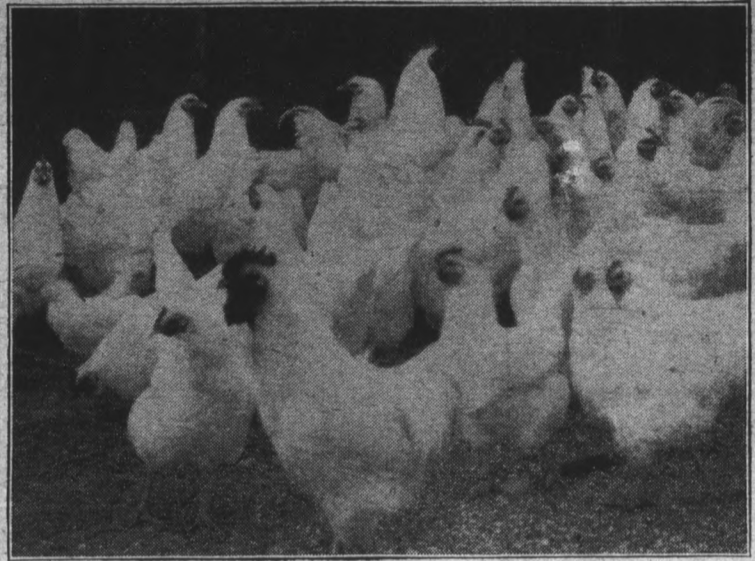
OWING to the lateness of the season a larger portion of the small turkey crop will be held over for the Christmas trade than usual. The producers will be unable to fit the birds for the Thanksgiving trade in many instances, due to the slower development occasioned by the cool season. While this condition is true generally there are places in Michigan where the crop came through in excellent condition.

FOREMAN RESIGNS.

PROF. E. C. Foreman resigned as head of the M. A. C. poultry department, to engage in commercial poultry business near Mason, Mich., where he has bought a farm. Mr. Foreman's reputation as a poultry expert will assure him success in his commercial venture.

Poultry—the biggest thing on the farm!

Don't say "No" before you read these amazing figures taken from Government Reports



POULTRY—a proven source of profit is neglected on most farms. With proper care of flocks, poultry profits can be turned into a big, man-sized income. Careful feeding plays the most important part.

Government statistics show that \$1,047,000,000 were paid to poultry raisers in 1923! This amazing sum exceeded the total wheat crop by \$300,000,000. It is greater than the value of all cattle raised. It is three times larger than the year's tobacco crop. More than twice the combined potato and sweet potato crops. No one can truthfully say—in the face of these figures—that poultry is just a means of picking up a little extra money. Nor can anyone deny that poultry is worthy of your best effort.

Big Egg Production

How to get it during the Cold Weather Months

There's an eager market waiting to absorb the Nation's poultry products and especially during cold weather. The demand for high-priced winter eggs is growing greater daily. So the vital question now is not the market, but how to get greater egg production at the lowest cost. The answer to that question lies in proper feeding. No other phase of poultry raising should be watched with greater care.

See that hens are fed good scratch grains daily. This makes

the yolks. But yolks alone do not make eggs. The whites must be developed, too. Scratch grains will not accomplish this. *Globe Egg Mash* will. This combination of scratch grains and *Globe Egg Mash* promotes egg production in a healthy normal manner.

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Our word alone, we know, is not enough to prove our claims for *Globe*. But remember, please, our standing with the country's leading poultry raisers—the fact that back of *Globe Egg Mash* are 22 years of experience in poultry feeds and on practical poultry farms. And that nearly half a million poultry raisers now depend on *Globe* to get big egg production during the winter months.

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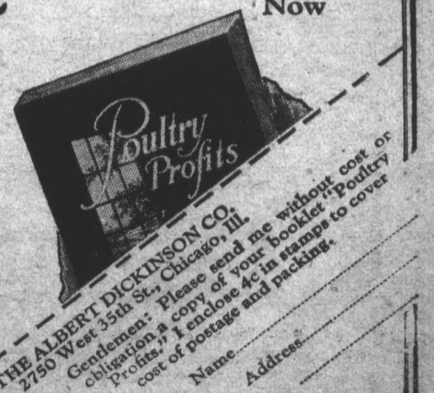


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Niagara S. S. C. will clean your orchard and give your trees a chance to produce quality fruit next year. See your dealer or write for Soluble Sulphur booklet today.

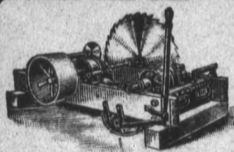
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ORCHARD AND GARDEN

GATHER GRAFTING WOOD THIS FALL.

YEAR after year we find growers wishing they had cut cion wood in the fall or early winter. Many a man discovers rodent girdling of his trees only when it is too late to gather cion wood suitable for treating the injuries. This is the annual story.

This year an additional factor should be taken into account. The lateness of the season has prolonged growth to such an extent that many trees will go into winter so immature that they will be in grave danger of injury even from moderate cold weather.

This injury is likely to affect the lower part of the trunk. For this, bridge grafting is just as necessary as it is for rodent girdling. This will, obviously, involve more and longer cion wood.

Finally, immaturity and cold weather combined can easily make good cion wood scarce. It may be killed outright or it may be injured only in the pith so that it deceives the grower who may set it and then spend a year wondering why his grafts didn't grow.

In short, then, there is possibility of unusual need of cion wood next spring and of unusual scarcity in the same commodity, especially of the long growths often necessary in bridge grafting.

Every fruit grower would do well to gather the 1925 grafting wood and label it soon after the leaves have fallen; bury it on the north side of a building in well-drained soil where it will remain dormant until early summer.—H. A. Cardinell.

DELAY STRAWBERRY MULCHING.

HEAVY mulching of strawberries in the fall is not a good practice. The correct method is to wait until the ground freezes and then apply the mulch. The idea is to get the frost into the ground and keep it there, thus preventing the buckling out of plants. It is a good idea to put on a light mulch in the fall to prevent any fall buckling, but the heavy mulch should be delayed until the surface of the soil is thoroughly frozen.

The winter mulching of strawberries is a subject that many growers do not fully understand. It is a common belief that the purpose of the mulching is to prevent the plants from being killed by low winter temperatures. This belief is largely false, since the strawberry plants are not seriously injured by low temperatures. Strawberry plants are very shallow rooted and are often buckled out of the ground during periods of alternate freezing and thawing and during the late winter and early spring. The purpose of the mulching is to prevent this buckling out of plants. Because of this, the time that the mulch is applied is a very important matter.

MAKE USE OF THE WOOD ASHES.

I LIKE to burn wood. I make use of all wood ashes in the garden or orchard. Onions are especially benefited by a sprinkling of ashes along each side of the row. Fruit trees bearing heavily will need them, especially if the soil in your locality is not of a clay base, and if it has been heavily manured often it will like them anyway. Any seed-producing crop likes plenty of potash, and potatoes, onions and beets will welcome them. The habit many have of sprinkling ashes in the henhouse is not a good one, for ashes will make the feet sore for one thing, and they cause a loss of ammonia in the poultry droppings for another. It is better to use

road dust for that purpose and pile the ashes in a dry place to keep if you cannot spread them as taken out.—Agnes Hilco.

DISEASED BARK.

I enclose a piece from the trunk of a young Jonathan apple tree which is apparently diseased. A black substance washes down from points where cuts have been made onto healthy bark. Kindly identify this for me.—W. K.

The black growth of which you write is not a parasitic growth, but is a superficial mold growing on the exudate from the wounds. It will do no harm and the tree will soon clean itself up. The dormant spray assists in keeping the limbs clean.

SQUASHES AND PEPPERS.

I would like to know if there is any money to be made in growing peppers or squash, and if you could tell me where I could find a market for them if I raise them. Is Michigan too far north to ripen the Crimson Giant pepper.—R. D. P.

You undoubtedly could grow a profitable crop of squashes, but your chief difficulty would be in finding a market for them. The demand for winter squash is limited and unless you have facilities for properly curing them in preparation for shipping to distant markets you would not be able to market in quantities large enough to make it profitable. The Crimson Giant pepper can be ripened in southern Michigan, but I do not think that the seasonal conditions in your section are favorable to mature a profitable crop. While it may be possible for you to grow peppers and squashes, I think there are other crops which you can grow equally well, or better, and you are always assured of a market for them.—R. E. Loree.

GRAPE QUESTIONS.

Please tell me how to make grape cuttings. Also tell me how to set the cuttings and if a southern slope is all right for grapes.—B. H. P.

Grape cuttings are very easily made by cutting this season's prunings into three bud lengths. In making such cuttings be sure that the wood is thoroughly healthy and not dried out. The best cuttings are made from that part of the prunings which were nearest to the vine.

In setting the cuttings, they should be planted right side up, with two buds in the ground and one above. The usual custom is to plant them slightly on the slant and in rows, with the cuttings about six inches apart.

A southern slope is all right for grapes, and it makes little difference whether your trellis is running north and south or east and west, although it is the usual custom to run the vines across the slope, rather than with it.

BOILED NEWS.

The Michigan Certified Seed Potato Growers' Association will establish a minimum price for its seed. Growers may sell their own stock, provided they do not sell under the minimum price. There will also be an advertising and educational fee of three cents a bushel. The membership fee will be one or two dollars per year.

The world's record in potato production was recently made in San Joaquin county, California. Weighed and measured by government officials, a surveyed acre produced 962½ bushels of Burbank potatoes.

The sugar beets of Michigan are richer in sugar than usual because the warm autumn made it favorable for the beets to increase in sugar content.

THE HANDY MAN'S CORNER

KEEPING FRESH MEAT IN WINTER.

I AM wondering if some of the readers of your paper would be interested in my method of keeping fresh meat in winter. This method can be used only when there is snow. This is how I do it:

First, I see that the meat is frozen hard. Then, in the bottom of a barrel, I lay a thick layer of clean snow and on it a layer of the meat. Care is taken to keep the meat away from the staves of the barrel and to fill this space with well-packed snow. Another layer of the snow is then added and on this goes the second layer of meat. This process is continued till the meat is all down, or the barrel is nearly full, when a good thick layer of snow is put on top. A heavy cover should then be placed over the barrel to keep dogs and cats from getting at the contents. The meat can be taken out as needed, but in doing so make certain each time the meat is removed that the top is again covered with a thick layer of snow. Place the barrel somewhere in a shady nook where the contents will be kept cold.—R. S. Johnston.

HOW I GET MORE FROM MANURE.

I AM sure that I am getting more value from my manure supply than I did before I changed my methods of handling it. I have no manure shed, and it is not convenient for me to haul

My Best Investment

HERE we are again. I hope the fall work is so far out of the way that there is now a little more time to read and write. Just at this time I am making an appeal for short letters telling of your best investment in equipment on the farm or in the home. It may be a radio, a new hog house, a septic tank, a culti-packer, or whatnot. All you need to do is to send a short letter telling of your best farm investment and why you think so, to me, the Handy Man, Michigan Farmer, Detroit, not later than December 10. To each of the writers of the five best letters I am going to send a prize of one dollar. Be sure to keep the letters short.

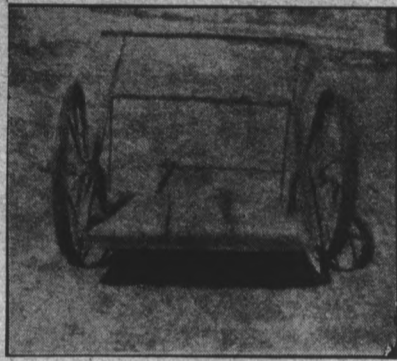
THE HANDY MAN.

it to the field as it comes from the stables. Formerly, I piled it in shallow layers where it was most convenient. But, I observed when loading on the spreader that much of the horse manure was fire-fanged, and that it appeared to have little life. I then, upon the advice of the county agent, piled

it up near the barn with vertical sides. The pile was made as deep as it was convenient to pitch, and frequently I would tramp the pile down to make it firm. Built in this manner the manure would leach very little and the fire-fanging seemed to be prevented, especially where we mixed the manure from the horses and cows.—R. Jones.

THE WORST IS NOW THE BEST.

THIS farming business is funny. For many years we have been cropping our land after the fashion of the average farmer—fitting the available



This Hand Milk Cart Works.

fields, planting them, harvesting what crops we got, and then repeating the process.

Three years ago, however, we got to thinking seriously of a low field which had been abandoned because we could grow nothing on it due to drowning out. We finally tilled this land. This took care of the water, and now, with the same work on this low field, we can grow twice the crops that the other fields seem able to produce. So what was the poorest field of the farm is now the best.

But, I have also made up my mind that this is not the end. I have another think. With this good land supplying grains and hay, I can now do a little work with the higher land. So I am starting in next spring with some sweet clover to be used for pasture and for plowing down. This leads me to think that I am now going to build up a good farm.—Peter Winkle.

MY CHORE HOURS ARE SHORTER.

ALTHOUGH we are keeping the usual amount of live stock, which consists of about thirty hogs, having four brood sows, a flock of forty sheep and from ten to twenty head of cattle, the time required to do the chores has practically been cut in two by the simple method of putting in water tanks where each kind of stock can have access to it at all times, and by building self-feeders. I know that it is worth the time of any busy farmer to see how he can simplify his chore job by installing these two labor-savers.—Ernst Carpenter.



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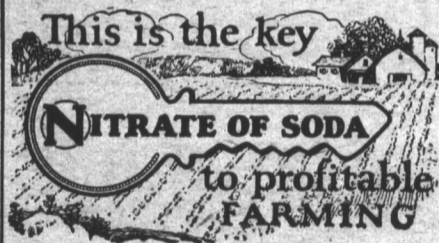


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NO AMOUNT of fertilizer will grow a satisfactory crop if it does not contain sufficient nitrogen to balance it. Nitrogen, being the most costly of the fertilizer elements, is the one most grudgingly used and often is of the poorest grade because of its price. Your mixed fertilizers should contain 4% to 7% ammonia in available form. They seldom do contain that much and the formula does not state its availability. That is why

IT PAYS TO USE NITRATE OF SODA

100 pounds per acre for field crops
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This office is maintained to furnish authentic information and render any possible assistance to farmers in their fertility problems.

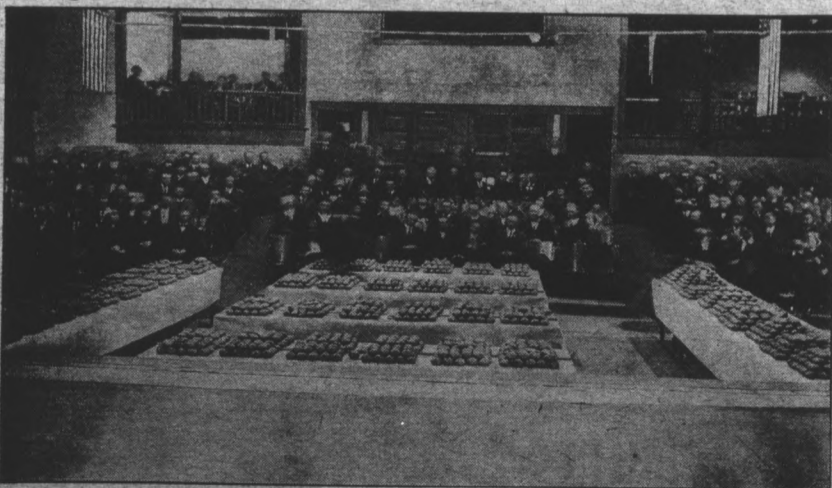
If you want our bulletins or need information about the use of Nitrate of Soda, or if you cannot readily secure the nitrate you require, write our nearest office. For our information please add the number 1522

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World's Record Milk Producer

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Record-breakers the country over, not alone in the dairy breed, but among animals of all kinds, have their rations balanced with Linseed Oil Meal. It pays—as explained fully in our booklet, "How To Make Money With Linseed Oil Meal," written by Prof. F. B. Morrison, Asst. Director of the Wisconsin Experiment Station. Send for copy now. Ask for Booklet p-12

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The Care of Milking Machines

By G. L. A. Ruehle

THERE seems to be little doubt that the milking machine has come to stay. Whenever there is a shortage of labor on the farm the milking machine tends to make the owner independent of hired help. It has been estimated by a number of experiment station investigators that anyone milking fifteen cows will find it profitable to use a milking machine.

The one drawback to the milking machine is the fact that, as frequently handled, the germ content of the milk is inordinately high and the keeping quality of the milk is poor. At first glance, this seems rather inexplicable. One would suppose that since milk is enclosed in tubes and, therefore, protected from all external contamination, that the operator should be able to eliminate bacteria and dirt. This was confidently expected in the early days when milking machines were first thought of, and the high count milk obtained was a distinct disappointment to the early inventors.

The reason for the high counts is not far to seek. The trouble in part lies in the complicated mechanism necessary and in part in the necessity of using rubber tubes. Rubber, as is well known, soon becomes finely interlaced with numerous fine crevices, in which is inevitably deposited a small amount of milk residue. This milk residue, of course, carries bacteria, which readily multiply to enormous numbers before the next milking period. The central problem, then, in the care of milking machines, is the treatment, or handling, of the machines in such a manner that the milk residue shall be removed as fully as possible and the small number of bacteria remaining be prevented from growing.

A large number of investigations have been carried on by various experiment station workers to devise means to accomplish this end. It was the good fortune of the writer, when located at The New York Agricultural Experiment Station, to carry out some of these experiments. A number of efficient antiseptic solutions were thoroughly tested out, practically as well as experimentally. But before describing these solutions it should be remarked that no antiseptic solution can be efficient unless accompanied, or rather preceded, by cleanliness.

It is a fact well known among bacteriologists that any antiseptic or germicidal agent must come into intimate contact with bacteria in order to kill them. Furthermore, it should be remembered that bacteria are so exceedingly small that an enormous number of them can hide under a very thin film of grease. Too often it has been observed that farmers do not have a ready supply of hot water in the barn. Good results cannot be expected without the use of hot water.

How the Tubes Can Be Cleaned.

In our experiments it was found that the following procedure effectively prepared the milking machine tubes for efficient sterilization by antiseptic solutions:

With the machine running as for milking, the teatcups were immersed in a pailful of cold water to remove the bulk of the milk remaining in the tubes.

This was followed by a similar rinsing in a pailful of scalding hot water, containing a handful of cleansing powder in solution. This was for the purpose of removing grease.

A third rinsing, conducted in a similar manner and using merely hot water, was then given the tubes.

Once per week the tubes were taken apart and thoroughly scrubbed with brushes, using a cleansing powder solution.

After the daily rinsings described above, the tubes were placed in the antiseptic solutions in such a way that

no air could be imprisoned in a loop of the tube. An easy way to do this is to place the teatcups into the solution first and then gradually immerse the rest of the tube.

Other Solutions Found Effective.

The following solutions were found to be effective in restraining bacterial growth: Limewater, ten per cent brine, chloride of lime solution, and, most efficient of all, a solution consisting of a saturated lime, containing some chloride of lime. Cold running water was also found to be effective. In the latter case the temperature of the water must remain below fifty degrees F., to be effective. If the temperature goes above this point the surfaces of the tubes will be apt to become coated with a bacterial slime and large numbers of bacteria will be added to the milk, even before the appearance of the slime.

Lime water can be made by slaking some ordinary quicklime in a small amount of water and then adding a larger amount of water. Such a solution remains effective for several weeks but new lime must be added at least once per month. The amounts suggested for making the solution are ten pounds of quicklime for twenty-five gallons of water.

A ten per cent brine, that is, a solution of common salt in water, was found to be fairly efficient. The great trouble with this solution, when used by practical farmers, was that the farmer had no way of knowing whether or not his solution maintained its full strength. This solution was abandoned for one consisting of a saturated lime, that is, a solution in which no more salt can be dissolved. With chemically pure water, a thirty-six per cent solution is possible. Such a solution has the advantage that the farmer can readily ascertain that he has a saturated solution.

All that is necessary is that the solution must have undissolved salt present at all times. Curiously enough, such a solution will contain a distinct bacterial flora of its own, but the bacteria growing in the salt solution cannot grow in milk, nor, indeed, upon any food which does not contain a large amount of salt.

Chloride of Lime Helps.

To get a thoroughly sterile solution, a certain amount of chloride of lime was added to the saturated brine. This was added in the form of a stock solution at the rate of one quart of stock solution to forty quarts of brine, once per week during cold weather and twice per week during warm weather. The reason for adding more in summer than in winter is owing to the fact that chloride of lime is destroyed by organic matter, including rubber, and since this destructive action is a chemical reaction, it takes place more quickly at a high temperature than at a low one.

The stock solution of chloride of lime is made as follows: A twelve-ounce can of dry chloride of lime powder is mixed with a gallon of water in a glass or crockery vessel, preferably one that is tall and narrow. The mixture is allowed to stand overnight; then it will be observed as a greenish colored liquid with a heavy white precipitate in the bottom of the jar. The stock solution consists of the greenish liquid above, the white powder below being inert.

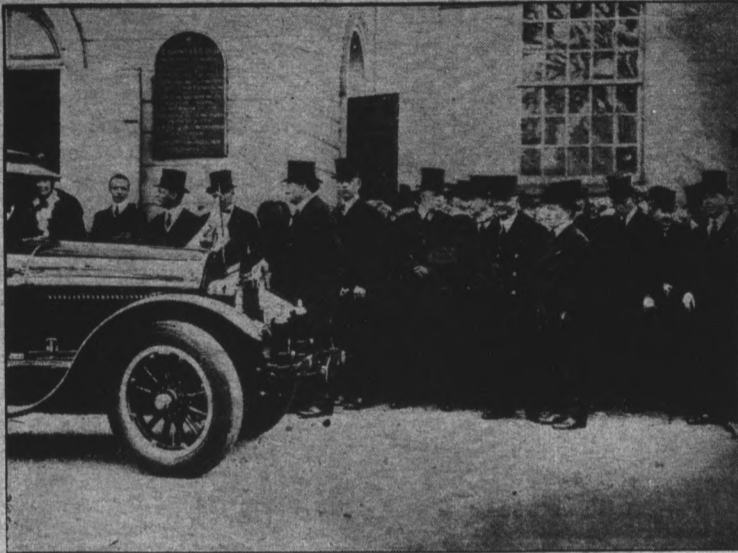
A caution should be mentioned at this point. Chloride of lime, as purchased upon the market, frequently is of very poor quality. If the contents of the can is moist or lumpy, or, in other words, not in the form of a dry powder, the substance is worthless. This probably accounts for some of the poor results obtained with the use of chloride of lime alone.

The manufacturers of milking machines (Continued on page 513)

WORLD EVENTS IN PICTURES



This sturdy, healthy nine-months-old baby is nearly half as tall as his mother.



Some of the notables as they gathered outside the door of Christ Church, Cambridge, Mass., in attending the funeral of Henry Cabot Lodge, U. S. Senator from Massachusetts.



From poverty and illiteracy at eighteen, Dr. Owens Adais is now a noted physician.



Two thousand children of the Near East relief orphanage center at Alexandropol, Armenia, expressed their thanks to America for aid that kept them from starvation and death.



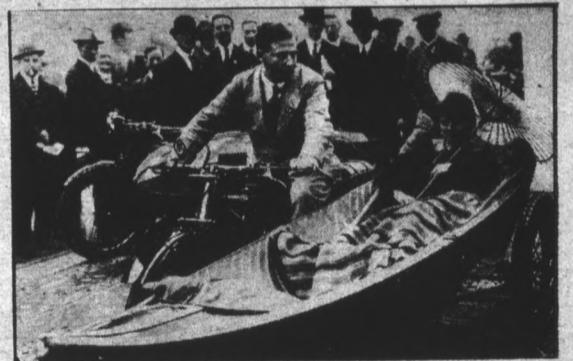
Fifteen hundred persons were rendered homeless through the most disastrous fire of recent years that razed three blocks in Jersey City, New Jersey. The loss is estimated at \$5,000,000.



Elizabeth Brockway Crispin, direct descendant of Capt. Thomas Holme, who surveyed the Quaker City, unveiled this tablet to him.



Robert D. Carey, ex-governor of Wyoming, is selected as head Agricultural Inquiry Commis'n.



A new vehicle has just appeared in England, called a "canoe cycle." The 14-foot canoe can be detached from frame in 40 seconds.



Huge fir logs from Oregon forests, totalling 6,000,000 feet of lumber, traveled down the Columbia River as a "Davis raft," a recent invention which saves much time in the lumber business.



The Gandy Bridge, spanning Old Tampa Bay and connecting Tampa and St. Petersburg, Florida, has just been completed. This great concrete structure is the longest auto toll bridge in world.

YOUR mother was different," he said, slowly.

Instinctively they both turned towards the shanty. Beside the doorstep rose a granite headstone.

After a while Jocelyn drew out his jack-knife and laid the fish on the dead grass, and the girl carried the bucket of water back to the house. She reappeared a moment later, wearing her father's shooting-jacket and cap, and with a quiet "good-bye" to Jocelyn she started across the hill-side towards the woods above.

Jocelyn watched her out of sight, then turning the pickerel over, he slit the firm, white, belly from vent to gill.

About that time, just over the scrubby hill to the north, young Gordon was walking, knee deep in the bronzed sweet fern, gun cocked, eyes alert. His two beautiful dogs were working close, quartering the birch-dotted hillside in perfect form. But they made no points; no dropping woodcock whistled up from the shelter of birch or alder; no partridge blundered away from bramble covert or willow fringe. Only the blue-jays screamed at him as he passed, only the heavy hawks, sailing, watched him with bright eyes.

He was a dark-eyed, spare young man, with well-shaped head and a good mouth. He wore his canvas shooting-clothes like a soldier, and handled his gun and his dogs with a careless ease that might have appeared slovenly had the results been less precise. But even an amateur could see how thoroughly the ground was covered by those silent dogs. Gordon never spoke to them; a motion of his hand was enough.

Once a scared rabbit scuttled out of the sweet fern and bounded away, displaying the piteous flag of truce, and Gordon smiled to himself when his perfectly trained dogs crossed the alluring trail without a tremor, swerving not an inch for bunny and his antics.

But what could good dogs do, even if well handled, when there had been no flight from the north? So Gordon signalled the dogs and walked on.

That part of his property which he had avoided for years he now came in sight of from the hill, and he halted, gun under his arm. There was the fringe of alders, mirrored in Rat's Run; there was Jocelyn's shanty, the one plague-spot in his estate; there, too, was old man Jocelyn, on his knees beside the stream, fussing with something that glistened, probably a fish.

The young man on the hill-top tossed his gun over his shoulder and called his two silvery-coated dogs to heel; then he started to descend the slope, the November sunlight dancing on the polished gun-barrels. Down through the scrubby thickets he strode; burr and thorn scraped his canvas jacket, blackberry-vines caught at elbow and knee. With an unfeigned scowl he kept his eyes on Jocelyn, who was still pottering on the stream's bank, but when Jocelyn heard him come crackling through the stubble and

The Market Hunter

By Robert W. Chambers

looked up, the scowl faded, leaving Gordon's face unpleasantly placid.

"Good-morning, Jocelyn," said the young man, stepping briskly to the bank of the stream; "I want a word or two with you."

"Words are cheap," said Jocelyn, sitting up on his haunches; how many will you have, Mr. Gordon?"

"I want you," said Gordon, slowly

"you were left in that house because your wife's grave is there at your very threshold. You have your house free, you pay no rent for the land, you cut your wood, without payment. My gardener has supplied you with seed, but you never cultivate the land; my manager has sent you cows, but you sell them."

"One died," muttered Jocelyn.

WIRELESS WHISPERS

By Verne H. Church

When day is done and I retreat
To fireside's softest seat,
The paper scanned and headlines read,
And daily cares are dead;
Then comes to be in accents sweet,
My joy to make complete,
A whispering wind from overhead,
That stays till time for bed.

This sweet small voice each night I hear
Is full of hope and cheer;
It brings to me from out the night
A new and strange delight:
It comes on wings from far and near
And always seeks me here;
I would not have it change its flight,
Or pass to left or right.

It tells a story of some deed
The next day we shall read,
Or sings a song that's old or new;
May be the harp in lieu,
It's notes of sweetest charm are freed,
And comes to my soul to feed;
No matter if I'm tired and blue,
Inspires my hopes anew.

It leads my thoughts to fields afar
Where many people are;
Where hearts are light and life is gay
Till night has turned to day.
The measured miles seem not to mar
The sounds that come so far;
And who would dare of them to say,
That they can bar the way.

And when the hours have flown at last,
And fancy's sway has passed;
I try to lose the scenes in mind,
And leave them far behind.
But they remain so hard and fast,
My efforts are outclassed;
And I retire, humbly resigned
That He to me is kind.

They teach me that those waves may bear
A thoughtful message rare,
Of sentimental love for me
From those I do not see;
Or wishes kind from those who care
How I and mine shall fare;
So I must try myself to free,
From all I should not be.

emphasizing each word, "to stop your depredations on my property, once and for all."

Squatting there on the dead grass, Jocelyn eyed him sullenly without replying.

"Do you understand?" said Gordon, sharply.

"Well, what's the trouble now—" began Jocelyn, but Gordon cut him short.

"Trouble! You've shot out every swale along Brier Brook! There isn't a partridge left between here and the lake! And it's a shabby business, Jocelyn—a shabby business."

He flung his fowling-piece into the hollow of his left arm and began to walk up and down the bank.

"This is my land," he said, "and I want no tenants! There were a dozen farms on the property when it came to me; I gave every tenant a year's lease, rent free, and when they moved out I gave them their houses to take down and rebuild outside of my boundary-lines. Do you know any other man who would do as much?"

Jocelyn was silent.

"As for you," continued Gordon,

"Yes—with a cut throat," replied Gordon. "See here, Jocelyn, I don't expect gratitude or civility from you, but I do expect you to stop robbing me!"

"Robbing!" repeated Jocelyn, angrily, rising to his feet.

"Yes, robbing! My land is posted, warning people not to shoot or fish or cut trees. The land, the game, and the forests are mine, and you have no more right to kill a bird or cut a tree on my property than I have to enter your house and steal your shoes!"

Gordon's face was flushed now, and he came and stood, squarely in front of Jocelyn. "You rob me," he said, "and you break not only my own private rules, but also the state laws. You shoot for the market, and it's a dirty, contemptible thing to do!"

Jocelyn glared at him, but Gordon looked him straight in the eye and went on, calmly: "You are a law-breaker, and you know it! You snare my trout, you cover the streams with set-lines and gang-hooks, you get more partridges with winter grapes and dead-falls than you do with powder and shot. As long as your cursed

poaching served to fill your own stomach I stood it, but now that you've started wholesale game slaughter for the market I am going to stop the whole thing."

The two men faced each other in silence for a moment; then Jocelyn said: "Are you going to tear down my house?"

Gordon did not answer. It was what he wanted to do, but he looked at the gaunt, granite headstone in the doorway, then dropped the butt of his gun to the dead sod again. "Can't you be decent, Jocelyn?" he asked, harshly.

Jocelyn was silent.

"I don't want to turn you out," said Gordon. "Can't you let my game alone? Come, let's start again; shall we? I'll send Banks down to morrow with a couple of cows and a crate or two of chickens, and Murphy shall bring you what seeds you want for late planting—"

"To hell with your seeds!" roared Jocelyn, in a burst of fury. "To hell with your cows and your Murphy and your money and yourself, you loafing millionaire! Do you think I want to dig turnips any more than you do? I was born free in a free land before you were born at all! I hunted these swales and fished these streams while you were squalling for your pap!"

With blazing eyes the ragged fellow shook his fist at Gordon, cursing him fiercely, then with a violent gesture he pointed at the ground at his feet: "Let those whose calling is to dig, dig!" he snarled. "I've turned my last sod!"

Except that Gordon's handsome face had grown a little white under the heavy coat of tan, he betrayed no emotion as he said: "You are welcome to live as you please—under the law. But if you fire one more shot on this land I'll be obliged to ask you to go elsewhere."

"Keep your ears open, then!" shouted Jocelyn, "for I'll knock a pillowful of feathers out of the first partridge I run over!"

"Better not," said Gordon, gravely. Jocelyn hitched up his weather-stained trousers and drew his leather belt tighter. "I told you just now," he said, "that I'd never turn another sod. I'll take that back."

"I am glad to hear it," said Gordon, pleasantly.

"Yes," continued Jocelyn, with a grim gesture, "I'll take it back. You see, I buried my wife yonder, and I guess I'm free to dig up what I planted. And I'll do it."

After a pause he added: "Tear the house down. I'm done with it. I guess I can find room somewhere underground for her, and a few inches on top of the ground for me to sit down on."

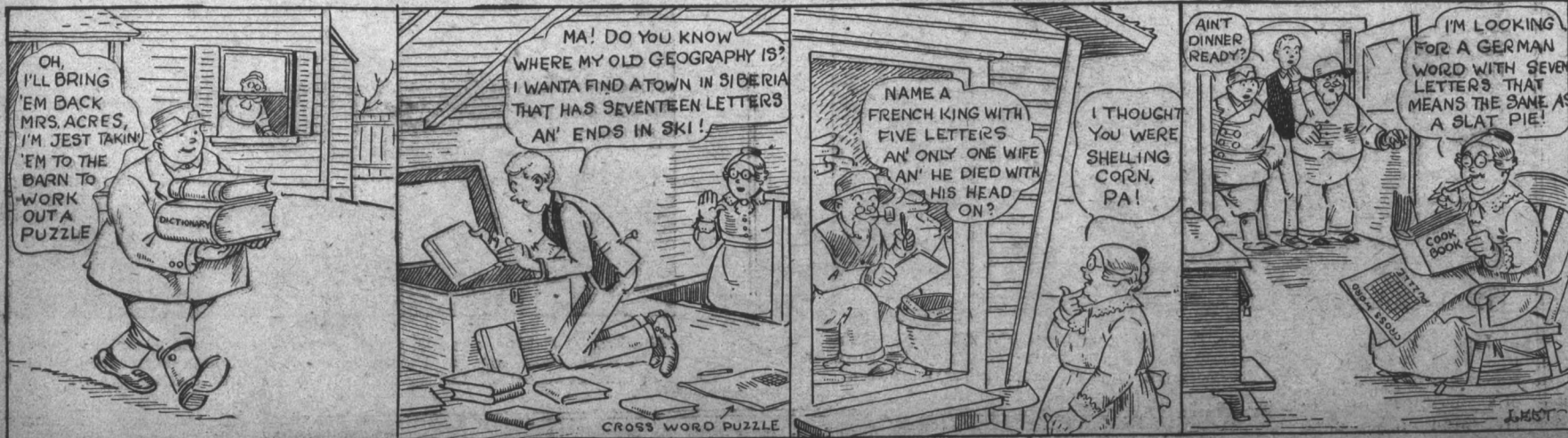
"Don't talk like that," said Gordon, reddening to the roots of his hair. "You are welcome to the house and the land, and you know it. I only ask you to let my game alone."

"Your game?" retorted Jocelyn. "They're wild creatures, put there by Him who fashioned them."

(Continued next week.)

AL ACRES—It's as Catching as The Itch

By Frank R. Leet



You'll get Extra Wear from this live elastic rubber

RUGGED construction makes a lot of difference in the wear of your boots—of course.

But it's every bit as vital to have rubber that won't soon crack and break!

Thousands upon thousands of times your boots are bent and wrinkled. It takes *real live rubber* to stand this constant wrinkling and still *stay waterproof*.

And that's what the rubber in "U.S." Boots will do! No more live and elastic rubber has ever been used in boot construction.

Cut a strip of this rubber from a "U.S." Boot and you'll find it will stretch *more than five times its length without breaking!* And it will snap back into shape every time—like an elastic band.

This live, tough rubber means longer wear. Anchored in this elastic rubber are layer

on layer of strong fabric reinforcements. Where the hardest strains come there are *as many as eleven separate layers* of rubber and fabric.

They give to "U.S." Boots strength to stand the hardest knocks and strains.

"U.S." Boots wear longer because they're *built* to wear longer. It will pay you to ask for "U.S."

Other "U.S." Rubber Footwear

You'll find every type of rubber footwear in the big "U.S." line. There's the Walrus, the famous all-rubber overshoe—the "U.S."

lace Bootee, a rubber workshoe for fall and spring—"U.S." Arctics and Rubbers—all styles and sizes for the whole family. Look for the "U.S." Trade

Mark whenever you buy—the honor mark of the largest rubber organization in the world.

United States Rubber Company



"U.S."
Boots - Walrus
Arctics - Rubbers



U.S. WALRUS

The Greatest Gift of All!



There is more than passing pleasure in the gift of a Willys-Knight—infinitely more! Such a gift will bring your family boundless joy and happiness, now and in the years to come.

Pride in its distinctive beauty of line and contour—its brilliant performance—its smooth, velvety power. Satisfaction in the amazing quietness, flexibility and economy of the world-famous Willys-Knight sleeve-valve engine.

This is the same type of engine that powers the most expensive, hand-built cars of Europe; the *only* type of engine in the world that actually *improves with use*. Simple, sliding sleeves instead of noisy poppet-valves. The annoyance and expense of carbon-cleaning and valve-grinding are banished forever. Carbon only makes this engine quieter, smoother and more powerful, mile after mile and season after season.

And finally—in addition to matchless beauty, comfort, economy and long life—all Willys-Knight models are now equipped with the famous Lanchester Balancer, which gives Willys-Knight freedom from vibration so common in motor cars.

At the wheel of a Willys-Knight car, you can loll back in the deep, soft, yielding cushions and relax. Driving is as effortless as breathing; steering as easy as turning your head. Control levers are just the proper length. An unusually light pressure operates the foot pedals.

Why not make *this* Christmas memorable? Give yourself and your family a Willys-Knight—a car you can keep for years and years.

WILLYS-OVERLAND, INC., TOLEDO, OHIO
Willys-Overland Sales Co. Ltd., Toronto, Canada

WILLYS-KNIGHT

THE ENGINE IMPROVES WITH USE

The Man Born Blind

Our Weekly Sermon—By N. A. McCune

TROUBLE. That is what this man had. Life-long trouble. Blind from birth. Affliction is common. People suffering from disease or poverty or deformity, for which they are in no way to blame. Yet there is this to comfort them. They have a chance to overcome more obstacles than others. And often they do overcome them.

A writer in a rural periodical tells the following: "A man lying on a cot; the cot standing on a stoneboat; the stoneboat lying close to a deep pool in the bend of the river; the man all alone, flat on his back, silently whipping the trout pool with his fly. I came to believe in this helpless fisherman, and again all things good and beautiful seemed possible. I got the story from his sister. As a boy on the farm he had made up his mind to get an education. At sixteen he was impatiently looking forward to beginning his courses of study, when one day a tree which was being felled struck him and broke his back.



"He never walked again. Doomed to lie on his back, all hopes blighted, he asked for something to do with his hands. They gave him needle and thread, shears and a piece of buckskin. He made a pair of clumsy buckskin gloves. He made a better pair, and still better. Then dozens of pairs, until he built up a small business. But his ambition mounted with success, and he wanted to study something. 'Can't I study law?' he asked.

"They got him law books. He read law and made buckskin gloves; made gloves and studied law. He was admitted to the bar. He became justice of the peace in his backwoods settlement. Men got to going to him for miles, to tell him their troubles. His ethics rested on the Sermon on the Mount. He bought land, hired it tilled, built himself a better house, and settled into the character of a country squire. He was of the little church flock, and the rest of the flock came to set great store by his good sense, his wholesome cheer, indomitable activity, and, withal, his straight reliance on God; in fact, the helpless glover's dwelling was the meeting place for the flock about as often as the church building; for everybody said, 'We get new strength to keep going when we meet around the cot.'

A BRIGHT light in the firmament of the Scotch pulpit of the past fifty years was the late Dr. George Matheson. Blind from youth, Matheson has a right to say something about affliction. He made his way through the university by his sister's reading his lessons to him, and later wrote many books which have extraordinary power. One of these lies before me, entitled, "Rests by the River." The essay on "Adverse Circumstances" contains this: "My brother, God never thwarts adverse circumstances; that it not his method. I have often been struck with these words, 'He rideth upon the wings of the wind.' They are most suggestive. Our God does not beat down the storms that rise against Him; He rides upon them; He works through them. You are often surprised that so many thorny paths are allowed to be open for the good—how that aspiring boy Joseph is put in a dungeon—how beautiful Moses is cast into the Nile.

You would have expected Providence to have interrupted the opening of these pits destined for destruction. Well, He might have done so; He might have said to the storm, "Peace,

be still!' But there was a more excellent way—to ride upon it. God said, 'I will not shut the pit but I will make it the road to the throne of Egypt; I will not dry the Nile, but I will make it the channel to a great sea; I will not prevent the cross, but I will make it the world's crown.' You, too, should ride upon the wings of the wind. Say not, 'I must take shelter till the storm passes.' Say not, 'God will sweep it away that I may come nearer to himself.' Nay, it is the storm that will bring you nearer. He maketh the clouds His chariot. Leap in His chariot! Commit yourself to the black horses! Go out to meet the storm! Recline upon the bosom of the cloud! Ride upon the wings of the wind! And they will bear you home. They will bring you to the Ararat of rest."

THAT is the only way to look at trouble. Look at it through faith. Get God to help bear the load. There is little use in placing the blame. Even if you can locate it, that will not remove the trouble that besets you, except to prevent a recurrence of it. Attributing our hard lot to our fathers is small consolation. Permitting ourselves to become soured with envy but makes all worse. Cast all your care upon Him, for He careth for you. All things work together for good—to certain people, namely, those that love God, and can look at their affliction with faith's vision.

This is not to be taken that we should not utilize all possible means at our command. God works through the principles of bacteriology, physiology, hygiene, as truly as through the principles of spiritual faith. The multiplication table is His, as well as the Ten Commandments.

WHY some folk have so much more affliction than others will always remain a mystery, at least in this world. It used to be held and taught that it is purely disciplinary. God chastises His children for their own good. But while there is truth in that, still the mystery is not solved why some people are chastised so severely, while others apparently escape all chastisement. Perhaps they receive it in the next world, while the others get it in this. The eugenist will state with conviction that it is all heredity. We reap what our grandfathers and our remoter ancestors have sown. And we do. But that alone will not account for much of the woe and pain of the world. Another theory is, that it is all personal. We receive with compound interest what we ourselves have sown. And there is large truth in that. But we also know that it covers but a part of the facts. A man whose barn is burned down with lightning in spite of carefully erected lightning rods cannot be said to be reaping the fruits of his own carelessness.

You will recollect that the book of Job is the most detailed and careful study of the problem of trouble in the Bible, or, for that matter, in the world. And when all has been said, and much light has been thrown on the subject, the book ends by saying that there is a deep mystery about it. We must fall back on God. Faith and faith only will meet the conditions and reassure the soul, whether the affliction be blindness, death, the loss of money, the loss of health or of friends. We know that God cares. Not a sparrow falls without his notice. Being sure of this, we can go on, and grapple with any foe.

SUNDAY SCHOOL LESSON FOR DECEMBER 7.

SUBJECT:—The man born blind. John 9.1 to 41.
GOLDEN TEXT:—One Thing I know, that, whereas I was blind, now I see. John 9.25.

A thin sidewall, but a strong one—that is the problem faced by every maker of balloon tires. Goodyear solved that problem by developing Supertwist. This remarkable new cord fabric is superior because it far out-stretches the breaking point of standard cord fabric, and thus affords Goodyear Tires extra protection against stone bruise and similar injury. Supertwist is used only by Goodyear, yet Goodyear Tires cost no more.

Goodyear Means Good Wear

GOOD YEAR

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Wood Sawing Records Broken

This Engine Has Broken Many Farm Power Records-- Worlds of Power

C. E. Gilbert, Frost, Ohio, says: "I bought my Edwards engine in 1920. Have been sawing wood right beside an 8 H. P. engine. The 8 H. P. sawed 24 cords in the same time that I sawed 32 cords. We both used the same size saws. I can pull a pair of 8-inch burrs wide open and elevate the feed 8 ft. above the mill."

G. N. Jerd, of Vermont, says: "Would not buy any other engine at one-half the price."

Clarence Rutledge, of Ontario, says: "Have given my Edwards engine four years steady work and like it fine. Runs 28-inch saw, 8-inch grinder, ensilage cutter, and does all the chores. I have had ten other engines. The Edwards beats them all."

Others say: "Fills a long felt want for us farmers." "Years of hard service and not a cent for repairs." "A little giant for work." "Has anything beat I ever saw in the shape of an engine."

One Engine—1 1/2 to 6 H. P. Change Power as You Change Jobs

Let me tell you how the Edwards engine is different from any other engine—how the one engine will fill your silo, or run your washing machine or do practically every power job on your farm—how it is changed from a 1 1/2 H. P. all the way up to a 6 H. P.—how it saves fuel—starts without cranking—how it does not have to be fastened down—does not vibrate—is light and easy to move from one job to another, yet is rugged and durable, and how it has made good with farmers for eight years.

Don't buy an engine until you get the facts about this marvelous engine. There is no obligation. Write now.

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You risk nothing. Just send me your name and address, and without the slightest cost or obligation, I will send you all of the facts about this remarkable engine, tell you how it will do practically every power job on your farm, and give you all of the details of my liberal free trial offer. Write today.

The Edwards Motor Co., [919 Main St., Springfield, Ohio



Woman's Interests



Aunt Charlotte Helps with the Meat

By Lena Carolyn Ahlers

LOOKING at the heaps of meat around me I sighed, and began the weary task of putting it in the barrel of salt brine by my side. "If only Henry didn't butcher so many hogs," I sighed aloud, "or we ate the meat better," I added, knowing at the same time that there was no more meat in the cellar than we would eat, but I did get so tired of the old salt pork.

"Good morning," and the voice startled me from the cellarway steps. I looked up with a frown that came from my sullen thoughts. Tripping down the steps with a cheery smile on her face came Aunt Charlotte.

"Mercy me, child, now what are you doing?" she questioned, good naturedly.

"I am putting the meat away in salt brine," I explained. "Henry had to go to haul corn."

"And you don't like it this way?"

Christmas Menu

DECEMBER is here, the last month of the year, that brings the mysterious plans and preparations for the sacred holiday.

In the kitchen, culinary secrets, as clandestine as any wrapped in tissue paper and tied with red ribbon, are being planned.

An exchange of these culinary secrets may be a suggestion to those puzzled as to just what to serve for the Christmas dinner.

For the best letter giving the menu and details about what you have planned for the holiday feast we will give a leather shopping bag, the four succeeding prizes will be handy needle cases containing many sizes and kinds of needles. Address your letters to Martha Cole, Michigan Farmer, Detroit, Michigan, before December 12.

questioned Aunt Charlotte. "Then why fix it like this?"

"Well, I don't know any other way to fix it so it will keep," I replied.

"Child, just you let me show you how to do it. Let me see, you just butchered yesterday, didn't you? Well, the meat ought to be a day old when rubbed with the mixture I am going to tell you about. But first I will skip home and get the saltpetre and light brown sugar. I don't suppose you have them, and while I am gone just you take out those pieces you have in the barrel. You liked the meat you had over at my house, didn't you?"

"Yes, yes," I answered quickly, remembering how delicious the meat I had eaten at her house seemed to taste.

It hardly seemed ten minutes later when Aunt Charlotte came puffing down the cellar steps again, her kindly face beaming with interest.

"Now," she ordered, "you hunt up a crock or something to mix the stuff in. We will just take a certain amount, though it may not be enough to fix all your meat, and if it isn't we can make more. That's all right," she asserted, as I handed her a two-gallon crock.

"Now measure out six cups of salt, and you see I am taking out three

cups full of this light brown sugar. Don't know why, but the light brown sugar seems to give the meat a better flavor than either the granulated or dark brown, and it also seems to make it keep better. I have brought some saltpetre and to this mixture add two tablespoonsful of it, and one of black pepper and one of red. The two different peppers seem to give it a better taste than just one kind. Now you mix it."

I did as I was told, mixing the ingredients very thoroughly. "That looks like a funny mixture to put on meat," I ventured.

"Don't it though?" she asked, "but my mother used it for years and never had a speck of meat to spoil. Rubbing it in the meat is quite a job, the hardest part of all, but if you don't get it rubbed in good the meat will surely spoil. Now see," and she picked up a good-sized piece of bacon and began rubbing the mixture over the surface.

"Oh, I can easily do that," I exclaimed.

"Of course you can," she encouraged, "but you must be careful to touch every part and to rub it in deeply."

After several hours of weary rubbing we had gone over all the pieces.

"Now we must lay the meat on a slanting board," announced Charlotte. "You must keep it there, too, during the curing process, so that every part of it will be touched by the air. The big pieces will have to be rubbed four times, and some of the hams may need five rubbings, but three will be enough for the smaller pieces."

"When must I rub it again?" I asked.

"Three days apart," replied Aunt Charlotte.

"All just fine," ejaculated Aunt Char-

lotte as she went along by the board on which the meat laid and punched each piece after their last rubbing. "Now bring me that bottle of liquid smoke that I told you to get the other day, and we will apply it to this meat according to directions."

Aunt Charlotte and I went carefully over the meat, brushing each piece with the liquid smoke.

"Now get that roll of brown paper that I had you get," ordered Aunt Charlotte. "Just one more handling of this meat and we will be through with it."

We wrapped each piece of meat up carefully in brown paper and carrying it to the store room hung it up where it was cool and dry.

"That meat will keep all winter, and summer, too," laughed Aunt Charlotte, surveying the long line of hanging brown parcels with approving eyes.

"Not if we like it as well as we did the meat you sent over," I retorted.

FOR THE CHRISTMAS TABLE.

WHY not serve Christmas dinner by candle light? Or if the dinner be at noon time, just darken the room. A rather interesting candlestick may be made in the following manner:

The materials necessary are pieces of white birch wood about one inch in diameter and six to eight inches long, circular pieces of wood, three inches in diameter, bits of holly, and candles. Have as many pieces of wood, of both kinds, as you wish candlesticks. Tack a circular piece of wood to one end of a long piece. See! you have a stick almost made. The other end of the piece of wood should be hollowed out, to hold the candle. Twine the bits of holly about the stem of the candle stick.

What Will You Buy in Toyland?

CHRISTMAS, expressed in the terms of the child's mind, is synonymous with toys. At this holiday season, made merry by children and for children, there is a tendency toward being too generous with toys. If not too generous, then too self-centered on the shopping trip to Toyland that we come home with toys bought to suit our own tastes and desires rather than the little four, five or six-year-old for which they are meant.

The great joy of receiving toys at Christmas time for children is getting what they want. Every toy should be made to exercise a dual purpose, that of making the child happy and of assisting him in an educative and creative way. Toys are the treasured possessions of childhood, and the impressions they make in childhood days are lasting.

It may be you note in advance what the child wants, but it is also necessary to know why. Perhaps little James wants a sled like the one his playmate has. This may be because it is a bright and shiny one, or because it can go faster and farther than any other sled of his playfellows. The boy who teases for expensive mechanical toys may have his real wish better gratified in the ownership of materials with which to experiment and construct his own metal toys. If Jane is of a studious nature, she will get more hours of real happiness out of a story book suitable to her age, rather than a set of doll dishes, which for us appears to be the correct gift for any little girl.

One can do a child a grave injustice by getting him everything he wants. This is a world of limitation, thwarted wishes and the necessity for sharing with others. If a host of toys and playthings is received at Christmas time, a child's appreciation for new toys later in the year, is dampened. One mother of our acquaintance allows her sons to have only a few of the toys they receive at Christmas time. The remainder is put away and given to them at appropriate times throughout the year.

Then, this Christmas morning let your children or your little friends receive the toys for which they have been longing, but let those toys be so selected as to incite happiness and delight in the gift, and stimulate the child mind in an educative way.

Do you see it now in fancy? A real outdoor candlestick it is. A bit of white bark with a holly spray about it, a white candle, the red of the berries, it is a charming affair.—J. W.

WHEN IGNORANCE WAS BLISS.

Methuselah ate what he found on his plate

And never, as people do now, Did he note the amount of the caloric count—

He ate it because it was chow. He wasn't disturbed, as at dinner he sat,

Destroying a roast or a pie, To think it was lacking in granular fat Or a couple of vitamins shy.

He carefully chewed every species of food

Untroubled by worries or fears Lest his health might be hurt by some fancy dessert,

And he lived over nine hundred years!

Household Service

COCOA CAKE.

Will you please send me recipe for cocoa cake?—Mrs. E. S.

1 cup sugar	1 cup flour
1/2 cup cocoa	1 egg (white to be beaten very stiff)
1/4 cup butter	Vanilla
1/2 cup hot water	Salt
1/2 tsp. soda	
1/4 cup sour milk	

Bake in moderate oven. Frost with white mountain frosting.

PATCHING UP THE MIRROR.

We have a mirror from which the silver has come off in several places. Could you tell me what I could do to it?—Mrs. C. H.

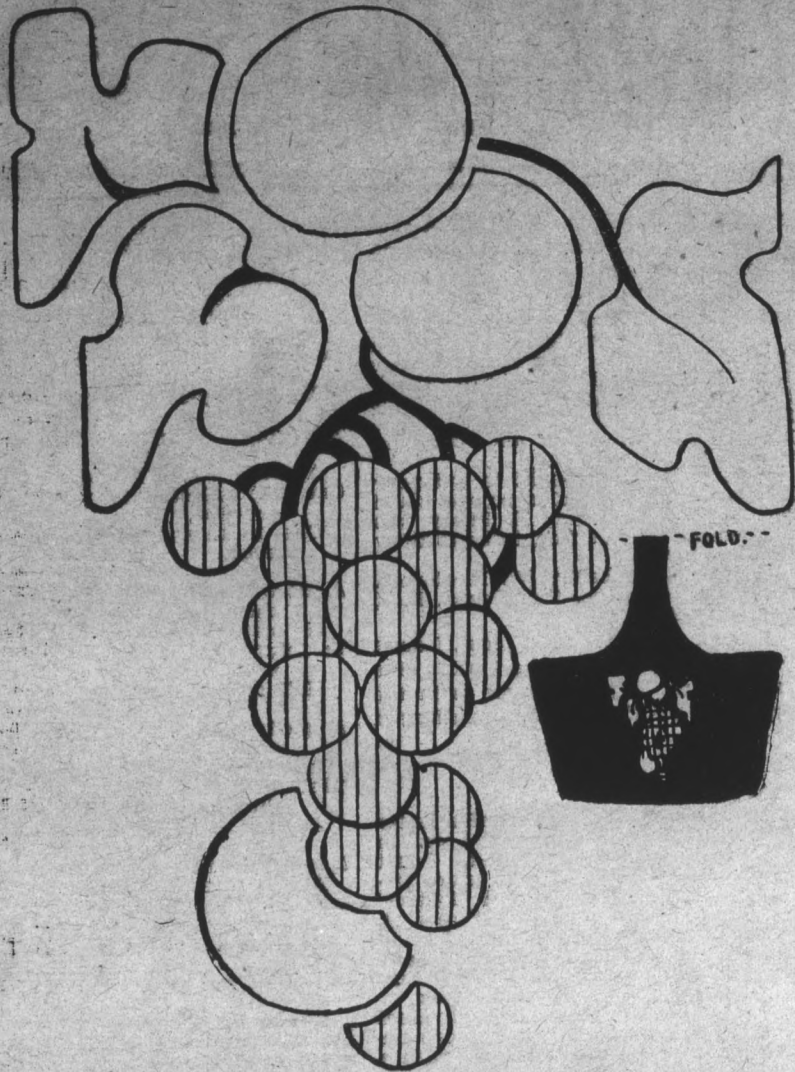
Clean the bare portion of the glass by rubbing it gently with fine cotton, taking care to remove any trace of dust and grease. If this cleaning be not done very carefully, defects will appear around the place repaired. With the point of a penknife, cut upon the back of another looking glass around a portion of the silvering of the required form, but a little larger. Upon it place a small drop of mercury; a drop the size of a pin head will be sufficient for a surface equal to the size of the nail. The mercury spreads immediately, penetrates the amalgam to where it was cut off with the knife, and the required piece may be now lifted and removed to the place to be repaired. This is the most difficult part of the operation. Then press lightly the renewed portion with cotton; it hardens almost immediately, and the glass presents the same appearance.

Towels are often responsible for the spreading of a cold in the family. Paper towels are becoming more and more popular for use in the home as well as in public wash rooms.

To remove ink stains from the fingers, wet the head of a sulphur match and rub over the stains until they disappear.—Mrs. G. S.

Sue Thompson says if her house burned that the radio is the last thing she'd try to save. When the baby cried the other night, Harvey, her husband, got up to feed him. He put the milk on the stove to heat and tuned in on the radio while it was heating. When Sue woke up in the morning the milk had all boiled away and Harvey was sleeping in the big chair with the ear phones on the head.—E. C.

For the Christmas Gift List



FOR shopping bag, book satchel or mending, this is an ideally shaped bag. A third of a yard of black Sanitas makes a fair sized bag. It may be lined with a scrap of plain or fancy material, and either enameled or embroidered with wool. The designs given works out in triad color scheme, orange, green and violet. The bag and lining are made separate, then placed together and a seam of the Sanitas clipped on the curves, which is then turned and stitched down to form a finish around top and handle. Just use a carbon sheet to transfer

this design directly upon the material chosen for the bag.

MEAT BULLETINS AVAILABLE.

SO many requests for the bulletin, "How to preserve meats," were received that a reprint was ordered. These are now available to our readers. This booklet tells how to can meat for summer use and gives all formulas for preserving meat. For a copy send five cents in stamps or coin to Martha Cole, Michigan Farmer, Desk M, Detroit, Mich.



Doings in Woodland

When the Owl Played Policeman

AFTER Frankie Fox had found the piece of birch bark with the secret that Happy Squirrel had written on it, he decided to go the very next night to see what Happy Squirrel had stored in the Hollow Tree. So, as soon as the moon came up and the first stars twinkled in the sky, Frankie Fox peeked his head out of the door of his house. He listened with his ear to the wind. There was not a sound, only the breath of the



Frankie Fox Ran as Fast as he Could. night wind as it gently rustled the leaves. He stepped out of the door and looked around. The light at Rolly Rabbit's house had gone out and he knew that Rolly and Bruin were in

bed. It was dark at all of the houses. "Do be careful," cautioned Mrs. Frankie Fox as Frankie left the house. He had decided to find the exact place of Happy Squirrel's winter supply of food and carry home with him what he could. Then, with the help of Mrs. Fox and little Bennie and Fannie Fox they would soon have the rest in their own cupboard. So sly Frankie Fox kept a sharp lookout. At last he came to Crooked Creek. He crept across on the big stones, found the blueberry bush just as Happy Squirrel had written in his memory book. Yes, and eight hops to the east he found the Twin Oaks.

Then he spied the Old Hollow Tree. "Happy Squirrel hid his winter food well," thought Frankie Fox, "but he wasn't sharp enough for me," and he puffed up with pride at the thought of his good luck.

Quietly, oh, so quietly, he crept toward the tree.

Then, "Who-who-ooo-oo, Who-who-ooo-oo!" rang out through the woods where before all had been silence.

Away ran Frankie Fox faster than he ever ran in his life. It was only the owl that Frankie had disturbed, but his loud distressing cry sent the alarm through all Woodland.

36th Year

The savings which thousands of thrifty people have placed with us during the past 35 years have enabled us, through co-operation, to assist thousands of other thrifty folks to own 15,780 homes. 15,780 homes if placed side by side on 35-foot lots would make a row 104 miles long (from Detroit to beyond Bay City), and would house 80,000 people—a city in itself.

For the past 35 years we have paid our investors an average of 5 per cent per annum on their savings, and at the same time have always paid all withdrawals promptly on demand—without loss or delay to a single customer.

It is on the strength of this proven record of 35 years that we invite you to open a savings account paying

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Is wonderfully soothing—unexcelled after shaving—a perfect lotion for chapped hands. Send \$1 for a concentrated form of this lotion with directions. It will equal about \$4 worth sold in stores. Or send 10c for sample. A suggestion for gifts! Love's Lemon Lotion Co., 721 American State Bank Bldg., Detroit, Michigan.

Ford Runs 57 Miles On Gallon of Gasoline

A new automatic and self-regulating device has been invented by John A. Stransky, 4377 Fourth St., Pukwana, South Dakota, with which automobiles have made from 35 to 57 miles on a gallon of gasoline. It removes carbon and reduces spark plug trouble and overheating. It can be installed by any one in five minutes. Mr. Stransky wants distributors and is willing to send a sample at his own risk. Write him today.—Adv.

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By Mail—Satisfaction Guaranteed

This handy stove cooks regular meals, with instant Sterno Canned Heat—does anything a kitchen stove can do—but you can take it anywhere, folds flat, weighs only 8 oz. Use it in bedroom, sick room, dining room, home, office. Frys, broils, boils meats, eggs, soup, spaghetti, heats water for shaving, flat and curling irons, baby's milk.

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W. W. Weaver, Reading, Mich.

OUR BOYS AND GIRLS

What W. B. Didn't Get

Some Thoughts and Comments By M. C.'s

Dear Uncle Frank:

I am a sophomore this year, and am taking second-year algebra, American literature, agriculture and modern history.

We have a soccer ball at school, and we play every noon with it. I like to ride horse real well, too.

When I was five years old, I had all four fingers cut off from my right hand when my brother and I were cutting corn fodder in a cutting-box. My forefinger was cut off so only one joint



Evelyn Johnson and Sister Enjoy Pony Riding.

of it was left, and the other three were cut off between my hand and first joint.

Well, I must close for this time, so tell all my new cousins "hello" for me.—Your niece, Isa D. Bartholomew.

Soccer is a good game. It is played in the Detroit schools more than any other. You had an unfortunate accident to your hand.

Dear Uncle Frank:

It has been a long time since I have written to the Michigan Farmer, but I have been reading the boys' and girls' letters every week and I surely do enjoy them.

So Ivan Crandell thinks the bobbed hair question is of not much value. Well, anyway, we that have our hair

bobbed think it's pretty nice, anyway. It's so much less work to comb, and is so much more comfortable. Time is too precious these days to spend an hour or so combing and doing up a great lot of hair, putting a dozen or so of hair pins in it to feel uncomfortable all day long. I hope the bobbed hair is here to stay.

I think probably algebra is of more value to us than Latin.

I enjoyed reading about the trip you took this summer, Uncle Frank. You must have had a nice time. Michigan has some very pretty scenery and good roads.

I must close for this time.—Your niece, Gertrude Verdon, Samaria, Michigan.

I presume bobbed-hair is here to stay until the style changes. Styles have to change, you know. Michigan is certainly a nice vacation state.

Dear Uncle Frank:

I received my flashlight about two weeks ago. It sure is a dandy. When I came home from school I heard my brother say, "Can I tell Ella about her prize?" But I only heard him say, "Can I tell Ella?" He wouldn't say the rest loud enough.

When I told papa, he said it would be a dandy to keep in the car, but I did not agree, because he has one of his own.

How many of you girls are in a sewing club? I am. Our name is the Blue Ribbon Sewing Club. I am secretary.

What game do you school boys and girls play? At our school we play ball sometimes, but most always the older girls play jacks and the younger ones house. The older boys play base ball and the younger ones play in the leaves and play with the soccer ball.

We have a rooster that, when we go where he is he chases us, and then he stands and crows about it.—Ella Brindley, R. 3, Allegan, Mich.

I am glad you liked the prize. Yes, flashlights do come handy around cars,

especially if one does not have a spot light. It is fine that you are interested in club work.

Dear Uncle Frank:

I am a sophomore in school, and am fifteen years old. How many M. C.'s like Caesar? Did you like it, Uncle Frank? I thought it was terrible at first, but our teacher is nice, and is so patient with us that I am beginning to like it.

I think that you ought to put your last name in the paper so we could see how clever Joycie E. Purdy was in guessing it. We would like to know it, I am sure.

I must close, before W. B. chokes.—Your M. C. niece, Mae Pshea, R. 2, Fennville, Mich.

I never had Caesar, at least, I don't remember having him, so I can't give my opinion. My last name is in the paper, so what's the use of putting it in again?

Dear Uncle Frank:

After reading Ivan Crandall's letter I suddenly remembered that I was in the same predicament myself. I just couldn't decide which was more important, Latin or algebra. I "looked" the Latin test over, couldn't read it, so I took up algebra. At times I could not even understand algebra. Many times I wish that I had taken up Latin instead; but it can't be helped now.

For the average American individual I might say that algebra is more important, because algebra deals with a higher study of numbers than arithmetic. Algebra teaches many ways of finding unknown quantities and equations. With the present high prices and so on, one will be able to figure out costs and also, what most folks would like to know, the trend of prices. A knowledge of algebra would be convenient in figuring out income taxes. More important than algebra is geometry, because more theories of geometry can be applied to every-day life than equations of algebra.

If W. B. likes this kind of food, I will send him some more.—Yours truly, Fred Broemer, Jr., Green, Mich.

Both Latin and Algebra have their uses. Algebra will help make known unknown quantities, but it won't solve the mysteries of life. Latin will help you to know better the civilization of the past.

Dear Uncle Frank:

Heretofore I have been a silent but interested reader of the M. C. letters. But they have been rather exciting lately.

Ask Margaret Allen to write again.



Henrietta Vanden Berg, with Brother and Sister Enjoy a Melon Feast.

I think we long-haired girls need a good lecture now and then to keep us from getting conceited.

I hope W. B. doesn't ruin his digestion on this letter. I wish he would first ask Earle Miller where he finds his authority for making the statement that "men should run the national government." I can't remember hearing scientists say but what women have just as much gray matter in their heads as men, or that they aren't just as capable of using it.

Pals

Did I hear someone ask me a word to define?

A word that means more than a brother? To do this small favor I could not decline, To me it comes next to a Mother.

The word I refer to, is "Pal," my dear friend,

A pal is a true friend indeed, One that will stick by you, through to the end, One to rely upon when you're in need.

A pal will stand by you, through both thick and thin, No matter how hard is the task, To refuse you a favor he'd think was a sin, He'd do anything that you'd ask.

A good pal, is the kind that is with you, In all, "heart to heart, soul to soul," "Hell fire" and "Damnation" he'd go through, As long as it helps reach the goal.

A real pal will confide in the other, All his loves, his sorrows and woes, And in telling will help him recover, No matter which way the wind blows.

If I were but granted one wish 'fore I die, I know I'd want something of worth, I'd wish for one thing that money can't buy, A pal, one grand treasure on earth.—By Laura Swartz, Richland, Mich.

After all, what difference does it make whether we are boys or girls, have bobbed hair or long, wear dresses or knickers, so long as we do all we can to help make the world a better and happier place to live in. It seems to me it is the big things in life that count.—

Here's the best of wishes to the M. C. And old W. B.—Aurelia Tuthill, Rushton, Mich.

You have expressed some good thoughts—some big ones. You have the right idea. Margaret wrote a good letter, didn't she?

Dear Uncle Frank:

I like to read books of adventure or any other books that have good wholesome reading. I think Gene Stratton Porter's, Harold Bell Wright's and Ralph Connor's books are very interesting.

Say, Uncle Frank, I think your last name it ——. Am I right? As for bobbed hair, I am sending you two verses from the Bible. I find these two verses in I Corinthians, XI chapter, 14th and 15th verses.

Well, I guess I have written enough for this time, so I will close, hoping to see this letter in print.—Vinnie Baer, R. 3, Remus, Mich.

Quite a few are guessing my name correctly. I didn't print the verses you sent as we have used them already. A number of M. C.'s have made these biblical references, showing that they know the Bible pretty well.

Dear Uncle Frank:

I think there was enough discussion about bobbed hair, etc., and I suggest that we talk about the K. K. K. or something like that.

Well, I go to school today, and I'm not quite through with the potatoes. Uncle, do you read all these letters, or does someone else read them?

Well, I think I'll close, as I have to look over a lot of contributions, "contribs" for short, to our weekly newspaper.

Enclosed please find a dime, not much, but all I can give just now.—From one of your nephews, Joseph Schramm, Creboygan, Mich.

Your suggestions for subjects to discuss are not good. The Merry Circle wants to be peaceful, so we'll leave such subjects alone. I read all the letters and pick out what I think are the best, so I am to blame for those which do not appear.

Young Folks and Church Going

Dear Uncle Frank:

I have just finished reading an article in one of our farm papers which states that "out of about fifteen million farm children more than four million are virtual pagans, children without knowledge of God."

The writer dealt lightly on the vice that exists in such a community. He explained the condition as being the result of a want of churches. Perhaps he is right, but not entirely so. I have been brought up in a vicinity where there are plenty of churches but too little religion. What is the cause? Well, I can remember when, as a little girl, my mother sometimes took me to church. As I grew older she sent me to Sunday School—alone. Somehow, she always seemed too busy to go herself, and I, very naturally, grew to think a small excuse sufficient for remaining at home. Now I never go.

What sort of parents did I have, you ask? Absolutely, the finest ever. They, themselves had high ideals, and even religion under a cold outer shell, but they were, like the parents of countless other young people around here, too much inclined to teach religion to their children by words rather than by example.

My parents, and the parents of all the other young people at or near my age have often chided us for not showing a greater interest in the church. They tell us that they used to go to church on Sunday night rather than to a movie. The fact remains, however, that they grew lax in religious

duties as they grew older, and that their children dropped out at a much earlier age.

Fortunately, enough knowledge and belief of God was instilled into the hearts of most of those children first, that they now rely on it to help themselves withstand many temptations. But, if the greater share of our set have stopped going to church when we are yet so young, what will become of the next generation—of our children? Some of the finest people I know haven't gone to church for several years, and have even come to doubt the influence of religion on their conduct, yet I feel sure that it is the teachings of God, instilled in their hearts when Sunday School was the only place they had to go on Sunday, that is making them keep themselves clean and their honor secure.

All moral teachings point directly to the Bible as their source. Surely, if religion has done this much for us, we owe it devotion and support. To go to church every Sunday would, of course, mean the sacrifice of a good many pleasures, just as we deny ourselves other indulgences for the sake of preserving our sacred honor. Religion and honor go hand-in-hand, therefore, no sacrifice is too great to preserve the thing that has saved so many souls, and which we must support for the guidance of souls that are to exist in the future.

Now is the time to do it.—Your niece, Caroline Cooke, Tecumseh, Michigan.

Word Puzzle

HIS is different than a cross word puzzle but as interesting, I think. Every one of the twenty "words" given here are the names of some farm crops. See if you can't straighten these mixed-up words and arrange the letters in them correctly.

In making your answer just give the number of the word and the correct spelling. Don't write the mixed word. Put your puzzle solution on a separate sheet from your letter, and write your name and address in the upper left hand corner of the sheet. If you are a Merry Circle, put M. C. after your name.

All papers which are neat and correct will be put into a basket and ten lucky ones pulled out. The first two picked will get handsome nickled fountain pens; the next three, handy flashlights, and the next five, cute little boxes of candy. All who get correct answers and are not Merry Circles will get M. C. membership cards and buttons.

This contest closes December 12. Send your answers to Uncle Frank, Michigan Farmer, Detroit, Mich.

Farm Crops.

- | | |
|----------------|------------------|
| 1. sattoepo | 11. Yelbra |
| 2. racsort | 12. Hitomy |
| 3. wolifurcale | 13. Brasterewris |
| 4. hapeesc | 14. presberaris |
| 5. Vlorce | 15. lecrye |
| 6. hipcans | 16. tuctete |
| 7. nioosn | 17. rispunt |
| 8. Palsep | 18. bebcaga |
| 9. Tewahrt | 19. dersosarhih |
| 10. Hubectawk | 20. saylerp |

LIMERICK WINNERS.

THE limerick contest brought quite a few interesting limericks. Most all of them, of course, were about the Merry Circle, but some were not, and that counted against them. However, the last two prize winners wrote limericks which only indirectly referred to the M. C., but they were so good that they were included among the prize winners. Some of the limericks will be given next week, as space does not permit using them in this issue.

The prize winners are:

Fountain Pens.

- Margaret Henry, R. 1, Birch Run, Mich.
- Margaret G. Beckwith, R. 2, Ovid, Mich.

Flashlights.

- Isabel Wooley, Brethren, Mich.
- Frances Wilson, Harbor Beach, Mich.
- Lawrence McNamara, Star Route, Harbor Springs, Mich.

Candy.

- Rosaline Linderer, R. 1, Newaygo, Mich.
- Irene Warsaw, 305 South Jackson Street, Bay City, Mich.
- Edith Kingdon, Traverse City, Mich.
- Rex Ellis, R. 2, Box 35-A, Richland, Mich.
- Emma Sellen, R. 1, Olivet, Mich.

RURAL HEALTH

By Dr. G. H. Lerrigo

IODINE FOR GOITER.

What form of iodine should be taken to remove goiter?—Michigan Subscriber.

For internal use a good form is sodium iodid. The dose depends upon the case and the patient, and your doctor must see you to determine what you need. Old cases of goiter cannot be cured by taking iodine either internally or externally. Some doctors have good success by the hypodermic injection of an iodine preparation into the substance of the gland, but the most reliable treatment in old, chronic cases is surgical operation.

SEND FOR SPECIAL LETTER.

I have a seven-year-old boy who wets the bed every night. Please name a remedy in your column in the Michigan Farmer.—Mrs. B. W.

There is so much to be said about nocturnal enuresis (the name doctors give to bed-wetting) that I have prepared a special letter to cover its many points. Send a stamped and addressed envelope and I will send you a copy.

Help Your Railroads Keep Tracks Clear

With every Railroad, passenger safety must be the first consideration always. That implies that there must be a clear track.

Asmotor vehicles multiply, this problem becomes increasingly difficult almost from day to day for the 24 steam Railroads of Michigan. Despite the most costly and carefully planned precautions on the part of the Railroads, crossing accidents are becoming appallingly frequent.

Such accidents are due to the growing recklessness of the motorists. Yet each accident also imperils the lives of trainmen and passengers.

Separation of grades can never solve this problem, for crossings are multiplying far faster than grades can be separated. And, with each separation costing from \$70,000 to \$100,000, the entire wealth of Michigan could not accomplish the task.

The public demands of us speed—quick delivery—for passengers, mails, freight. To keep our tracks clear for this efficient service, and to maintain our standards of absolute safety, we must have cooperation at crossings.

Most motorists give this cooperation by heeding our request to Stop Look, Listen. For their own protection, as well as ours, those who do not heed this request should be made to do so by the mandate of Law.

Do you agree? Write us your verdict.

Michigan Railroad Association

508 Railway Exchange Bldg., Detroit, Michigan

(12-27)



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Wear the Brooks Appliance, the modern scientific invention which gives rupture sufferers immediate relief. It has no obnoxious springs or pads. Automatic Air Cushions bind and draw together the broken parts. No salves or plasters. Durable. Cheap. Sent on trial to prove its worth. Beware of imitations. Look for trade-mark bearing portrait and signature of C. E. Brooks which appears on every Appliance. None other genuine. Full information and booklet sent free in plain, sealed envelope. BROOKS APPLIANCE CO., 323A State St., Marshall, Mich.



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Poultry

SEX OF GEESE.

How can anyone tell a goose from a gander? What are the signs? How many eggs will a goose lay in one season? What causes a goose to go lame at different times, especially during warm weather?—Mrs. C. W. B.

Ganders are usually a little larger and coarser than geese. The head of the gander is apt to be larger and the neck thicker. The cry of the goose is rather harsh, while the gander makes a shrill cry. The only accurate way is examination of the organs, or observation of the flock at mating time.

Laying ability of geese depends on the breed and the individuals. Toulouse geese will usually average about twenty eggs, and some produce thirty to thirty-five. White Chinese geese will lay from fifty to 100 eggs. The Embdens are not generally quite as good layers as Toulouse, although very similar.

The lameness may be due to rheumatism caused by spending the night in a damp roosting place. Goslings sometimes become lame, due to faulty feeding methods caused by lack of mineral matter or animal feed in the ration.

TREATMENT FOR WORMS.

Some time ago our county agent, at our request, made a postmortem of one of our springers and found its intestines filled with worms, cord, pins and tape varieties. For this he advised giving tobacco dust, then salts. We did as he said but still the trouble remains. They eat ravenously but are thin, weak and pale-faced. Are shedding feathers freely.—C. E. F.

Add two pounds of tobacco dust containing at least one per cent nicotine

to each 100 pounds of dry mash. Give epsom salts in the drinking water once each week, using a pound to each 100 birds.

Keep the birds in a house that has been cleaned and sprayed with disinfectant. Remove the droppings each day and spread them far from the hen house. Keeping the birds away from the infected soil around the house will help to reduce the infestation. It is hoped that a more thorough means will be discovered for removing worms from poultry, but at present the tobacco treatment seems to be the best method available.

WINTER-HATCHED CHICKS.

Supposing a batch of chicks would be hatched from an incubator during the winter months, during December or January, would they lack in growth? They have a warm room to stay in and are taken care of.—M. M.

Chicks can be hatched in December and January, but there are many objections to the plan, and I doubt if it would be profitable. Eggs are not so fertile at that time and the hatch might be poor. The chicks would have to be confined for a long time and might be lacking in vigor. If they were sold as broilers they would compete with cold storage stock raised at a smaller cost per bird. If the pullets were held as layers they would produce eggs early in the summer and go into a fall moult when eggs are high.

A skilled poultryman can raise lot of winter chicks by using modern methods. But the cost of production and the mortality rate would be higher than for chicks produced in the normal season.

Picking Out An Incubator

Before picking out an incubator, get the Klondike Incubator Catalog. Full of valuable information for those who want better, stronger chicks. Lists other up-to-date poultry equipment, including coal and oil brooders. Catalog sent free. Write for it today.

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Always look for the Red Strand (top wire)

NEWS FROM CLOVERLAND

INCREASING THE ACREAGE OF TILLAGE LAND.

ACCORDING to Mr. George Amundsen, land-clearing specialist in the Upper Peninsula, there have been distributed to farmers for land-clearing purposes during the past year 94,000 pounds of pyrotol and 532,950 pounds of sodatol. This works out a farm average of 52.75 pounds for all farms of the Upper Peninsula. Ontonagon county used 158,000 pounds of explosive and led all counties of the peninsula. He announced that 200,000 pounds would go into the same county next spring. Land-clearing schools will be conducted next season in each community.

T. B. WORK PROGRESSES.

IT was expected that the anti-tuberculosis work which has been going forward in Ontonagon county the past season would be completed by November 15. Two veterinarians have been found, it is reported. In Marquette county, during the test 8,843 cattle had been tested up to November 1, and 294 reactors were discovered. This is 3.3 per cent—a low average. In Gogebic county, 6,647 cattle were given the test in 1,524 herds, and 203 were found to be infected with tuberculosis. In Houghton county, 150 farmers and cattlemen have petitioned the board of supervisors to make provision for a tuberculosis test in that county. The petition was referred to the agricultural committee. The petition reached the supervisors too late for the annual budget.

A Marquette county physician has called attention to the death of a child in that county as being due directly to bovine tuberculosis and another physician points to the presence of tuberculosis in a family of that county as due to an infected herd from which the family supply of milk was secured.

ADVISES AGAINST GROWING POTATOES FOR EXPORT.

COUNTY Agent W. N. Clark, of Ontonagon county, is advising his farmers against planting too many potatoes. He regards it as inadvisable to grow potatoes for more than the local market. At prevailing prices and freights there is no money for the farmer when so many potatoes are produced that it is necessary to ship the surplus out of the county. He recommends planting only for the local market. This requires early spring planting to permit potatoes to mature before fall frosts, and they must be grown on rich soil, and kept free from disease and bugs. In marketing potatoes it is important to sort them carefully and only to offer for sale the uniformly middle-sized individuals.

WILL TEACH FARM MECHANICS.

AT the Northern State Normal School, Marquette, it is planned to offer a special short course in farm mechanics, next term, should at least two students from each county of the peninsula express a desire for such instruction. The course will last two weeks only, and will be planned for farm boys of the peninsula who desire special instruction of this character.

DAIRY IMPROVEMENT WORK

BRANCH PUTS ON CAMPAIGN.

IN an atmosphere refined with the sweet breath of dairy cows and the aroma of alfalfa hay, sixty-five dairy-alfalfa meetings will be held in as many barns in Branch county from December 4-13. College men, chaperoned by County Agent Andrews, will address these meetings.

COW TESTING ASSOCIATION FINISHES A GOOD YEAR.

LIVINGSTON County Cow Testing Association No. 1 finished with a good year, records showing that over eighty-five per cent of all the cows in the association are pure-bred Holsteins. Cow Testing Association work brings out a new story every year, as you will note according to the report of Milton Shier, tester for this association.

Twenty-five per cent of all the cows in the association produced over 365 pounds of butter-fat in the past year. There was just one Jersey herd in the association and they hold the high cow, also rank third in herd average per cow.

The average production per cow in the association was 8,083 pounds of milk and 306.46 pounds of butter-fat. Feed cost per pound of butter-fat was twenty-four cents, and cost per 100 pounds of milk ninety-four cents.

Owner of high cow, Smith & Parker, pure-bred Jersey, Emanons Clover Blossom, milk 9,836 pounds; butter-fat 641.5 pounds at age of eight years.

Owner of high herd, J. G. Hays, pure-bred Holsteins, average per cow 12,062 pounds of milk and 458.9 pounds of butter-fat.

Something worthy of serious consideration of every pure-bred breeder is that you can occasionally find a boarder. The unfortunate thing is, that often such a breeder has sympathy for such a cow with the result that the number increases. We regret to say that in this association, that of the four lowest butter cows in the association, three of them were pure-bred Holsteins in good herds. This helps to lower the average per cow in the whole association, as well as in the owner's herd. Average production per year for the four lowest cows was, 3,217 pounds of milk, and 121.2 pounds of butter-fat.

I PROTECT MY COWS AGAINST BAD WEATHER.

BECAUSE I desire a maximum flow of milk at the lowest cost of feed, I safeguard my cows against sudden and severe changes of weather. I might stable my cows the year around. Cows exposed to cold, chilling storms cannot yield a large uniform flow of milk of high per cent of fat.

During the fall and winter months sudden changes occur. I find that a dairyman has to be on his guard every day. The morning may be fair and promising, but in less than two hours a sharp chilling wind is sweeping across the country. Milch cows are very sensitive to these changes, and I know of nothing that will consume the dairyman's profits any surer than to allow his cows to become chilled from exposure.

During cold severe weather in the fall and winter, I practice keeping my cows in unless the weather is favorable and I am about to stable the herd in case of a sudden change of weather. I like to allow my cows to exercise in the yard as much as possible, as I believe in plenty of outdoor exercise and fresh air.

It has been my experience that milch cows do better in cold weather than during the summer, provided they are well protected from sudden changes of weather. Cold weather is

no drawback to milk production, but rather a stimulant, providing conditions are favorable for the cows to consume a large amount of feed.—Leo C. Reynolds.

DAIRY PROFITS FOLLOW GOOD BREEDING AND FEEDING.

IN speaking to the farmers of Saginaw county, one of the good dairy sections of the country, Prof. O. E. Reed, head of the dairy department at the Michigan Agricultural College, said the scrub cow is the greatest menace to profitable dairying—the scrub cow and inefficient methods of management must go if dairying is to be placed on a profitable basis.

"Saginaw dairymen, like the dairymen of other counties of the state, need to know more about their cows. The cow testing association offers the best possible means of locating boarder cows. Other counties in the state are far ahead of Saginaw in respect to keeping tab on their cows through testing associations. Genesee county dairymen, for instance, have organized nine cow testing associations, Kent county has seven, other counties have from two to four such organizations.

"Not more cows, but better cows, is the slogan for Michigan farmers. The average production of the 30,000 cows in 100 cow testing associations in Michigan is nearly 7,000 pounds of milk per year. The average cow in Saginaw county produces 3,600 pounds of milk per year. There is a difference in cost when one has to feed two cows to get the productions which can be had by feeding and milking one cow.

"It is necessary to use good sires if the next generation of cows are to be as good or better than those of the present milking herds. Too many scrub sires are now in use. A scrub sire is the most expensive sire one can possibly use.

"One of the most important problems facing the dairyman this winter is the subject of what to feed his cows. Feeds are higher in price than usual, and only those feeds should be purchased which will give the greatest net returns."

MATURE COWS MORE EFFICIENT.

THE cow producing 100 pounds of butter-fat a year on the average returns \$8 to her owner above cost of feed, and the cow producing 400 pounds returns \$99. With four times the production, over twelve times the return above feed cost is secured.

It is significant also that Dana of Vermont, Pearson of Illinois, and others have furnished evidence from which the conclusion can be drawn that large cows produce more, make more efficient use of feed and produce more economically when all items of cost are considered than do smaller ones. In this way the size of the cow is one factor that influences milk costs. Again mature cows between the ages of five and eight as a rule produce more efficiently. This is shown by McCandlish, of Iowa, who after making a study of over 10,000 official records, concludes that milk is produced in larger quantities at a lower cost by cows between five and eight years of age.—H. R. Laseelles.

AREA WORK IN MICHIGAN.

REPORTS from Michigan on area work up to September 1, show satisfactory progress. The state now has seven fully modified accredited areas. Five other counties have been twice tested. Nine others have had one test applied to all cattle within their borders, while such a test is in progress in three other counties.

Trade Allowance on old Cream Separators for NEW De Lavals

De Laval Agents are now making liberal allowances for used centrifugal cream separators of any age or make, as partial payment on new De Laval Separators of the latest improved type.

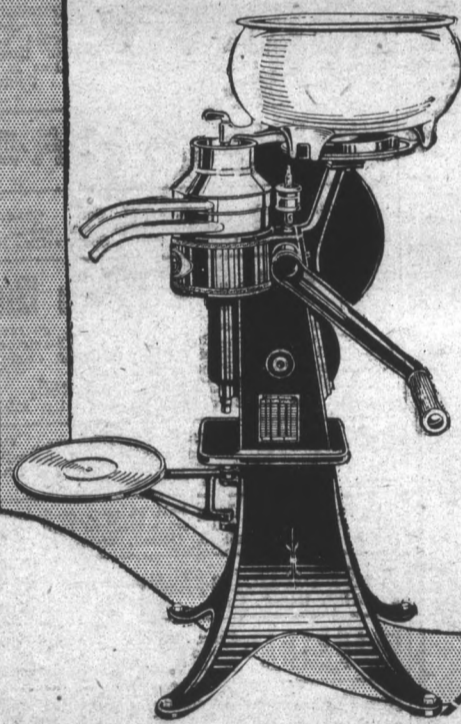
This offers to cream separator users an unusual opportunity to replace obsolete, badly-worn, under-sized and otherwise unsatisfactory cream separators that are wasting cream and time and causing trouble and annoyance, with the latest improved and best De Laval Separators that have ever been made.

Improved De Laval—World's Best Separator

The new De Laval is the best cream separator ever made—skims cleaner, runs easier and lasts longer. Among other new features and refinements it has a self-centering bowl which eliminates vibration, causing it to run smoother and easier. It gives you a rich, smooth, high-testing cream, and skims cleaner under all conditions of use.

The De Laval Milker

If you are milking 10 or more cows by hand, you need a De Laval Milker. Sold on such easy terms it pays for itself. Over 25,000 in use, giving wonderful satisfaction.



New De Laval Separators sold on easy terms, ranging from

\$6.60 to \$14.30 Down
the balance in 15 easy monthly payments

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DE LAVAL CREAM SEPARATORS

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New York, 145 E. W. Way, Chicago, 29 E. Madison St.
San Francisco, 61 Beale St.
Send catalog checked Separator Milker

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Town.....
State.....
No. Cows.....

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"Dandelion Butter Color" Gives That Golden June Shade which Brings Top Prices



Before churning add one-half teaspoonful to each gallon of cream and out of your churn comes butter of Golden June shade. "Dandelion Butter Color" is purely vegetable, harmless, and meets

all State and National food laws. Used for 50 years by all large creameries. Doesn't color buttermilk. Absolutely tasteless. Large bottles cost only 35 cents at drug or grocery stores. Write for free sample bottle. Wells & Richardson Co., Burlington Vt.

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Will save your calves. Scours leads to calf cholera if neglected. At the

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Give Dr. David Roberts Calf Cholera Remedy. For sale by dealers or postpaid \$1. Ask for FREE copy of The Cattle Specialist and how to get The Practical Home Veterinarian without cost. Veterinary Advice Free.

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The Proof of the Cake is the Eating

and so the proof of breeding stock is the judging. The various show rings of the world are the testing laboratories, so to speak, wherein may be determined the qualities of pure-bred live stock.

At the recent Royal Winter Agricultural Fair, at Toronto, the "International of Canada," there was assembled together the cream of North America's live stock, in friendly competition for the coveted awards of animaldom. We point with pride to our winnings, in the Aberdeen Angus Classes.

PRIDE PROTEST, the wonder cow, was awarded her fourth Grand Championship. In 1922 she was Grand Champion at the International, in 1923 and 1924 she was Grand Champion at the Michigan State Fair, and now the Grand Champion at the great Canadian exhibition.

QUEEN'S GUARDS is a worthy son of that grand old sire, Edgar of Dalmeny, whose name will go down in the history of Aberdeen Angus Cattle as one of the greatest sires of the breed. Queen's Guards is a senior yearling bull, and was awarded the Junior Championship.

PRODIGY, a Junior Bull Calf, was Reserve Champion. This animal won this same award at both the Michigan State Fair and the Ohio State Fair this year. Sired by Eirrebell of Bleaton.

GROUP OF FOUR CALVES. In this class the young imported Bull, Eirrebell of Bleaton, earned distinction. All of these calves were sired by "Eirrebell" and they won first place.

EIRREBOLL, a senior steer calf, sired by Eirrebell of Bleaton, won first prize in the Senior Steer Calf class. This steer was Grand Champion over all breeds at the most recent Michigan State Fair, and won first prize and was Reserve to the Grand Champion at the Ohio State Fair this year.

LORD ASHFIELD, the baby wonder of the exhibition, is a steer less than eleven months of age. He was the first prize Junior Steer Calf and Reserve to the Grand Champion. This animal was also sired by Eirrebell of Bleaton, and has not previously been shown.

No mention is made of the numerous other awards of less importance. We are in a position to offer several splendid young descendants of both Edgar of Dalmeny and Eirrebell of Bleaton. Your inspection and correspondence are invited.

Wildwood Farms, Orion, Mich.
W. E. SCRIPPS, Prop. SIDNEY SMITH, Supt.

BREEDERS' DIRECTORY

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

REGISTERED AYRSHIRES Aged bull cheap, also some young bulls. D. A. Farmer, North Lake, P. O. Gregory, Mich.

Registered Guernseys

LONE PINE RANGER our new Herd SIRE has a Dam with an A. R. O. record 936 fat. When in the market for better Guernseys, write **GILMORE BROS.**, Camden, Mich.; **J. W. WILLIAMS**, Ne. Adams, Mich.

Reg. Guernseys For Sale Springing cows, bred heifers, Bull calves. **W. W. BURDICK**, Williamston, Mich.

A Son of Echo Sylvia King Model

Bred by Traverse City State Hospital.

Born: December 29, 1923. Well grown, nicely marked, 80% white. His seven nearest dams average 32.37 lbs. butter in 7 days.

Sire:—A grandson of May Echo Sylvia from a 36-lb. 4-yr.-old daughter of a twice 37-lb. cow. His 42 A. R. O. daughters include a 32-lb. Jr. 3-yr.-old.

Dam:—A 29-lb. cow now on semi-official test with 12,301.6 lbs. milk and 550.75 lbs. butter in 182 days. Her sire has 84 A. R. O. daughters, 5 so far above 30 lbs., and her dam is a 25-lb. cow with a 365 day record of 871.86 lbs. butter and 19,096.3 lbs. milk.

Send for pedigree of ear tag No. 540 and new list of bulls for sale from **MICHIGAN STATE HERDS.**

Bureau of Animal Industry, Department C., Lansing, Michigan.

Registered HOLSTEINS

Am now offering for sale all of my cows and heifers of milking age. Except the 19 daughters (3 grand-daughters) of my Senior Herd Sire, Traverse Echo Sylvia Rag Apple No. 336126. These are all Good, Typey Young cows. Some are fresh and others will be due in Dec. and fore part of Jan. These cows will be sold worth the money. My Herd is Healthy, no T. B. or Abortions. Have had 3 yearly Federal Tests. Never a Reactor. Am also offering my Sr. Herd Sire (name above) for sale, as I will have no further use for him. He is now 4 1/2 yrs. old. If you have use for a "First Class" Herd Sire that is right in every way, and has plenty Official Record backing, write for pedigree and price of this fellow. He will be sold cheap. **L. M. Shorman**, Fowlerville, Mich. Webberville Telephone.

\$600 Buys four Reg. Holstein Heifers and one Reg. Bull old enough for service; one yearling Heifer; three two years old; due to freshen in early winter; in calf by our 33-lb. Bull. **E. A. ROHLFS**, Akron, Mich., Tel. No. 48 R-3.

Registered Holstein cows and heifers, fresh and some to freshen soon. Good producers and richly bred. Priced away down. **B. B. REAVEY**, Akron, Mich.

Hereford Bull calves, thrifty, rugged fellows. Fairfax-Farmer-Anxiety blood, priced moderate. **E. J. TAYLOR**, Fremont, Mich.

Financial King Jerseys Because of crowded conditions in our calf barn we offer for quick sale a few good bull calves at your own price. Name it. Be reasonable. **Coldwater Jersey Farm**, Coldwater, Mich.

Jerseys For Sale Bulls ready for service, also a few females. All from R. of M. dams. Accredited herd. **Smith & Parker**, R. D. No. 4, Howell, Mich.

15 Cows, 4 bulls from R. of M. Cows. Chance to select from herd of 70. Some fresh, others bred for fall freshening. **Colon C. Lillie**, Coopersville, Mich.

For Sale: 1 Roan Bull

Now ready for service. Fine individual, guaranteed in every way. Sire, Royal Peer, Sr. Champion of Ind., 1921. Dam, Roselawn Hetty, Grand Champion of Michigan 1918. Price \$125. **BRANCH COUNTY FARM**, Geo. E. Burdick, Mgr., Coldwater, Mich.

Shorthorn yearling bull. Dark roan. Guaranteed right. Herd accredited. Priced to sell. Come look him over. **Jayne & Brown**, Fenton, Mich., (Farm 3 miles south).

Shorthorn Roan bull 12 mo., good individual from accredited herd. Priced right. **W. B. McQuillan**, Howell, Mich.

Red Poll Bulls for sale or exchange for sheep, Yorkshire Swine. **E. S. CARR**, Homer, Mich.

FAIRFIELD Shorthorns—now offering a few choice young bulls ready for service. Priced right. **H. B. Peters & Son**, Elsie, Mich.

Shorthorns Best of quality and breeding. Bulls, cows and heifers for sale. **BIDWELL STOCK FARM**, Box D, Tecumseh, Mich.

HOGS

DUROC-JERSEYS

TOPMAST SENSATION, the Dam of Michigan Sires, is dead. We have only a few of his offspring, either sex, for sale. These pigs will be money makers for their owners. Priced at \$25 and up. Remember we breed and raise the best.

LOEB FARMS, The Home of Grand Champions **Charlevoix, Michigan.** **Virgil Davis**, Supt. of Swine.

LAKEFIELD FARM DUROGS

Sons and daughters of Super Col and of Michigan's grand champion Col's Great Sensation. **LAKEFIELD FARM**, Clarkston, Mich.

DUROC fall and spring boars of the best breeding and quality, at prices to sell. Fall pigs at bargain prices. **W. C. Taylor**, Milan, Mich.

DUROC JERSEY SWINE for sale. Type and quality our aim. Write your wants. **W. E. BARTLEY**, Alma, Mich.

UP-TO-DATE Duroc Boars and Gilt. Sensation and Colonel Breeding, at reasonable prices, satisfaction guaranteed. **John Sherwood**, Breckenridge, Mich.

Livestock

BLACK-TOP MERINO FLOCK AT COLLEGE.

TEN Black-Top Merino breeding ewes have been donated by enthusiastic breeders and accepted by the Michigan Agricultural College for experimental and educational purposes. They are the eighth breed in the college flock and are the only representatives of the Merino family except the Rambouillets.

The Black-Top Merino breed has never had much publicity and recognition at fairs in this state, but their performance under farm conditions has led to their wide distribution from the south edge of Gratiot and Saginaw counties, south through the eastern and central part of this state. In some communities they have practically replaced most of the other breeds.

Heavy fleeces of long fine wool is their strong point. The wool is longer than that produced by any other breed that is fine enough to grade as delaine. They have oil enough and of a character that gives a very black surface when exposed to the sun and storms, and protects the strength and character of the wool fibers. They are very hardy, raise a good percentage of lambs and have proven themselves a very profitable wool and mutton breed of sheep on hundreds of Michigan farms.

These sheep are registered by the Improved Black-Top Merino Sheep Breeders' Association and all trace back to the original importation from Spain by Colonel Humphrey in 1802, and later improved by William R. Dickinson, of Steubenville, Ohio. Most all of the present members of the Registry Association are Michigan breeders. The association was organized in 1885 and its present secretary is Mrs. O. M. Robertson, Eaton Rapids, Michigan.

Members of the association believe that much benefit will come to their breed through having a representative flock at M. A. C. and at their annual meeting, last August, offers to donate ewes from several different flocks were sent to the college. The offers were accepted and two ewes were selected from the flock owned by Robert C. Blank, of Perrinton, two from W. C. Hendee & Son, of Pinckney, two from O. W. Fowler & Son, of Eaton Rapids, one from R. E. Rose, of Howell, one from George E. Haist, of Chelsea, one from Otto D. Luick, of Chelsea, and one from O. C. Burkhart, of Chelsea, president of the Improved Black-Top Delaine Merino Sheep Breeders' Association.

The association is making an effort to get representation in the premium list of the state fair next year, and in more of the county fairs. Many of the members are going into the Register of Merit certification work proposed by the Michigan Fine-wool Sheep Breeders' Association, and if they can get authentic records to back their claims for wool production the breed will certainly be able to command more attention.—V. A. Freeman.

NEW BREEDER MAKING GOOD.

WILLIAM (BILLIE) O'BRYAN, who lives up in Gratiot county, is one of the younger breeders of pure-bred swine, who is making a good showing. In the Poland-China sales of the recent past, when very conservative prices have been the rule, he has been among the successful contenders for the real good ones.

A visit to his home would indicate that he is doing a good job at keeping them good. His hogs have plenty of range and good forage. He uses colony houses mostly and sorts them into groups of uniform age and size. Mr. O'Bryan does an all-round job of farm-

Cut Feeding Costs 25% to 50%



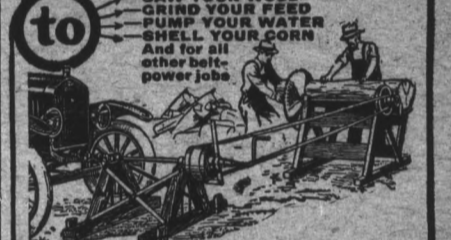
Get a free copy of this Letz Feeding Manual which is full of practical suggestions that make bigger profits for dairymen and feeders; already put into practice by thousands of the most prominent farmers in the U. S. Fully explains the

LETZ System OF HOME CROP FEEDING

Stop that monthly feed bill. The Letz Dixie Mixed Feed Maker cuts, grinds and mixes anything grown; makes a perfectly balanced ration from home-grown crops; guarantees to increase production 15% to 30%; cuts feed costs 25% to 50%. A warehouse in every state.



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Why Buy an Engine When a Low-Priced "WORK-A-FORD" can be used with your Ford for all belt work? Your Ford has a powerful engine. It will outlast the cost, and you might as well use it and save your money. No wear on tires or transmission. Just drive up and hook on in three minutes. Friction Clutch Pulley. Governor regulates engine speed. Write for free circular and 10-day trial offer.

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POWER MILKER 142

Complete READY TO MILK WHEN YOU GET IT Add \$5 from Franchisee. Send for sensational offer! Milk 12 to 40 cows an hour—easy, costs nothing to install. Easy to clean. Milks the bunch way—easy on the cows. 30-day trial. 10 Year Guarantee—Cash or Easy Terms—8 year to pay. Write for FREE BOOK, "How to Judge Milk". Get yours now! 1807 White Street, Ottawa, Kansas. **Ottawa Mfg. Co.** Box 1807 Magee Bldg., Pittsburgh, Pa.

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

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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 antiseptic 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.**, 468 Lyman St., Springfield, Mass.

Steel Jackets

For Large Iron Kettles

If you have a large iron kettle, we will make you a heavily re-inforced jacket to fit it, providing you a complete feed cooker. Has large fire door, flue, handles, pipe. Price according to size. Send measurement of kettle around outside one inch from top. If kettle has flange, measure under it. Ask for chart of standard sizes.



If you have no kettle, you'll be interested in the **Heesen Stock Feed Cooker (Kettle and Jacket)** For cooking stock food scalding hogs, rendering lard, etc. Handiest article on farm. Seven sizes. Write for prices. **Heesen Bros. & Co.** Dept. 4 Tecumseh, Michigan.

ing and is a very busy lad; but, he manages to find enough time to be alert for their welfare.

Success with hogs seems to be a matter mainly of common sense and industry, and this young man is getting results that would mark him as well qualified in these qualities.—F. E.

PORKERS GRUNT APPROVAL.

(Continued from page 493).
make-up of the best complex mineral mixture, varies, however, and, as yet, there is none to be recommended for general use. The addition of acid phosphate and limestone to the salt in the ration has given excellent results in some places.

An unusual and unlooked for result was secured from feeding a mineral mixture consisting of eighty parts of Squaw creek sand and twenty parts of flake salt added to a basal ration of corn and soy-bean oilmeal on rape pasture. This combination produced a good showing. In gains made and feed requirements this simple mixture ranked up well with the more expensive mineral compounds.

Just now the Iowa station staff has two theories which may account for this unlooked for result from ordinary sand from a creek bed:

One is that any hard, small and not easily disintegrated particles, such as sand, may be of benefit in the alimentary tract of the pigs during the growing and fattening periods. The second theory, and the more interesting one, is that this sand may be valuable because of the sunshine radiation theory which has been recently advanced.

Where charcoal, charred cobs and sand, they gave larger gains than when salt alone was fed. This fact suggests the possibility of some common physical character at work in all of these substances.

Professor Eyvard has promised that he will continue investigating the value of sand in both cattle and swine feeding. He warns farmers not to get excited over this discovery. It needs further experimentation. He says that the following substances have been proved to be of high value: calcium carbonate, bone products, potassium iodide and salt.

Winter-fed pigs are in greater need of mineral mixtures than are summer-fed pigs. Even with tankage in the ration, the need for mineral mixtures is not eliminated. The same is true when alfalfa is fed.

Dry Lot vs. Pasture Feeding.

A comparison of dry lot and pasture feeding of growing pigs shows only a slight difference. Both groups made the 225 pound weight in the same time, or 102 days. The gains per day were the same. The concentrated feed required for the hundred pounds of gain was 364 pounds on pasture and 363 pounds in dry lot.

The cost of the gains shows a little greater difference. Counting the corn at eighty-four cents a bushel, the tankage at \$70 a ton, the protein supplement mixture at \$7 a ton, minerals at four cents per pound, and pasture at thirty-five cents on the hundred pounds gain, the cost of the feed for the pasture-fed hogs was \$6.51 per 100 pounds and the cost for the feed in the dry lots was only \$6.29 per 100 pounds.

Eyvard's summary for success in feeding fall pigs runs something like this: Give them a good start; feed them properly; feed them in protected places; preferably in a shelter where it is warm and comfortable; do not let them range too widely; let them enjoy with plenty of unfrozen water at all times.

CARE OF MILKING MACHINES.

(Continued from page 500).
chines frequently recommend the use of chloride of lime without the use of

salt. Such a solution is effective in the hands of a scientist who is able to make a chemical determination of the amount of available chlorine present, but in the hands of the farmer is very apt to prove disappointing. The writer on numerous occasions examined the so-called chloride of lime solutions as used by farmers and found them to be entirely free of available chlorine. Indeed, there were cases where the antiseptic solution was in fact, not an antiseptic solution but a putrid solution teeming with bacterial life.

There are on the market a number of hypochloride antiseptics, which are nothing more or less than sodium hypochlorite, a chemical sister of lime, and no more effective. Unfortunately, the directions usually given call for such small amounts of the antiseptic that ineffective results are obtained. On the other hand, such solutions, while expensive, are apt to be of standardized strength and can be more effectively applied by the farmer.

You Can Pasteurize the Tubes.

A recent method of freeing milking machine tubes of bacteria has been advocated. This is to practically pasteurize them. It is recommended that the tubes be placed in cold water, which is then brought to 180 degrees F., and maintained at that point for one-half hour. It is claimed by the advocates of this procedure, that this treatment does not destroy the rubber. The writer had tried this method and agrees that it is bacteriologically efficient and does not destroy the rubber but it so decreases its elasticity that it very readily falls off the machines. There may be kinds of rubber which can withstand such treatment but at least some brands of rubber will not. This fact was ascertained by experiment by the first worker in this field of bacteriology. Professor Stocking, of Cornell University, at that time working at the Storrs, Connecticut, Station.

Some Precautions.

A few final words of caution may not be amiss. Enough of the antiseptic solution should be used to completely immerse the rubber parts of the milking machine. Too many farmers content themselves with a five or ten-gallon crock, when a thirty or fifty-gallon crock is called for.

It may not be amiss to again call attention to the fact that the use of antiseptic solution is only practicable where it follows thorough cleanliness.

Another precaution which should be mentioned before leaving the subject, is that violent poisons should never be used about the dairy. There are a number of germicidal substances that could be used to keep down the germ content of machine-drawn milk but they should never be used. The solutions recommended above are harmless, when used as recommended.

Most of the emphasis of this article has been placed upon the care of the rubber parts of the milking machine, but it is well to remember that bacteria can grow on metal surfaces as well as on rubber surfaces. The pails and heads of the machines should be given as thorough attention as any other dairy utensils. They should be thoroughly washed and scalded, or steamed so efficiently that they are left in a dry condition or in a condition in which they will quickly dry after the treatment. Depriving bacteria of moisture deprives them of the chance to multiply.

If the above precautions are followed, there is no reason why one may not produce milk with as low a germ content as can be produced by the best hand-milking. This has been repeatedly proven by a large number of investigators, including the writer.

Twenty farmers in Michigan were able to produce a ton litter of pigs in 180 days this year, and are therefore eligible to enter the Ton Litter Club under the auspices of the animal husbandry department of M. A. C. Last year only six were able to make the ton mark in the required time.



What is
KOW-KARE?
and how does it help your Cows to higher yields

One way to increase the milk flow is to feed abnormally rich foods and so-called concentrates. This is expensive and full of danger. The rich foods are costly. They put an added strain on the digestive and milk-making organs which, so often, are already jaded from overwork and forcing. Even if these vital functions do not actually break down, the milk flow drops off the instant this unnatural and expensive stimulant is withdrawn.

A Safe Invigorator

The other method—the only one with genuine and permanent results—is to build up the organs of digestion, assimilation and milk-secretion to a natural vigor that will enable them to turn into milk ALL the milk values in the cow's natural diet.

The latter method is the Kow-Kare method. Kow-Kare is not a stock food. It is a compound of scientific medicinal properties that build up and invigorate the digestive and genital organs. In itself Kow-Kare has no food value, but it vitalizes the milk-making functions so that the ordinary cow diet is consumed and turned into the maximum milk flow.

Used in this way—regularly and in small quantities Kow-Kare pays for its slight cost scores of times over in added milk income. Besides, the cow that is aided with Kow-Kare seldom becomes a prey to such di-

seases as Barrenness, Abortion, Retained Afterbirth, Scours, Garget, Milk Fever, Lost Appetite, etc., all of which originate in run-down genital and digestive organs.

What Cow Ailments Trouble You?

Cow diseases are too expensive to tolerate. A short illness may easily make a liability of a cow that ought to be a profit-maker. If disease does creep in call Kow-Kare to your aid promptly. Its direct medicinal action on the vital organs has won it ever increasing popularity as the reliable "home cow doctor."

So that you may know just how to treat the various cow ailments successfully, write us for free copy of our famous book, "The Home Cow Doctor."

Try This More-Milk Plan

To make this your banner winter in milk production follow the plan that is now winning thousands of new recruits among dairymen each year. Give all of your cows a tablespoonful of Kow-Kare in the feed twice a day, one week of each month during the winter and spring.

This Kow-Kare treatment really costs you nothing because the slight expense is returned many times over in added milk yield. Besides, every penny spent on Kow-Kare is an investment in cow health.

Feed dealers, general stores and druggists sell Kow-Kare, in \$1.25 and 65c sizes. If your dealer is not supplied, order direct from us.

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HOGS

Quality Duroc Boars and Gilts. Best blood lines. Reasonable price. Write Rolfe Wells, Pokagon, Mich., Cass Co.

Large Type Durocs Boars and Sows, all ages. Price reasonable. Write or come. Clyde A. Kershaw, Plainwell, Mich.

Registered O. I. C. service boars and open Gilts. Best of breeding, priced right. J. R. VAN ETEN, Clifford, Mich.

O. I. C.'s Spring pigs. Sired by "Giant Boy" and "Jumbo Bell Boy," also Brown Swiss bulls. MILO H. PETERSON, R. 2, Ionia, Mich.

O. I. C. & Chester White Big Type With Quality. Have a few CHOICE Spring Pigs, either sex, that I am selling CHEAP. All of prize winning blood-lines. Newman's Stock Farm, Marlette, Mich.

O. I. C.'s Now offering the 5 best boars from 3 litters of 34 pigs raised last spring. C. J. THOMPSON, Rockford, Mich.

If You Need a CHOICE O. I. C. spring boar or gilt, write to Jacob Smith, Saline, Mich. We have a goodly number to choose from.

O. I. C.'s last spring pigs, either sex, not skin, from big strong stock, recorded free. OTTO B. SCHULZE & SONS, Nashville, Mich.

BIG TYPE Chester Whites of show quality. Spring boars and gilts, also fall pigs. Priced reasonable. Lucian Hill, Tekonsha, Mich.

Fall Pigs either sex, by the great Bear, The Wolverine. Priced reasonable. Best of dams. W. E. Livingston, Parma, Mich.

Francisco Farm Poland Chinas Now offering good herd Boars with the best of breeding. Also gilts not skin to them. Prices are right. F. F. POPE, Mt. Pleasant, Mich.

P. C. Choice Boars and Gilts that will please you. Sired by Peter A. Pan & Model Clansman. C. E. Garnant, Eaton Rapids, Mich.

FOR SALE Poland China boars and gilts. Best of breeding and choice individuals. Immune for cholera. Registered free. WESLEY HILE, Ionia, Mich.

For Sale Large Type Poland Chinas either sex. Also Brown Swiss Bulls. A. A. FELDKAMP, Manchester, Mich.

Spotted Poland Chinas Excellent breeding. Boars \$25 to \$35. Luckhard's Model Farm, Bach, Mich.

Additional Stock Ads. on Page 515



THE LATEST MARKET REPORTS



GRAIN QUOTATIONS

Monday, December 1.

Wheat.
 Detroit.—No. 1 red at \$1.63; No. 2 red \$1.62; No. 3 red \$1.59; No. 2 white \$1.63; No. 2 mixed \$1.62.
 Chicago.—December \$1.53 3/4 @ 1.53 3/4; May at \$1.60 1/4 @ 1.61; July \$1.42 3/4 @ 1.43 1/4.
 Toledo.—Cash \$1.62 1/2 @ \$1.63 1/2.

Corn.
 Detroit.—No. 2 yellow \$1.22; No. 3 yellow \$1.21.
 Chicago.—December \$1.13 3/4 @ 1.14; May \$1.21 @ 1.21 1/4; July \$1.22 @ 1.22 1/4.

Oats.
 Detroit.—New, No. 2 white 55 1/2 c; No. 3, 54 1/2 c.
 Chicago.—December at 52c; May 58 1/2 c; July 57c.

Rye.
 Detroit.—Cash No. 2, \$1.31.
 Chicago.—December at \$1.34 1/4; May \$1.37 1/4; July \$1.25 1/2.
 Toledo.—\$1.30.

Barley.
 Detroit.—Barley, malting, at \$1.03; feeding 98c.

Beans.
 Detroit.—Immediate and prompt shipment \$5.10 @ 5.15 per cwt.
 Chicago.—Navy, choice \$5.65; kidneys \$9.05.
 New York.—Choice pea \$6.25; red kidneys \$8.90 @ 9.

Buckwheat.
 Detroit.—Milling grade \$2.25 @ 2.30.

Seeds.
 Detroit.—Prime red clover cash at \$19.25; alsike \$12.65; timothy \$3.15.

Hay.
 Detroit.—No. 1 timothy \$18 @ 19; standard \$17 @ 18; No. 2 timothy \$16 @ 17; No. 1 clover mixed at \$16 @ 17; wheat and oat straw \$11 @ 11.50; rye straw \$12 @ 13.

Feeds.
 Detroit.—Bran at \$33; standard middlings \$34; fine do \$39; cracked corn \$50; coarse cornmeal \$46; chop \$36 per ton in 100-lb. sacks.

Apples.
 Chicago prices on apples: Northern Spies \$6 @ 7 bbl; Baldwins \$6 @ 6.50; Jonathans \$8.50 @ 8.75 bbl; Kings \$6.50 @ 7 bbl; Delicious \$4.25 @ 4.50 per bu; Greenings \$7.50 @ 8 bbl; Grimes Golden and Wagners \$5 @ 5.50 bl; Snows and Winesaps \$7 @ 8 bbl.

WHEAT

The possibility of large deliveries on December contracts has been responsible for much uncertainty and erratic action in the wheat market in the last week but it has made fair gains. The world's statistical position of wheat seems to grow stronger instead of weakening. The Argentine crop has passed the point where rain would be of great help, and instead, it would interfere with harvest, which is just getting under way in the more northerly provinces. Australian crop prospects are not as good as they were a short time ago. Russia seems to have abandoned any idea of exports before next spring. There is little to add to the crop situation in the rest of Europe, which shows a decrease of about 166,000,000 bushels compared with last year. Thus far in the crop year, the advance in prices has not checked the rate at which importing countries are taking wheat. From July 1 to November 22, disappearance of wheat in international trade channels amounted to 286,000,000 bushels against 257,000,000 bushels last year, when a new high record was set up.

RYE

While the stock of rye on ocean passage is comparatively large, foreign buyers have been taking substantial amounts from day to day for forward shipment. More rye is disappearing from international trade channels than a year, which is in line with the estimate of increased foreign needs as a result of a reduction of about 124,000,000 bushels in the European crop. At the same time, available surpluses are smaller than a year ago.

CORN

A week ago, corn was showing more strength than any other grain. At present, it is reactionary, however. Both the visible supply and receipts of corn are of normal size for this season of the year. The quality of arrivals is better than expected in view of the large amount of soft corn in the crop. Husking returns are disappointing, but at the rate hogs are being liquidated, feed requirements will be much smaller than they were last winter or two years ago.

OATS

Oats prices are keeping within a narrow range while following the ups and downs of corn. Stocks are heavy at visible supply points but primary receipts are gradually diminishing and the accumulation has not gained much in the last several weeks.

SEEDS

Clover seed markets are holding practically all of their recent gains. Receipts are still small and indicate a shortage even greater than that shown by the estimated yield. Dealers are still in the dark, of course, as to how the consuming demand will respond to the sharp increase in prices compared with the last several years.

FEEDS

Production of oil meals is heavy and prices have declined 50 cents to \$1 per ton in the last week. The increased crops of cotton and flaxseed mean that the supply of these meals will be the largest in several years. Millfeed markets are quiet and prices are unchanged. The output from flour mills is practically equal to the demand. There is little disposition on the part of interior buyers to contract for future delivery. Storage stocks of millfeeds are fairly large.

HAY

The hay market is draggy at most points. Receipts, as well as demand, are rather light. Timothy hay of low grade has accumulated in some markets. The demand for alfalfa has declined sharply and only the small movement sustains prices.

POULTRY AND EGGS

Fresh eggs are still in light supply and prices have advanced further during the week. Demand was affected by the holiday trade and prices may react slightly now that this influence is withdrawn. Cold weather in producing sections may cut into the lay during the next two weeks, but the normal increase which begins to appear during December will swell the receipts later on.

Chicago.—Eggs, miscellaneous 45 @ 53c; dirties 32 @ 35c; checks 31 @ 33c; fresh firsts 48 @ 55c; ordinary firsts 42 @ 45c. Live poultry, hens 20c; spring-

ers 22c; roosters 14 1/2 c; ducks 16c; geese 16c; turkeys 26c.

Detroit.—Eggs, fresh candled and graded 50 @ 54c; storage 35 @ 37 1/2 c. Live poultry, heavy springers at 22c; light springers 18c; heavy hens 22c; light hens 15c; roosters 15 @ 16c; geese 20c; ducks 20 @ 22c; turkeys 30c.

BUTTER

Butter prices have continued their upward march. Prices on 92-score creamery butter at Chicago are nearly 12c a pound higher than two weeks ago. The supply of fancy fresh butter has diminished further during the week and top scores of storage are finding increasing favor. Production reports indicate that the low point has been passed.

Prices on 92-score creamery were: Chicago 50c; New York 46 1/2 c; Boston 46c; Philadelphia 46c.

In Detroit fresh creamery in tubs sells for 37 @ 45c.

CHEESE

Cheese prices have been sustained by a decreasing production, a more active demand and the strength in the butter market. Production of cheese is at a low point compared with last year, and prices are expected to hold their improved position.

BEANS

Last week was the quietest in the bean market since the new crop started to move. Stocks available for shipment are ample but dealers reported practically no demand even though prices have dropped moderately from those quoted a short time ago. C. H. P. whites are quoted at \$5.25 @ 5.30 per hundred pounds, f. o. b. Michigan shipping points. The situation is rather surprising to the trade as it was supposed that the fairly strong outlook for the crop year would stimulate buying. There is no foreign competition. Since the distributors probably have enough beans to last them a few weeks longer, demand may remain rather narrow until after inventories are taken around the first of the year.

POTATOES

Potato prices have weakened again in the last few days, particularly on western stock. Receipts at distribut-

ing markets are rather heavy but the carlot movement from producing districts is shrinking rather steadily and some improvement in prices later on appears logical. Only once in the last five years have loadings been as heavy at this season as they have been in the last three weeks. Sacked Northern round whites, U. S. No. 1, are quoted 75 @ 85c per 100 pounds, in the Chicago carlot market.

APPLES

Apple prices are holding fairly well at the advance over last year, with but little change quotable from week to week. Michigan Greenings bring \$6.50 @ 7 at Chicago. Sales for export continue at a satisfactory rate. Apples are disappearing into domestic or export channels fast enough to clean up the supply, in spite of higher prices than last year, so that a further upturn appears more probable than a decline.

ONIONS

Onion markets have strengthened under a light carlot movement, although it is about as heavy as ever experienced at this season of the year.

CABBAGE

Carlot shipments of cabbage in the last three weeks have been the heaviest at this season since 1920. Northern Danish type is quoted at \$1 @ 1.25 per 100 pounds, sacked, in Chicago.

WOOL

Wool prices are firm the world over with most markets reporting further advances. Domestic prices are about 10 per cent higher than six weeks ago and 30 to 50 per cent higher than in July. The London sale, which opened last week, ranges from steady to 15 per cent higher than the previous sale. Australian, New Zealand and South American markets are strong. Domestic prices are too low to facilitate imports, although American buyers are said to be operating freely in all foreign markets. Since stocks in this country are being used up a good deal faster than they are being produced or imported, an advance to the world level appears inevitable. Manufacturers have ceased to complain about the demand for goods.

DETROIT CITY MARKET

Offerings were moderately heavy, but, with the exception of apples, buying was light. Good apples were fair sellers. Cauliflower and celery were slow to sell and the demand for carrots, beets, parsnips and cabbage was light. Lettuce was taken slowly. The movement of potatoes was light at 50 @ 60c a bushel. The market for live fowls was a little higher, but lower for dressed stuff.

Prices were: Apples, fancy \$1 @ 2.75 per bu; beets 50 @ 75c bu; cabbage 40 @ 50c bu; carrots 75c @ \$1 bu; cauliflower \$1.50 @ 2 per bu; local celery 50 @ 75c per dozen; horseradish \$3 @ 5 bu; dry onions \$1 bu; parsnips \$1 @ 1.25 bu; pears \$1 bu; sweet peppers \$2 @ 3.50 bu; red \$2 @ 3 bu; potatoes, No. 1, 55 @ 60c bu; pumpkins 50 @ 60c bu; Hubbard squash 75c @ \$1 bu; turnips \$1 @ 1.50 bu; vegetable oysters 75c per dozen bunches; eggs, retail 70 @ 85c; hens, wholesale 25c; retail 25 @ 28c; springers, wholesale 27c; retail 27 @ 28c; dressed pigs 15c; veal 15c; dressed poultry, hens 30c; springers 30c; ducks 30 @ 32c; turkeys 40c.

GRAND RAPIDS

This market was weak on poultry and veal this week but steady in other departments. Prices early this week were: Poultry, turkeys 24 @ 30c; heavy fowls 17 @ 20c; light fowls 12 @ 15c; heavy springers 18 @ 22c; light 13 @ 16c; veal 10 @ 11 1/2 c; pork 12 @ 13c; beef 9 @ 10c; lamb 20 @ 22c; eggs 55 @ 60c; butter-fat 50c; apples, winter varieties, fancy \$1.75 @ 2.25 bu; choice \$1 @ 1.50; pears, Kieffers 25 @ 50c bu; potatoes 40 @ 50c bu; onions 70c bu; carrots, turnips, rutabagas 50 @ 75c a bu; cabbage, white 40 @ 50c bu; red 50 @ 75c bu; squash 1 @ 3c lb; pumpkins 5 @ 10c each; celery 20 @ 60c per bunch; wheat \$1.45 bu; rye \$1.03 bu; buckwheat \$1.75 cwt; beans, white \$4.65 cwt; red \$7.50 @ 8.25 cwt.

LIVE STOCK SALES.

Guernseys.
 Dec. 12—John Young, Breckenridge, Mich.

Live Stock Market Service

Monday, December 1.

CHICAGO

Hogs.
 Receipts 93,000. Market active, and mostly firm. Light lights and light weights are steady to 5c higher; few early sales weak to 10c lower; tops are quoted at \$9.60; bulk good 225-325-lb. butchers \$9.30 @ 9.55; 170 to 200-lb. weight 8.50 @ 9.25; bulk 140 to 150-lb. \$7.25 @ 8.25; packing sows \$8.85 @ 9.10; strong weight slaughter pigs at \$6.50 @ 7.

Cattle.
 Receipts 32,000. Better grades fed steers, yearlings fully steady, others slow; weak spots lower, run includes liberal proportions of short fed steers and lower grades of she stock; yearlings up to \$14.25; bulk fed steers of value \$10 and below; calves are steady at \$8.50 @ 9.

Sheep and Lambs.
 Receipts 22,000. Market is fairly active; fat lambs are fully 25c higher; bulk feeders and fed westerns are \$14.75 @ 15; tops \$15; no clipped sold; heavy yearlings \$11; sheep and feeding lambs 25c higher; handy weight fat ewes up to \$8.75; bulk good feeders \$14.50 @ 15; tops \$15.

DETROIT

Cattle.
 Receipts 984. Good grades strong, 25c higher; others steady. Good to choice yearlings
 dry fed \$ 9.50 @ 10.75
 Best heavy steers, dry-fed 7.50 @ 9.50
 Handyweight butchers .. 6.00 @ 7.00
 Mixed steers and heifers 5.00 @ 5.75
 Handy light butchers 4.25 @ 5.25
 Light butchers 3.00 @ 4.00
 Best cows 4.25 @ 5.00
 Butcher cows 3.25 @ 4.25
 Cutters 2.50 @ 3.00
 Canners 2.00 @ 2.50
 Choice bulls 3.75 @ 4.00
 Heavy bologna bulls 4.25 @ 4.50

Stock bulls 3.00 @ 4.00
 Feeders 4.50 @ 6.00
 Stockers 3.00 @ 5.50
 Milkers \$45.00 @ 70.00

Veal Calves.
 Receipts 774. Market steady.
 Best \$11.50 @ 12.00
 Others 3.00 @ 11.00

Sheep and Lambs.
 Receipts 2,362. Market 50c higher.
 Best lambs \$ 15.00
 Fair lambs 11.00 @ 13.50
 Light to common 8.00 @ 9.75
 Fair to good sheep 6.00 @ 7.50
 Culls and common 2.50 @ 4.00
 Buck lambs 7.00 @ 14.00

Hogs.
 Receipts 2,641. Market 25c higher.
 Mixed hogs \$ 9.50
 Pigs 6.50
 Light yorkers 7.50
 Heavy yorkers 9.25 @ 9.50
 Roughs 8.25

BUFFALO

Hogs.
 Receipts 850. Market is closing steady. Heavies \$10.25 @ 10.50; medium \$9.75 @ 10.25; light weights \$8.50 @ 9.80; light lights \$7.25 @ 9.25; pigs \$6 @ 7; packing sows and roughs \$8 @ 8.25.

Cattle.
 Receipts 3,470. Best steady to strong, others slow and 15 @ 25c lower; steers 1,100 lbs. up \$6 @ 9.75; steers 1,100 lbs. down \$5.50 @ 10.25; no choice here; heifers at \$4.50 @ 7.50; culls \$1.75 @ 6; bulls \$3 @ 5.

Calves.
 Receipts 1,500. Tops \$13; culls \$9 down.

Sheep and Lambs.
 Receipts 8,400. Best lambs \$15.50; culls \$13.50 down; best yearlings \$12 @ 12.50; aged wethers \$9 @ 9.50; ewes \$7.50 @ 8.50.

Equip Your Fordson with a DIAMOND WOOD SAW UNIT!



Provides complete equipment for sawing logs, poles, cordwood or lumber, cheaply and quickly. Uses every ounce of power without waste. Makes your Fordson more powerful when it would otherwise be idle. Ideal for the man who cuts his own wood or for the custom sawyer.

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FOREMOST AMONG BETTER GRINDERS Crush and grind all the grains that grow; fine for hogs or coarser for cattle feeding. Corn in husk, Head Kafira, and all small grains. Strength, Durability and Service radiate from every line of these Masterful Grinders. Simple, yet effective in adjustment. Last a lifetime. LIGHT RUNNING—LONG LIFE—EXTRA CAPACITY CONE-SHAPED BURRS 10 sizes—2 to 24 H. P. or more. Also Sweep Mills. It pays well to investigate. Catalog FREE. The D. N. P. Bowsher Co., South Bend, Ind.

WITTE LOG & Saw TREE Saw

Cuts down trees and saws them up FAST—one man does the work of 10—saws 10 to 25 cords a day. Makes ties. A one-man outfit. Easy to run and trouble-proof. Thousands in use. Powerful engine runs all other farm machinery. Uses all low priced fuels.

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Our prices are \$2.00 to \$3.00 lower than most dealers. Write us today for free samples of Highest Grade Home Grown Seed. Our prices are surprisingly low. Get our samples and prices on Alfalfa, Sweet Clover, Timothy and all Seeds. *We can save you big money on your seed bill. Write for free samples, special prices and 62 page catalog. American Field Seed Co., Dept. 131 Chicago, Ill.

NEW LAMP BURNS 94% AIR

Beats Electric or Gas

A new oil lamp that gives an amazingly brilliant, soft, white light, even better than gas or electricity, has been tested by the U. S. Government and 35 leading universities and found to be superior to 10 ordinary oil lamps. It burns without odor, smoke or noise—no pumping up, is simple, clean, safe. Burns 94% air and 6% common kerosene (coal oil).

The inventor, J. O. Johnson, 609 W. Lake St., Chicago, Ill., is offering to send a lamp on 10 days' FREE trial, or even to give one FREE to the first user in each locality who will help him introduce it. Write him today for full particulars. Also ask him to explain how you can get the agency, and without experience or money make \$250 to \$500 per month.

CROP AND MARKET NOTES.

Missaukee Co., Nov. 24.—Farmers are feeling more optimistic. There is a larger amount of live stock than usual, and thus far the dairy business is good. Poultry is dull. Feed is plentiful except corn. Wheat brings \$1.35; oats 40c; clover seed \$7@10; butter-fat 38c; eggs 43c. Fall-sown grains are good, considering the dry weather.—R. H. B.

St. Joseph Co., Nov. 24.—Farmers seem well satisfied with this year's crops. All are good with the exception of corn. Some extra good yields of clover seed are reported. Live stock is about normal with the dairy business on the gain. Poultry is not as plentiful as other years. There is ample feed to carry farmers through the winter. Dealers are paying for wheat \$1.42; rye \$1.12; oats 50c; corn \$1.05; eggs 50c; butter 40c; chickens 18c; cloverseed \$13@16. Co-op associations are active, and fall grains are looking good.—H. S.

Genesee Co., Nov. 24.—Dry weather has been broken by light rain, but not enough to do much good. Fall work is well along, excepting fall plowing has been limited on account of dry weather. About the usual number of sheep and cattle are being fed with preference for the former. The municipal market at Flint is crowded every day with both buyers and sellers with fairly satisfactory results. Wheat brings \$1.46; corn \$1.17; oats 44c; beans at \$4.70 cwt; potatoes 75c@81; butter 45@50c; fresh eggs 60c. A few farms are changing hands, mostly trades for city property.

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Man Wanted (city or country) old established company will supply capital and start you in your own permanent business selling necessities people must buy every day. Experience unnecessary. Write MCCONNON & CO., Factory M-75, Winona, Minn.

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Registered Guernseys at AUCTION

On account of leaving the farm I am to have an Auction Sale. Friday, December 12, 1924. This sale contains 5 head of Registered Guernseys, 1 cow 6 yrs. old due in spring; 1 cow 4 yrs. old due soon; 1 heifer 3 yrs. old due soon; 1 bull 20 months, and 1 bull 8 months old. Registration papers and pedigrees furnished with each. If interested write or phone JOHN YOUNG, Breckenridge, Mich.

Place of sale 1 1/2 miles east and 1 mile south of Breckenridge.

HOGS Poland China Hogs for sale. Boar Ready for Service, and a few sows. Sam Bueschler, Elkton, Mich.

Hampshires Spring Boars for sale. Place your order for Glits Bred to order. 11th year. John W. Snyder, R. 4, St. Johns, Mich.

SHEEP Breeding Ewes For sale, in lots of 50 or more, telephone Newport, telegraph Rockwood, P. O. So. Rockwood. ALMOND B. CHAPMAN & SON.

Breeding Ewes for sale, 100 Delaine grades; 100 Shropshire grades. V. B. Furniss, Nashville, Mich.

For Sale Registered Oxford Rams and Ewes. Satisfaction guaranteed. Geo. T. Abbott, Palms, Mich. Phone 78-3, Deckerville, R. 2.

100 Delaine Ewes Registered. Bred for wool and mutton. F. H. Russell, R. 2, Wakeman, Ohio.

Reg. Hampshires Good, well-bred ram lambs. W. W. CASLER, Ovid, Mich.

Shropshires For Sale. Ten Bred Ewes. Choice Yearling rams and ram lambs sired by McKerrow's Choice Yearling Double Grandson 3539-480-108. E. F. Goodfellow, R. 1, Ovid, Mich., Phone 48-5.

27 Registered Delaine and Merino Ewes, good ages, heavy shearers. E. E. Nye & Son, Jonesville, Mich.

20 Well-bred Registered Shropshire Ewes, priced to make you money. ERNEST RUEHS, Caledonia, Mich.

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This classified advertising department is established for the convenience of Michigan farmers. Small advertisements bring best results under classified headings. Try it for want ads and for advertising miscellaneous articles for sale or exchange. Poultry advertising will be run in this department at classified rates, or in display columns at commercial rates. Rates 8 cents a word, each insertion, on orders for less than four insertions; for four or more consecutive insertions 6 cents a word. Count as a word each abbreviation, initial or number. No display type or illustrations admitted. Remittances must accompany order. Real estate and live stock advertising have separate departments and are not accepted as classified. Minimum charge, 10 words.

Rates in Effect October 7, 1922

Table with columns: Words, One time, Four times, One time, Four times. Rows 10-25.

Special Notice

All advertising contracts must reach this office ten days in advance of publication date.

MISCELLANEOUS

SEEDS—New Crop "Kansas" Alfalfa \$7.00 and \$9.50 bu., also Sweet Clover, Red Clover, Alsike, Timothy, Sudan, Cane, Kafir, Millet, Seed Corn, Soy Beans, Cow Peas. Lowest Prices, Bags Free. Send for circular and samples and Save Money. Solomon Seed Co., Solomon, Kansas.

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CHOICE OREGON PRUNES DIRECT, \$7.50 per 100. Special 1 1/2-lb. sample bag, express paid, \$1.80. Kingwood Orchards, Salem, Oregon.

WANTED—Sweet Clover Seed. Send samples and price. C. W. Aeppler, Oconomowoc, Wisc.

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OREGON—Long Growing Season—Mild Climate. Two hundred ten days growing season. Green feed throughout almost entire year. All small grains, including oats and barley, sown in fall. Green vegetables all ways in season. Profitable dairying and poultry conditions. Hog market from 1 to 1 1/2 cents higher than Chicago market. Land values most reasonable. Mild winters. Cool summers. No destructive storms. Fine water and plenty of it. Splendid system of paved highways free from land tax. Fruit, berries and nuts successfully produced. Banking and business interests united with farmers to provide markets and make agriculture a success. Accurate official bulletin FREE for the asking. Write today to Land Settlement Dept., Room 617, Portland Chamber of Commerce, Portland, Oregon.

FINE DAIRY "80" with 4 Horses, Season's Crops, 17 Cows and Heifers and Bulls, 150 hens, hogs, machinery, vehicles, 500 bu. corn, 200 bu. oats, hay, potatoes, fruit, vegetables; substantial income from start; near good RR town and river; 70 acres black loam tillage, wire fence, spring water, wood, abundance fruit; 9-room house, large barn, granary, garage. Other business affairs, \$4,500 take all, only one-third cash. Details pg. 133 Big Bargain Catalog, illus. money-making farms and business chances. Free. Stout Farm Agency, 205BC Kresge Bldg., Detroit, Michigan.

BEST FARM IN MICHIGAN—411 acres at sacrifice without stock and tools; small payment down; 350 acres under cultivation; 5 1/2 miles from Detroit on main road to Lansing. Apply Chazy Stock Farm, R. F. D. 2, Fowlerville, Mich.

FARMS FOR RENT—2, 160 acres each, 1 with sugar bush, 6 miles east of Lake Odessa, Mich. Amos Kimmel.

FARM FOR RENT—225 Acres on Pokagon Prairie adjoining Sunnerville on Dixie Paved Road. Stocked with Registered Guernsey Cattle. Floyd J. Wood, Niles, Mich.

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HOMESPUN TOBACCO—Chewing five pounds \$1.50; ten \$2.50; smoking five pounds \$1.25; ten \$2.00 pipe free, pay when received, satisfaction guaranteed. Co-operative Farmers' Paducah, Kentucky.

HOMESPUN TOBACCO—Chewing five pounds, \$1.75; ten, \$3.00; twenty, \$5.25. Smoking, five pounds, \$1.25; ten, \$2.00; twenty, \$3.50. Pipe Free. Money back if not satisfied. United Tobacco Growers, Paducah, Ky.

HOMESPUN TOBACCO. Chewing 5-lbs. \$1.50; Ten \$2.50. Smoking 5-lbs. \$1.25; Ten \$2.30. Pay when received, pipe and recipe free. Farmers' Union, Paducah, Ky.

HOMESPUN TOBACCO—Chewing, 5 lbs., \$1.50; 10, \$2.75. Smoking, 5 lbs., \$1.25; Mild, 10, \$1.50. Pay when received. F. Gupton, Bardwell, Ky.

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FOR SALE—High-class Foxhounds; Beagle hounds, Coonhounds; Bloodhounds; and Setters; partly and well-broken; puppies of all breeds; no money in advance, ship C. O. D. Stamp for booklet. Landis-Kennels, Mohnton, Pa.

FERRETS—I specialize in raising ferrets. Thirty years' experience. November prices, females \$3.50 each; males \$2.75 each. One dozen \$30. Yearling females special rat catchers \$5.00 each. Will ship C. O. D. Instruction book free. Levi Farnsworth, New London, Ohio.

BREEDER AND TRAINER of English and Fitch Ferrets. Price, quality and safe delivery guaranteed. Choice yearling females \$4.00 each. Book free. Thos. Sellars, New London, Ohio.

LAKELAND FUR EXCHANGE, Salem, Mich. The world's most famous breeds of tree, den and trailing hounds, pups all ages. Write for dog and fur price list.

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FOR SALE—Thoroughbred White Holland Turkeys, toms \$7, hens \$5. Thoroughbred Flemish Giant Rabbits, \$2 each. Leonard Norton, R. 1, Three Rivers, Mich.

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WANTED—One Thousand S. C. White Leghorn Pullets, good utility stock. Give age and price. Box 333, Michigan Farmer.

PURE-BRED Mammoth Bronze Turkeys, fine large birds from choice stock. Mrs. Ralph Sheek, Caledonia, Mich.

TURKEYS—M. Bronze, B. Red, Narragansett, White Hol. Hens, Toms. Pairs and trios, no kin. Order early. Walter Bros., Powhatan Point, O.

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PURE-BRED Giant Bronze turkeys, hens \$7, toms \$8. Unrelated. Until Dec. 15. Ida Davey, Ellsworth, Mich.

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PURE-BRED Mammoth Bronze Turkeys, toms and hens. Earl & Merle Phelps, Dowagiac, Mich.

MAMMOTH BRONZE TURKEYS—Champion strain. Choice Stock. A. W. Humphrey, Ithaca, Mich.

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SILVER LACED and White Wyandotte quality cockerels. Browning's Wyandotte Farm, Portland, Mich.

MAMMOTH BRONZE TURKEYS—Very fine stock. Mrs. Eugene Ramsdell, Hanover, Mich.

FOR SALE—Pure-bred Bourbon Red Turkeys. H. O. Ruggles, Milford, Mich.

LARGE Barred Rock Cockerels, \$5.00. J. Barnum, Union City, Mich.

LARGE-TYPE Narragansett turkeys. Hens \$8, toms \$12. Mrs. Grace Ikle, R. 7, Adrian, Mich.

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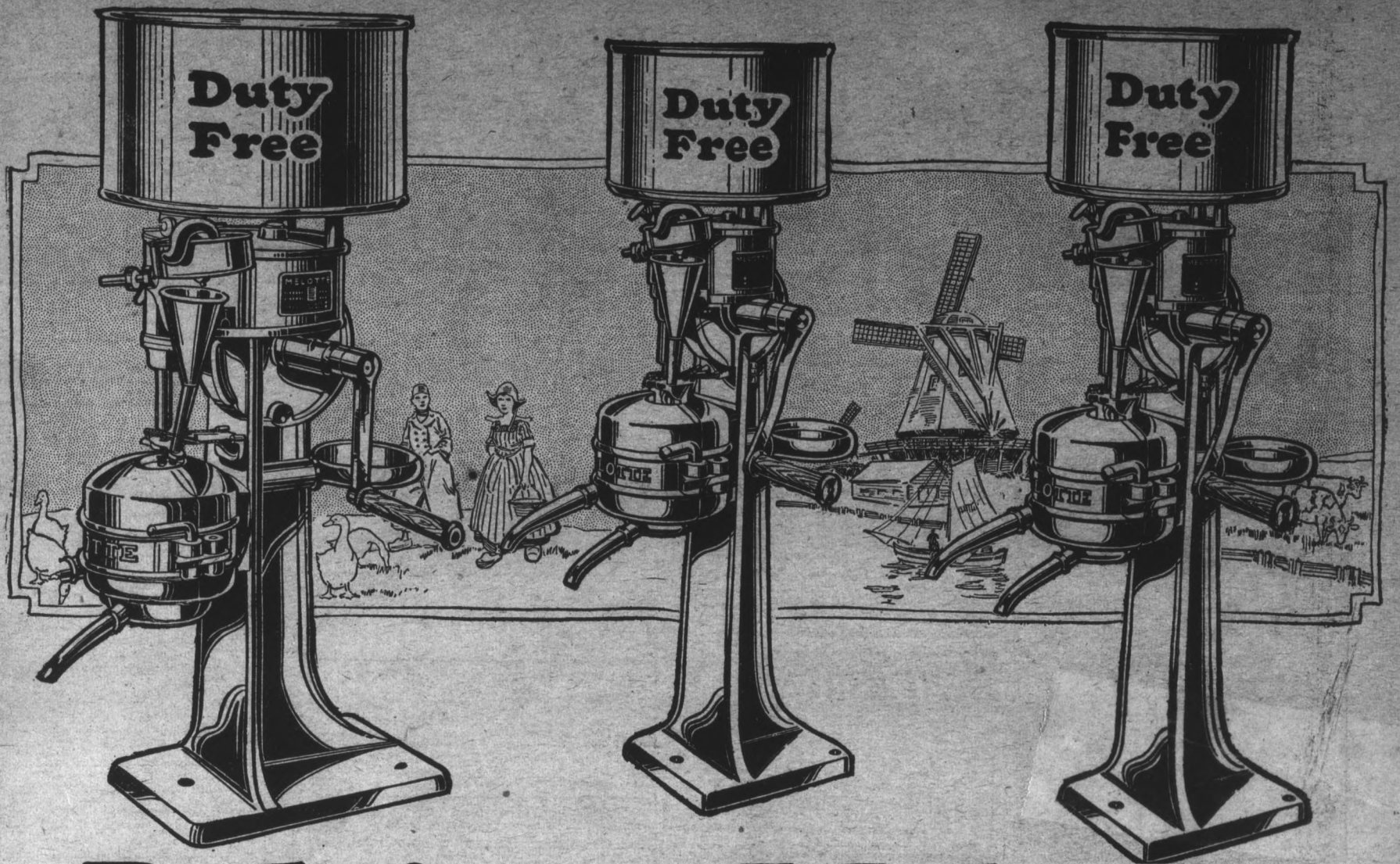
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