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### CURRENT COMMENT.

**Potato Grading.** The potato grading rules which were established through the agency of the Food Administration have so far failed to accomplish the benefits which the advocates of potato grading predicted. On the contrary, their operation has been a hardship to potato growers in this state, without any apparent compensation in the way of increasing consumption, or of benefit to consumers. This fact has naturally aroused the opposition of very many growers to the grading proposition, with the prospect that if the rules are not modified or repealed, or the plan worked out and applied in a manner to produce some noticeably beneficial results its principal result will be to cause decreased production next year, to the detriment of the country and a probable further loss to growers. Which of these plans should be followed for best results is, however, a question which should receive our careful consideration, rather than our hasty judgment.

Under the war conditions which prevailed last fall, when the rule was applied, the Michigan Farmer did not favor the trying of the experiment, which was, however, put into effect by the Food Administration along lines recommended by the Bureau of Markets as a result of investigations covering a considerable period of time and a wide area of the country. The results have so far been particularly unsatisfactory to Michigan growers. Whether this fact is due to a fault of the plan itself or to its faulty application is a matter for our thoughtful consideration at this time, as an essential to the seeking of the best remedy for the problem involved.

The recommendations of the Bureau of Markets were undoubtedly based on the observation of results which have been secured in other lines, and to some extent even with potatoes, through the marketing of standardized products by the voluntary cooperation of producers, and on this point the result of an exhaustive investigation as to the benefits derived by both producers and consumers is unquestionably more valuable evidence than even the most carefully considered opinion which is not supported by experience.

Grading their product according to established standards was undoubtedly of great financial advantage to the growers of citrus fruits, and has been a benefit to the potato growers of Maine and of some other sections. But in all of these cases standardized grading has been attached to the product until it reached the consumer, thus establishing a demand for the various grades at price differentials of which the consumer, rather than the distributor, was the ultimate judge. Up to the present time no attempt has apparently been made to educate the consumer of potatoes by this means. If potatoes are to be purchased from producers as "U. S. Grade No. 1," and "U. S. Grade No. 2," they must be sold to the consumer on the same basis, else the grading plan is destined to failure, and with the unfortunate result of reducing production next year as above noted. A recent order has made grading compulsory in all sections of the country. Early action should be taken to compel the sale of the two grades under their respective brands to consumers in a competitive way, thus permitting consumers' demand, rather than dealers' interest to fix the price on the second grade. Grading established by government authority cannot be a success, simply because cooperative grading has been, if the essential factors which have contributed to the success of cooperative grading are ignored.

There are many other factors relating to this question which are worthy of careful consideration by the growers as well as by officials who are charged with this work by the Food Administration, some of which will be given attention in these columns at an early date. In the meantime potato dealers who desire to see the grading system permanently established should at once materially reduce the price differential between the first and second standard grade.

**Potato Prices.** Recent reports of prices being paid to Michigan growers at country shipping points range all the way from \$1.15 to \$1.50 per cwt., the last named quotation being the top price at this writing in one of the principal potato shipping centers of central Michigan. At the same date potatoes are selling in jobbing lots in this city at \$2.35 to \$2.40 per cwt., with the market bare, almost no supplies on hand, and prospects good for still further advances before the demand can be satisfied.

This illustrates the condition of potato stocks in consuming centers, and indicates a constant future demand at high prices for all the potatoes which can be moved under present congested transportation conditions. This will give country dealers an opportunity to empty their storehouses at a profit, and would enable them to refill them on present market values at a price per hundred weight which would net the grower at least \$1.00 per bushel, which is generally conceded to be the minimum compensatory price. Growers should not now be frightened into unloading their potatoes at the low prices which have been recently offered by country shippers under these conditions.

The spread between prices which are being offered in the country and prices which are obtained in this and other large consuming centers in jobbing lots is far too wide, and growers should insist on getting fair prices at country points. There are many cities and towns in Ohio and Indiana as well as Michigan which must be supplied with potatoes from this state. Michigan potatoes are also finding their way into the big eastern markets at prices which should make them worth at least \$1.00 per bushel to Michigan growers at the present time.

A survey of the potato situation indicates that conditions favor a much better future potato market than the

distributors would have us believe. A more extended analysis of this situation will be made the subject of comment in our next issue. In the meantime, growers should be strong holders for compensatory prices.

### War Economics.

The order of the Fuel Administration closing down practically all industries for five days and restricting the use of fuel for heat on Monday of each week for the next two months, together with a supplementary order restricting the hours in which industries may be operated or business houses and offices kept open for business on other days, has brought home to city people as no amount of mere argument could have done, the necessity of national economy along certain lines as a factor in winning the war in which we are engaged.

Nearly all of us feel that something is wrong with our industrial machinery, that with plenty of coal in the ground there should be no shortage of fuel for either domestic or commercial use in this country, and we are prone to place the blame upon the mine operators, the workmen, the transportation companies, the coal dealers or the government fuel administration as dictated by our personal viewpoint. When all criticisms have been given their proper weight, however, the fact remains that notwithstanding the loss of labor to the mines through the operation of the draft, higher wages paid has stimulated production to an extent which has made possible the mining of some 50,000,000 tons of coal more than was produced last year. War needs, including increased coal for the navy, for merchant shipping, for the manufacture of munitions and for transportation purposes have increased the demand fully 100,000,000 tons, thus leaving a deficiency of something like 50,000,000 tons which must be made up by economy in the use of coal.

In this connection farmers have done their bit by very largely substituting wood for coal as a fuel. The city people are now doing their bit by forced economy under the Fuel Administration order. The lesson in fuel economy may have to be repeated in other lines before the war has been won. It brings to all of us a better realization of what war means, and should strengthen each of us in the determination to do our part, cheerfully toward the winning of this war, as the first step toward making similar wars impossible in the future.

### A Source of Farm Help.

It is a matter for congratulation to note the enthusiasm with which farmers in some sections of the state are receiving the idea of the Boys' Working Reserve. This organization which now promises to be one of the chief sources of relief for the farm labor situation, was started by the federal department of labor shortly after war was declared last spring and has now been extended to practically every state in the union. In Michigan, if present plans of the Reserve leaders materialize, fully 5,000 boys will be available to assist the farmers this coming summer. The work has the endorsement of the war preparedness board, the state administration, the state teachers' association, the agricultural college, farm agents, boys' and girls' club leaders, the school boards in the majority of the counties, farmers' organizations, etc.

One of the hopeful features of this movement is the preparations that are being made to train these boys. A very large number of them will come from city high schools. Arrangements are already under way to give the members practical instruction in such tasks as the handling of ordinary farm tools and machinery, the harnessing and caring for the horse, etc. Practical farmers and college extension workers will give most of this instruction. Where the boys are called upon to

work in gangs they will go out under the leadership of a capable teacher or other person who understands farm work.

The success of the working reserve is going to depend more upon the cooperation of the farmers than upon any other one factor. If they will come half way and do what is reasonable by the boys, the results are almost certain to be beyond the hopes of the most sanguine; while on the other hand, if those who need the help of these boys remain indifferent, these plans are certain to be futile.

### HAPPENINGS OF THE WEEK.

#### Foreign.

**The European War.**—There are practically no military operations of importance reported this past week as winter weather has prevented the movement of troops. On the western front about the only activity consisted in the work of a few raiding parties whose object seems to have been to feel out the strength of the opposing side at different points. Observers are confident that as soon as the weather moderates a big drive will be attempted by the Germans on the western front. Aviators are active in their efforts to obtain information on the whereabouts of the enemy's reserves. —Italian troops have improved their positions somewhat by forcing the Teutons to retire from some advanced points. No information has reached us from Palestine or Mesopotamia this past week. —The Russian situation is very much confused. Another counter revolution is reported. Peace talk between the Russians and the Central Powers has again been delayed. It appears, however, that the power of the Bolshevik government in Russia is gradually strengthening. Differences have arisen between the Russian and Roumanian governments and it is reported that an effort has been made by Bolshevik agents to capture King Ferdinand of Roumania, and other members of the royal family. Russia demands free passage for her troops through Roumanian territory, which has been denied since the Russians have moved for peace with the central powers. The Austrian ministry has resigned. The labor crisis is assigned as the reason. The people are reported to be demanding food and peace and they refuse to work.

Contracts have been completed with the Cuban government for the purchase of 2,500,000 tons of sugar by the United States. The price is fixed at 4.98½¢, delivered in New York or Philadelphia. The United States will share a portion of this sugar with her allies.

Prohibition of the use of white flour, beef and bacon as eatables is now being seriously considered by the Canadian food controller.

#### National.

Coal situation in this country is so acute that it became necessary for the federal and state fuel administrators last week to order the closing of all industrial plants except those working on government contracts and on the production of food stuffs, for five days, and also the declaration of all Mondays as holidays until March 25. It is roughly calculated that this order will save 30,000,000 tons of the 50,000,000 tons shortage for the season as reckoned by the bureau of mines.

Federal grand juries in many districts are investigating complaints that coal operators, wholesale and retail dealers have violated government orders by selling coal at different prices than those fixed by federal authorities.

Announcement has been made that to "wheatless" and "meatless" days will be added a "porkless" day on Saturday. The order will become effective on and after January 26. To further reduce the amount of meat consumed householders are asked to have at least one meatless meal on all other days of the week.

Quotations compiled by the Food Administration show a decrease in the composite value of foods of 18½ per cent from last May until December 1. While the reduction is due in part to the influence of federal control the effect of supply and demand has always tended to make December prices lower than May prices. In this connection the food department reports that food prices in Germany have increased 120 per cent, in England 105 per cent, in Canada 60 per cent, and in this country only 40 per cent.

A war department order issued January 18 made 18,000 temporary second lieutenants eligible for promotion to first lieutenants in the national army.

The seventeenth annual automobile show opened in Detroit Saturday evening with an unusually large number of exhibits on the floor.



# Assembling the Farm's Resources

By I. J. MATHEWS

WITH the beginning of a new year, it is desirable for every farmer to take stock of his resources and to make complete plans for the year to come. In doing this, it is often valuable to go back over the year just passed and obtain a summary of the business transacted, together with the total income and outgo for the various enterprises on the farm. The assembling of such data, together with the various totals, will make it possible to draw conclusions concerning the profitability of each of the several enterprises in which one may be engaged.

## Summing up the Year's Business.

The process of summing up the year's business is most easily accomplished if each one keeps account of his outgo by means of either a check book or a small receipt book. It is no trouble at all on the average farm to keep account of the cash receipts since the income of a year can usually be specifically mentioned in much less than a hundred entries. The outgo of the year is an entirely different matter since much of it is spent for relatively inexpensive items, such as buggy whips, small orders of groceries, drugs, repairs for harness, blacksmithing, seeds, machinery, etc.

When a check is written, a pretty good way to simplify the accounting on this particular enterprise is to write in the lower left hand corner of the check the purpose for which it was drawn. In the same way, a small receipt book can be carried in the vest pocket and when anything is paid out, the person to whom it is paid signs the receipt and this tells the purpose for which the money was paid.

The average farm would have about ten different divisions in which these various items of outgo might be classified. For instance, there would be machinery and repairs which would include all money paid out for machines as well as money paid to the blacksmith or to the carpenter for repairing those that had been purchased previously. There would also be an item called seeds under which classification money paid out for garden and field seeds would be placed. Various subdivisions that would be found on the farm would thus be machinery and equipment, seeds, feeds, buildings, orchards, animals and upkeep, advertising, and overhead.

If, when each check is written, its expense classification is noted thereon, at the end of a year the checks or receipts may be sorted into the various divisions. From this on, it is a small matter to find out the real expenses incurred with the various enterprises.

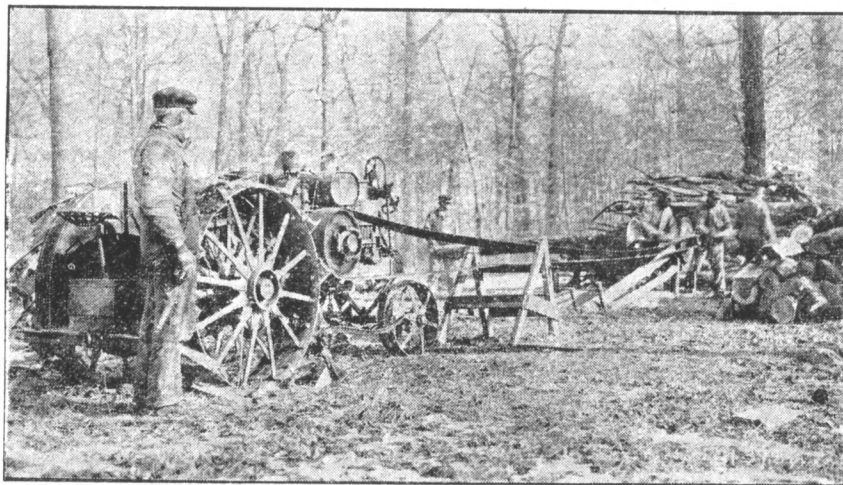
## The Inventory is Important.

It is important that every farmer as well as business man gain an accurate idea of his assets as well as his liabilities. In order to do this, a farm inventory is a great aid. While this is a rather high-sounding term, it means nothing more or less than a complete list of what each operator owns, together with an estimate of about how much each item is worth. In placing this estimate on various items of the inventory, the estimate should be approximately what the stuff is worth at the present time. Land should be inventoried at its present worth rather than what it was bought for and cattle should be put down at their value, regardless of their cost price. It is customary to calculate depreciation on practically all items, as buildings, animals and machinery.

The value of a tool can be accurately approximated after knowing the cost price of the tool, together with the number of years it should operate. Some machines are figured on a six-year basis, some on eight and some even longer. To apply this, we have a hundred dollar machine which is fig-

ured to have a constructive life of eight years. Then for every year the implement has been used, \$12.50 should be subtracted from its value for inventory purposes. Likewise, a three-year-old cultivator costing thirty dollars when new would be added on the inventory at fifteen dollars, reckoning the life of the implement at six years. In the same fashion, a twenty-dollar plow whose average life is five years, after being out two years would be valued at twelve dollars. So all through the inventory, various items of equipment should be figured at their present value, making due allowance for wear and tear and depreciation.

It will be readily seen that the method of taking the farm inventory is quite different from that of taking the inventory in a mercantile establishment. In the store, it is customary to invoice the goods at their cost price. One can see without very close examination, however, that the two cases



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are entirely different. In the case of the stock of goods, none of it has been used and there is, therefore, no appreciable depreciation on any of it. If the storekeeper sells, he has only to compare the selling price with the inventory price in order to ascertain his profit.

Quite the opposite, the tools in the farm enterprise have, many of them, suffered from wear; a still larger portion have been exposed to the weather. All these forces combined make it impossible for we farmers to sell any machine or parcel of stock at a price above the cost price and we must then figure the depreciation into the inventory. Then this list price, compared with what is received for any article sold during the year will show the profit or loss on that particular item. Taking the farm inventory is practically the only way of getting at the true value of the farm and in order to tell with any degree of accuracy the labor income for the farmer as well as income due to the various units of machines and stocks on hand, it is quite necessary to have this lists of stock on hand.

## Simple Book-keeping a Help.

After this has been perused, the reader will immediately ask himself what all this means to him. One reason for this query may be that extremists have recommended the adoption on every farm of a complicated set of books. This, however, will never be practical and there are only a few cases where it has worked out, even in the hands of expert book-keepers. In the first place, farm book-keeping is the most difficult book-keeping there is. There are a good many things on the farm that can be accurately valued. Farm manure is one of these and there are no two men who would place the same value on the same ton of manure. Likewise, there is the matter of

feeding cull apples and potatoes to pigs. It is very hard to set a price on these waste products since the market does not recognize them, but at the same time they have a value and it cannot be lost sight of when reckoning up the cost of production of the pork. Further than this, by virtue of his occupation a farmer's hands are hard and stiff and if there is any one thing that is disliked more than another, it is to do any figuring or write letters with either pen or pencil. These two things added together make it practically impossible to adopt on a universal scale any method of farm book-keeping which requires the keeping of an elaborate set of books.

A system of book-keeping which has been found both practical and simple is started by taking an ordinary record book that can be purchased for twenty-five cents and is permanently bound. The first twenty-five pages should be reserved for a sketch of the farm by

years, on which entries concerning crops and operations in the fields is to be made.

A convenient way of doing this is to first make a fairly accurate drawing of the layout of the farm having this occupy the entire page. Now number the fields and after this sketch has been made to the satisfaction of the owner, procure three or four sheets of carbon paper from any drug store, place them between the sheets under the sketch with the glossy side down, then trace the outline of the fields. This will make an imprint on the three or four following pages and each page may be used for a year.

From this on, the business of keeping an accurate record of the crops grown on the various fields and the amount of time put in on each is a simple matter. Say that field No. 6, a ten-acre field, has taken three days for plowing on April 26-27-28. Entry can be made in that particular field at the top thus, "4-26-27-28. Plowing 30 hours, 1 man, 3 horses." It will thus be seen that the operations in any field are reduced to a minimum and that at the end of the year it is easy to go over the field and arrive at the amount of stalks and corn produced by it. In the same breath, it will be easy to say whether or not the corn produced on that field has been a paying crop.

## Long-distance Plans Best.

Not only this, but such a form of farm record makes it easy for the owner to figure out his rotation, thereby furnishing a record of the crops that have been grown on the same field for a number of years. A substantial record book will therefore furnish a means of keeping account of the farm operations in such a way that the results will be of great value to the owner in enabling him to tell what to plant from one year to the next.

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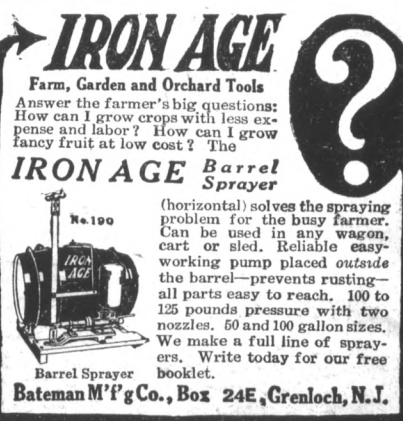
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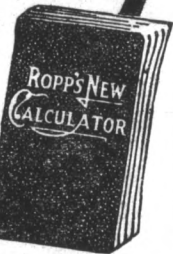
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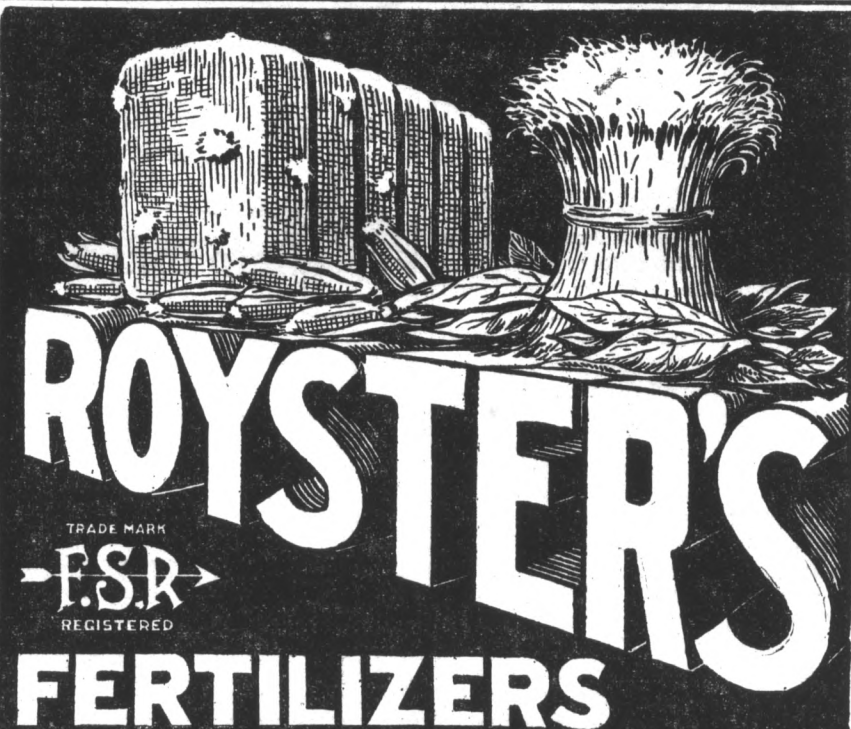
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results of the past year and to make plans for the next, bearing in mind the lessons that one's own farm has taught him in the past. In doing this, it is necessary to arrive at some method of calculating the assets of the owner. For this purpose, the farm inventory is essential.

Likewise, in planning for the year to come, matters will be simplified considerably if a substantial record book is produced and laid out in accordance with the above suggestion.

During the past year when the various committees of the food administration have been endeavoring to mete out justice to both producer and consumer, we have seen how valuable reliable cost of production accounts are. In other words, there were in the whole United States, only a few people who had any adequate notion as to the cost of producing a bushel of wheat. There were also only a few who could show the cost of producing milk per hundred and if it becomes necessary to set a price on other farm products, the only sure way to eliminate a good deal of guess work and insure justice to all parties concerned is to have at hand figures on the cost of producing the various farm crops.

## The Potato Situation

THE marketing of the 1917 Michigan potato crop is one of the most discussed and "cussed" problems which has developed in this state in recent years. The discussion has centered principally around the grading as recommended by the United States Bureau of Markets and put into operation by the United States Food Administration. However, there are other factors which enter into the present situation, and which are in some cases of even greater importance than the grading.

In the first place, many growers increased the area devoted to potatoes because they believed the government asked them to do so. They are justified in this belief because a number of individuals who were more or less connected with government activities did urge an increased acreage of potatoes. The fact that the government men who were best posted on the history of the potato production from year to year did not ask growers to increase their acreage beyond that of a normal season does not change matters. The press in urging increased acreage of all crops did not make any exception of the potato crop.

In addition, much was said about the growers being certain of good returns for all crops grown and this, together with the very high prices which the growers received for the 1916 potato crop led them to believe that they were almost guaranteed a good return for the 1917 crop. It was unfortunate that so much was said along these lines because there was no way provided whereby any guarantee of good returns to the growers could be carried out.

Then, again, the growers were forced to use unprecedented high-priced seed and labor, and the expenses of growing the crop were much higher than ever before. On top of this came a very discouraging season. Too much rain at the start and finish, and not enough at the most critical time in the development of the potato crop, just as the tubers were setting, and the early frosts in many cases killing the vines before the potatoes were half grown, all added to the potato grower's troubles. Many potato growers raise beans and corn and these in many cases were a complete failure or nearly so. All of this made many potato growers very much discouraged.

At the beginning of the shipping season potatoes sold at very satisfactory prices but because of labor or car shortage or because of the pressure of other work, most of the growers could not take advantage of the good prices. Then came the hard freeze when a

large percentage of the potatoes were still undug. Thousands of bushels of potatoes were frozen solid and were a total loss. Hundreds of cars of potatoes containing field frosted stock were forced onto the market and as a result prices fell and the market slumped. Many dealers refused to buy more potatoes until the field-frosted stock had time to rot and could be easily detected. From this time until after the first of the present year the movement of potatoes was slow and the prices low.

It was early in the period of the decline in prices that the United States Food Administration put into operation the grading of potatoes in accordance with the recommendation of the United States Bureau of Markets. In putting this grading requirement into operation the United States Food Administration believed that it would greatly help to market the large potato crop in such a way that the growers would realize a better price than would be possible if the crop was marketed in the usual way. That, by proper grading and sorting, consumption of potatoes would be increased, car equipment conserved and prices influenced for the better.

While all will admit that it would have been better to have started the grading at the beginning of the shipping season, circumstances did not permit it to be done at that time and the administration felt that it would be better to start the grading when it was started than to put it off until another season. A serious mistake was made at the start in Michigan in using the 1 1/2-1 3/4-inch square mesh screens. These took out more potatoes from the first grade than necessary to meet the requirements of the grading rules. As soon as this mistake was discovered most dealers replaced the square mesh screens with the 1 1/2-1 3/4-inch round mesh screens.

When the question of price at which the second grade should sell in proportion to the first grade was considered many dealers were afraid that the second grade would not sell to good advantage and as a result the price was placed where the dealers felt safe, or at sixty per cent of the price at which the first grade sells.

The fact that dealers who filled their warehouses early were forced to sell at a loss accounts for the holding of the price of the second grade down in spite of the fact that many growers refused to sell their second grade at the price they were offered.

When all of the circumstances herein cited are taken into account it is not at all strange that many potato growers are dissatisfied. The fact that the grading regulation is new and that the price of the second grade was set so low makes it natural that the greatest complaint should be directed against the grading. As the situation stands at this writing the United States Food Administration has made the grading requirement compulsory so far as all dealers are concerned. This regulation does not apply to the growers. They are, also, making an earnest plea for growers and others who cannot see any benefit to them from this regulation to withhold judgment until this ruling has had a fair trial.

The one thing which can be accomplished if all interested parties work together, is the raising of the price of the second grade to a point closer in proportion to that at which the first grade sells. It is just as much to the dealer's interest as the grower's that this be done. There is nothing to prevent any dealer raising the price of the second grade and nothing will do more to bring about a better feeling between dealer and grower. In the interest of harmony and in justice to the growers and as one means of helping to keep up the morale of the farmers of the state of Michigan we earnestly appeal to the potato shippers of the state to raise the price of the second grade of potatoes.—C. W. WARD, Exten. Spec.

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## Selecting the Farm Home

By R. G. KIRBY

We have learned several things concerning the buying of a farm which we would always consider when selecting a farm home. A farmer buys his home and his farm together and the transaction will usually have a great influence on the life of the family. First, a good water supply is of importance to the health of the family and the welfare of the stock. Many a farmer has lost money by paying too much for a farm with a poor water supply. It has often resulted in sickness in the family. Large expenses for experimental well digging to obtain water sometimes result.

A good road is of importance and the greater the distance from town the better the road should be. Of course, a fine farm is frequently located on a poor road and such a farm may be a good investment but it is always wise to consider the highways when figuring the future value of a farm. Some real estate agents are well supplied with information concerning the fine roads that are going to be built, they have heard that such and such a thing is surely going to happen. It is well to base the value of a farm on the visible evidence and not on future prospects.

Drainage is a great factor in determining the value of a farm. If you buy a partially undrained farm where the neighbors are expecting to put through a large drainage project, it pays to find out what proportion of the expense you will be expected to pay. Some farmers have purchased farms without inquiring the amount of their drain taxes and the resulting expenses have been a severe handicap to them, even though the value of the drainage undoubtedly improved their land much more than it cost.

When purchasing a farm which has been partially drained, at least a rough map should be obtained which will enable the future owner to locate the lines without difficulty. Sometimes lines of tile are improperly placed and this will have an influence on the value of the land. If the land is poorly drained it will be a good investment to obtain the services of a drainage engineer who can make an accurate estimate of the cost of placing the land in the proper condition.

Fences are necessary equipment on the stock farm and they should be inspected and the future usefulness estimated. Frequently it will be found that farms which are for sale are in poor repair and this should be considered when buying a farm. A farmer who buys a farm in miserable repair and then lacks capital for development, is apt to be discouraged as it is rather difficult to do business on such a farm until considerable more money has been invested in the necessary repairs.

The roofs of the barns and the house should be examined to note the condition of the shingles. A good roof is one of the most necessary parts of a barn or house and shingles are expensive and it takes time to place them. Frequently real estate men take their prospects out into the country only when the sun is shining and things look cheerful. I enjoy fine weather for country trips, but believe that a farmer can find out more about a farm during a hard rain storm or very soon after. At least it will show up the condition of the roofs of the house and barn. The way the water stands on the land will probably be some indicator of the efficiency of the drainage system.

Many farmers buy their land in the winter when it is covered with snow. Sometimes it will pay better to see the farm during the height of the growing season so that the quality of the crops may be observed. If a farmer is familiar with a section he will probably know considerable about each farm, but if he buys land in a strange com-

munity there is always more risk.

The distance to the rural school is a factor in the real estate value of a farm. A walk of one or two miles will be fine for the children and help to keep them in vigorous condition, but if the distance is far enough so that it is necessary to drive to school this will probably have an influence on the farm value. Farms seem to bring the best prices when they are close to a good market. The type of farming largely determines the value of a location. A farmer raising truck and small fruit will be compelled to make frequent trips to town with produce during the busiest days of summer. A short haul saves money. The live stock farmer can be located at a greater distance without suffering much inconvenience. All of the crops can be fed on the farm and the marketing will require fewer trips to town.

Neighborhood organizations seem to increase the value of land in some sections. It also seems more difficult to organize the farmers living close to cities. They are less dependent upon their neighbors and frequently do most of their visiting with friends in the city which can be easily reached by inter-urban or motor car. In selecting the farm home all of these things, and more, should be considered. No farm or farming section is perfect, but the farmer who carefully investigates before he buys may save mistakes which might cause much discouragement.

### FERTILITY AND YIELD.

It has been found in experimental work that when the soil is rich or has plenty of available plant food that it will produce a greater yield with the same amount of rain. This is nicely illustrated in practical farming. In the season of small rainfall, as in 1917 the field that had the available fertility produced the biggest crop. This is one thing that can be controlled and it increases the crop in the year with good growing conditions, but much more so in the unfavorable season. In live stock farming a greater variety of crops are grown and some of them are fed and the manure returned to the soil, which results in having the soil in better condition for plant growth than is possible when one crop is grown continuously. In many cases it has been found profitable to raise stock even with a loss on the live stock, this loss being more than made up in the increased yields that come from the crops being rotated and the manure applied to the land.—N. D. Ag. Col.

### TO TACKLE LABOR PROBLEMS.

The solving of labor problems and the use of farm tractors will be given careful consideration during Farmers' Week at the Ohio State University, Columbus, Ohio, from January 28 to February 1. A series of five lectures on tractors will be given by Professor G. W. McCuen, of the Department of Agricultural Engineering of the College of Agriculture. The subjects of his lectures are: "Shall I Buy a Tractor?" "Types of Tractors," "Fuels and Ignition Systems of Tractors," "Operation of a Tractor," and "Tractor Plows and Hitches."

In addition to the lectures, tractors will be on hand to furnish illustrations for the lectures.

Fifty thousand tons of linseed cake originally consigned to Holland will be sold at request of the consignees for consumption in New York, Pennsylvania and New England, according to an announcement authorized by the United States Food Administration. This amount of linseed cake, it is hoped, will supply a large portion of the concentrated feed needed this winter and spring in those states.



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No. 8

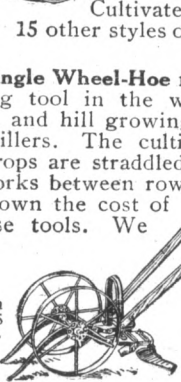
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## Worth-While Spraying in War Time

ON planning for spraying operations, chief emphasis should be placed on those factors which make for largest profits, said Prof. P. J. Parrott, of the New York Experiment Station, at the recent meeting of the New York State Fruit Growers' Association. In western New York the pests of major importance in apple orchards are scab, codling moth, and scale, and it is in waging successful warfare against these noxious foes that the most favorable opportunities exist for obtaining largest financial returns. In certain areas some orchardists would do well to adopt special spraying precautions against red bugs and the rosy aphid.

#### Cooperate in Buying.

No scheme for pest suppression gives greater promise for larger achievement than the plan to have local expert advice available to each grower.

Specific means for reducing cost in spraying are: Obtain lowest prices for spraying materials by consolidating orders to take carload lots; communicate information indicating unreasonable prices or unreasonable attempts to force the placing of orders on a plea of scarcity of material to Chemical Division of the United States Food Administration. Place orders in time to have materials on hand when needed. Deliveries will probably be slow, and earlier orders than usual, in ordering, is advisable. Omit dormant spraying or delayed dormant treatment in orchards where not needed for control of San Jose scale, blister mite or rosy aphid. Use two pounds instead of three of paste arsenate of lead in usual sprayings of apple trees except in the treatment made when petals have dropped, or in orchards where leaf rollers abound.

#### A Good Insecticide.

At present prices calcium arsenate is cheaper than arsenate of lead, and experimental data seems to indicate conclusively that it may be safely employed for the spraying of potatoes. For apple orchards, prudence dictates that growers do not dabble with it too extensively, even though it appears a promising arsenical for this purpose. Do not make special treatments or applications of the more expensive spraying materials for such insects as red bugs or rosy aphid, etc., except under competent advice or as experience has proven worth while. Avoid preparations of unknown merit as they may prove ineffective and unsafe in addition to being expensive.

Have spraying machine thoroughly repaired and in good working order before spraying season begins. The cost of labor has reached a point where it is necessary to make one's energy go as far as it will. If a new or a larger machine will do more work in less time, the purchase of a new spraying outfit may be advisable. It is here with all purchases of up-to-date machinery that growers should be on their guard against the appeals of false economy.

#### Work Efficiently.

Economize in time and labor by employing efficient loading and spraying devices. Time unnecessarily spent, on the road or at spraying platforms, is so much valuable time lost in the treatment of the orchard. "A spray gun" may often times take the place of a man and do more effective work, besides being more economical. Here, as at the fighting front, the skill of the individual operator may be replaced by the superior efficiency of the machine. And finally, the hard facts of past experience should not be forgotten—an orchard that is neglected or indifferently managed with respect to insects and plant diseases is generally a liability rather than an asset. In spraying make each application count by thorough and careful work at the right time. Failure to maintain a high level of spraying practices throughout the growing

season may have the effect of neutralizing, if not actually destroying, the benefits of earlier applications. Efficient spraying serves a two-fold purpose. 1, it protects tree from immediate perils; 2, it is cumulative in results against certain pests and its beneficial influences extend into the future.

#### Spraying Schedule for Apple Orchards.

An important suggestion may be noted in the replies to a questionnaire which is the number of applications that fruit growers propose to make for the protection of their apple orchards. In the Hudson River Valley from two to three treatments, the latter being preferred, York the number varies from three to five applications with individual growers but the majority of the correspondents plan in the spring's operations to spray their apple orchards four or five times. This difference in extent of spraying in the two areas shows the need of care and judgment in advising or in adopting a spraying schedule since the importance of some of the specifications in the approved spraying schedule varies with different sections of the state as well as with seasonal conditions. The chief reason for the smaller number of treatments that are made in the Hudson River Valley is the comparative freedom of many commercial planting from apple scab. It may also be pointed out in this connection that in western New York during recent years there has been an increasing tendency to apply the full number of treatments in the spraying schedule rather than to take chances with the minimum number of applications, which has been prompted by the extreme destructiveness of apple scab and prospective high prices, while financial success is due in part to the high standards followed in spraying.

#### Results Tell.

The prosperity of many fruit growers synchronizes, in a large measure, their growing efficiency in controlling noxious insects and plant diseases, especially the San Jose scale, the codling moth and apple scab. There is probably no one effort in the care of apple orchards that would make for greater productiveness and more splendid results in the conservation and minimizing of waste of an important article of food than the adoption by larger number of growers of a proper system of treatment enforced with vigor and vigilance to secure effective control.

New York. W. H. JENKINS.

Many Missouri orchardists last spring complained that rainy weather and cold nights during the blossoming period prevented the bloom from setting fruit, or killed set fruit on frosty nights. The killing was due almost entirely to the fact that in neglected orchards the blossoms were weak. In most of the properly managed orchards at least a fair crop of fruit set and matured to fine condition, due to the fact that trees kept healthy can usually set fruit even during trying weather.

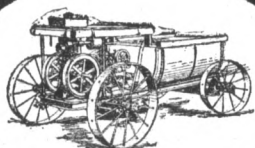
#### MID-WINTER MEETING OF FRUIT GROWERS.

The mid-winter meeting of the State Horticultural Society will be held in South Haven, February 5-6. A large attendance of fruit growers from all parts of the state is expected and a very interesting and instructive program has been prepared.

Everyone realizes the seriousness of the labor situation for the present year and this subject will be discussed extensively.

Speakers of state and national reputation will handle other topics of vital interest, after which each subject will be open for general discussion.

Plan to attend this meeting! Programs will be mailed in the near future to members of the society, or to others on request. For particulars write to George M. Low, Secretary, Bangor, Michigan.



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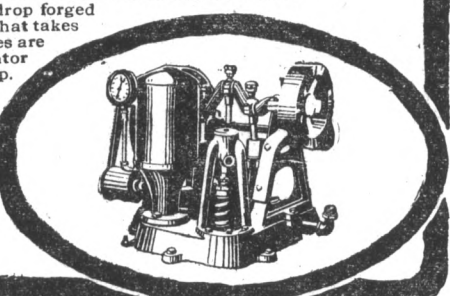
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## Potato and Bean Markets

**I**N the following review of general market conditions for these two crops, jobbing prices and shipments are given for the United States for the period January 8-14, inclusive).

**Potato Market Stronger.**—Eastern producing sections continued to evince a strong tone. Prices generally hardened around the slightly higher levels reached last week and demand appeared somewhat better.

At Presque Isle, Maine, the car situation was greatly improved. Maine Green Mountains were up 5@15c, selling at \$2.03@2.18 per cwt. in bulk from wagons, track side. Rochester, New York, also reports demand improved and No. 1 Round Whites selling 5c higher at \$2.25@2.35 f. o. b. sacked, or \$2.10@2.20 at New York country shipping points, while bulk stock sold 12@15c below, sacked. Michigan Round Whites held about steady at \$2@2.05, No. 1 sacked, f. o. b. At Waupaca, Wisconsin, wagon load receipts were reported increasing but protected cars were scarce. No. 1 Round Whites advanced 5c to \$1.30 per cwt. in bulk from wagons, track side, and Bliss Seed stock was firm at \$2.50 per cwt. in bulk. Colorado and Idaho shipping points quoted markets 5@10c stronger at \$1.10@1.25, resorted, sacked, track side, but Portland, Oregon, still reports wagon sales of No. 1 White and Russet stock mostly at \$1 per cwt., sacked.

Total shipments for the week, 1,774 cars. Maine continued leading shipper with 466 cars. Estimate of total potato stock of the 19 leading northern potato states in hands of growers and holders 147,585,000 bushels on January 1 of this year, against 59,946,000 bushels, showing 146 per cent increase over the figures for the corresponding date of last year, 39 per cent above those of two years ago, 13 per cent decrease below three years, but 14 per cent increase above the average stock on hand on January 1, for the past five years.

The record of carlot movements also points to large remaining stocks. On January 1, the season's shipments had reached 105,304 carloads, compared with 190,892 carloads at the corresponding date last year, a reduction in movement of nearly one-half, although the crop is estimated to have been over 40 per cent larger the past season. The greater part of the Maine crop is usually moved between September 1 and May 1, which implies that the average rate of movement must increase greatly in order to clear the situation satisfactorily during the next ten or twelve weeks.

The rather strong market tone included the distributing centers. Maine Green Mountains advanced in New York and Boston to \$2.75@3.15 per cwt., including stock in bulk and in sacks. New York Round Whites in general markets sold to jobbers at \$2.35@3. Michigan Round Whites ranged \$2.10@3. Wisconsin Round Whites sold steady at \$2@2.35 in markets of central states. Minnesota white stock ranged at \$1.90@2.25 per cwt., sacked, selling mostly in central and northern markets. Colorado white stock, sacked, ruled firm at \$1.50@2.35 per cwt., selling chiefly in southwestern markets.

**Bean Values Fairly Well Maintained.**—The general bean situation shows but little change since the preceding week. Demand was reported good and the market strong at Grand Rapids, Michigan, where choice hand-picked Navys sold \$12.25@12.50 per cwt. Unofficial reports quoted \$10.50@11.50 paid growers at various Michigan shipping points. Pea beans sold in the Rochester, New York, district at \$11, sacked, from wagons, track side. Colorado Pintos ranged at \$6.25@6.50 per cwt, recleaned basis, in bulk, to growers, and at \$7.37@7.50, sacked, recleaned f. o. b. Denver.

Growers in various bean producing

sections were reported still dissatisfied with prevailing prices, but the light average yield per acre appears partly responsible for the situation. The estimated average yield of beans per acre the past season was 8.6 bushels per acre, which at \$6.52 per bushel would be worth \$55 per acre. The corresponding estimates for 1916 were 9.7 per acre, which at \$5.33 per bushel were worth \$49.40 per acre. Corresponding estimates for 1915 were 11.1 bushels per acre at \$2.59 per bushel, or \$28.85 per acre.

The advancing trend of prices paid at harvest season during the past three years has been partly offset by progressively lower yields per acre. Notwithstanding a light acre yield, the total output this year has been estimated to be about 50 per cent above that of either 1915 or 1916; the large acreage planted the past year having far more than offset the lighter yield per acre. Michigan Navys sold to jobbers the past week at \$13.35@13.90, Michigan and New York pea beans ranged at \$13.75@14.25. California small whites ranged at \$12.75@14, and California Limas at \$13@14. Colorado Pintos were reported selling well in Chicago at \$8.50@9.50 per 100 pounds.

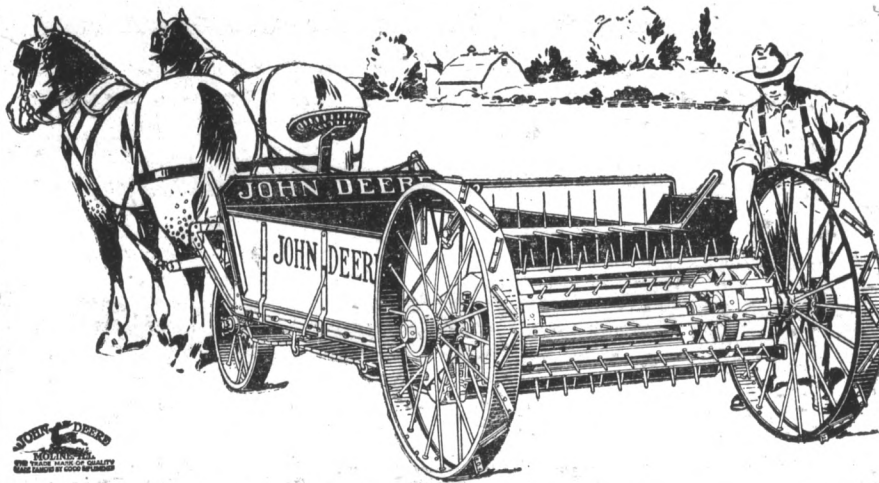
**Cabbage in Strong Position.**—Since reaching the top of the advance, the cabbage situation has held fairly steady. At various shipping points in the producing sections, movement is still restricted by car shortage. Selling was chiefly in the Rochester, New York, district, where the week's sales ruled strong at \$45@50, in bulk f. o. b. on track, for Danish Seed, and growers received \$35@45, with fair demand and movement. Sales were reported from the Wisconsin cabbage sections at \$53@55 per ton, f. o. b. The cabbage shipping movement recovered to 339 cars, compared with 311 cars last week and 189 cars the preceding week. New York led with 235 cars. Sales to jobbers of New York Danish Seed and Wisconsin Holland seed ranged \$50@62, with slow to moderate demand. Chicago advanced \$8 per ton during the week to \$60@62, and Philadelphia quoted a range of \$60@70.

### WHERE COOPERATION PAYS.

One hundred and fifty farmers in Maryland, Michigan, and Minnesota, when questioned regarding the value of cooperative bull associations, estimated that the use of sires belonging to the organization increased the value of the offspring in the first generation from 30 to 80 per cent, with an average of 65 per cent. The investment is small and the chance for herd improvement so great that the net returns greatly exceed the small original investment.

There appears to be no fundamental weakness in cooperative bull associations. Instead of spreading abortion, tuberculosis, or other communicable disease, the results so far seem to indicate the reverse. For example, the Roland, Iowa, association will not allow any one of its members to get the benefits of the association until his herd has been tested for tuberculosis and all reactors eliminated. One farmer who did not dispose of the reactors after the tuberculin test was applied was refused the use of bulls until he complied with the rules of the association. The educational work of each association makes the members alert to prevent the introduction and spread of disease of any kind. The well-managed bull association requires that the cattle of each member shall be tested for tuberculosis and takes every known precaution to prevent the introduction of infectious abortion.

Under new food regulations, the Swiss people are allowed only a pound of sugar per month per person. The butter ration is one-fifth of a pound per month.



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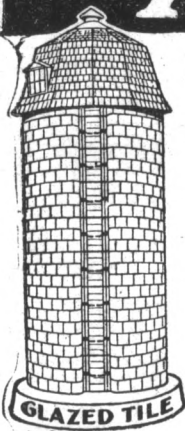


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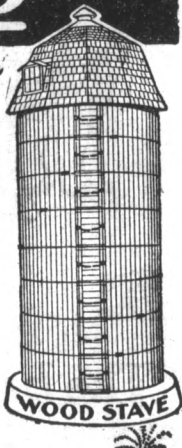
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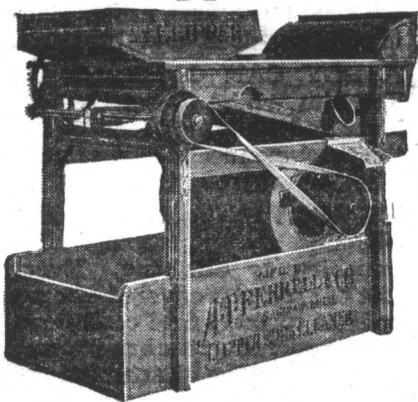
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The Clipper is the only mill that has the "Vertical Blast", which weighs every seed and kernel, separating the light, shrunken, immature seed from the plump, heavy mature seed, 98% of which will germinate under test. This point alone makes much of the difference between crop success and failure.

**No Mill Will Do Good Work Without the Proper Assortment of Screens**

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## The Live Stock Meeting

THE annual meeting of the Michigan Improved Live Stock Breeders' and Feeders' Association was held at the Michigan Agricultural College on Thursday, January 17. The meetings of the allied breeders' organizations were held on the previous day. Owing to the severe weather and uncertain train service, the attendance was not as large as in some previous years, but there was a very creditable attendance of live stock breeders and feeders at the banquet on Wednesday evening, which has come to be an annual feature of the live stock meeting.

The general meeting on Thursday was opened with an address on "The Part that Agriculture must play in the winning of the war," by Dean Vivian, of the Ohio State University. Dean Vivian impressed his hearers with the absolute necessity of maintaining production at a high point, in order that we may have available the necessary food stuffs for our army and the armies of our allies to win the war. He gave some specific figures on the wheat situation which also demonstrated the necessity of economizing in the use of this great bread grain if we are to come anywhere near filling the minimum requirements of our allies.

Following the secretary's report and the appointment of the usual committees, President I. R. Waterbury, in a brief address, discussed the various phases of Michigan's live stock industry in a manner which will be further presented in a future issue.

"The Michigan Live Stock Situation" was the subject of an address by Dean R. S. Shaw, of M. A. C. Dean Shaw briefly reviewed the world live stock situation and pointed out the opportunity which present conditions present to Michigan farmers in the way of a more profitable live stock industry in future years, not only during the war, but after peace has been established. He further emphasized the patriotic duty of Michigan farmers to do their bit in supplying the need for animal food products for the successful prosecution of the war, and declared that we should place our patriotic duty above a dollar and cent basis in carrying on this necessary work.

"Progress in the Eradication of Tuberculosis in Michigan Herds," was the subject of an excellent address by Mr. H. H. Halladay, President of the Michigan Live Stock Sanitary Commission. Mr. Halladay reviewed the plan for the establishment of state accredited herds and told of the satisfactory progress which had been made along this line. He also reviewed the hog cholera situation which may be described as satisfactory, losses having been small, even where the disease has invaded herds, except in a few isolated cases, due to its successful control through proper sanitary measures.

### Afternoon Session.

Following the noon recess Prof. J. J. Ferguson, of Swift & Co., addressed the convention on "The Live Stock Industry, Present and Prospective." Prof. Ferguson reviewed the trend of market values for live stock in recent years, showing the enormous advance in prices which has taken place by some illuminating charts which he had placed upon the blackboard. He sounded a word of caution to the effect that prices might be maintained at so high a level as to materially reduce consumption is a reason for satisfaction with the price for hogs which had been established by the Food Administration. He called special attention to the fact that, notwithstanding the increased marketing of cattle at the big markets of the country, government reports showed that there had been an increase in the cattle stocks on the farms of the country during the past year.

"Results to be Obtained Through Co-operation, and the effect of Cooperative Enterprises on Rural Life," was the subject of an address by Mr. G. A. Miller, who has promoted the organization

of several cooperative elevators. Mr. Miller advocated the extension of cooperative enterprises to the marketing of all farm products, and even to the manufacturing of farm products, including the establishment of packing houses and the production of farm supplies. He reviewed the successful operation of the cooperative elevators with which he is connected, showing the rapid growth and the advantages to their patrons, also the other advantages accruing to the cooperative rural community.

Mr. C. B. Beebe, of Tecumseh, gave an address on "Advantages which we Have Derived from the Farmers' Cooperative Store." He described the growth of the business of the cooperative enterprises with which he is associated, from a small beginning to the doing of a business amounting to a half million dollars last year, and emphasized the moral benefit to the community resulting from successful co-operation.

The committee on resolutions submitted the following, which were unanimously adopted.

Inasmuch as information reaches your committee that it is the intention of the railway rate-making powers of this state to charge a higher rate of transportation for pure-bred animals than for common stock, and inasmuch as it is a custom for Canadian railways to ship pure-bred stock at a lower rate than common stock, we recommend that this matter be referred to the legislative committee of this association, and that they be requested to take the necessary steps to see that it is properly presented to the Michigan State Railway Commission.

Be it resolved, that this association hereby approves such action as has already been taken by the Michigan State Live Stock Sanitary Commission, and will support such action as the commission find it necessary to take in the future relative to the importation of cattle into Michigan from other states.

We hereby extend to the officers of the Michigan Milk Producers' Association an expression of appreciation for the creation of the Detroit Milk Commission, and approve the plan of work laid down by the said commission; and inasmuch as the results of the investigation regarding the cost of milk production formed an indispensable part of the information submitted to the said commission, we hereby commend the work heretofore done by the Michigan Experiment Station, and ask for a continuation of the same.

Resolved, that this association hereby express to the Michigan Agricultural College its appreciation for the great assistance rendered in the conduct of these annual meetings; and request that the custom of the past be continued, and the entire week be reserved exclusively for live stock meetings and interests.

Officers for the ensuing year were elected as follows:

For president, I. R. Waterbury, Detroit; vice-president, Colon C. Lillie, Coopersville; secretary, Geo. A. Brown, East Lansing; assistant secretary, W. E. J. Edwards, East Lansing; treasurer, C. P. Reed, Howell; executive committee, J. Fred Smith, Byron; Jacob De Geus, Alicia; H. H. Halliday, Clinton; P. P. Pope, Mt. Pleasant; George Prescott, Tawas City.

### Michigan Holstein-Friesian Sale.

Fair prices marked the sale of thirty-five head of females sold at the Michigan Agricultural College, in East Lansing, on January 18, under the auspices of the Michigan Holstein-Friesian Breeders' Association. The sales totaled \$7,720, with an average of \$227. A large per cent of the animals offered were young stock. Lady Washington Hartog, consigned by F. S. Jenkins & Son, of Okemos, to W. F. Schilling, of Northfield, Minn., brought \$625, the high price of the sale. "Colonel" Perry, of Columbus, Ohio, acted as auctioneer. A detailed report of the sale will be given next week.

### Central Michigan Shorthorn Sale.

The blustery weather of the preceding week acted as somewhat of a damper upon the sale of Michigan Shorthorns, conducted at the Michigan Agricultural College, in East Lansing, on January 18, but considering the handicaps with which they were confronted, breeders considered the auction a fairly successful one. Eighty-nine head were listed for sale, but only forty-seven succeeded in arriving. Princess Hampton, sold by the association to A. E. Stevenson, of Port Huron, topped the list at \$400. The proceeds from this sale were donated to the Red Cross and the Army Y. M. C. A. The average of the sale was not high. Many of the offerings were of young stock, much of which was not particularly fancy. A list of the sales will be given in the next issue.



# Silo War-Time Equipment

By PROF. G. I. CHRISTIE

THE silo is now recognized as a war-time institution. The call of the government to the farm is for increased production and conservation. The silo aids the farmer in a large and helpful way in meeting the country's need.

Each year millions of acres of corn are grown in the central west. In the fall, wagons are driven up and down the rows, the ears of corn are removed and the stalks allowed to remain to be washed out and the finer parts blown away. Where these stalks are disked and plowed under, organic matter is returned to the soil. Where they are burned this is entirely lost. It is estimated that from thirty to thirty-five per cent of the feeding value of the corn is in the stalks and leaves.

In this time of agricultural preparedness the possibilities of the silo as a means of conserving the food supply looms high. It not only saves the entire corn plant and turns it into a valuable feed, but insures a supply during the winter when other feeds are scarce and high in price. It will not be possible, nor perhaps desirable, to feed all the corn crop through the silo another year. However, farmers should plan to utilize a larger part of the crop than they have used this year. The farmer will be rendering real service to the country when he utilizes the corn crop in the production of meats and dairy products.

Experiments conducted by experiment stations demonstrate that silage is superior to corn fodder for dairy cows. Cows receiving silage in the ration produced thirteen per cent more milk than cows receiving corn fodder. Henry, in "Feeds and Feeding," states that "silage gives better results than dry corn fodder for the reason that cows fed the succulent palatable silage usually consume a heavier ration than those fed the dry fodder and hence have a larger amount of nutrients available for milk production after the maintenance requirements of the body have been met."

The Purdue Animal Husbandry Department states that corn silage is without a doubt, the most economical roughage ever used for feeding cattle at Purdue University. Ten years' experience with this feed proves that the extensive use of this roughage for the wintering and fattening of cattle will do more to keep the beef cattle industry on a thriving basis than any other one factor. The addition of one-half feed of silage to a ration of corn, cottonseed meal and hay reduced the cost of gain \$1.09 per hundred pounds, on an average of five trials with fattening cattle. The addition of silage twice daily to a ration of corn, cottonseed meal and hay, on an average of four trials reduced the cost of gain \$1.70 per hundred pounds. Every acre of corn put into the silo has returned practically twice as much as the same acre would have returned had it not been so preserved.

In tests conducted by the Purdue Experiment Station it was found that when cattle were fed a ration of corn, corn stover and oat straw, thirteen pounds of corn were required to produce a pound of beef. A second carload of cattle fed corn, corn silage, cottonseed meal and clover hay require only seven pounds of corn for a pound of gain. While the cottonseed meal and clover hay added protein to the ration of the second lot, and thus increased its value, yet at the same time, the corn silage was a big factor in reducing the amount of grain necessary for the increased gains.

If the silo makes it possible to secure a larger amount of meat from one hundred pounds of corn, then patriotic farmers should employ the better methods and secure the largest

number of pounds of food stuffs from every acre of corn grown.

A silo also increases the live stock capacity of the farm. Using the eight-year cattle feeding data from the Purdue Experiment Station, it is calculated that the acres needed to grow the feed for a two-year-old steer for one hundred and fifty days could be decreased from twenty to forty per cent by the use of silage in the ration. In feeding a carload of twenty steers it required approximately thirty-eight and three-fourths acres to grow the feed needed for one hundred and fifty days, when corn, oil meal, oat straw and stover were fed. Thirty-five acres were required when corn and clover hay were fed, while only twenty-four acres were used when corn, cottonseed meal, clover hay and silage was the ration. If a balanced ration, including silage, will decrease the amount of land by more than fourteen acres in the feeding of a carload of steers, surely live stock feeders at this time should be willing to adopt this ration. Again, when there is a shortage of food stuffs and every acre of land should be made to produce its full share, can a farmer justify his actions and practice by using the crops of thirty-eight acres to produce a carload of beef, when the methods would produce the same beef from twenty-four acres?

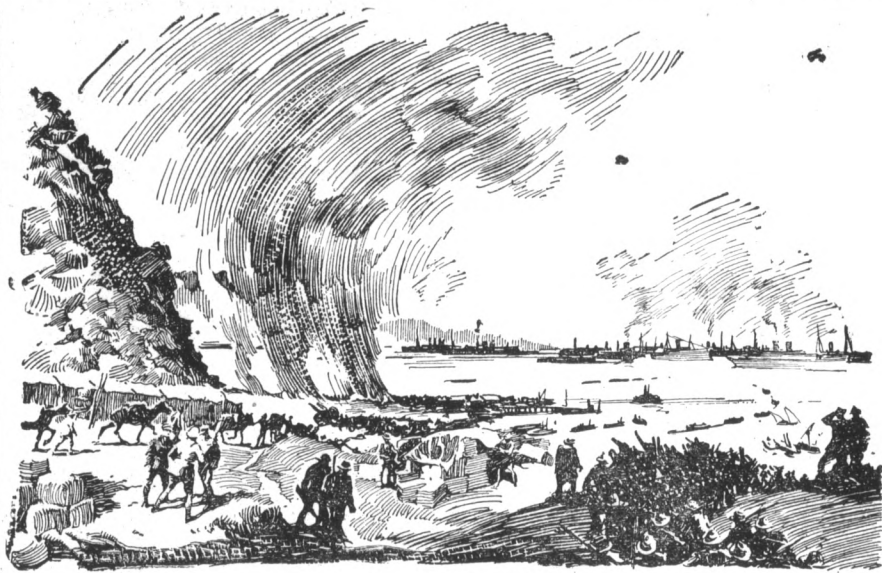
Meatless days proclaimed by the Food Administration emphasizes the fact that the supply of meat now produced is not meeting the demand. If our own people, our armies and the hungry people of Europe are to be fed, then the production of meat must be increased. The employment of the silo will make it possible to utilize a larger per cent of the corn crop and to feed larger numbers of beef cattle and sheep. Farmers interested in carrying out the food program of the government will give every consideration to the use of the silo in their farming program.

Labor is now a serious problem on American farms. With the mobilization of a larger army, labor difficulties will increase. The silo will help meet this problem by reducing the labor required to feed the stock during the long winter months. When the corn crop is placed in the silo, the land is also cleared and much less labor is required to prepare the ground for future crops.

Ten good reasons why every farmer who keeps live stock should have a silo.

1. The silo preserves the palatability and succulence of the green corn plant for winter feeding.
2. It helps to make use of the entire corn plant.
3. The silo increases the live stock capacity of the farm.
4. Silage is a good summer feed when pastures are short.
5. Because of the small amount of ground space required by the silo, it is an economical means of storing forage.
6. The silo prevents waste of corn-stalks, leaves and husks which contain about two-fifths of the feeding value of the corn plant.
7. The silo located near the feed manger is an assurance of having feed near at hand in stormy as well as fair weather.
8. The silo assists in reducing the cost of gains in fattening cattle and sheep.
9. Silage greatly increases the milk flow during the winter season and decreases the cost of production.
10. There are no stalks to bother in the manure when corn is put into the silo.

We ought to be as cheerful as we can, if only because to be happy ourselves is a most effective contribution to the happiness of others.—Sir John Lubbock.



## We Must "Follow-Up"

The story of the Gallipoli withdrawal is a tale of inadequate support. Like Salamanders clinging to the red-hot bars of a fiery furnace, the boys of Australia and New Zealand clung to the slopes of Anzac. Desperately, heroically they clung. No troops under any circumstances ever displayed greater soldierly qualities or upheld more sacredly the best traditions of England's Army. But they had to withdraw because the "follow-up" was not there.

To some of us it has been given to march with the columns of troops that go to France. And to others it is given to wave God-speed. But he who marches and he who stays is equally a citizen

of the world's mightiest republic and equally responsible for its success in this greatest of undertakings.

Then let us at home turn from our flag waving and consider how necessary we are, how useful we must be. Those who go to fight cannot hope to win by naked bravery and we cannot hope to win unless every individual at home does *all* he can. We must have no Gallipoli.

The Bell System is only one of the myriad great and small industries which are co-operating that nothing be left undone to keep a constant, efficient stream of men, guns, ammunition, food, clothing and comforts flowing to the front.



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is a great healing ointment that should find a place in every dairy. It assists the normal, easy milk yield by keeping the udder healthy and free from sores, cuts, chaps, bruises, cracks, bunches and inflammation. Caked Bag responds quickly to the penetrating, healing powers of Bag Balm. Cow Pox, fever spots and any exterior sore are promptly removed. Have Bag Balm on hand to keep little hurts from getting big.

Sold in generous 50c packages by feed dealers and druggists. Write for free booklet, "Dairy Wrinkles."

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**West Bend BARN EQUIPMENT**

West Bend Automatic Stanchions equipped with our wonderful locking-releasing lever save you time and labor—and insure safety in locking up or releasing the cows, yet you pay no more for West Bend equipment than for ordinary stanchions that must be opened and closed singly by hand. The West Bend lever controls from instantly by one throw of the lever. Cow stops are operated at same time, and when set guide cow into the stanchion. Every user says it's the greatest idea ever brought out in modern barn equipment. You certainly want this valuable new exclusive West Bend feature in your barn. Write today for catalog.

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## RAISE THE HEIFER CALVES.

Michigan dairymen, in the opinion of J. A. Waldron, extension agent in dairying for the Michigan Agricultural College, are awakening confidently to a realization that for them the present is a season of opportunity.

"In a few restricted areas," he said recently, "where low prices for milk—often set by a previous contract—still prevail, and where the high cost of feed and dearth of help are felt more keenly than is common, the business may not be yielding as comfortably as of old, but the industry on the whole is returning as good a profit now as it ever has. This means, for the man who can read the script upon the wall that the present is a time when heifer calves from good dairy cows can and should be raised.

The really big question is how to raise these calves, for old dairymen know upon the treatment accorded these youngsters will depend in no small measure their usefulness when they mature, as dairy cows. A few suggestions, culled from the experience of some of Michigan's leading milk producers, may accordingly be helpful.

First. The dairy calf should be given its mother's milk for the first ten days, and if it is a weak individual, for at least three or four weeks.

Second. The calf should not be overfed. About two quarts at a feed is sufficient.

Third. Feed three times daily for the first three weeks.

Fourth. The change from whole milk to skim-milk should be made gradually, during a period of ten days. At the same time the number of feeds given daily should be reduced from three to two.

Fifth. Increase gradually the feed allowance until the calf is receiving from four to five quarts per feed.

Sixth. Replace the fat lacking in the skim-milk by feeding such things as ground oats and corn, with a little bran.

Seven. Teach the calf to eat grain by placing dry grain in the bottom of the pail, or directly in its mouth.

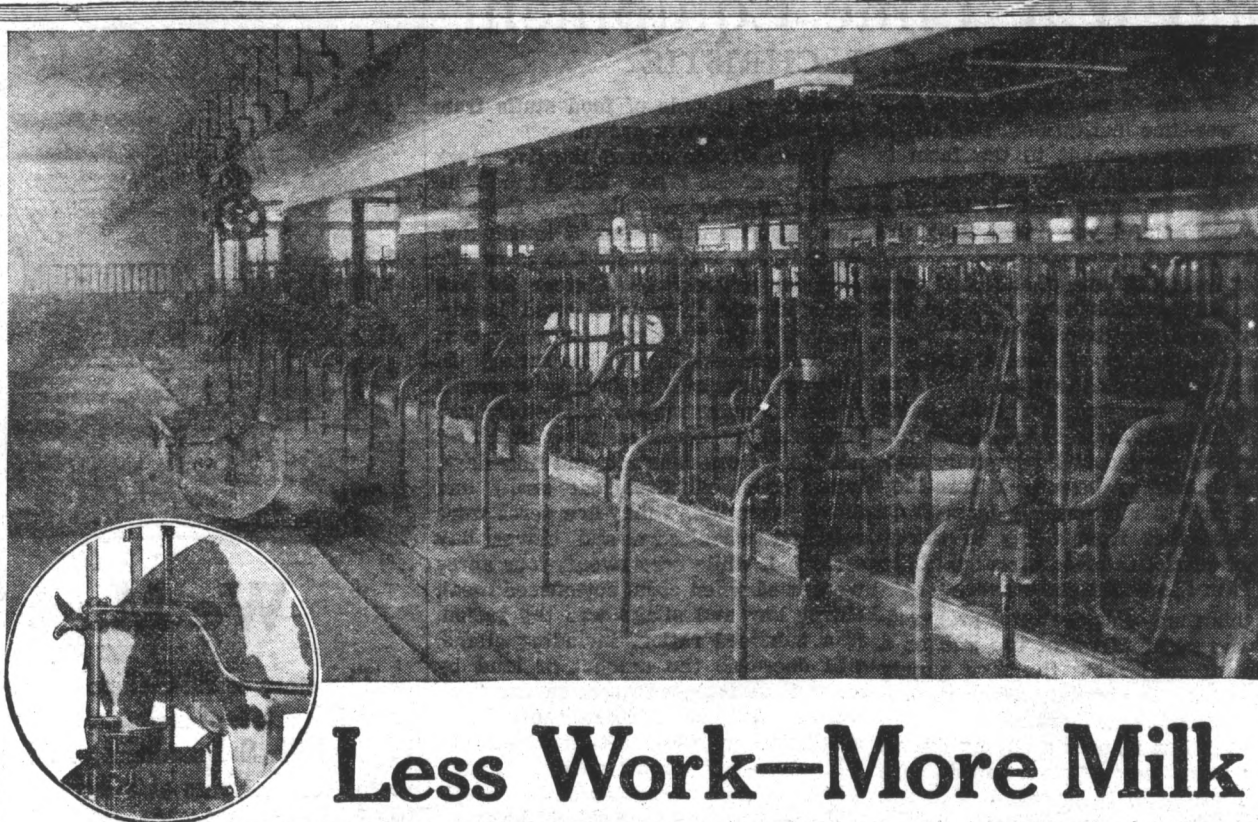
Eighth. Feed bright, clean hay.

Ninth. Prevent scours by regular feeding, feeding in clean pails, avoiding over-feeding, providing clean, dry stables; allowing plenty of sunlight to enter, and by keeping the manger free from sour feed.

If skim-milk is not available, calf meal can be used. The following home-mixed calf meal, first tried by the Purdue Experiment Station, has been found to give good results: Hominy or corn meal, oil meal O. P., blood flour and red dog flour or flour middlings, in equal parts, at the rate of one pound of mixture to one gallon of water. This should be fed like skim-milk, though not in excess of one gallon at a feed.

## DAIRYMEN MEET IN FEBRUARY.

The officers and directors of the Michigan Dairymen's Association are making great preparations for the annual convention of their association, which will be held in the big auditorium, in Saginaw, February 4-8. President Frary, of Lapeer, has made it known that advance surveys of the situation seem to show that there will be more representatives of the association and its dozen or more allied associations in attendance than at any convention in the past. The auditorium, where the convention will be held, is capable of accommodating close to five thousand people, has many thousand feet of floor space where the exhibits will be placed, and the stage and the auditorium annex will also be placed into service. The program proper is not completed but it will be featured by representatives of the industry from Washington, many states in the west, and from Michigan. Don't forget the date of the Michigan Dairymen's Convention, February 4-8. If you come to Saginaw you will be sure of a most hearty welcome by the Saginaw Board of Trade and the dairymen.



## Less Work—More Milk

"THE JAMESWAY" will show you how to accomplish greater barn results, with less effort—how to increase your milk yield even if you are a man or two short. Labor is the big farm problem now—with a lot of men gone to war and many others attracted to different industries. But why worry about that when a new JAMES barn, JAMES-equipped, or new equipment in an old or remodeled barn, may be more than equal to the help you've lost.

Shortage of man power on the farm and a world-wide demand for greater milk production have come at the same time. The dairyman will have to reduce the amount of his barn work—make it easier. He must substitute machinery for human muscle. He must force his cows to give more milk, with less effort on his own part.

## JAMES Sanitary Barn Equipment

will enable you to do these things, at the same time taking the place of labor which is hard to get. "The Jamesway" book, which we will send if you answer the questions in the coupon, should be your chief assistant when you build a new barn, or remodel the old one, or install new equipment in the barn as it stands.

In it you get floor plans, directions for plank frame construction, advice about location, lighting, drainage, ventilation, etc., and full descriptions of such labor-saving, milk-increasing equipment as Stalls, Stanchions, Pens, Carriers, Drinking Cups, Ventilators, etc.

For barn plan service—for *brass-tack* reasons why James Drinking Cups, for instance, pay for themselves in one season; for *complete* barn information, you need "The Jamesway." Fill out the coupon and mail today.

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## Seed Corn

We wish to advise our customers that we will have a stock of Seed Corn to offer this season as usual. This corn is all Contract Grown, Good Germination, Artificially Dried. We believe it will be to your advantage to await our announcement in February.  
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Early Yellow Dent per crate in ears \$3.50. Oats Michigan Wonder Great yielders \$0 bu. to acre machine measure, heavy as barley, not less than threebu. to a customer. Write for samples \$1.50 a bu.  
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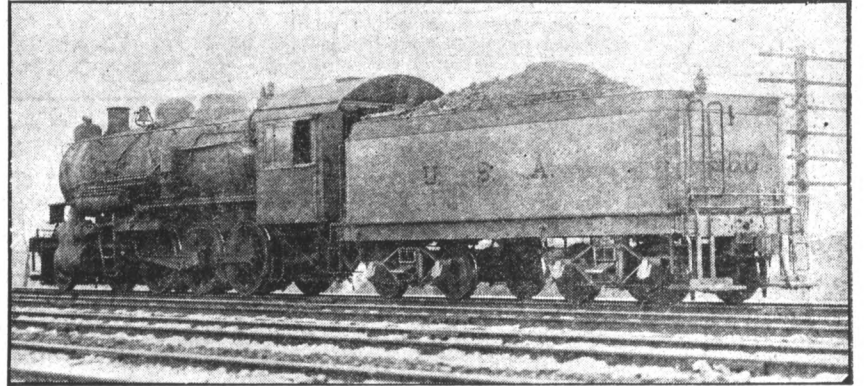
The FARM BOY  
and GIRL  
SCIENTIFIC and  
MECHANICAL

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

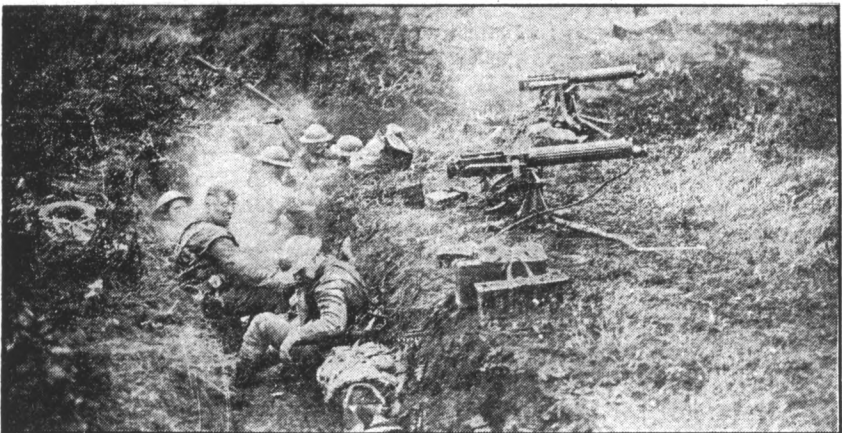
## WORLD EVENTS IN PICTURES



During the British Advance in Cambrai the Germans Felled Trees Across the Roads to Interrupt the Passage of their Pursuers.



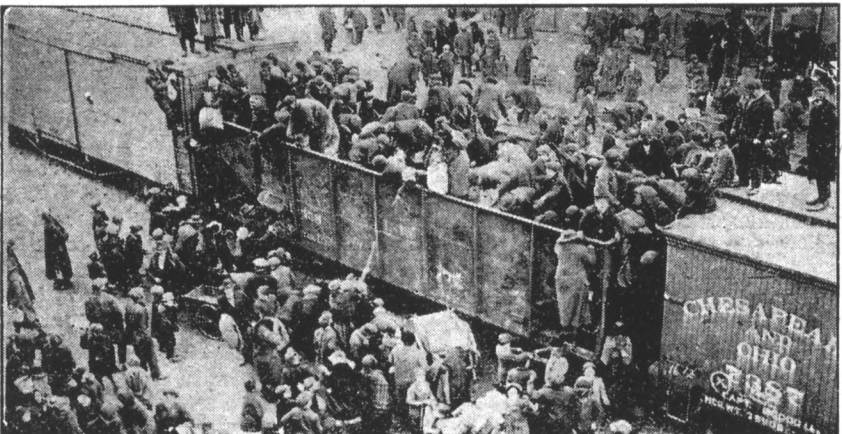
Engines Manufactured in this Country for Russian Government Are Held for Use Here Owing to Present Uncertain Political Conditions in Russia.



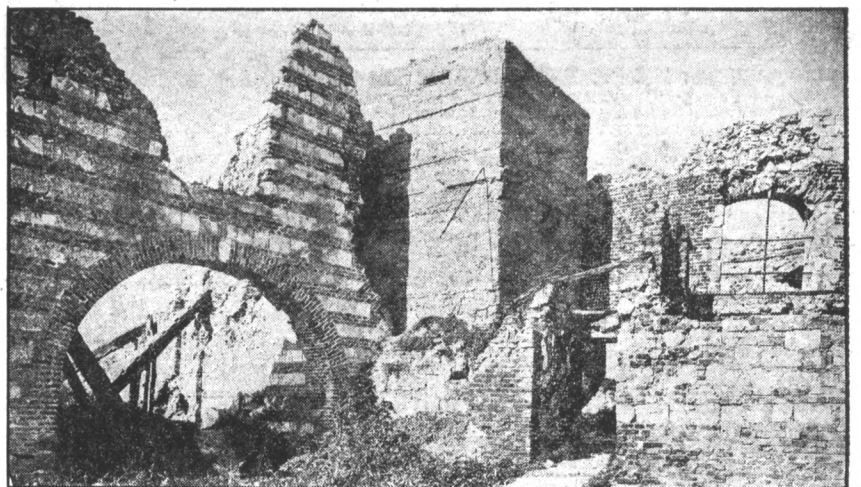
British Machine Gun Troops Operating from the Second German Trenches in Recent Cambrai Drive.



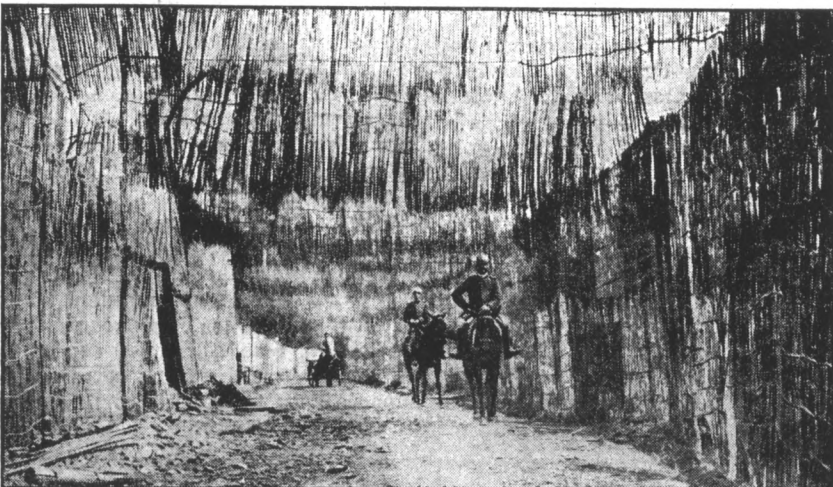
Women Employees in the Government Printing Office Are Working Hard to Hasten Completion of Liberty Bonds.



People Without Fuel Raiding a Coal Car in Philadelphia Railroad Yards.



German Pill-box Observation Post Concealed Among Ruined Church Walls.



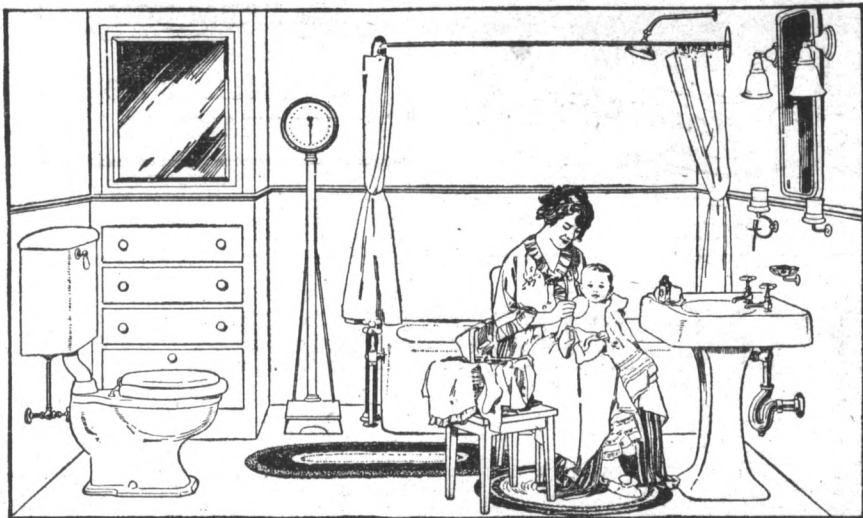
Italian Road Camouflaged to Prevent Eyes of Enemy from Observing movement of Troops to Dislodge Teutons from West Bank of Piave River.



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## Inside the Lines

By EARL DERR BIGGERS & ROBERT WELLES RITCHIE

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### Room D.

WOODHOUSE hurried to Jane Gerson's side and began to speak swiftly and earnestly: "You are from the states?"

A shrug was her answer. The girl's face was averted, and in the defiant set of her shoulders Woodhouse found little promise of pardon for the incident of the minute before. He persisted: "This war means nothing to you—

one side or the other?"

"I have equal pity for them both," she answered in a low voice.

"We are living in dangerous times," he continued earnestly. "I tell you frankly, were the fact that you and I had met before to become known here on the Rock the consequences would be most—inconvenient—for me." Jane turned and looked searchingly into his face. Something in the tone rather than the words roused her quick sympathy. Woodhouse kept on:

"I am sorry I had to deny that former meeting just now—that meeting which has been with me in such vivid memory. I regret that were you to allude to it again I would have to deny it still more emphatically."

"I'm sure I shan't mention it again," the girl broke in shortly.

"Perhaps since it means so little to you—your silence—perhaps you will do me that favor, Miss Gerson."

"Certainly." Woodhouse could see that anger still tinged her speech.

"May I go further—and ask you to—promise?" A shadow of annoyance creased her brow, but she nodded.

"That is very good of you," he thanked her. "Shall you be long on the Rock?"

"No longer than I have to. I'm sailing on the first boat for the states," she answered.

"Then I am in luck—tonight." Woodhouse tried to speak easily, though Jane Gerson's attitude was distant. "Meeting you again—that's luck."

"To judge by what you have just said it must be instead a great misfortune," she retorted, with a slow smile.

"That is not fair. You know what I mean. Don't imagine I've really forgotten our first meeting under happier conditions than these. I know I'm not clever—I can't make it sound as I would—but I've thought a great deal of you, Miss Gerson—wondering how you were making it in this great war. Perhaps—"

Almer returned at this juncture with the change, which he handed to Woodhouse. He was followed in by Lady Crandall, who assured Jane her hampers were securely strapped to the dog-cart. Jane attempted an introduction.

"This gentleman has just done me a service, Lady Crandall. May I present—"

"So sorry. You don't know my name. My clumsiness. Captain Woodhouse." The man bridged the dangerous gap hurriedly. Lady Crandall acknowledged the introduction with a gracious smile.

"Your husband is Sir George—" he began.

"Yes, Sir George Crandall, Governor-general of the Rock. And you—"

"Quite a recent comer. Transferred from the Nile country here. Report tomorrow."

"All of the new officers have to report to the governor's wife as well," Lady Crandall rallied, with a glance at Jane. "You must come and see me—and Miss Gerson, who will be with me until the boat sails."

Woodhouse caught his breath. Jane Gerson, who knew him, at the governor's home! But he mastered himself in a second and bowed his thanks. Lady Crandall was moving toward the

door. Her ward turned and held out a hand to Woodhouse.

"So good of you to have straightened out my finances," she said, with a smile in which the man hoped he read full forgiveness for his denial of a few minutes before. "If you're ever in America I hope—" He looked up quickly. "I hope somebody will be as nice to you. Good night."

Woodhouse and Almer were alone in the mongrel reception room. The hour was late. Almer began sliding folding wooden shutters across the back of the street windows. Woodhouse lingered over the excuse of a final cigarette, knowing the moment for his rapprochement with his fellow Wilhelmstrasse spy was at hand. He was more distraught than he cared to admit, even to himself. The day's developments had been startling. First the stunning encounter with Capper there on the very Rock that was to be the scene of his delicate operations—Capper, whom he had thought sunk in the oblivion of some Alexandrian wine shop, but who had followed him on the Princess Mary. The fellow had deliberately cast himself into his notice, Woodhouse reflected; there had been menace and insolent hint of a power to harm in his sneering oburgation that Woodhouse should remember his name against a second meeting. "Capper—never heard the name in Alexandria, eh?" What could he mean by that if not that somehow the little ferret had learned of his visit to the home of Doctor Koch? And that meant—why, Capper in Gibraltar was as dangerous as a coiled cobra!

Then the unexpected meeting with Jane Gerson, the little American he had mourned as lost in the fury of the war. Ah, that was a joy not unmixed with regret! What did she think of him? First, he had been forced coldly to deny the acquaintance that had meant much to him in moments of recollection; then, he had attempted a lame explanation, which explained nothing and must have left her more mystified than before. In fact, he had frankly thrown himself on the mercy of a girl on whom he had not the shadow of claim beyond the poor equity of a chance friendship—an incident she might consider as merely one of a day's travel as far as he could know. He had stood before her caught in a deceit, for on the occasion of that never-to-be-forgotten ride from Calais to Paris he had represented himself as hurrying back to Egypt, and here she found him still out of uniform and in a hotel in Gibraltar.

Beyond all this, Jane Gerson was going to the governor's house as a guest. She, whom he had forced, ever so cavalierly, into a promise to keep secret her half knowledge of the double game he was playing, was going to be on the intimate ground of association with the one man in Gibraltar who by a cross of his finger could end suspicion by a firing squad. This breezy little baggage from New York carried his life balanced on the rosy tip of her tongue. She could be careless or she could be indifferent; in either case it would be bandaged-eyes and the click of shells going home for him.

It was Almer who interrupted Woodhouse's troubled train of thought.

"Captain Woodhouse will report for signal duty on the Rock tomorrow, I suppose?" he insinuated, coming down to where Woodhouse was standing before the fireplace. He made a show of tidying up the scattered magazines and folders on the table.

"Report for signal duty?" the other echoed coldly. "How did you know I was to report for signal duty here?"



"In the press a few weeks ago," the hotel keeper hastily explained. "Your transfer from the Nile country was announced. We poor people here in Gibraltar, we have so little to think about, even such small details of news—"

"Ah, yes. Quite so."

"Your journey here from your station on the Nile—it was without incident?" Almer eyed his guest closely. The latter permitted his eyes to rest on Almer's for a minute before replying.

"Quite." Woodhouse threw his cigarette in the fireplace and started for the stairs.

"Ah, most unusual—such a long journey without incident of any kind in this time of universal war, with all Europe gone mad." Almer was twiddling the combination of a small safe set in the wall by the fireplace, and his chatter seemed only incidental to the absorbing work he had at hand. "How will the madness end, Captain Woodhouse? What will be the boundary lines of Europe's nations in—say 1932?"

Almer rose as he said this and turned to look squarely into the other's face. Woodhouse met his gaze steadily and without betraying the slightest emotion.

"In 1932—I wonder," he mused, and into his speech unconsciously appeared that throaty intonation of the Teutonic tongue.

"Don't go yet, Captain Woodhouse. Before you retire I want you to sample some of this brandy." He brought out of the safe a short squat bottle and glasses. "See, I keep it in the safe, so precious it is. Drink with me, Captain, to the monarch you have come to Gibraltar to serve—to his majesty, King George the Fifth!"

Almer lifted his glass, but Woodhouse appeared wrapped in thought; his hand did not go up.

"I see you do not drink to the toast, Captain."

"No—I was thinking—of 1932."

"So?" Quick as a flash Almer caught him up. "Then perhaps I had better say, drink to the greatest monarch in Europe."

"To the greatest monarch in Europe!" Woodhouse lifted his glass and drained it.

Almer leaned suddenly across the table and spoke tensely: "You have—something maybe—I would like to see. Some little relic of Alexandria, let us say."

Woodhouse swept a quick glance around, then reached for the pin in his tie.

"A scarab; that's all."

In the space of a breath Almer had seen what lay in the back of the stone beetle. He gripped Woodhouse's hand fervently.

"Yes—yes, Nineteen Thirty-two! They have told me of your coming. A cablegram from Koch only this afternoon said you would be on the Princess Mary.—The other—the real Woodhouse—there will be no slips; he will not—"

"He is as good as a dead man for many months," Woodhouse interrupted. "Not a chance of a mistake." He slipped easily into German. "Everything depends on us now, Herr Almer."

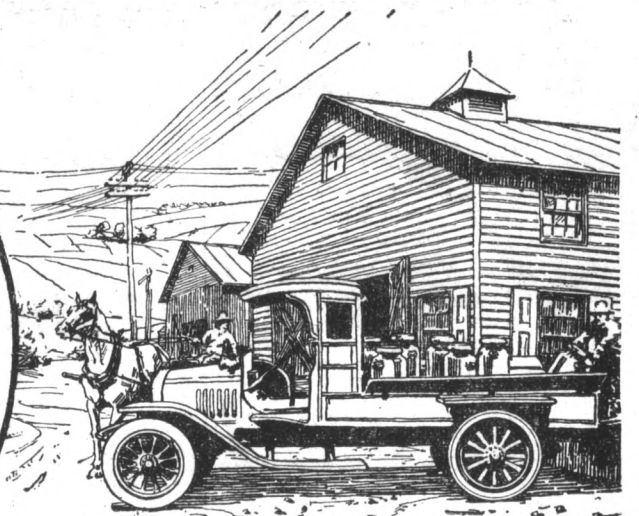
"Perhaps the fate of our fatherland," Almer replied, cleaving to English. Woodhouse stepped suddenly away from the side of the table, against which he had been leaning, and his right hand jerked back to a concealed holster on his hip. His eyes were hot with suspicion.

"You do not answer in German; why not? Answer me in German or by—"

"Ach—What need to become excited?" Almer drew back hastily, and his tongue speedily switched to German. "German is dangerous here on the Rock, Captain. Only yesterday they shot a man against a wall because he spoke German too well. Do you wonder I try to forget our native tongue?" (Continued next week.)

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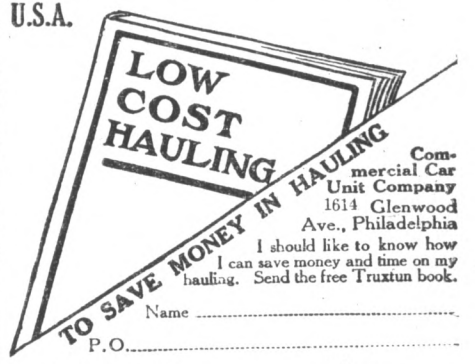
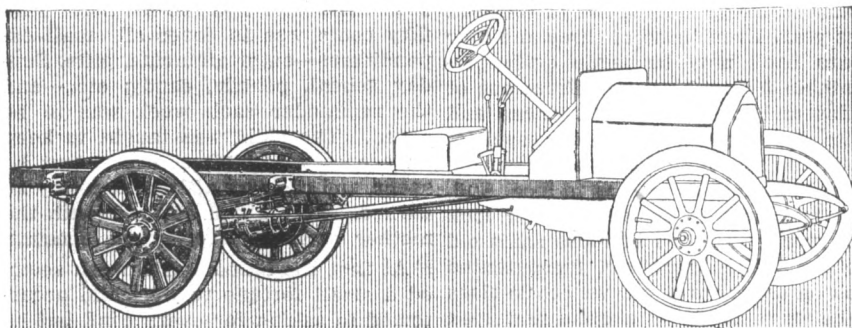
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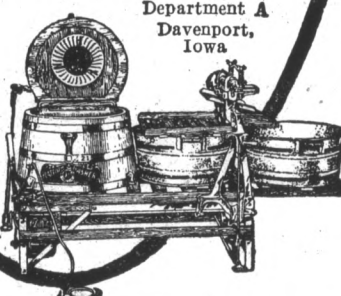
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# Woman and Her Needs

## At Home and Elsewhere

### Substitutes for Essentials

I CAN get along without the necessities of life, but I must have the luxuries," declared a woman when someone remonstrated with her for buying strawberries in February and cutting down on the baby's milk, because she couldn't afford the milk. Her attitude was typical of a large per cent of Americans up to and including the greater part of 1917, A. D. We had to have the luxuries and hang the cost. Also hang croakers who warned us of breakers ahead if we continued our spendthrift habits and refused to differentiate between "must-haves" and "would-likes."

But, oh! what a difference since the food administration put on the thumb screws; food price went skyward and land booms went downward. Since war orders have been given precedence, and businesses and salaries tremble in the balance, countless Americans have discovered that necessities have become luxuries, many of them to be secured only at the cost of much planning and some waiting. It would be amusing if there were not so much tragedy in it, to watch the ones who have never given a thought to tomorrow, plan how they can get through just now. Here is where the women who have been called "cheap" and "niggardly" get their innings. They can sit back now and smile in superior fashion at the butterflies who forgot winter was coming. But they don't. The situation is far too serious for silly "I-told-you-so's," and the thrifty women are knee deep in the work of helping out the less foresighted.

It really is surprising, though, how much you can do without that you once thought absolutely indispensable. A dressmaker told me yesterday that she has been busy all fall, simply "making over." She has sewed every day since the middle of August, and hasn't made a single new thing. Costumers who last year would have scorned to wear a re-furbished old garment, have suddenly discovered that you can make really stunning clothes out of those of last year. Even those of three and four years back may be made quite presentable if you have to. From out of attics and closets the old gowns and suits have come and the gospel of "utilizing the left-overs" has been applied to clothes as well as to food. And, queerest part of it, the women look lots more contented in those same old clothes. The querulous, discontented look on the faces of our well-to-do class is being replaced by a quite new look of seriousness; of realization that life holds something else, after all, than the desire to keep ahead of one's neighbors.

The change which has come in the matter of clothes, however, is quite lost sight of by the change in the kitchens. Here it is more than ever a case of "necessity being laid upon us." You can't have pastries and frosted cakes and fancy desserts without sugar. And with sugar being doled out at two pounds a week the sweet dessert vanishes. Bacon at fifty cents a pound, too, is a vastly different thing from bacon at thirty or even thirty-five. And lard—but why go into it? The government doesn't need to ask the average housewife to make one-crust pie, or, to go farther, crustless. In fact, pie bids fair to cease to be the great American breakfast food before this winter is over.

It's simply astonishing what a lot

you can use that you once threw out. I remember reading once in a book written by an authority on cooking that you need not throw out anything that came into the house except potato parings and egg shells, and you ought to keep the egg shells to settle the coffee! I thought she was too stingy to live. But this year I'm beginning to think she is right. Odds and ends of meat and vegetables are so successfully camouflaged as soup or salad that the family have ceased to sneer at "eating garbage." Even the orange peeling made a substitute for candy until the scarcity of sugar put a stop to that.

Doesn't it bring out one's ingenuity, though, to get around the lack of what we once demand necessities? Last week the family, with one voice, demanded hermits. Brown sugar has been off the market for so long that I've forgotten how it tastes. For four weeks my grocer has allowed me one

pound of sugar a week, not a day, and last week I couldn't even get the one pound. Eggs at sixty-five cents a dozen are away out of my sight and I haven't even thought of using butter for shortening since it got to forty-five cents a pound. Yet we had to have hermits. I used corn syrup for sweetening, a salad oil put out by the same company for shortening, and an egg powder instead of eggs. And really, the result wasn't half so bad as it sounds. Except that cup for cup of syrup did not make them sweet enough they might have been said to be really good.

So it seems that nothing we've ever thought a necessity can be classed so, after all. There appears to be a substitute for everything, unless it be air and water. And if the German chemists keep thinking up more poison gases it may be that some smart Yankee will invent a substitute for air, to be carried about with one and used when the supply of real oxygen gives out. At any rate, we're learning a lot about non-essentials, aren't we? DEBORAH.

### The Child's Allowance

By M. A. BARTLETT

Every child should have an allowance. The amount may vary according to individual requirements and family finances, but whether it be ten cents or a dollar a week matters little so long as it is regularly forthcoming and is the child's own. It may be given weekly in payment of specified chores or errands, but it should not include payment for extra work.

One mother of my acquaintance presented each of her children on their eighth birthday with a small leather-covered account book, a bank which could not be opened until it contained five dollars, and a savings bank book with five dollars deposited in the child's name.

From that date the child received each Saturday twenty-five cents from both his father and his mother. This fifty cents was to cover all small expenditures—entertainments, gifts, Sunday school, pencils, candy, etc.—and the remainder each week was to be saved. The child was taught to keep an accurate account of every cent he spent, and of every additional penny he earned. At the end of the month the mother carefully audited the account.

At first the half-dollar a week seemed a small fortune to the child accustomed to asking for every cent, but he soon learned that in order to fill his bank he would have to "think twice" before purchasing a new knife or a package of gum.

One of the girls showed a tendency toward miserliness. The first week she deposited her whole fifty cents in the bank—only to regret it long before the week was out. The other children were buying candy, and she had no money. There was to be a birthday party, and each child was expected to contribute ten cents toward a present. All her money was banked. Tearfully she sought assistance from her mother, but she found her true to the agreement.

"You must learn, dear," said the sympathetic parent, "that you can't save all your money and spend it, too—just as your brother will find that he can't spend his fifty cents and then have it to put in the bank. However, I will lend you ten cents, and you can repay

me next week. Make an item of it in your account."

The lesson was a hard one to learn, but eventually it was mastered. They knew the value of a cent.

Recently I saw their bank books. In four years the little girl had saved \$25, the boy \$30. The latter was two years the elder, and his income had been greatly augmented by outside work; but his expenditures also had been greater, as I saw by their account books. The latter were models of good book-keeping.

Parents complain that their children think they are "made of money," that they have no idea of money value. If such is the case, it is the parents', not the children's fault. Give them an allowance for spending money. Be firm in your refusal to grant more than the allotted sum, except as a loan. Let them learn by their own experience how to handle money to the best advantage. At the same time arouse their interest in saving until it becomes a habit to lay aside some part of their income. The value of such training can only be fully appreciated by those who have had it to learn in early manhood and womanhood—or by those who have never learned it at all.

### CONSERVATION DAY SUGGESTIONS.

**Meatless.**—Breakfast, creamed eggs on toast; dinner, oysters and macaroni; supper, rice and cheese.

**Wheatless.**—Breakfast, date gems; dinner, hominy bread; supper, New England corn bread.

**Creamed Eggs on Toast.**—Make a white sauce, using one and a half cups of milk, three tablespoons of flour and two of butter. Chop fine the whites of three hard boiled eggs, and mix with sauce. Pour this over slices of buttered toast and force the yolks through a ricer on top of the sauce. Serve hot as possible.

**Oysters and Macaroni.**—Allow one pint of oysters for every half-pound of macaroni, and one cup of white sauce for this amount. Boil the macaroni till tender and wash in cold water. Then put a layer of the macaroni



in a buttered baking dish, cover with oysters and then with white sauce, repeat until dish is filled, and spread buttered crumbs over all. Bake twenty-five minutes in a hot oven.

**Rice with Cheese.**—Boil the rice as usual. Grate a quarter pound of "store" cheese, and stir until melted into one pint of white sauce. Combine with rice; place in oven about 20 minutes.

**Date Gems.**—Stir the well-beaten yolks of two eggs into one pint of milk. Add a teaspoonful of salt and three cups of whole wheat flour, sifted with one heaping teaspoon of baking powder. Then add one cup of finely chopped dates and fold in the stiffly beaten whites of the eggs. Bake in buttered gem tins in hot oven.

**Hominy Corn Bread.**—Cook two cups of hominy grits in eight cups of boiling water. Cool and add one cup of

sweet milk and two eggs. Sift in one-third cup of flour and one teaspoon of baking powder and add one tablespoon of hot fat. Bake in buttered baking dish in hot oven until firm and brown but not stiff.

**Pumpkin Pie with Corn Meal Crust.**—Butter a pie tin and cover with dry corn meal one-eighth of an inch thick. Pour in your own pumpkin pie mixture and bake until custard sets. Lemon and cream pies may be made with this "crust," but not a liquid filling.

**New England Corn Bread.**—Sift together two cups of corn meal and one cup of flour. Dissolve one level teaspoon of soda in one-third cup of warm water and add to it one pint of milk and two-thirds cup of molasses. Combine two mixtures, pour into buttered brown bread molds and steam for five hours.

## The Grizzly King

By JAMES OLIVER CURWOOD

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"What made me maddest," he said, "was what those writer fellows said about bears havin' marks. Good Lord, according to what they said all a bear has to do is to stretch 'imself up, put a mark on a tree, and that country is his'n until a bigger bear comes along an' licks 'im. In one book I remember where a grizzly rolled a log up under a tree so he could stand on it an' put his mark above another grizzly's mark. Think of that!"

"No bear makes a mark that means anything. I've seen grizzlies bite hunks out o' trees an' scratch 'em just as a cat might, an' in the summer when they get itchy an' begin to lose their hair they stand up an' rub against trees. They rub because they itch an' not because they're leavin' their cards for other bears. Caribou an' moose an' deer do the same thing to get the velvet off their horns.

"Them same writers think every grizzly has his own range, an' they don't not by a long shot they don't. I've seen eight full-grown grizzlies feedin' on the same slide! You remember, two years ago, we shot four grizzlies in a little valley that wasn't a mile long. Now an' then there's a boss among grizzlies, like this fellow we're after, but even he ain't got his range alone. I'll bet there's twenty other bears in these two valleys! An' that natcherlist I had two years ago couldn't tell a grizzly's track from a black bear's track, an' so 'elp me if he knew what a cinnamon was!"

He took his pipe from his mouth and spat truculently into the fire, and Langdon knew that other things were coming. His richest hours were those when the usually silent Bruce fell into these moods.

"A cinnamon!" he growled. "Think of that, Jimmy—he thought there were such a thing as a cinnamon bear! An' when I told him there wasn't, an' that the cinnamon bear you read about is a black or a grizzly of a cinnamon color, he laughed at me—an' there I was born an' brung up among bears! His eyes fair popped when I told him about the color o' bears, an' he thought I was feedin' him rope. I figgered afterward mebbly that was why he sent me the books. He wanted to show me he was right.

"Jimmy, there ain't anything on earth got more colors than a bear! I've seen black bears as white as snow, an' I've seen grizzlies almost as black as a black bear. I've seen cinnamon black bears an' I've seen cinnamon grizzlies, an' I've seen browns an' golds an' almost-yellows of both kinds. They're as different in color as they are in their natchurs an' way of eatin'.

"I figger most natcherlists go out an' get acquainted with one grizzly, an'

then they write up all grizzlies accordin' to that one. That ain't fair to the grizzlies, darned if it is! There wasn't one of them books that didn't say the grizzly wasn't the fiercest, man-eatingest cuss alive. He ain't—unless you corner 'im. He's as cur'ous as a kid, an' he's good-natured if you don't bother 'im. Most of 'em are vegetarians, but some of em aint. I've seen grizzlies pull down goat an' sheep an' caribou, an' I've seen other grizzlies feed on the same slides with them animals an' never make a move toward them. They're cur'ous, Jimmy. There's lots you can say about 'em without makin' a fool o' yourself!"

Bruce beat the ash out of his pipe as an emphasis to his final remark. As he reloaded with fresh tobacco, Langdon said:

"You can make up your mind this big fellow we are after is a game-killer, Bruce."

"You can't tell," replied Bruce. "Size don't always tell. I knew a grizzly once that wasn't much bigger'n a dog, an' he was a game-killer. Hundreds of animals are winter-killed in these mount'ins every year, an' when spring comes the bears eat the carcasses; but old flesh don't make game-killers. Sometimes it's born in a grizzly to be a killer, an' sometimes he becomes a killer by chance. If he kills once, he'll kill again.

"Once I was on the side of a mount'in an' saw a goat walk straight into the face of a grizzly. The bear wasn't going to make a move, but the goat was so scared it ran plump into the old fellow, and he killed it. He acted mighty surprised for ten minutes afterward, an' he sniffed an' nosed around the warm carcass for half an hour before he tore it open. That was his first taste of what you might call live game. I didn't kill him, an' I'm sure from that day on he was a big-game hunter."

"I should think size would have something to do with it," argued Langdon. "It seems to be that a bear which eats flesh would be bigger and stronger than if he was a vegetarian."

"That's one o' the cur'ous things you want to write about," replied Bruce, with one of his odd chuckles. "Why is it a bear gets so fat he can hardly walk along in September when he don't feed on much else but berries an' ants an' grubs? Would you get fat on wild currants?"

"An' why does he grow so fast during the four or five months he's denned up an' dead to the world without a mouthful to eat or drink?"

"Why is it that for a month, an' sometimes two months, the mother gives her cubs milk while she's still

(Continued on page 121).



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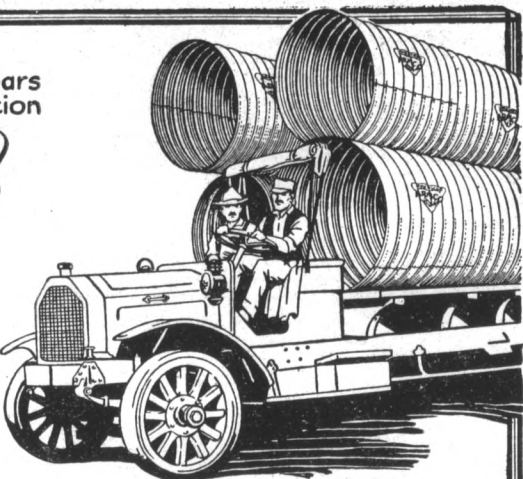
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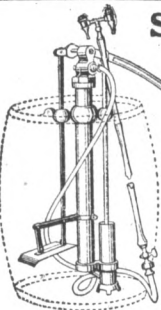
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## Boys' and Girls' Club Notes

Conducted by E. C. Lindemann

### Looking Backward and Forward

HERE, boys and girls, are some of the things that were done in the 1,050 Boys' and Girls' Clubs of Michigan the past year. You will also find suggestions made by the club leaders for 1918.

#### Gardening.

There are now 156 clubs devoted to gardening. The products raised by the 6,561 members reporting are estimated as being worth \$31,720.38. The average value of the product per member is \$4.37, and the average profit \$2.89. During the coming year the garden clubs will give greater attention to production than to educational and social advantages. This, the members will understand, is because the world is in such great need of a larger food supply. Where possible, the garden clubs for girls are to be separated from the boys' garden clubs to give the girls more instruction regarding the relationship between gardening and the preparation of garden products for the table.

#### Canning.

Last year 350 members of the twenty-six canning clubs put up 19,439 quarts of fruits and vegetables. The value of these goods has been placed at \$6,648.77. The leaders desire that the members of the canning clubs prepare early to enlarge their output this coming summer.

#### Pork Production.

The number of pounds of pork produced by the members of the twelve pork producing clubs was 6,388, which cost \$1,170.32 to produce. The average daily gain in weight of the animals was 1.04 pounds. An increase in pork production is to be encouraged this year.

#### Poultry Production.

Twenty-three members of the poultry production clubs report 552 chicks hatched, and 139 dozen eggs produced, the value of which is \$308.15.

#### Garment-making.

The garment-making clubs have had a successful season. Four hundred and thirty-six members of the 160 organizations completed 1,347 articles, which were valued at \$3,409.31. The average value of the articles per member was \$7.81. This year the garment-making clubs will aid in Red Cross, Belgian Relief and Civilian Relief work, besides doing their regular exercises. The club work has now been divided into a three-year course. During the first year each member will make two simple garments and do Red Cross work. For the second year members will make two garments, study textiles and remodel garments for Civilian Relief work. For the third year the time will be given to millinery and to remodeling of garments.

#### Potato Growing.

The number of acres of potatoes grown by 316 members of the forty-two potato-growing clubs were 117.4, on which were produced 13,370.3 bushels. The average profit per acre is figured at \$132.40. It is hoped that the members of the potato-growing clubs will put forth every effort this year to increase their plantings.

#### Handicraft.

A feature of the coming year's work will be the attention given to handicraft. There are already fifteen handicraft clubs organized, 51 members of which produced articles valued at \$105 this past year. This work is to be pushed during the winter months. The idea is to have the members make any article they may need for the summer's work. A bulletin just published illustrates and describes a number of

articles that can be made. To secure it write to the Michigan Agricultural College, East Lansing, and request "Club Bulletin No. 11."

#### Baking.

The thirty-two members of the six baking clubs averaged 187 baked articles per member, or a total of 5,986. The value of the articles was \$102. These clubs will pay particular attention to problems of food substitution, food saving and simplified menus.

#### Red Cross.

Seven hundred and eleven members of sixty-four Red Cross Clubs have produced 5,524 articles. These clubs will cooperate with local chapters of the Red Cross organization this season wherever it is possible.

#### Corn Growing.

There were 5,424 bushels of corn produced last year by 169 boys in fifty corn-growing clubs. This corn averaged forty-eight bushels per acre, and the profit per acre was \$36.30. Owing to the lateness of the season, not all of the reports have yet been made.

#### Bean Growing.

Only sixty-two members of the fifty-five bean clubs have reported, because most of the beans have not yet been threshed. The average yield per acre for the sixty-two members was 5.13 bushels, and the value of the beans grown \$2,547.20.

The total cost for the boys' and girls' club work for the fiscal year to June 30, 1918, is estimated at \$28,900. A conservative estimate of the value of the products produced by the club members in 1917 is \$240,000.

The girls of the Paris township club gave a hot school-lunch demonstration at the Kent County Round-up. This club worked under the direction of Miss Mae Stone, the teacher, and furnished hot lunches at the rate of two cents per person per week.

Pig clubs and calf clubs are on the increase. Bankers are assisting in financing these clubs. The State Savings Bank of Owosso and the Old Corunna State Bank have just voted to finance such clubs in Shiawassee county. The bank at Durand may also assist as well as other banks in the county. Now we want the boys who will organize the clubs.

A handicraft demonstration team consists of three club members. Two of them do the actual construction work while the third explains each step and gives the details of the work of the handicraft clubs. Plans for training teams will be sent upon request.

Boys of the rural schools in Indiana have organized "Saw-buck Clubs" to aid in the campaign of substituting wood for coal. The organization chiefly responsible for these clubs is the Boys' Working Reserve, which has cooperated effectively with the state fuel administrator.

### THE PERSEVERING KNITTER.

BY LULU G. PARKER.

There is a maid in our town  
And she is wondrous bright,  
She's knitted socks and sweaters  
From morning until night.  
And when she'd knit the Red Cross  
wool,  
As sure as I'm alive,  
She went and sheared her father's  
sheep,  
He kept just four or five.  
She washed the wool, and carded it,  
The persevering elf,  
On great grandmother's spinning wheel  
She spun the yarn herself.  
She steeped the hulls of butternuts,  
And dyed the yarn all tan,  
And knit another sweater,  
For another soldier man.

## Something for the Boys and Girls

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## How the World's Business Is Transacted - By COMFORT A. TYLER

ARTICLE six treated on the method of starting a savings account but we were unable to complete all we wished to say along that line owing to the fact that the article was going to get too long if we did.

Now we are assuming that you have your savings account opened, as we term it, and it becomes necessary for you to have some of the money saved to buy a liberty bond or some thrift stamps or for some other equally meritorious purpose. Just how are you to proceed.

If you have left your pass book at the bank as suggested in the previous article might be done and frequently is done, then you may draw a check on the account and it will be honored by the banker. This check usually has a printed provision on the check itself, for the protection of the person to whom you are offering the check, reciting that the form is for the use of savings depositors and that pass book must be in the hands of the bank when check is presented for payment.

### Value of Confidence.

Now, right here is where you must establish that "confidence" that we spoke about in one of our earlier articles. Why? Because, unless the party to whom you are offering this check has confidence that the book really exists and really is in the hands of the bank, they would refuse to accept the check as payment of debt or for service rendered. If you are already known to the party to whom you offer it as a person of honesty and integrity, your word will be accepted for the fact that you have such an account and that your book is at the bank in compliance with the state law requirements.

### The Better Way.

Now, supposing you have not left your book with the banker and do not choose to do so, and really, boys and girls, I much rather you would not so leave it for several reasons: First, because it is more or less of a nuisance to the banker, although he will not tell you so if you ask him the privilege of leaving it with him; second, it is not exactly good business to do so and I want our boys and girls to learn to do business in exactly the right way, and third, it soon becomes a habit if one is not careful, to write little checks on the account, and thus our first aim may, in a measure, be defeated.

### Get the Thrift Habit.

My first and prime object in having you open a savings account, is to have you learn the thrift idea, have it become instilled into the very marrow of your bones, have it become a part and parcel of your very existence, but at the same time not to have you become misers or savers except for a good cause. With the book at the bank and a nice pretty little check book conveniently at hand, it becomes so easy to just dip in a little now and then, hence I say, I hope our boys and girls for these several reasons will keep their pass books in their own possession and it will, I think, become a source of inspiration to you, to add from time to time to those savings rather than withdraw.

### A Talk with the Banker.

Now, if you have the book and really need to use some of the money, take the book with you to the bank, fill out a receipt, which is called by the banker, a "withdrawal slip," and which he will furnish you, present it, together with your book at the savings department paying window, and—oh, hold on a minute, I am going all too fast and have my cart way ahead of the horse right now—after you have studied over the matter, decided you need this money for a good and worthy purpose,

have already got as far as the bank and made out your withdrawal slip, right now, before you go any further, suppose you go to the banker with whom you are now acquainted, show him the slip you have, and ask him to sit down just a minute and have a visit with you.

### His Idea May Differ from Yours.

Now, he is a busy man, and while I have never made a money wager in my life, because, first, I do not believe in gambling, and next I neither wish to get the "other fellow's" money for nothing, or wish him to get mine for nothing, yet I would be willing to wager just one big molasses cookie (and how I should hate to lose on that wager), that no matter what he is doing or how busy he may be, he will take the time from somewhere, to do it, and then you just tell him what you want to use the money for. Don't think he will laugh at you, for I am saying he will not. No matter how important it may seem to you or how trivial, while you are still young as a financier, and you are contemplating the using of some of your hard-saved money, talk it over with the banker first and see if he does not put some new light on it for you. He is usually a pretty level headed fellow and may see it in quite a different light than you have, and may even make some suggestions that will be very very valuable.

### How I Was Helped.

The writer well remembers as a boy, going to the bank with the firm intention of taking every penny he had and if possible borrowing some more to put in a certain enterprise, but decided to talk it over with the banker first, which resulted in his advising that it was not a wise thing to do. The matter was dropped and had it been completed as designed would have resulted in a very bitter disappointment.

### And You Can Depend on What he Says.

Now, you may say, why, of course the banker would say, "oh, leave it in the bank," so he would have the use of it. No, he will not, if he thinks it is to your interest to use it for a good purpose designed. Why, it would be to his personal interest to so advise you. The banker is always looking to the future, as well as you, and if it were good business for you to use your money, it would make a better customer of you in the future would it not? Any way, you may almost be assured that his advice will be good and safe. Of this we will say more in our next article.

## THE GRIZZLY KING

(Continued from page 119).

what you might call asleep? Her nap ain't much more'n two-thirds over when the cubs are born.

"And why ain't them cubs bigger'n they are? That natcherlist laughed until I thought he'd split when I told him a grizzly bear cub wasn't much bigger'n a house-cat kitten when born!"

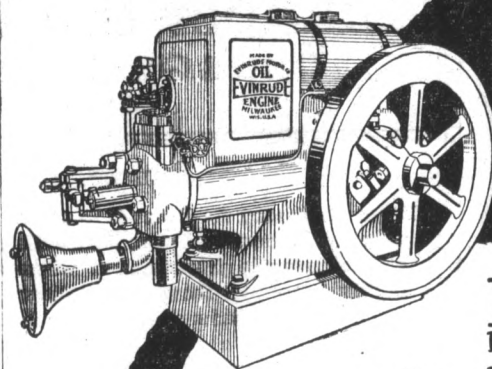
"He was one of the few fools who aren't willing to learn—and yet you cannot blame him altogether," said Langdon. "Four or five years ago I wouldn't believe it until we dug those cubs up the Athabasca—one weighed eleven ounces and the other nine. You remember?"

"An' they were a week old, Jimmy. An' the mother weighed eight hundred pounds."

For a few moments they both puffed silently on their pipes.

(Continued next week.)

One thorn of experience is worth a whole wilderness of warning.—Lowell.



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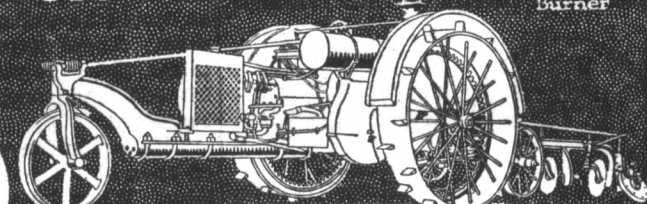
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## Bumper the White Rabbit

By **GEORGE ETHELBERT WALSH**

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### Bumper Needs a Doctor

**I**T was necessary for Bumper to show a certain amount of firmness with his newly-made friends, and when he finally emerged from the hollow branch again he made a little speech to the birds.

"I never saw such beautiful pink eyes before," remarked Piney the Purple Finch.

"Nor such snow-white fur," added Mr. Pine Grosbeak.

"I never knew there was such a thing as a white rabbit in the world," said Rusty, the Blackbird.

Bumper could not feel other than puffed up by such remarks, but he tried to hide it from his new friends.

"Are all the rabbits in the woods brown or gray, then?" he asked. "I should like to see them. Do they live around here?"

"Yes," replied the Purple Finch, "but they're very much frightened and keep to their burrows since Mr. Fox came here to live."

"I should like to find them," sighed Bumper. "The fact is, I'm lonesome, and a little bit homesick. I'm not used to the woods, and I should dearly like to find some of my brown cousins so they could teach me things."

"I shouldn't think you needed much teaching," laughed the Red-Headed Woodpecker, tapping the limb with his powerful bill. "Any rabbit that can escape from Mr. Fox and climb a tree as you did must know a great deal."

The other birds nodded their heads at this remark, and Bumper looked pleased at this compliment to his shrewdness.

"Still," he said, "I'd like to meet my country cousins."

"If I see any of them," Rusty the Blackbird replied, "I'll tell them about you."

The rest agreed to carry the news to the wild rabbits when they saw them, and Bumper knew that he would soon find his country cousins. He felt that he would be welcome, and safer with them. There were so many puzzling things about the woods that, in spite of his self-confidence, he was often embarrassed.

This conclusion was further impressed upon him very forcibly a few hours later. When he was certain that the fox had left the vicinity for good, he crawled through his tunnel to the ground, and began feeding on the wild grasses, leaves and strange plants that grew so thickly in the woods.

Most of the plants were new to him. He hardly recognized any of them. Some were sweet and juicy, and others were so bitter that one taste was enough. No one could help him in the selection of his food, and he had to trust to his instinct.

But instinct isn't always a safe guide when one is not familiar with his surroundings. Now just what plant it was that disagreed with him Bumper never knew. His little stomach was so full of leaves and plants that when he first began to feel sick and giddy he thought it was due to overeating.

"I'll just lie down in the shade now and rest," he said. "Then when I feel better I'll hop around and find a place to spend the night."

This was a wise decision but it wasn't a cure. Something he had eaten clearly disagreed with him. Instead of growing better he felt worse the longer he rested. In time he was feeling so sick and giddy that if Mr. Fox had appeared he would have made short work of Bumper. His groans soon attracted the birds, and they flew to where he was lying and asked him the trouble.

"I'm dying, I think," moaned Bumper. "I must have eaten some poisonous plant, and I know I'm dying."

The birds were startled by this information, and they held an immediate consultation.

"It's perhaps true what he says," remarked Mrs. Phoebe Bird. "He's eaten some poisonous plant."

"If we only knew what it was," added the Pine Grosbeak, "we might help him. There's an antidote for every poison."

"Yes," assented the Purple Finch, "but not knowing the kind of poison, we can't prescribe the antidote."

"Why not," suggested the Crested Flycatcher, "give him all the antidotes, and then we're sure to give him the right one."

Rusty the Blackbird laughed out loud at this suggestion. "Why," he said, "we'd stuff him so full of antidotes that he'd die anyhow. No, I think we'd better see Mr. Crane."

"What could he do? He's no kind of a doctor," indignantly remarked Mrs. Phoebe Bird. "The idea of calling him in."

Rusty, who was a jolly, rollicking bird, winked, and added: "No, he isn't much of a doctor, it's true, but he's got one medicine that nearly always works. I'll go fetch him."

During the dispute that followed, Rusty slipped away, and before the argument had reached a climax, he returned, accompanied by Mr. Crane.

"Now, Dr. Crane," said Rusty, smiling and winking, "see what you can do with the White Rabbit. I told you what ailed him. He's eaten too much of something that disagrees with him."

"Then I can cure him," gravely replied Dr. Crane, approaching Bumper's side. The other birds crowded around to see what he would do. The appearance of Mr. Crane in the role of a doctor was a new one to them, and they were curious to see how well he would acquit himself.

"Let me see your tongue," Mr. Crane said solemnly.

Bumper stuck out his tongue obediently, for he felt so sick that he didn't care what happened to him.

"That's good! Now I must look down your throat. Open wide."

Bumper readily complied, and Mr. Crane looked down it.

"Now hold it open," Mr. Crane continued. "Don't close it until I tell you. I won't hurt you."

Then to the surprise of Bumper and all the birds, he inserted his long, slender bill down the throat as if he intended to pull something out of it. But he had no such intention. He simply twisted the bill around gently.

Bumper felt a tickling sensation in his throat, and he wanted to gag, but the bill prevented him. The tickling went on for some time until Bumper in spite of himself, began to gag and retch. Then, as suddenly as Dr. Crane had inserted his bill in the throat, he withdrew it.

But Dr. Crane had accomplished his purpose. The tickling in the throat had started Bumper to vomiting, and all his dinner, including the poisonous plant, came up with a rush. It made him weak and faint, but the pain in his stomach was relieved, and when he was through he looked up and said faintly: "Thank you, Dr. Crane, I feel much better."

And Rusty the Blackbird, flapping his wings, crowed with delight: "What did I tell you! Dr. Crane carries an antidote for every poison in his bill! But it's a bitter medicine sometimes." (Next week Bumper meets Mr. Bear).

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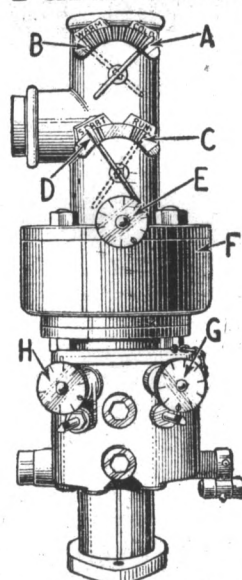
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**SILVER Golden and White Wyandottes**, Choice breeding stock of sale after Oct. 1st, a few bargains in yearling hens. C. W. Browning, R. 2, Portland, Mich.

**WHITE Wyandottes**, I have a fine lot of April and May hatching cockerels for \$3.00 and \$5.00 each. DAVID RAY, 709 Norris St., Ypsilanti, Michigan.

**White Wyandottes** 50 extra choice cockerels \$3 to \$5. I ship on approval and guarantee satisfaction. Milton E. Stewart, R. 3, Augusta, Mich.

**White Chinese Ganders** Pekin Ducks and a few R. C. Br. Leghorn hens, Cockerels all sold.

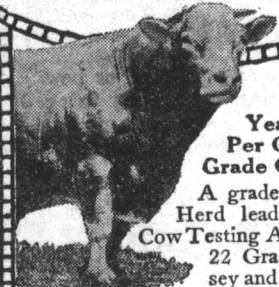
MRS. CLAUDIA BETTS, Hillsdale, Michigan







## CATTLE



**\$97.05**  
Average  
Yearly Profit  
Per Cow From  
Grade Guernseys  
A grade Guernsey  
Herd leads an Iowa  
Cow Testing Association.  
22 Grade Guernsey  
and 2 pure bred  
Guernsey cows averaged  
7,994 lbs. of milk and 380.1 lbs.  
of butter fat, yielding a gross income  
of \$153.86 per cow and a profit above  
the feed cost of \$97.05 per cow.

**Use a Guernsey Bull**  
It's the Guernsey Bull that wins in the  
battle with the scrub. Guernsey grade  
cows produce butter most economically. Write for  
full information. (5)

**American Guernsey Cattle Club**  
Box 1 Peterboro, N.H.

Reg. Holsteins: Bull calf born Oct. 6. A splendid individual, well grown. A. R. O. records for seven near-est dams average butter 7 days 23.36 lbs. milk 533.27. Dams record 18 lbs. at 2 yr. old. W. B. Reader, Howell, Mich.

FOR Sale One registered Holstein bull calf. Sire's twenty nearest dams have 7 da. records for seven near-est dams average butter 7 days 23.36 lbs. milk 533.27. Dams record 18 lbs. at 2 yr. old. W. B. Reader, Howell, Mich.

2 CHOICE Holstein bulls nearly old enough for service. No. 1 born January 24, 1917, sire's dam, grand-dam and great grand-dam's semi-official records average 842 lbs. butter. Dam of calf 18 lbs. butter 7 days senior 2 yr. old, average per cent fat 4.3. No. 2 Sired by 23 lb. bull and out of a 14 lb. junior 2-yr. old. O. L. BRODY, Owner, Fort Huron, Mich. Chas. Peters, Herdsman, Three Rivers, Mich.

## Butter Fat Counts

Holstein Bull Calves from a 30 lb. 5.33 Sire. Dam are grand daughters of the King of the Pontiacs. Their dams grand daughters of the King of the Pontiacs. The first 30 lb. cow. Edwin S. Lewis, Marshall, Mich.

Holstein Bull Calf born Mar. 7, fine individual a prize winner from 22.62 lb. Sire and 23.30 lb. 4 yr. old dam. Price low. Owosso, Mich. A. F. LOOMIS.

Bull calves sired by a double g.-son of Friend Hengerveld De Kol Butter Boy from dams of the greatest yearly record breeding. Write for photos and prices & etc. Ontonagon Valley Holstein Farm, Bruce's Crossing, Mich.

**Our Herd is Headed**  
by King Vale Palmyra Fayne, whose sire is a brother to Segis Fayne Johanna. Dam is a 32 lb. grand daughter of Paul Dekol, Jr. sire of Cremelle Vale. A few cows in calf to this great sire at right prices. E. M. PIERCE & SON, Manchester, Mich.

## OAK LEAF FARM

Herd sire Lenawee Pontiac Calamity King offer Registered Holstein bull calves from the above sire whose dam holds the milk and butter (32%) record for 7 days in the state of Ind. E. H. GEARHART & SON, R. 4, Marcellus, Mich.

Reg. Holstein Bull Calves Pontiac Korndyke and Hengerveld De Kol Breeding at Farmers Prices. John A. Rinke, Warren, Mich.

For Sale Registered Holstein bulls ready for service and bull calves from 30 lb. sire and A. R. O. dams with records up to 25 lbs. Wm. GRIFFIN, R. 5, Howell, Mich.

The Calf advertised has been sold. Here is one of the best winter crop, almost all white good individual. Sire and dam's sire average owner 1239 lbs. butter for 1 year. This kind go quick so write. ELMER E. SMITH, Redford, Mich.

Registered Holstein bulls to exchange. 1 for farm team, 1 for saddle horse address. O. S. JACKSON, Augusta, Mich.

## HEREFORDS

10 bull calves for sale, Perfection Fairfax and Prince Donald breeding. **ALLEN BROS., PAW PAW, MICH.**

Herefords Bob Fairfax 494027 at head of herd. Stock for sale. Both sexes either polled or horned. EARL O. MCARTY, Sec'y Mich. H. B. Ass'n, Bad Axe, Mich.

Lillie Farmstead Jersey Cattle. 3 bulls, ready for service, out of R. of M. dams. 10 heifers bred to freshen next fall. Oolon O. Lillie, Coopersville, Mich.

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

**Jersey Bulls For Sale**  
Ready for service. Raleigh - St. Lambert breeding. Waterman & Waterman, Packard Rd., Ann Arbor, Mich.

For Sale Two registered Jersey bull calves, Splendid individuals. Good pedigrees. Priced to sell. Long View Farm, R. 3, Box 10A, Rochester, Mich.

2 Majesty line bred solid colored bull calves 3 mo. old, from dams that are doing better than 50 lbs. fat monthly. My own breeding. Price \$50.00 each. Visitors welcome. FRED A. BRENNAN, Sec., Capac, Mich.

FOR Sale Four registered Holstein cows. Two yearling heifers. Two six-mo.-old. All good breeding. FRED McKEE, R. 2, Benton Harbor, Mich.

**Choice Bulls** ready for service. Also heifers for sale. Strong in the blood of Royal Majesty. Come and see them or write for particulars. THE WILLOW HERD, Alvin Balden, Capac, Mich., Phone 143-5.

**FOR SALE** Registered Jersey bulls, ready for service. SMITH and PARKER, R. 4, Howell, Mich.

## National Shorthorn Congress Show and Sale

Chicago, Ill., February 19-22, 1918

International Exposition Bldg., Union Stock Yards  
400 HIGH-CLASS SHORTHORN CATTLE

Contributed by prominent breeders from the Atlantic Coast to the Rocky Mountains and from Canada to the Gulf will be entered in the prize contests and offered at public auction.

Approximately \$8,000 will be offered in cash prizes in the show contests which will call forth the best breed affords, and the fact that all of these prize winners will be sold insures to the buyer an offering of the highest class.

No other event ever staged within Shorthorn circles has approached this in importance and magnitude. It will be the greatest opportunity for students of improved live stock and for prospective buyers who wish to raise the standard of their present stock or lay the foundation for breeding herds. Extensive programs of an instructive and entertaining character, including addresses by speakers of international reputation, have been arranged for the evenings.

An entire day will be devoted to the Milking Shorthorn interests. Membership badges will be furnished to every person attending the Congress. For further information address

**F. W. HARDING, Sec'y, American Shorthorn Breeders' Ass'n,**  
13 Dexter Park Ave., Chicago, Ill.

## Jerseys and Duroc Jerseys

The most important thing in buying a Jersey bull is to get one backed up by generations of high producers. Brookwater offers to sell a few choice bull calves of this kind. Our herd of Durocs has won more prizes at the State Fairs this year than any other.

Boar Pigs and Yearlings For Sale.

H. W. MUMFORD, OWNER

BROOKWATER FARM

O. F. FOSTER, MANAGER

Ann Arbor, Mich., R. 7.

MAPLE Lane R. of M. Jersey Herd has for sale R. of M. cows, daughters of R. of M. cows, bull calves, heifer calves and bulls. All from 500 & 600 lb. dams. IRVIN FOX, Allegan, Mich.

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

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

**BIDWELL SHORTHORNS**  
For Beef and Milk.

5 Bulls ready for service, 15 months to 2 years, for sale; also good Scotch-topped cows and heifers. Modern, sanitary equipment. One hour from Toledo, Ohio. N. Y. O. R'y. Visitors Welcome. Write us.

**BIDWELL STOCK FARM**  
Box B, Tecumseh, Michigan.

Shorthorns for sale, 5 bulls Scotch top 10 to 14 mos. 3 roan, 1 white, 1 red, price \$150. to \$250. 1 son of Max-walton Sultan, 19 mos. \$350. C. Carlson, Leroy, Mich.

Bates Short-horns the original milk strain young bulls 8 mos. old for sale. Price \$150 to \$200. J. B. HUMMEL, Mason, Mich.

Shorthorns. Bulls 9 mos. to 12 mos. old from good milking cows. Prices reasonable. COLLAR BROS., R. 2, Conklin, Mich.

Milking Shorthorns: - Bull calf 5 mos., by a Grand-son of General Clay, dam by a son of General Clay, \$150. A few females. S. E. BOOTH, Morrice, Mich.

SHORTHORNS. Butterfly Sultan, half brother to International Sr. Champion, in service. For good bulls, cows, and heifers. W. B. McQuillan, Howell, Mich.

Milking Shorthorns and Polled Durhams, 20 head cows heifers and young bulls, Sultans Duchess and Sittytton Duchess included. M. Halsted, R. 1, Orion, Mich.

Shorthorns Maxwalton Monarch 2nd. 387322 half brother to 5 Grand Champions in service. For good bulls, cows, and heifers. W. B. McQuillan, Howell, Mich.

Shorthorns Four fine young bulls ready for service. Grandsons of Imp. Villager. Also bred heifer & cows heavy milking strain. Farmers prices. Free Catalogue. HORRIESON FARMS, Hart, Mich.

## Cattle For Sale

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

## HOMESTEAD FARMS

We have for sale the following thoroughbred stock which we shall be pleased to describe fully: Shorthorn Durhams - Milking strain - Roan cow, Scotch topped, 7 yrs. old; heifer, red, 9 mos.; Bates strain: Bull calves, red, 3 mos. and 6 mos. Holsteins - High class bull, 11 mos. and animal for the farmer who wants to grade up into the highest Holsteins, dam butter test 24.26, grand sire King Segis Pontiac Alcartra, the well known \$50,000 bull. Bull calf, 6 weeks, also of correspondingly high grade. Hogs - Duroc Jersey boars 3 mos; Hampshire boars and sows, Aug. farrow. Yours, a federation of interests. **HOMESTEAD FARMS, Bloomingdale, Mich.**

## HOGS.

DUROCS Orion Chief Perfection No. 68945, and Jennings Pilot Wonder No. 73373. Two outstanding boars of big type and excellent quality. All selected large type smooth sows. Thrifty, smooth, large boned spring gilts from these herd boars and choice sows at very reasonable prices. The Jennings Farms, Bailey, Mich.

DUROCS service boars, bred sows, fall pigs. Express paid. J. H. BANGHART, E. Lansing, Mich.

Pinehurst offers: Registered Spring Boars, tried brood sows, One Great Herd Boar. Write your wants. Orlo L. Dobson, Quincy, Mich.

**Duroc Jersey** Spring gilts and fall pigs either sex. E. D. HEYDENBERG, Wayland, Mich.

**Duroc Jersey: Extra good spring pigs for sale.** CAREY U. EDMONDS, Hastings, Mich.

## Duroc Sows &amp; Gilts

guaranteed safe in pig. Fall boars and gilts not related. You want more size and feeding qualities; buy now. Cat. giving breeding and description of 30 sows. NEWTON BARNHART, St. Johns, Mich.

Duroc Jerseys - boars of the large heavy boned type. D prize winning stock, prices reasonable, type and breeding considered, also gilts bred to Junior Champion boar for spring farrow. F. J. Drott, R. 1, Monroe, Mich.

**DUROC JERSEY SOWS**  
Bred to one of the best young boars in Mich. for Mar. farrow. RUSH BROS., Romeo, Mich.

A FEW Duroc Jersey bred gilts for sale. Some extra good fall boars. Milan, Mich. W. C. TAYLOR.

DUROCS Jerseys. Orders booked now for early spring pigs. R. C. R. I. Red cocks \$3.00, eggs in season. E. E. CALKINS, R. 6, Ann Arbor, Mich.

DUROCS for sale, 1 fall boar, 7 Spring boars, good breeding. Write for description and prices. J. D. CRANE & SON, Plainwell, Mich.

## BRED GILTS

To Wm. B. No. 47049, Longfellow No. 18575 sire of 1st prize young herd at Iowa State Fair. Fall pigs and breeding boars. J. CARL JEWETT, Mason, Mich.

Chester Gilts bred for March farrow early fall pigs both sexes from best blood lines. F. W. ALEXANDER, Vassar, Mich.

## Raise Chester Whites?

Like This  
the original big producers

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

## Big Type O. I. C's.

Stock of all ages for sale. We showed at four state fairs and won more champions and Grand Champions than all the other breeders together double, we were Premier Breeder and Exhibitor at every fair we showed. We breed the best. We sell the best. We guarantee them to be the best. Write your wants. Get our Catalogue. We ship on approval. CRANDELL and SON, Cass City, Mich.

O. I. C's choice May boar also some choice fall pigs. WEBER BROS., Royal Oak, Mich.

O. I. C's 2 choice May boars & Sept. & Oct. pigs sired by First Premium boar Mich. State Fair 1917. Clover Leaf Stock Farm, R. 1, Monroe, Mich.

**O. I. C. & CHESTER WHITE SWINE.**  
Strictly big type with quality. Have a choice lot of boars fit for early fall service. These boars will be sold worth the money. Also have some fine gilts. I will ship O. O. D. NEWMA'S STOCK FARM, R. 1, Marlette, Mich.

O.I.C's Registered serviceable boars. Bred gilts. Aug., Sept., Oct. pigs. Registered Shropshire ewe lambs. G. P. Andrews, Dansville, Mich.

O. I. C. Am offering some good boars of May farrow and fall pigs either sex. C. J. THOMPSON, Rockford, Mich.

O. I. C. For sale a few extra good gilts bred for March and April farrow. H. W. MANN, Dansville, Mich.

O. I. C. open and bred gilts. All stock guaranteed. F. C. BURGESS, Mason, Mich.

## Big Type Poland Chinas.

Bred Gilts and Sows for sale.

**HILLCREST FARM,**  
Kalamazoo, Mich.

## BOARS--SOWS

Big type big bone. For the next 30 days we will sell Big type Poland Chinas at bargain prices. April boar weighing 300 lb. Open gilts. Summer and fall pigs everything goes. Get busy. J. C. BUTLER, Portland, Michigan, Bell Phone.

LARGE Type P. C. Largest in Mich. Spring Boars ready to ship. The kind that make good. Come and see the real big type kind. Expenses paid if not as represented. Free livery from Parma. W. E. LIVINGSTON, Parma, Mich.

Big Type Poland Chinas: April and May pigs, healthy and growthy. Prices right. L. W. BARNES & SON, Byron, Mich.

LARGE Type P. C. Some growthy spring Boars and Gilts ready to ship, come and see them. Free livery from Augusta. W. J. Hagelshaw, Augusta, Mich.

LARGE Type P. C. Some good spring boars up to 270 lbs. Will also price gilts, open or bred. Fall pigs ready to ship. Wm. J. Clarke, R. 7, Mason, Mich.

Large Strain P. C. Gilts bred to Smooth Jumbo large 2 yr. old in state, & a grandson of Gushalls Smooth Big Bone for April & May farrow. H. O. Swartz, Schoolcraft, Mich.

Big Type P. C. Big boned fellows from Iowa's greatest P. C. herds. Special prices on spring boars. E. J. MATHEWSON, Burr Oak, Mich.

POLAND CHINA GILTS Bred for March and April farrow. G. W. HOLTON, R. 11, Kalamazoo, Mich.

P. C. Bred sows, big type, big bone, big litters big fall pigs. In pairs, or trios. R. W. MILLS, Saline, Mich.

Big Type P. C. bred for March & April farrow sired by Peter's Jumbo & Grand Superba and 2 or 3 yearling sows at bargain prices. C. E. Garbutt, Eaton Rapids, Mich.

For Sale--Registered Poland China boar, 280 lb., yearling, weight 450 lbs., price \$70.00. Sow 63238 due to farrow Feb. 1, weight 350, price \$75. O. L. WRIGHT, Jonesville, Mich.

Big Foned P. C. sows and gilts shipped C.O.D. call or write for photo, weights, pedigree and price. E. R. Leonard, R. 3, St. Louis, Mich.

For sale, 2 big type Poland China spring boars, weighing about 255 lbs. each at bargain prices. Come or write. T. G. REGER, Sylvania, Ohio.

Registered Hampshires, spring boars and gilts. JOHN W. SNYDER, R. 4, St. Johns, Mich.

## Large Yorkshire Gilts

Red Poll Cattle. E. S. CARR, Homer, Mich.

## SHEEP

## CHOICE BRED EWES

250 left, 1 to 4 years old, bred to good Shropshire rams. \$15 to \$16 each for 10 or more, if taken soon. ALMOND B. CHAPMAN, So. Rockwood, Mich.

E W E S: Rambouillets and Hampshire for sale. A. A. WOOD & SON, Saline, Mich.

Western Ewes bred to Registered Mutton Rams. BARNARD SHEEP RANCH, R. 5, Clare, Mich.

Shropshire Ram Lambs and one three year old flock header for sale. ARMSTRONG BROS., R. 3, Fowlerville, Mich.

## KOPE-KON FARMS.

Coldwater, Mich.

**Hampshires & Shropshires.**  
It's a wise man who orders his ram for August delivery now.

Registered Oxford Ram and Ram lambs. Also Berkshire hogs. CHASE STOCK FARM, R. 1, Marlette, Mich.

## HORSES

**REGISTERED PERCHERON**  
Mares and Stallions priced to sell. Inspection invited. L. C. HUNT, EATON RAPIDS, MICH.

## LOESER BROS.

Belgian and Percheron Stallions for sale that will pass the Michigan Stallion Inspection. Have a few mares of both breeds. Shorthorn Cattle, we offer a choice lot of bulls and females. Write us.

## LIGONIER INDIANA.

## PERCHERON DISPERSAL

The entire herd of the late A. A. Palmer will be closed out; 25 pure bred percheron mares \$200 to \$400 except two; also young stallions

**PALMER BROS., Belding Mich.**

**For Sale.** A Black Percheron Stallion registered in the Percheron Society of America, sound in every way, four years old in May. For full particulars & price inquire of GEO. E. MILLER, Stanton, Mich.

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

**FOR SALE** Registered Percheron Stallion Dapple Gray Five years old. Tekongha, Mich., Bell Phone.

**Two Large** young Jennets cheap, and some Shetland Ponies and several good fox hounds. W. E. LECKY, Holmesville, Ohio



# Markets.

## GRAINS AND SEEDS

January 22, 1918.

**WHEAT.**—The movement of wheat is as slow as ever with arrivals scarcely sufficient to meet current needs. Cash No. 2 red is quoted in Detroit at \$2.17; No. 2 mixed \$2.15; No. 2 white at \$2.15.

**CORN.**—Values have declined during the week, notwithstanding that it has been almost impossible to move the grain marketward because of heavy snows and congested railroads. On the other hand, the cold weather has benefited the grain. Cars are available at many shipping points in the corn belt and loaded, but there is no motive power to move them. This condition, however, has made dealers skeptical about holding up prices, and accounts in part for the decline. A year ago No. 3 cash corn was quoted at \$1.05 per bushel. On Monday cash No. 3 corn was quoted at \$1.80; No. 3 yellow at \$1.85.

**OATS.**—While oat values on the local market have shown a tendency upward, in Chicago where the stocks are larger there has been a tendency in the opposite direction. A scarcity of foreign demand and the decline in corn values, have contributed to the weaker feeling. A year ago standard oats were selling on the local market at 60 cents per bushel.

**RYE.**—Market strong, with prices on a much higher basis. Cash No. 2 is now quoted at \$1.91 per bushel.

**BEANS.**—This market is very dull, with little change in values. Local quotation for immediate and prompt shipment is \$12.40 per cwt. The Chicago trade is steady with a moderate demand, and a small volume of offerings. Michigan hand-picked pea beans in a sound dry condition are quoted there at \$13; fancy red kidneys \$14@15; fair to choice at \$12@13. At Greenville the elevators quoted \$11.50 per cwt. on Monday.

**PEAS.**—Field peas quoted at \$6.50@7 per cwt. at Chicago on the opening this week.

**SEEDS.**—Market strong and higher. Prime red clover \$19; March \$18.85; alsike \$15.50; timothy \$4.30.

## FLOUR AND FEEDS

**FLOUR.**—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Standard patent \$11.10@11.15; straight winter \$10.30; spring patent \$11.20; rye flour \$10.50@10.70 per bbl.

**FEED.**—The government is regulating the prices of bran, shorts, "middlings," mixed feeds and flour middlings. The prices of these products will hereafter be based upon price of wheat to millers. 100-lb. sacks jobbing lots: Bran \$34.50; standard middlings \$36.40; fine middlings \$43.50; cracked corn \$79; coarse corn meal \$77; corn and oat chop \$66 per ton.

**HAY.**—In carlots at Detroit: No. 1 timothy \$24.50@25; standard timothy \$23.50@24; light mixed \$23.50@24; No. 2 timothy \$22.50@23; No. 1 clover \$19@20 per ton.

Pittsburgh.—No. 1 timothy \$30@30.50; No. 2 tim. \$27.50@28; No. 1 light mixed \$28@28.50; No. 1 clover mixed \$29.50@30.50; No. 1 clover \$29.50@30.50.

**STRAW.**—In carlots on track at Detroit: Wheat and oat straw \$10.50@11; rye straw \$11.50@12.

## DAIRY PRODUCTS

**BUTTER.**—In fresh butter market is firm. The fresh creamery firsts are quoted at 47@48c per pound; fresh creamery extras 48½c.

Chicago.—Market firm, and amount of business moderate. Creamery extras 48½c; extra firsts 47½@48c per lb; packing stock 35@36c.

**CHEESE.**—Michigan flats 23½@24c per lb; New York flats 26c; brick 27½@28c; long horns 27½@28c; Michigan daisies 25@25½c; Wisconsin daisies 25½c; domestic Swiss 32@34c for the prime to fancy; limburger 29@30c.

**DRESSED CALVES.**—Fancy 21@22c; choice 19@20c; common 17@18c.

## POULTRY PRODUCTS

**POULTRY.**—(Live).—The market appears at a standstill but future prices will be firm if receipts are light. The best spring chickens are 27@28c; No. 1 hens 27@28c; ducks 27@28c; geese 26@27c; turkeys 26@27c.

Chicago.—(Live).—Receipts small, with little demand. Fowls 25c; ducks 24@25c; geese 22½@23c; turkeys,

good 24c. (Dressed).—Fowls 25c per lb; ducks, fancy 26c; geese 24c; turkeys 32@32½c.

**EGGS.**—Market is firm. Fresh firsts 54@58c.

Chicago.—Market steady with increased receipts. For fresh Michigan firsts 56@57c; ordinary firsts 52@55c; miscellaneous lots, cases included 50@56c per dozen.

## FRUITS—VEGETABLES

**POTATOES.**—The local potato market is strong, due to the scarcity of receipts, weather conditions having interfered with delivery at all northern cities. Local jobbing prices advanced to \$2.40@2.50 per cwt. At Cleveland the Michigan round whites sold at \$2.35@2.50 on Monday; at Cincinnati at \$2.60@2.75, the same grade is selling on the New York market at \$3@3.15, and at Chicago at \$2.10@2.25 for stock that is slightly frosted.

**APPLES.**—From the standpoint of the producer the apple market is not altogether satisfactory. Traffic conditions are largely responsible for this situation, although it is reported that consumption is not up to normal. Prices are little changed from a week ago. Jobbing prices at Detroit are: Greenings \$6@6.25; Baldwins \$5; No. 2 \$3@3.50 per bbl.

**CABBAGE.**—The important cabbage markets of the country are in satisfactory condition so far as sellers are concerned. Jobbing prices the past week have generally advanced from \$5@10 per ton. In Cleveland Danish seed is selling at \$55@60; in Buffalo at \$50@55; in Cincinnati at \$60; in Pittsburgh \$63@65 and in Chicago, Wisconsin offerings are bringing \$75@80. These advances are largely due to the fact that supplies have been held back by the railroads on account of weather conditions and car shortage.

**ONIONS.**—The movement of onions has been insufficient lately to justify making quotations.

## LIVE STOCK

BUFFALO.

January 21, 1918.

Cattle.—Receipts 75 cars; market is 25c lower; best shipping steers \$13@13.50; fair to good \$11.50@12.25; plain and coarse \$10.50@11; native yearlings \$12@12.50; best handy steers \$11@11.50; fair to good kinds \$9.50@10.50; handy steers and heifers, mixed \$9@10; light butcher steers \$9.50@10; western heifers \$8@9.50; best fat cows \$9.50@10.50; butcher cows \$6.75@7.50; cutters \$6.25@6.50; canners \$4.50@5.75; fancy bulls \$10.50@11; butcher bulls \$8.50@9.50; common bulls \$6.50@7; best feeding steers 900 to 1000 lbs. \$8@8.50; medium feeders \$7.50@8; light common \$6@6.50; stockers \$6.50@7; milkers and springers \$65@125.

Hogs.—Receipts 60 cars; market is \$1.50 lower; all grades \$18.

Sheep and Lambs.—Receipts 10 cars with market strong 25@50c higher; top lambs \$19.75@20; yearlings \$16@18; wethers \$13.50@14; ewes \$13@13.50.

Calves.—Receipts 400; strong; tops \$19; fair to good \$17@18; grassers \$7@8.

CHICAGO.

January 21, 1918.

Cattle. Hogs. Sheep. Receipts today..20,000 48,000 21,000 Same day 1917..23,271 74,646 19,002 Last week.....21,193 59,669 33,517 Same wk 1917..66,273 264,739 63,200

The cattle market was variable today, with some sellers reporting lower prices, but later trade became active at firm values, and some cattle sold a little higher. Some good fat beefs brought \$13.85, but it was impossible to put choice cattle higher, and the best demand and firmness centered, as usual, in the middling kinds of steers and good butcher stock. Hogs were active and firm early at \$15.90@16.90, but ruled lower later. Hogs marketed last week averaged 216 lbs. Sheep and lambs were firm, and prime little yearlings sold up to \$15.50.

Cattle.—Receipts 20,000; unsettled; native steers \$8.40@14; stockers and feeders \$7@10.80; cows and heifers \$6@11.80; calves \$9@16.25.

Sheep and Lambs.—Receipts 22,000; weak; wethers \$9.75@13.35; ewes \$9.40@12.75; lambs \$14.50@17.85.

Hogs.—Receipts 48,000; steady; bulk \$16.40@16.80; light \$15.90@16.70; mixed \$16.15@16.85; heavy \$16.15@16.90; rough \$16.15@16.30; pigs \$12.75@15.35.

**Onion Seed** our specialty, all kinds of tested fresh seeds. We sell by weight and pay your postage. Catalog free. ALLENS SEED HOUSE, Geneva, Ohio

## DOGS

For Sale puppies Scotch Collies and English Shepard Cross, make the best farm dogs. Price \$5. THOMAS STANFIELD, Box 127, Hillsdale, Mich.

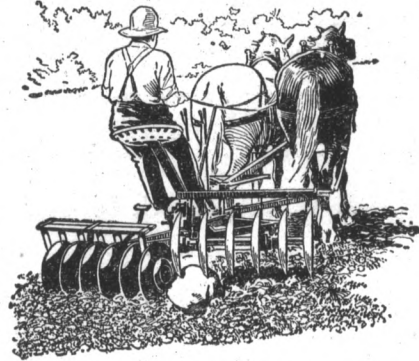
## A Good Seed Bed Pays Big

You can't raise the best crops, no matter how good your seed or how rich your soil, unless the seed is placed in a well prepared bed. By using Moline Tillage Tools you can get a well prepared, fine, compact, mellow bed in which the plant food is quickly available and moisture is retained.



Moline Spring Tooth Harrow

A spring tooth harrow which will withstand exceptionally hard usage. Heavy 2-inch channel frame bars, 1½-inch tubular steel tooth bars, and teeth of the finest spring steel, tempered in oil, give a construction unequalled for hard service. Teeth are so arranged that clogging can not occur between sections. Furnished in 1, 2 or 3 sections with runners or wheels.



Moline Three Lever Disc Harrow

An extremely flexible, deep penetrating, light draft disc harrow. Disc gangs are held to their work by spring pressure and readily follow uneven ground. Difference in pressure between disc gangs perfectly equalized. Frame is so constructed that the disc gangs do not ride or bump. Bearings are dust proof, and have maple bushings—extremely long wearing and light running. Discs are of the finest steel, very sharp and highly polished. Either round or cut-out disc blades will be furnished. A rear section for converting the Moline Three Lever into a double cut disc harrow will also be furnished when so ordered.

Your Moline dealer handles these splendid harrows—see him. If there is no Moline dealer in your locality write us for full information. Address Dept. 42.

Moline Plow Company.

Moline, Illinois.

Manufacturers of  
Plows (Steel Chilled) Stalk Cutters Grain Drills Rice Binders Spreaders  
Harrow Harrows Hay Loaders Lime Sowers Grain Binders Scales  
Planters (Corn & Soybean) Side Del. Rakes Seeders Corn Binders Wagons  
Cultivators Dump Rakes Mowers Vehicles  
Listers Potato Diggers Reapers Farm Trucks  
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For Over 50 Years The Mark of Good Implements

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You will be astonished at our low prices for our extra high quality tested seeds. Sold on approval. Satisfaction or money back. If we can't save you money we don't want your orders. Don't pay two prices for Grass Seeds. We have recleaned Timothy \$3.25 per bu., Clover \$14.00 and up, Alfalfa \$8.90. Alsike Clover and Timothy, Sweet Clover and all other Field Seeds at proportionately reduced prices. We are Grass and Field Seed Specialists and sell on a Profit-Sharing Plan, at bedrock prices. Write for our big Seed Guide, the most complete, scientific, practical planter's guide ever printed. Write for our free samples of Seeds you want to buy. Our Guide explains how you can save money on Seeds, get better quality, share in profits. It's money to you. AMERICAN MUTUAL SEED CO., Dept. 231 43d and Robey Sts., CHICAGO, ILLINOIS

## Get ISBELL'S 1918 Seed Annual FREE

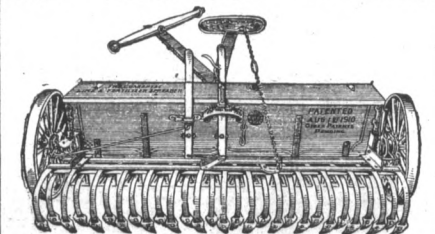
Buy Seeds DIRECT On a Money Back Basis Send your name and address today for the Isbell 1918 Catalog. It means crop insurance—and sure profits. You prove the quality of Isbell's Seeds before you plant. Seed Samples FREE Corn, Barley, Oats, Alfalfa, Clovers, Grass Seeds—best to be had. Check those you want. Paste this ad. on a postal and mail today. That will be a step to better crops and bigger profits. Now is the time to make every acre pay more.

S. M. ISBELL & CO.

921 Mechanic St., Jackson, Mich.

"As They Grow Their Fame Grows"

## THE GUARANTEE SPREADER



THE GUARANTEE FOLKS of Baltimore, Maryland, request that you write them at once for their new catalog beautifully illustrated, describing THE GUARANTEE LIME AND FERTILIZER SPREADER. IT'S FREE for the asking, and will save you \$5.00 if you are interested in a good, big, strong, satisfactory and durable spreader for spreading lime in any form, ground limestone, commercial fertilizer, and etc. WRITE TODAY to GUARANTEE MANUFACTURING COMPANY, Department B.3., Baltimore, Maryland

**FORD** COLD WEATHER STARTER. Every Ford owner should have one. Only \$2 delivered. Radiator Anti-Freeze Compound 25c a gallon. Ford Combination Keyless Switch Lock \$3.50. Free Literature. PROCESS STARTER CO., SALINA, KANS.

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## THE SELF-OILING WINDMILL

has become so popular in its first three years that thousands have been called for to replace, on their old towers, other makes of mills, and to replace, at small cost, the gearing of the earlier Aermotors, making them self-oiling. Its enclosed motor keeps in the oil and keeps out dust and rain. The Splash Oiling System constantly floods every bearing with oil preventing wear and enabling the mill to pump in the lightest breeze. The oil supply is renewed once a year. Double Gears are used, each carrying half the load. We make Gasoline Engines, Pumps, Tanks, Water Supply Goods and Steel Frame Saws. Write AERMOTOR CO., 2500 Twelfth St., Chicago

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Winter Slush W'n't Sop Thru

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Good for Your Shoes and Good for Your Health. Bezo is a waterproofing that is just as helpful to razor straps, saddlery, etc., as to boots and shoes. Doesn't stick to nor stain fingers, soil clothes or carpets, nor offend the nose. If your dealer hasn't it send his name and 25c and we will send full size box by return prepaid.

GATES MANUFACTURING COMPANY 1831 East 13th Street, Cleveland, Ohio

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## THIS IS THE LAST EDITION.

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

## DETROIT LIVE STOCK MARKET.

## Thursday's Market.

January 24, 1917.

## Cattle.

Receipts 2941. Market closed dull with prices 50@75c lower than last week on everything but bulls and canners, which held steady.

Best heavy steers \$11.25@11.50; best handy weight butcher steers \$10.75@11; mixed steers and heifers \$9.75@10.25; handy light butchers \$8.50@9.50; light butchers \$7.50@8; best cows \$8@8.50; butcher cows \$7@7.50; cutters \$6.50@6.75; canners \$5@5.25; best heavy bulls \$9@9.50; bologna bulls \$8@8.25; stock bulls \$6.50@7; milkers and springers \$7@9.

Bishop, B. & H. sold Sullivan P. Co. 4 cows av 1017 at \$8.50, 2 do av 935 at \$6, 14 steers av 1236 at \$11.50, 1 cow wgh 1350 at \$7.50, 3 steers av 983 at \$11.50, 7 do av 997 at \$11.50, 5 do av 980 at \$12, 10 do av 928 at \$11, 1 bull wgh 850 at \$9, 4 cows av 1007 at \$6.50; to Walk 18 steers av 911 at \$10.25, 2 do av 570 at \$9; to Hammond, S. & Co. 3 cows av 897 at \$6.25, 13 butchers av 700 at \$9.25, 25 do av 602 at \$9.50, 22 steers av 957 at \$11.50, 7 cows av 907 at \$6.25; to Garber 8 do av 870 at \$7.50, 2 steers av 995 at \$11, 4 do av 777 at \$9, 9 do av 777 at \$9.25; to Grant 17 butchers av 812 at \$10; to Thompson 1 bull wgh 1420 at \$8.50, 2 do av 1190 at \$9, 26 steers av 1012 at \$11, 2 cows av 950 at \$9; to Resnick 3 steers av 873 at \$10.60, 1 do wgh 1530 at \$12.50, 2 cows av 930 at \$7.50; to Mich. B. Co. 15 butchers av 557 at \$8, 1 steers av 1115 at \$12, 14 butchers av 760 at \$9, 1 bull wgh 1200 at \$9.50, 15 steers av 1046 at \$11.50, 14 do av 790 at \$9.50; to Parker, W. & Co. 10 butchers av 763 at \$9, 17 do av 840 at \$10, 5 cows av 964 at \$7; to Fineman 14 butchers av 700 at \$7.25; to Sullivan P. Co. 16 steers av 882 at \$10.25, 1 bull wgh 1000 at \$9.

Sandel, S. B. & G. sold Nagle P. Co. 1 canner wgh 970 at \$6.50, 7 cows av 874 at \$8, 1 steer wgh 1060 at \$11, 1 do wgh 1040 at \$11.50, 1 bull wgh 1730 at \$7.25, 1 cow wgh 1030 at \$6.50, 2 steers av 1000 at \$12, 6 do av 818 at \$10.50, 2 do av 760 at \$10.25, 1 do wgh 880 at \$9, 10 do av 931 at \$11.75, 5 cows av 1010 at \$8.40, 10 steers av 930 at \$10.65; to Sullivan P. Co. 5 cows av 944 at \$6.60, 2 steers av 895 at \$10, 2 cows av 985 at \$8; to Nagle P. Co. 21 steers av 1034 at \$11.75; to Applebaum 9 butchers av 500 at \$7.25; to Thompson 12 do av 786 at \$8.90; to Mason B. Co. 1 bull wgh 1210 at \$9, 1 do wgh 2280 at \$10, 1 do wgh 1340 at \$9.50; to Thompson 22 butchers av 800 at \$8.90; to Hammond, S. & Co. 9 canners av 821 at \$6.25, 4 do av 905 at \$6.25; to Sullivan P. Co. 14 butchers av 846 at \$8.75; to Goodgold 6 do av 500 at \$7.20, 5 do av 650 at \$7.50; to Breitenbeck 6 do av 781 at \$8.25; to Goodgold 10 do av 642 at \$7.10; to Newton P. Co. 1 bull wgh 1200 at \$9, 1 do wgh 1380 at \$8.60, 5 cows av 950 at \$7, 1 canner wgh 980 at \$5.8 steers av 1036 at \$10, 5 cows av 926 at \$6.75.

## Veal Calves.

Receipts 1430. Market 50c lower. Best \$16; others \$8@14.

McMullen, K. & J. sold Goodgold 5 av 150 at \$10; to Hammond, S. & Co. 3 av 145 at \$15, 20 av 125 at \$16.50; to Goodgold 1 wgh 380 at \$8.

Erwin, S. & J. sold Mich. B. Co. 15 av 145 at \$16, 4 av 135 at \$16.50; to Hammond, S. & Co. 1 wgh 260 at \$14, 1 wgh 150 at \$16.50, 1 wgh 80 at \$8; to Parker, W. & Co. 11 av 140 at \$16.25, 11 av 135 at \$16.50; to Hammond, S. & Co. 45 av 130 at \$16, 5 av 150 at \$10, 3 av 125 at \$11, 11 av 140 at \$15.50.

## Sheep and Lambs.

Receipts 5688. Market steady. Best lambs \$17.75@18; fair lambs \$17@17.50; light to common lambs \$15@16; fair to good sheep \$10@12; culls and common \$7@8.50.

Erwin, S. & J. sold Sullivan P. Co. 40 lambs av 75 at \$17.60, 28 do av 80 at \$17.60, 9 do av 95 at \$17; to Nagle P. Co. 6 do av 45 at \$15, 7 sheep av 115 at \$11, 2 do av 90 at \$11.50; to Mich. B. Co. 11 lambs av 75 at \$17.75; to Parker, W. & Co. 82 do av 75 at \$17.25, 84 do av 75 at \$17.50; to Sullivan P. Co. 12 sheep av 95 at \$10.50, 6 do av 115 at \$11.50, 11 do av 100 at \$9.50; to Gnappen 59 lambs av 70 at \$17.25, 189 do av 85 at \$17.75, 122 do av 65 at \$17.50, 10 do av 66 at \$15.

McMullen, K. & J. sold Hammond, S. & Co. 19 lambs av 65 at \$17, 3 do av 65 at \$14, 2 do av 95 at \$15.50, 2 sheep av 115 at \$10.

## Hogs.

Receipts 11,080. Market is 10@15c lower for hogs at \$16.85, with pigs easier at \$16.25@16.50; mixed \$16.70@17.

# What would the oil in your engine show?

FOR years, both motorists and engineers were in the dark as to the amount of friction and consequent wear due to the sediment formed in the average motor oil.

Inferior oil breaks down under the terrific heat of an automobile farm tractor or stationary engine and forms voluminous black sediment. This sediment causes rapid wear of the parts because it crowds out good oil at points where friction occurs.

## How a lubricant muzzles the tiny teeth of friction

If you could look at the surface of a bearing or other engine part through a powerful magnifying glass, what would you see?

Not a smooth, even surface, but thousands of microscopic teeth. Sediment excludes the protective film of the oil and allows these tiny teeth to grab and tear at each other, thus causing rapid wear.

## A practical proof of superiority

The Sediment Test, illustrated at the right, is as simple as it is convincing.

The bottle to the left contains a sample of ordinary oil taken from the crankcase of an engine after 500 miles of running.

In the right-hand bottle is a sample of Veedol after being used for 500 miles under identical conditions.

Notice that ordinary oil contains over five times as much sediment as Veedol.

## Make this test for yourself

Drain the oil out of your crankcase and fill with kerosene. Run the engine very slowly for 30 seconds and then clean out all kerosene. Refill with Veedol and make a test run. You will find your engine has acquired new power and a snappy pick-up. It will run more smoothly and give greater gasoline mileage.

## Buy Veedol today

Your dealer has Veedol in stock, or can get it for you. If he will not, write us for the name of the nearest dealer who can supply you.

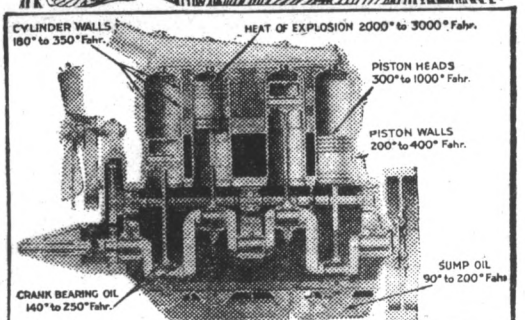
## An 80-page book on lubrication for 10c

Written by a prominent engineer. Used as a text book in many schools and colleges. Also contains Veedol Lubrication Chart, showing correct grade of Veedol for every make of car, tractor, or stationary engine, winter or summer. Send 10c for a copy. It may save you many dollars.

## TIDE WATER OIL CO.

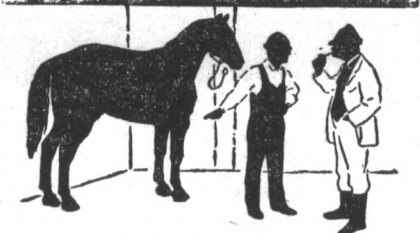
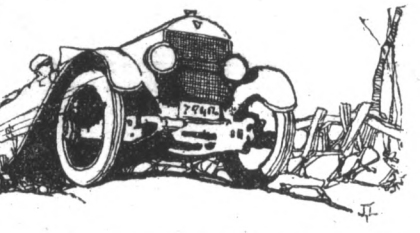
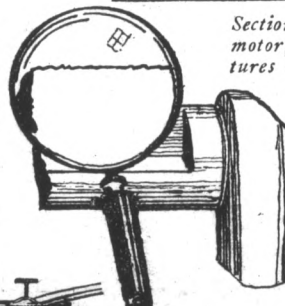
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Successors to  
Platt & Washburn Refining Co.  
1400 Bowling Green Building, New York  
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Sectional view of a popular type of motor, showing high operating temperatures that cause rapid destruction of the average automobile oil

Millions of tiny teeth cover the apparently mirror-like surface of a bearing or other working part of an engine. These teeth tear and grind each other unless kept apart by a protecting film of lubricant.



## Spavin Gone For Good

"Last Winter," writes John W. Neal of Clifton, W. Va., "I used Save-The-Horse on spavin. Have waited some time to see if lameness would come back but the horse is fine and I would not take the price of a full bottle for what I have left."

## SAVE-TH-HORSE

—the greatest of all remedies, is sold with a signed Guarantee to return money if it fails on Ringbone, Thorpin, SPAVIN or Shoulder, Knee, Ankle, Hoof or Tendon Disease. Every year for over 22 years, thousands of stubborn and supposedly incurable cases are cured by Save-The-Horse after all other methods failed. Be prepared! Write today for FREE 96-page horse BOOK, sample of guarantee and expert veterinary advice — all FREE. Always keep a bottle on hand for emergency.

## TROY CHEMICAL CO.

20 State Street, Binghamton, N. Y.  
Druggists everywhere sell Save-The-Horse with Signed Guarantee or we send it direct by Parcel Post Prepaid.

## Bone Spavin

No matter how old the case, how lame the horse, or what other treatment has failed, try  
**Fleming's Spavin and Ringbone Paste, \$2 a Bottle**  
One application usually enough; sometimes two required. Intended only for the established cases of Bone Spavin, Ringbone and Sidebone, causing chronic lameness.  
**Fleming's Spavin Liquid, \$2 a Bottle**  
For the recent cases of Bone Spavin, Ringbone and Sidebone and for Bone Spavin, Splint, Curb, Soft Enlargements, etc. Your money back if these remedies fail. Write for Fleming's Vast-Pocket Veterinary Adviser. 192 pages, 67 illustrations.  
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GOOD AS CAN BE GROWN  
Prices Below All Others  
I will give a lot of new sorts free with every order I fill. Buy and test. Return if not O. K.—money refunded.  
**Big Catalog FREE**  
Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses.  
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Our special advertising offer. Try them on our guarantee that they will bear from spring clear to frost. Thousands now enjoy them. Big Nursery catalog free.  
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Apple, Peach, Pear, Cherry and all kinds of Fruit trees and berry plants, of the very best varieties. All kinds of Shrubs, Roses, Climbing vines, and our famous everbearing Strawberry plants, bear till frost, a dozen plants free with your order. Money back if not as represented. Seeds, 2c package. Catalogue Free.  
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## CLOVER AT WHOLESALE

We save you money. Buy now before advance. Crop short. We expect higher prices. Don't buy Field Seeds of any kind until you see our samples and prices. We specialize on Guaranteed Quality, Tested Clover, Timothy, Alfalfa, Sweet Clover and Alsike; sold subject to your approval and government test. Write today for samples, special prices and big Profit-Sharing Seed Guide.  
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## FARM WAGONS

High or low wheels—steel or wood—wide or narrow tires. Wagon parts of all kinds. Wheels to fit any running gear. Catalog illustrated in colors free.  
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## WHOLESALE PRICES.

on Strawberry Plants. Many other varieties and garden roots at reasonable prices. Catalogue FREE. Write today to A. H. Weston & Co., Bridgman, Mich.

**For Sale** "Francis" fall bearing strawberry plants \$1.00 per 100. \$10.00 per 1000.  
**W. F. TINDALL, Boyne City, Mich.**

**HAY** Ship To The Old Reliable House  
**Daniel McCaffrey's Sons, 623-625 Wabash Bldg., Pittsburgh Pa.**

**EGGS:** We are paying good premiums for new-laid Eggs, either Whites or Browns. Write us for particulars. **AMERICAN BUTTER & CHEESE COMPANY, Detroit, Mich.**

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**\$500 Down Secures Farm.**

50 acres in prosperous peach and apple section near several canneries and good berry market. Geo. Hatfield here cleared \$27 on half acre strawberries. 2-story house, corn crib, poultry house, 36-ft. barn in good condition. About 100 apple trees and also peaches and cherries. Owner making quick change names low price \$1400 with \$500 down and long terms. For details this and other bargains see page 28 Strout's Catalogue. Copy mailed free. **E. A. STROUT FARM AGENCY, Dept. 101, 150 Nassau St., New York, N. Y.**

## Do You Want a Farm

where largest profits are made? The South's great variety of crops and wonderful productive climate make it the most profitable farm section of America. It is the place for the lowest cost meat product and dairy farming. It grows the largest variety of forage crops. Good lands, in good localities, as low as \$15 to \$25 an acre. Let us show you locations that will give the highest profits. **M. V. RICHARDS, Commissioner, Room 78, Southern Railway System, Washington, D. C.**

**SOUTH DAKOTA** with its limited farm acreage is placed fourth in production by the Government report for 1917, giving it first place per farm and per capita. The state will loan money for development of its farms. If you would share in this, get bulletins of Immigration Department, Chas. McCaffrey, Commissioner, Capitol 70, Pierre, S. D.

**FOR SALE.** 134 acre stock and grain farm, in high state of cultivation. Improvements in good condition. Will sell stock, feed and implements with farm if desired. Location very desirable. **Allegan Co., Mich., address owner, care Michigan Farmer, Detroit, Mich.**

**FOR Sale—good 80 A. farm in Shia. Co., soil clay loam, level, all well drained. A necessary farm buildings, well and windmill, on mail and telephone line. 3/4 mi. off state road, terms reasonable.**  
**E. M. LILLEY, Owosso, Mich.**

**160 ACRES** Beautiful level clay loam farm 1 1/4 miles from Central State Normal School, \$8500 worth buildings. **COOPER & GOVER, Mt. Pleasant, Mich.**



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### A Year to Pay



Top of Milk Tank is waist high—easy to fill

Milk and cream spouts are open—easy to clean

One-piece aluminum skimming device is very easy to clean

All shafts are vertical and run on "frictionless" pivot ball bearings making the New Butterfly the lightest running of all separators

More Than  
**125,000**  
New Butterfly  
Cream Separators  
are now in use

Think of it! You can now get any size of the New Butterfly Cream Separator you need direct from our factory for only \$2 down and on a plan whereby it will earn its own cost and more **before you pay**. You won't feel the cost at all. Our low prices will surprise you. For example:

**\$29** buys the No. 2 Junior, a light running, easy cleaning, close skimming, durable, guaranteed separator. Skims 96 quarts per hour. You pay only \$2 down and balance on easy terms of **Only \$2 a Month**

You have no interest to pay. No extras. The prices we quote include everything. We also make five larger sizes of the

**New Butterfly**  
up to our big 800 lb. capacity machine shown here—all sold at similar low prices and on our liberal terms of only \$2 down and more than a year to pay. Every machine guaranteed a lifetime against defects in materials and workmanship.

**30 Days' Trial**

You can have 30 days' trial on your own farm and see for yourself how easily one of these splendid machines will earn its own cost and more before you pay. Try it alongside of any separator you wish. Keep it if pleased. If not you can return it at our expense and we will refund your \$2 deposit and pay the freight charges both ways.

**Catalog Folder—FREE**

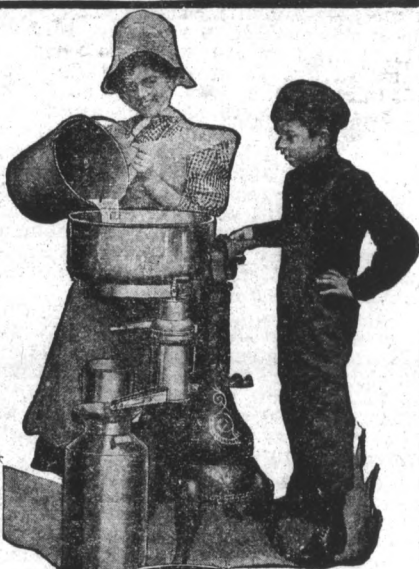
Why not get one of these big labor-saving, money-making machines while you have the opportunity to do so on this liberal self-earning plan? Let us send you our big, new, illustrated catalog folder showing all the machines we make and quoting lowest factory prices and easy payment terms. We will also mail you a book of letters from owners telling how the New Butterfly is helping them to make as high as \$100 a year extra profit from cows. Sending coupon does not obligate you in any way. Write today.

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MANUFACTURERS  
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**Gets ALL The CREAM**

Made \$61.39 More from Same Cows  
"We made \$78.61 worth of butter before we had the machine and in the same length of time we made with the Butterfly Separator \$140.00 worth of butter from the same number of cows."  
THOS. S. KERMOSKY,  
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**EASY TO TURN**

Twelve-Year-Old Child Runs It  
"We would not do without our Butterfly Separator or exchange it for all the machines we have seen. Our little girl, 12 years old, runs it like a clock!"  
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**EASY TO CLEAN**

Simplest, Easiest to Clean  
"My son took a course in agriculture at Cape Girardeau and he worked with a dozen or more makes of separators, and he said this was the most simple and easier cleaned machine than any of them."  
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**ALBAUGH-DOVER CO.,**

2165 Marshall Blvd., Chicago, Illinois

Gentlemen:—Without obligation on my part, please mail me your free Catalog Folder and full particulars regarding your special easy payment offer on the New Butterfly Cream Separator.

I keep.....cows.

Name.....

P. O.....

State.....R. F. D.....