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A Farmers' Co-operative Milk Distributing Association

By DR. W. O. HEDRICK

FROM small beginnings the farmers who produce milk in the neighborhood of Kalamazoo have seen their co-operatively owned milk distributing business grow until it now has an assured place among the city's industries. There was the ever present "milk war" on in Kalamazoo ten years ago the farmer dairymen arguing for higher prices, city milk distributors replying that they were already paying the maximum—when a small group of farmer producers determined to market their own milk and the Dairymen's Milk Company is the result. The purchasing of the routes of two milk wagons was the business beginning of the new company. Its plant was situated in a store basement for the first several years. The company's property now covers a half block in area, its plant is a fine brick building with adequate appliances, it employs twenty men and operates more than thirteen milk routes, and sells every sort of customary dairy product except ice cream.

The city milk distributing business—concerning which those of us who had our first lessons along this line through seeing the village milk wagon trundle about, have much to learn—is highly complicated in every direction. Squeamishness on the part of the consumer is more acute perhaps with regard to milk than with regard to any other food product and the whims of the consumer must be absolutely met or but little milk will be sold. The consumer's desires with regard to times of delivery, forms of package, terms of payment, quantities and qualities of product and finally price, must all be squarely met since after all, it rests with the consumer as to whether milk and its product are bought or not. The milk distributors must be prepared to meet all these demands and its plant therefore has all the appearances of a heavily machined factory. It is a business the expenses of which must necessarily be rather high, owing to the perishable nature of its product, the variety of performances and the costliness of its materials. On the other hand, whole milk marketing is the "extra fine" of the dairymen's business and the possibilities of further consumption of milk and its products by a well developed trade, seem almost incalculable.

The Dairymen's Milk Company is fundamentally co-operative—the forty-seven milk producing members of the association being recipients of their membership benefits through the higher price per quart which they receive

for their product. That this is wholly satisfactory one may gather from the fact that two-thirds of the original members are still selling milk through the organization. The milk producing member indeed, gets all that his milk sells for to the consumer, save only the expenses which the organization incurs in making the sales. How could more be asked for by anyone?

Looking more in detail into this matter of awarding association benefits to members we are told that the entire sales of the association for the month are added together. From this the total expenses of the month are deducted. The balance which remains is then divided out to members on the basis of pounds of butter-fat furnished by each. As Manager Van Woert laughingly remarked in a recent interview, "at the end of each month this business is flat on its back financially—all its funds

of capital required in a milk distributing business this type of organization has unusual advantages. The stockholders have received a six per cent dividend upon their stock and there is no intention to ever increase this since it is considered more desirable that the members should get their increased earnings through better milk prices rather than in the form of dividends. The six per cent which stockholders have received is indeed no dividend at all. It is merely an interest rate upon capital which stockholders have furnished and it is a rate which would have to be paid in some way even if association members furnished all their capital themselves. A striking proof of the loyalty of members of the association to the organization was shown recently by the struggle of the Kalamazoo branch of the State Milk Producers' Association to establish a

pealed to in improving their product. The increased sales of the business in other words, through the improvement of the product, goes directly back to the producer and he is encouraged to better his herd, his methods, and his equipment because he makes more money through this improvement since he owns the business all the way through to the consumer. The milk sold by this association averages better than a four and a half per cent test and the popularity of its product upon the market is shown by a \$17,000 increase in sales during the past year. The writer has lived long enough in the neighborhood of a milk condensary to see the brindle and mottled brown colored stock in the farmers' yards give way to more profitable animals. May it not result in the same with this association through this self-interest stimulus that each of its members will eventually become the owner of a herd of Guernseys, Holsteins or Jerseys?

The farmers who make up this association are widely scattered throughout the northern part of Kalamazoo county. They furnish both milk and cream and the association undertakes to do the work of collecting both of these products into the city plant. The association has been obliged to enlarge its business facilities at least three times during its ten years of growth. At present it has an inventory of approximately \$32,000, sells milk products to the amount of \$125,000 annually and its sales are increasing rapidly. Kalamazoo seems to furnish a market for milk of the strictly normal type. There are two competing distributing agencies in the city and many individual milk peddlers. In the ten years of its history the Dairymen's



The Receiving Platform of a Farmer's Co-operative Milk Distributing Plant where \$125,000 Worth of Products was Sold Last Year.

having been paid out to the members." The association consists at the present time of about forty-seven milk producing members and it is these who get the benefits from the business through the increased price per quart which they receive. It is confidently expected that as the business increases and as the expenses of doing the business consequently diminishes that the proportion of the price paid by the consumer which goes to the producer will enlarge. He will then come still closer to getting the whole of the nine cents per quart which the consumer pays for milk than is at present the case.

The association is organized under the ordinary joint stock corporation law (Act 232 Public Acts 1903) and owing to the relatively large amount

flat five cents per quart rate in this city. The Dairymen's Milk Company had already as a business custom been paying everything milk sold for, save only the costs of distributing it, and consequently it opposed pledging itself to a flat five-cent rate. In the struggle which followed the milk company lost not a single one of its members.

One of the best features of this Dairymen's Co-operative Association is the way in which it stimulates its members to improve their product. It is not only because it takes their product on a butter-fat basis—other city distributors do this—but it is through the fact that the distribution end, as well as the production end, of the Dairymen Company's business is the property of each member, that the self-interest of the producer-members is ap-

Company has proven conclusively that it can meet this competition and afford a satisfactory facility by which farmers may profitably market their own product.

As a farmers' co-operative association the Dairymen's Milk Company offers one or two striking features which should be emphasized. Its small membership as compared to its large capitalization is doubtless responsible for the joint stock type of organization. Curiously enough, it is hardly possible that this membership may ever be very much enlarged since the milk consuming capacity of Kalamazoo is limited and only a certain limited number of producers will be necessary to supply this demand. On the other hand, the opportunity for profit is these

(Continued on page 111).

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IF

YOUR SUBSCRIPTION EXPIRES

With this issue, in order to renew at the present prices you will have but a very few days in which to get your order to us. It will have to be mailed not later than WEDNESDAY at 12:00 O'CLOCK MIDNIGHT. The old saying is that "a penny saved is a penny made," and on a five-year subscription you can save 75 pennies—on a three-year subscription the same, and on a one-year subscription 25 pennies—is it worth while? This is, of course, for you to decide.

This year should be a money-making one for farmers and one in which there is likely to be a large demand for all kinds of farm crops and at good prices.

Well, you all know that on February 1, prices advance. We will be glad to have you, and you will have time to get your order in at old prices, if you will.

This issue is being sent to readers whose subscriptions expired with 1916, and who have not yet renewed, in order that they may be advised of this last opportunity to renew at the old prices.

THE MICHIGAN FARMER.

CURRENT COMMENT.

A recent compilation of crop statistics for 1916 provides much profitable material for further analysis. These figures recently compiled by the United States Department of Agriculture show a remarkable increase in the gross value of farm crops for 1916. The total value of crops and animal products was \$13,449,000,000, an increase of \$2,674,000,000 over the total value of 1915 and \$3,554,000,000 over the total value for 1914. This gross value of farm products is the estimated total of all crops and animal products, and takes no account of the use of one product as a raw material for the producing of others. Neither are costs of production taken into account, hence the value of any estimate of gross production is in providing an index number showing the relative crop and price conditions prevailing as between two periods.

In this matter of gross income, the higher value of products as compared with previous years is a big factor. The general price level for the principal crops was 55.9 per cent higher on December 1, 1916, than a year previous and 52.9 per cent higher than for 1914. As compared with an average for the past eight years, the price level on December 1, 1916, was 52.8 above the eight-year average. The causes of the greatly advanced price level are, of course, not subject to definite analysis, but that low average crop yields con-

tributed largely to that increase cannot be doubted. If farm crop values in the census of 1899 are taken as normal or 100 per cent, the crop value for 1909, or the last census year was 183; for 1914, 203.9; for 1915, 230.3, and for 1916, 303.8. The value of animal products has not increased as rapidly similar index numbers or percentages of value in this department of farm production being 178.7 for 1909, 220.2 for 1914, 225.1 for 1915, and 252.5 for 1916.

A further analysis of this data shows that from 1908 to 1914 crop values declined considerably as compared with the value of animal products in making up the total gross value of all farm products. In 1915 this condition was sharply reversed, and in 1916 crop values again advanced as compared with the value of animal products. The marked increase in the market value of animal products at the present time, however, indicates that production in this department has not kept pace with the demand, and that the pendulum is likely to again swing toward an increase in the comparative value of this department of farm production.

As is usual at the opening of each legislative session, there are among the

farmers of the state, many advocates of a more stringent dog law. This is particularly true in sections of the state where sheep husbandry is or might become an important factor of agricultural development. Pursuant to the publication of some of these pleas in recent issues of the Michigan Farmer, we have received a flood of communications expressing opinions pro and con upon this much mooted question.

As is usual in the discussion of this question, there is a wide divergence of opinion expressed in these communications as to just the kind of law we should have. Some of the writers advocate an exceedingly high tax for keeping a dog of any kind, while others make a strong plea for man's faithful servant. It is evident that those who expressed these two extremes of opinion have in mind an altogether different kind of dog. This wide divergence of opinion has ever operated against the passage of an adequate dog law which would be satisfactory to sheep owners.

We regret that it is impossible to publish all the communications received on this subject. Some of them, however, contain practical suggestions which may contribute to the solution of this vexed problem. One such suggestion is advanced by a subscriber in referring to the new Virginia dog law. Briefly summarized, this law makes it a misdemeanor for any owner of a dog to let same run at large. Any farmer may shoot a lone dog if found on his property. A dog is safe only when at home or when accompanied abroad by its owner. In case his dog is killed, when running at large, the owner may bring suit for damages, but in so doing he automatically lays himself liable to a fifty dollar fine for permitting his dog to run at large.

The most novel feature of this law is its local option provision. It does not become effective until the voters of a county endorse it. Perhaps a law of this kind might prove at least the entering wedge for more satisfactory dog legislation in this state. Unquestionably, the promotion of sheep husbandry is of interest to all the people of the state rather than to the farmers alone, and the removal of the dog menace even in localities would do much to stimulate that branch of our agriculture.

The oleomargarine interests are again starting a propaganda to

permit the sale of a colored product. A bill has been introduced in Congress to levy a uniform tax of one cent per pound upon oleomargarine. This proposes to repeal the ten cent tax on

colored oleomargarine and substitute a one cent tax therefor. The present law levies a tax of only one-quarter cent per pound on the uncolored article. The manufacturers who are supporting this propaganda do not, however, give this fact prominence, and a good many city papers are apparently deceived by the argument that this change in the law would reduce the cost of the product, and thus contribute to the reduction of the high cost of living.

Of course, the real object of the propaganda is to make possible the selling of oleomargarine in competition with yellow butter, from which it is not easily distinguishable in appearance. It is also claimed that under the disguise of coloring, cheaper materials could be used in its production, and that to the extent to which the colored product could be substituted in the market for butter, a higher price would be received for an inferior product to that now sold in the uncolored state.

It is not probable that the bill now pending in Congress will be passed, but there is always danger that some so-called "rider" will be attached to some revenue bill which will accomplish similar results. Dairy farmers are today better advised with regard to the cost of their product than ever before. The inevitable result of unfair competition with colored oleomargarine would be to curtail the production of butter, and would indeed be poor economy for consumers as well as producers. We need stimulation of, rather than the curtailment of the dairy industry to keep pace with the growing demand for dairy products.

Recognizing the possible danger from the oleomargarine propaganda, officials of the National Dairy Union who have assumed the obligation of safeguarding the producers' interests in this connection have appealed to the dairymen of the country to at once communicate with their members of Congress and emphasize the fact that under no condition will the farmers of the country submit to permit colored oleomargarine to be placed upon the market in unfair competition with butter. A general response to this appeal will forestall this possible event.

At a recent conference of county agents held at the Agricultural

College, definite plans were made for county agricultural work for the ensuing calendar year. As a result of this conference twenty-four separate projects were considered and adopted and will be made the subject of special effort in the various counties where county farm bureaus have been organized. Not all of these projects will be given the same emphasis in each county but are included in the general program for the development of this work.

One important object of this conference was to standardize county agent work along the lines of these several projects by bringing to bear the most advanced thought resulting from the experiences of the county agents and the research work of the various departments of the college and experiment station, the heads of which departments participated in the conference in which the work for the ensuing year was thus outlined. Space does not permit the enumeration of the projects which it was determined to emphasize during the coming year, to say nothing of explanatory comment regarding same. The various developments of this work as outlined in the projects for the ensuing year will, however, be made the subject of individual comment in future issues, to the end that the farmers of the various counties of the state in which county agent work has not yet been developed, may become more familiar with the scope of the work which is being done in the counties already organized and the benefits which have accrued or are

certain to accrue to the farmers of those counties because of that work. It is certain, however, that the county agent work is yearly becoming more productive of actual and profitable results to the farmers of the various counties in which the work is conducted.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—Winter weather has greatly modified military operations on all battle fronts. The central powers are, however, continuing their successes in a small way on the Roumanian frontier. They have taken the entire bridgehead position at Nanesti in northern Roumania. This position was tenaciously defended by the Russians and Roumanians but was finally obliged to surrender.—Nothing is reported in Galicia and farther to the north where recent Russian offensives had resulted in definite successes in the Riga district. On the western front there was artillery activity on the right bank of the Meuse before Verdun, a German attack in the Oise region, a British raid on enemy trenches south-east of Loos, and artillery and patrol activities of a minor nature in other sections. The British have renewed their attacks along the Tigris in Asia Minor where the Turkish army has been repulsed, and according to London, the whole trench system on the right bank of this river is now in British possession, and the entire right bank of the river down stream has been cleared of the enemy.—The renewed activity of German U-boats is again menacing England's food supply. Experience with the undersea craft is enabling the navigators to operate in extended areas and as a result of wider sailings astonishing records in the number of vessels destroyed are being reported. Three German submarine commanders have sunk, according to their reports, 354 entente freight boats. This work is also being supplemented by the successful operation of German raiders in the southern Atlantic where cargoes consigned to enemy countries from the southern hemisphere are threatened.

Germany is anxious to determine the rights of neutral sailors on board armed boats of enemy countries. Germany holds these men to be enemies, while the State Department at Washington disputes this claim. It is probable that the question involved will be threshed out in diplomatic communications which have already been started.

National.

American troops are to be withdrawn from Mexico. Just how soon this movement will be undertaken the War Department has not announced. The understanding is that with the return of the expedition in Mexico and the readjustment of the border control, all of the state troops will finally be sent home. The total strength of the regiments to be returned home is 25,243 men.

The American Industrial Commission which was invited to France by the French Trade Commission reports that in spite of the war there has been a great deal of reconstruction work and new building undertaken by the French people. More than 300 factories have been destroyed along the battle front in France. Many of these factories, however, have moved to other parts of the country and are taking advantage of exceptionally favorable water power locations. An industrial survey is being made to locate these plants where economic conditions are most favorable. This commission believes that France and America are not likely to be serious competitors in the world market because the strength of each lies in different directions.

The Detroit Automobile Show opened last Saturday night with an unexpectedly large number of visitors. The show, which is staged in the Billy Sunday tabernacle is the largest ever held in Detroit, and it is expected that the number of admissions will eclipse those at all former auto exhibits in Michigan's metropolis.

In an effort to secure armor piercing projectiles at a reasonable price, the United States Naval Department has awarded a large shell contract to a British house whose bid for the contract was far below the lowest American bid.

Billy Sunday closed his ten weeks' revival campaign in Boston on January 21, having preached to 1,327,500 persons during that time. The number who replied to the evangelist's appeal was 60,510, there being 5,197 on the last day.

The dispute over taxes between Wayne county and the state has prevented the collection of state and county funds from property owners of this county since December 1, and a settlement of the trouble seems about as distant as ever.

Farm Accounts Fundamental to Farm Efficiency

By ASHLEY M. BERRIDGE

THE High Cost of Living is certainly "It." To occupy the attention of our national congressmen, state governors, city councils, women's leagues and mere, ordinary everyman, who continues to pay the bills, is a great honor, indeed. The newspapers have become very familiar, even going so far as to refer daily to "our H. C. of L." without any formality whatsoever.

The greater part of this deference and notoriety has come from the cities. Farmers have paid little attention. Those who have anything to sell are feeling good, and perhaps purchased a new automobile, kitchen cabinet or other farm "happiness-producer" for the family Christmas tree. Expensive clothes, rich food, hired service and continued entertainment are not a part of farm life but, rather, it tends more to a simple and economical sort of an existence. Here the greatly increased prices are not felt so keenly.

The farmer is handling more and money every year. His capital is increasing even if he has no more land. Permanent improvements come every season for the man who is trying to keep up-to-date. But how many keep a record of all these things as they appear year after year? Some do. The majority do not. The man who has, and continues to do so, knows whether he can afford to sell short when Brother H. C. of L. offers him big prices. He knows whether he has money to spend, just because he happens to have it in his pocket, or whether he should hang tight.

The Farmer's Cash Book.

Farm accounts and book-keeping have always been a bugbear. We men on the farm have been accused of being slack, unbusinesslike, and nearly criminal because we do not keep a fine system of "books" like our manufacturing and retailing cousins. This criticism may or may not be deserved. I believe that nearly every farmer, worthy of the name, keeps a memorandum of the cash he pays out and the cash he receives. He may conceal it in a pocket note book given to him by some fertilizer agent, or in a school copy-book that one of his children has cast aside, or he may have purchased a regular cash book. The form makes little difference if the accounts kept are only accurate. The average farmer does not need an elaborate set of books like the town grocer. The latter makes more sales in a week than the farmer does in a year. The big reason why so many farmers have failed in the keeping of satisfactory accounts is that they have considered a certain "form" necessary and have copied that of the city business man.

Through some little experience in keeping farm accounts I have come to use three different divisions that give considerable "quick" information for very little labor—and the man who works out in the open air during the major part of the day does not care to do more figuring at night, than necessary. These three may be used together or any one of them at a time.

A Simple Method of Keeping Farm Accounts.

First.—The drawing of a farm map each year, showing the size of fields, crops planted and improvements made during the season, will give a farm record for a small investment of time, especially if one of the children draws the map.

Second.—Without doubt a carefully made inventory is worth more to the farmer than any other kind of book-keeping, for the amount of time required. It shows the gain or loss on the farm during a year. When times are "close" it will tell whether the lack of money is due to not possessing it, or because of an investment in improvements. The man with his pocket full of change and his bank account looking good, may be told, by his inventory,

to go slow, for he has been changing some of his farm capital into cash.

Third.—An account book wherein are kept the farm receipts and expenditures requires more time for an accurate record but will show the farm's profit and what the operator gets for his labor. It may or may not include his household and personal expenses, as he desires.

The Advantages of a Farm Map.

The accompanying farm map illustrates a number of the records it can keep. The simplicity of this farm account is so great that any person can have one. Its chief value is that it shows the management of crops and soils, when and where fences and drains were built, the location of all waste and unproductive land and records all permanent improvements. The

higher valuation on the place than this comparison would justify. The real estate includes everything, in the way of permanent improvements that would go with the farm when sold.

Live stock includes all animals under the various headings given. Dairy cows and work horses should be noted by name or number so that their individual value can better be estimated. Market prices, minus the cost of transportation from the farm to market, must govern the valuation of all live stock.

The Valuation of Equipment.

Under farm machinery comes a list of all the sizeable machines and should include the two or three hundred small tools, such as wrenches, pinchers, auger bits, forks, etc., that are found on the average farm. Excepting on a few

cash that is paid out for labor, live stock, feed and supplies, new machinery, repairs, farm taxes and insurance, and for all other miscellaneous articles.

Farm receipts include all the cash that is received from outside for the crops that are sold. For live stock and their products, such as butter and eggs, that are sold; for labor given to outsiders, such as working on the road, and from all miscellaneous sales, such as old machinery, etc.

The man who pays for everything by checks on the bank has a very good memorandum of his expenditures. They can be copied in the cash book once or twice each month. Otherwise a little note book, obtainable from any hardware or implement dealer free of cost, should be carried in the vest pocket and a notation made of all purchases and sales. The date, whom the transaction is made with, and the price should appear. The transferring of these records to the cash book can be made at any time set aside for that purpose.

Farm Accounts Puts Farm on Business Basis.

The man who has his farm inventory at the beginning and end of the year, and an account of the farm receipts and expenditures can readily deduct several things.

If the inventory has decreased during the year the difference must be added to the list of expenditures. If there has been an increase that goes with the receipts.

Then a simple subtraction of the total expenditures of the farm for the year, from the total receipts will give the farm income. Part of that income the farmer has earned himself, the rest of it the investment of capital has earned. Five per cent of the total investment, shown by the inventory, must be credited to capital for if that money was invested in other business or simply loaned out it would bring in those returns. When this five per cent has been subtracted from the total income the farmer can claim the remainder as salary for his labor during the year. Often this is rather small. To it must be added all that the farm has furnished the household in the way of living and rent. This is often a considerable amount.

Never has there been a time when it was more necessary for a farmer to know his business than at present. Prices are changing constantly and the opportunities for making money or losing it depend largely upon an intimate knowledge of his needs and equipment. Farm accounts always pay, and will during the coming years, as they have seldom, if ever, done in the past.

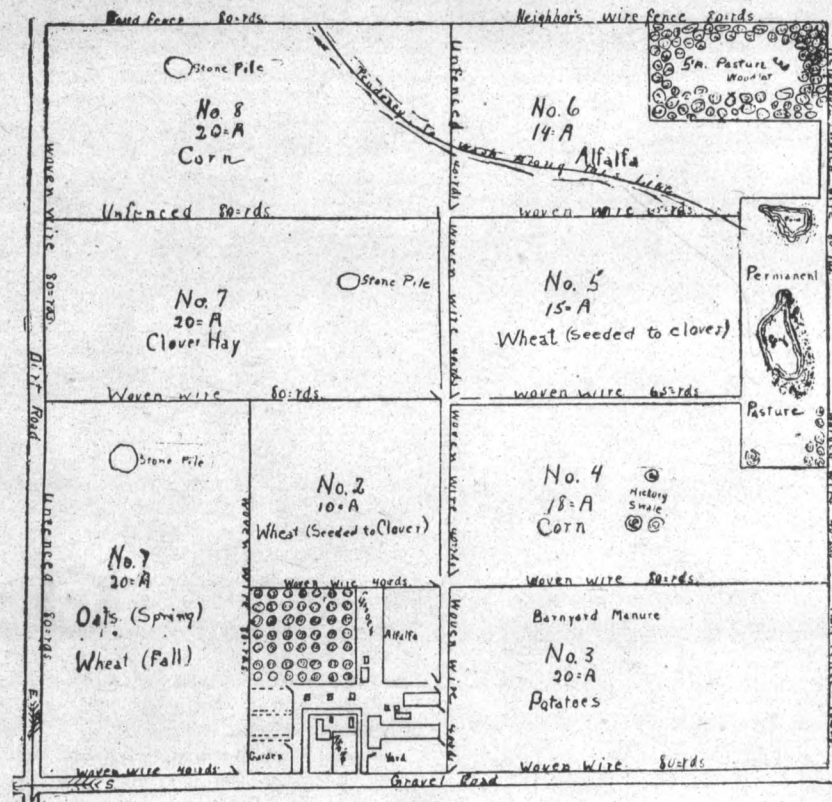
FARM NOTES.

Growing Sweet Clover for Seed.

I have a field that was in beans this year, that I desire to disk and sow to oats in the spring and seed to sweet clover. I intend to pasture the clover and plow the same under after cutting a seed crop. I have been told that the clover grows so rank that it would bother in the bundles, cure slow and make it difficult to thresh, etc. Am I correctly informed? I am informed that I should use hulled, scarified and inoculated seed. Land is clay loam. Have never had any difficulty in getting a catch of clover. Would sweet clover be preferred to Mammoth clover as a pasture and green manure crop? Would the plowing under of the sweet clover crop prepare the land for the successful seeding of alfalfa? What amount should I sow?

W. R. C.

The white sweet clover grows very rank on soils which are adapted to the plant. Like other legumes, sweet clover grows much more vigorously on soils which contain an abundance of lime. The best use to make of sweet clover is on soils which are low in their content of humus and in poor



The Annual Farm Map is of Practical Value in Planning Farm Work. It also Serves as a Record for Future Reference.

few hours' work necessary for the preparation of the map can well be given on some blustery winter day for all can be done in the house.

The farm inventory should be taken at a time when nothing will interfere. Either the first of February, March or April, is a good time, for ordinarily feed and supplies are then at their lowest. The next one should be taken just one year later. The inventory is not a house affair but a real all-over-the-farm job. The man who stays in by the stove and jots down his personal property from memory, even if he could remember all of the details, would be getting only a portion of the possible good from an inventory. Book in hand, a trip from building to building, writing down the items and the condition each article is in, is the proper method. If he has to go out in the field to examine his riding plow or shovel away a snow bank to find the spring-tooth harrow, things will be different the next year. If an inventory did nothing else it would make a man take better care of his machinery.

The Farm Inventory.

The outline of a typical farm inventory is here given. Under each heading "Real Estate," Live Stock," and so on, everything should be included. Care must be used in establishing the value of each article. Ordinarily it is placed too high and the farm is scarcely able to pay interest on the large investment shown.

The farm itself, or real estate as it is called in the inventory, may be compared to similar places that have recently changed owners. Do not fix a

very systematic farms this group of small tools is paid little attention to. Each of these tools cost a small amount. If one is lost or lent to a neighbor who forgets about bringing it back, ordinarily a new article is purchased to replace it. A wagon or plow is seldom lost but how about the hammers and forks? The combined investment in small tools is more than we ordinarily think. It is much nearer \$250 than \$50 for the average 160-acre farm. Inventory day should be "Rally Day" for all of the small tools. Every one "saved" is something earned.

The valuation of machinery requires good judgment. The original price, length of service and general care of the tool must all be considered. The market price governs the valuations placed on all feed and supplies.

A certain amount of money is required to operate a farm and the quantity on hand or in the bank, together with all bills owed to the farm and by the farm with outside parties, should appear in the inventory.

Keeping the Cash Account.

The cash account of the farm needs only to be accurate. A small ledger or plain note book will hold everything that is necessary. The expenditures and receipts may appear on opposite pages from each other or in different parts of the book; they may include items concerning cows, hired labor, grain, all listed together, or the dairy may have a page for its receipts, the hired help one for its details, and so on; the form is ordinarily governed by the size of the farm business.

Farm expenditures include all the

physical conditions, as this plant is more tolerant of such conditions than any other of our available legumes.

A good crop of sweet clover would be more difficult to handle through a self-binder than an ordinary grain crop, but if it is cut at the right stage of development it can be successfully harvested in this manner. In sowing sweet clover it is important that the seed bed be well settled and firm, consequently disking the ground as a preparation for the oat crop in which it is to be seeded would be much preferable to plowing it. Hulled seed is much better for use than unhusked. The seed of sweet clover contains a considerable percentage of what are known as hard seeds, seeds with a coat so impervious to moisture that many of them will not readily germinate except under especially favorable conditions. Various methods of treatment have been advocated to obviate this, such as scarification, treating the seed with acid, etc. In the writer's experience this difficulty can be easily obviated, however, by soaking the seed for a few hours in warm water, then spreading and drying sufficiently to facilitate the sowing, and sowing at once.

Inoculation will undoubtedly prove profitable, as it is easily and cheaply accomplished, but as above noted, for best results the soil should be in a sweet condition, and if there is any tendency toward acidity, it will also be profitable to make an application of lime before attempting to grow the plant. Observation proves this in a very plain way. Sweet clover always flourishes on fresh gravel piles and along roadways or railroads where the seed becomes scattered, and often the roadside will be covered with it adjacent to freshly gravelled stretches of road, while there will be little or none at all on exactly the same soil by the roadside where no gravel has been piled. This is undoubtedly due to the presence of lime in the gravel which produces a soil condition encouraging the growth of the nitrogen fixing bacteria for which this plant is the host, and thus promote a vigorous stand.

Sweet clover is a biennial and the plant dies after maturing a seed crop the second year. Plowed down as a green manure crop it provides a large amount of vegetable matter on soils too poor to grow good crops of clover. On rich soils its utility is more doubtful. It should be seeded at the rate of ten to fifteen pounds per acre, depending on the quality of the seed and conditions of the seed bed, which should be well packed for best results.

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He mentions the splendid results from the use of acid phosphate, from which I think the average reader would draw the conclusion that money invested in the nitrogen and potash of a complete fertilizer is essentially wasted. To be sure, this may sometimes be the case where the land has been liberally manured with stable manure which still contains the liquid part. It may also sometimes be the case, as concerns the nitrogen, where a large leguminous cover crop has been turned under. Nevertheless, it is not safe to assume positively from the requirements of one clay soil what will be required on another, for even clayey soils vary considerably in their requirements according to their previous manuring and cropping.

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It may be true that there is in the soil enough potash and nitrogen to supply a crop of such size as the available phosphoric acid in the soil is capable of producing, but just as soon as the amount of available phosphoric acid is made sufficient for the production of a maximum crop, a certain amount of additional nitrogen and sometimes even of potash, may be of decided help if it is drilled in with an ordinary grain drill at the time of seeding. This is for the reason that it insures an immediate and complete supply of available plant food for the young plants which are, therefore, able to develop a good root system quickly. For this reason they are enabled to utilize more quickly and to better advantage the more distant plant food stored in the soil, and larger crops will result.

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Bearing in mind what I have said at the outset in regard to the variation in plant food requirements, even on soils of a clayey character, depending upon the previous cropping and manuring, I think it will be seen that we should be very careful about drawing too far-reaching conclusions from tests on a single field or even on a single farm.

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No mention is made as to the nature of the soil on which this fertilizer will be used. Under ordinary soil conditions this mixture might be more profitably applied to corn than oats, since the average good fertile soil will grow a good growth of oat straw without added nitrogen. It should be remembered that this is not a concentrated fertilizer in the sense that the term is applied to commercial mixtures of plant food, and does not contain sufficient phosphorus for maximum results on grain crops. Also the mechanical condition of this fertilizer would not ordinarily be satisfactory for drilling. Probably the best way to apply it would be broadcast and work it into the soil when same is being fitted for the crop. Distributed in this manner there would be no danger of injury to the seed, and the crop will get the full value of the plant food contained during the growing season.

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There is no doubt that it would pay to make an application of lime on this field intended for alfalfa next year. A liberal application of ground limestone would tend to neutralize the acidity to some extent, but the use of commercial fertilizer will not have this effect to any considerable degree. A better method would be to apply a liberal dressing of ground limestone as early in the spring as same can be applied and work it into the soil when it is being prepared for oats. It is probable that this soil is not very acid, else clover would not have done well upon it previously, in which event the ground limestone should answer every purpose. If, however, the soil is very acid, it would be better to make an application of hydrated lime, as this will neutralize soil acidity much more quickly than the ground limestone.

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Prof. M. B. Waite, of the U. S. Department of Agriculture, who has made pear blight his study for many years, said that it is a native of America, having lived on such wild stocks as thorn bushes and crab apple for an indefinite time. It spreads more rapidly, however, on trees having tender wood and foliage such as the pear. The size of the germ is 1.18000 by 1.25000 of an inch and can feed only in masses. The cuticle on the leaves and the cork-like substance of the bark are impervious to

this country apple packing had almost become a science of dishonesty, the "stove pipe method" of packing apples being commonly practiced. This brought Canadian fruit into disrepute and the more progressive fruit growers were compelled to get together and agitate in favor of legislation to govern the packing and marketing of fruit. The result was that the fruit and market act was passed by Parliament. This act requires that all fruit be graded according to certain standards, and the name and address of the packer to be marked on each closed package, together with the variety of fruit and a grade mark to denote its quality. One important clause of the law provides that the face of the fruit offered for sale in any package, whether open or closed, should be a fair representation of the contents of the package.

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germs, if unbroken, but the blight may enter the nectary of the plants at blossoming time, so bees may carry the germs from blossom to blossom. The germ may also get in at the twig tips, when the bark is tender if it is punctured by breaking either by wind or by accident. It may be distributed by anything that moves about, as insects, birds or persons.

The Control of the Blight.

It is fortunate that its host is sometimes resistant to the germ because its tissue is too dry or too tough for further progress of the disease.

The pear blight may be carried through the winter by "hold-overs" in some part of the tree where some tender portion permitted the mass of germs to establish themselves late in the fall. These hold-over blight cankers become sources of infection for the next year. The season of blossom infection is prolonged by having pears and apples near each other, as the germ infects apple blossoms after the season of pear blossoming. This is bad for the apple orchard, and has resulted in serious injury to some orchards. How shall we stop progress of the blight and save the tree, is the important question. Too much nitrogenous material in the soil which causes rapid growth is often a cause. The more the tree is pruned the more it will blight, but it is better to strike a balance and prune when necessary. The most important single thing you can do to control the disease, is the eradication of all the "hold-overs" late in the fall. Cut the infected wood below the blend into healthy wood if possible, then disinfect the cut surface with corrosive sublimate one to 1000 applied with a sponge. Growing more resistant varieties will reduce blight.

D. Johnson, Canadian Fruit Commissioner, connected with the enforcement of the fruit inspection act, said that in

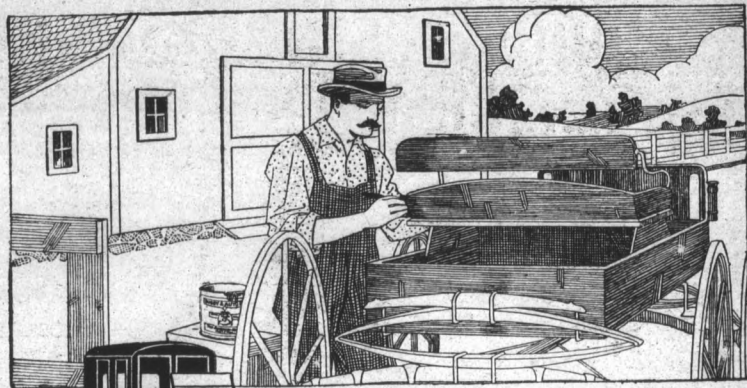
diating confidence was established in Canadian grades of apples. Buyers in Great Britain and elsewhere could order certain grades and depend on receiving the grade ordered, because the packer that packed them would be held responsible and prosecuted if the fruit was not as represented.

It has been found that the best way to prevent dishonest or unlawful packing is to educate the packers, and so correct the evil at the producing point. To do this each fruit inspector has a district of his own in which he is held responsible by the head office. Many of these men use motor cars and are always willing to assist or instruct the packers.

Results from Dust Spraying.

Prof. H. Whetzel, of Cornell University, on "Dusting Orchards as a Substitute for Spraying," in summing up said that in four years of careful experiments dusting has given as good results as spraying, with 3.3 per cent in favor in perfect apples, 1.7 per cent in favor in scab control, and 1.9 per cent in favor in worm control. In 1916 there was a slight difference in favor of spraying, due to poor weather conditions for dusting, and the inability to get finely powdered sulphur. Most of the fifty-five New York apple growers who dusted last year will dust next year. They got good results in dusting for peach disease control. In the nursery experiments at Cornell the results were always in favor of dust. The work at the Geneva Experiment Station was in line with other experiments in worm control, but not so favorable in disease control.

The relative cost of dusting as compared with spraying experiments has shown that the cost of material was considerably more, largely because of the coarse sulphur and poor machinery. There is no reason why the cost of material need be more than with spraying,



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The Control of the Blight.

It is fortunate that its host is sometimes resistant to the germ because its tissue is too dry or too tough for further progress of the disease.

The pear blight may be carried through the winter by "hold-overs" in some part of the tree where some tender portion permitted the mass of germs to establish themselves late in the fall. These hold-over blight cankers become sources of infection for the next year. The season of blossom infection is prolonged by having pears and apples near each other, as the germ infects apple blossoms after the season of pear blossoming. This is bad for the apple orchard, and has resulted in serious injury to some orchards. How shall we stop progress of the blight and save the tree, is the important question. Too much nitrogenous material in the soil which causes rapid growth is often a cause. The more the tree is pruned the more it will blight, but it is better to strike a balance and prune when necessary. The most important single thing you can do to control the disease, is the eradication of all the "hold-overs" late in the fall. Cut the infected wood below the blend into healthy wood if possible, then disinfect the cut surface with corrosive sublimate one to 1000 applied with a sponge. Growing more resistant varieties will reduce blight.

D. Johnson, Canadian Fruit Commissioner, connected with the enforcement of the fruit inspection act, said that in

date confidence was established in Canadian grades of apples. Buyers in Great Britain and elsewhere could order certain grades and depend on receiving the grade ordered, because the packer that packed them would be held responsible and prosecuted if the fruit was not as represented.

It has been found that the best way to prevent dishonest or unlawful packing is to educate the packers, and so correct the evil at the producing point. To do this each fruit inspector has a district of his own in which he is held responsible by the head office. Many of these men use motor cars and are always willing to assist or instruct the packers.

Results from Dust Spraying.

Prof. H. Wheeler, of Cornell University, on "Dusting Orchards as a Substitute for Spraying," in summing up said that in four years of careful experiments dusting has given as good results as spraying, with 3.3 per cent in favor in perfect apples, 1.7 per cent in favor in scab control, and 1.9 per cent in favor in worm control. In 1916 there was a slight difference in favor of spraying, due to poor weather conditions for dusting, and the inability to get finely powdered sulphur. Most of the fifty-five New York apple growers who dusted last year will dust next year. They got good results in dusting for peach disease control. In the nursery experiments at Cornell the results were always in favor of dust. The work at the Geneva Experiment Station was in line with other experiments in worm control, but not so favorable in disease control.

The relative cost of dusting as compared with spraying experiments has shown that the cost of material was considerably more, largely because of the coarse sulphur and poor machinery. There is no reason why the cost of material need be more than with spraying,



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The Time of Application.

The secret of obtaining apples free from disease or insect injury lies in the timeliness of application of the material. This is true regardless of the material used. It has been found from experience over a number of years that there are at least four times when a treatment may prove of value. These times are, when the blossom buds show pink, just as soon as the blossoms have fallen, (this is the important application for the codling moth and should never be omitted), three weeks after the second treatment, and ten weeks after the second treatment.

In order to best control apple scab the mixture should be on the trees before prolonged periods of rain and fog. It has been found that rain does not wash much of the material from the trees, and in some cases dust has been applied in mist and fog. A very favorable time for applying the mixture is on a calm morning while dew is still on the trees. Under such conditions the dust can be applied very rapidly and very thoroughly.

In order to obtain good results with dusting use a mixture containing 85 per cent of exceedingly fine sulphur and 15 per cent of equally finely powdered arsenate of lead. Make the applications from both sides of the trees applying from one and a quarter to two and a half pounds of the mixture per tree each time. Make at least the first three applications of dust, and in rainy seasons make four or five.

The Late Spray for Scale.

In speaking on plant diseases, F. C. Stewart said that since the delayed-dormant application in the spraying of apples for the control of San Jose scale and rosy aphid is advocated, the question arises as to what value this has in the control of scab and as to whether it is also necessary to make the "pink" spray. We are told that the delayed-dormant application should be made when the new leaves are one-fourth to one-half inch long. Will the application of lime-sulphur at that stage control scab, or must a second application be made when the blossoms show pink?

First of all, it should be understood that no spraying schedule is adaptable to all seasons, on account of varying weather conditions which affect the development of the scab fungus and susceptibility of the fruit and foliage.

Our recommendations, then, may be

stated in this way: Under fairly good weather conditions only the delayed-dormant application need be made, but when the weather is cold and wet the "pink" spray also, should be made.

The Control of the Leaf Spot.

From the evidence at hand it appears that cherry growers will find it profitable to make at least two applications of spray mixture for leaf spot, (either lime-sulphur or bordeaux); just after the dropping of the petals and as late as possible before the ripening of the fruit. It is possible also that an earlier and a later application than these two may be advisable. Even though an application before blossoming may be of no benefit in the control of leaf-spot, it may, nevertheless, be advisable to make it for the prevention of blossom blight caused by the brown-rot fungus, *Monilia*, which sometimes does considerable damage.

Dr. V. B. Stewart, who has been successful in controlling cherry leaf-spot in the nursery, recommends lime-sulphur, 1:50, with the addition of one and one-half pounds of iron sulphate to each fifty gallons to insure against injury to the foliage.

New York.

W. H. JENKINS.

GUARD THE SEED SUPPLY.

Any man that buys seed with his eyes shut is gambling on the success or failure of his crop. I was strongly impressed with this thought while attending the annual convention of the Vegetable Growers' Association of America recently in session in Chicago.

One member living in Arkansas told me of the temptation melon growers there have to buy cheap seed. A great many of them are engaged in growing Rocky Ford muskmelons. Some of the grocery stores were selling melon seed far below what had to be paid for it when purchased from reliable seed houses.

Men that planted this kind of seed got all kinds of melons. They were consequently unable to sell their melons to advantage. They had saved 35 cents per pound on their seed, and every pound of that seed produced melons that sold for at least \$10 less than would have been obtained for melons grown from reliable seed.

The Source of Cheap Seed.

An investigation was made to find the source from which this cheap seed had been derived. It was discovered that the men supplying the seed to the grocers had collected the seed from the restaurants and hotels of Little Rock. No matter what kind of melon the restaurants and hotels happened to use, the seed all went into the general lot. Of course, that seed was badly mixed. Naturally when melons from such seed came to be sold, they had to be sorted and sold at various prices, as the best prices are not obtainable for mixed lots of melons.

A Michigan man said that one was so likely to get a poor lot of seed that the safest plan was to buy seed a year ahead and try out some of it the first year. Then, if it proved to be true the balance could be used the second year. He was compelled to this conclusion by his own experience and by what he had seen of the experiences of others.

Poor Seed Causes Losses.

At the present time it is the habit of most farmers and vegetable growers to shut their eyes and hope that the seed they are buying is all right. The corn grower can test his seed by merely sprouting some of it; but the grower of such things as melon and lettuce has to carry his testing along a good deal further than that, for he has to find out if he is getting the right variety.

Every extensive grower of anything cannot afford not to test his seed, and the growers of some things must do their testing a year ahead, as in that case any real testing must cover a period of several months in the summer season, and after that testing is completed it is then too late to plant for that season.

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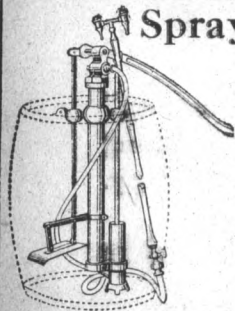
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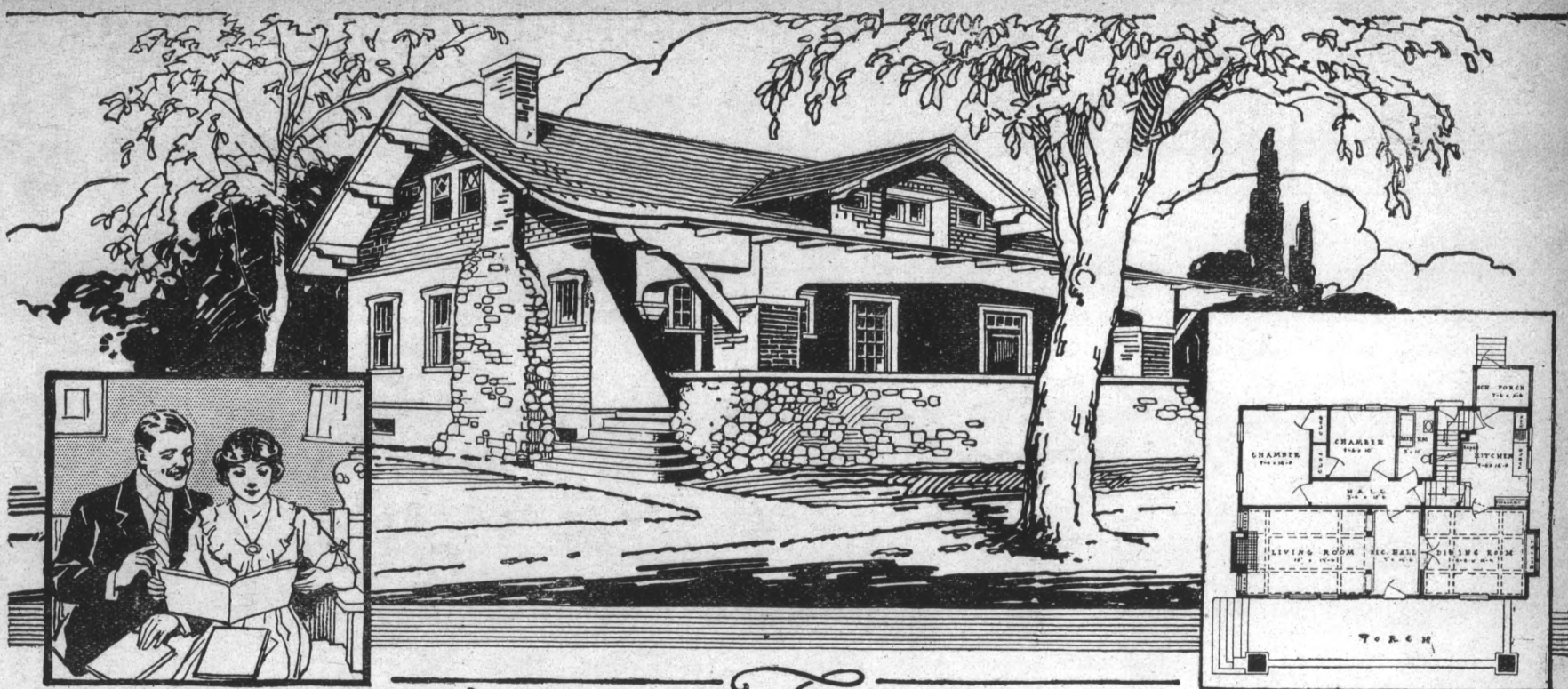
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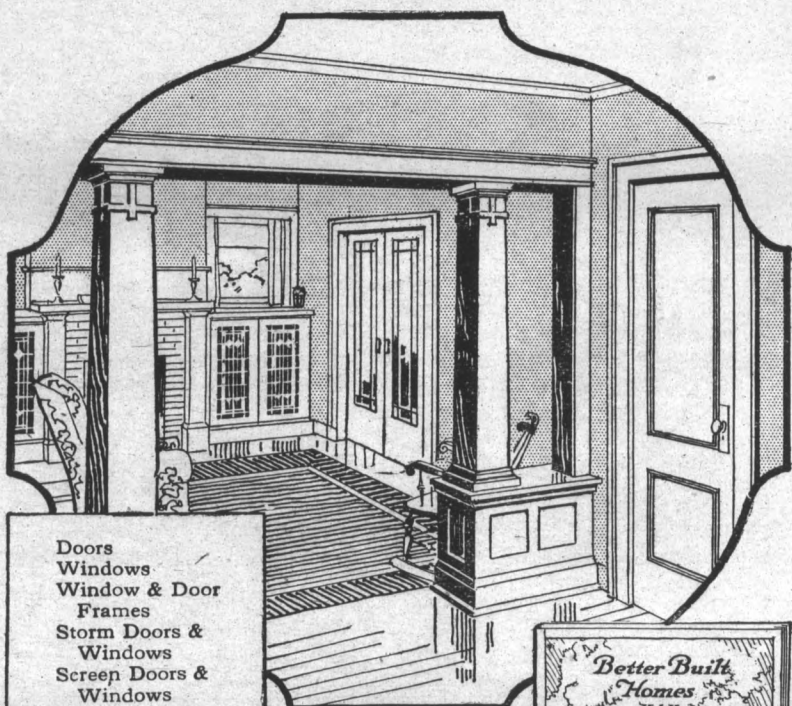
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The Man Behind the Cow

A GREAT deal has been written about the different breeds of dairy cattle, much has been said

about families and individual specimens of one breed or another. We have discussed roughage and grains in the dairy ration, and we have figured out balanced rations of different kinds until our heads swam; but after all, in the last analysis it is up to the individual man to apply scientific knowledge in a way that is sufficiently practical to get results. And so I have taken a little time to pay my respects to "the man behind the cow." Now, what sort of a man should he be, what ought he to know, and what must he do in order to make good with a bunch of cows?

He should be something more than an idealist. He should be a worker. It is all right to dream, for dreams are practical things, providing one does not stop working. Dreams are nothing if they do not come true, and to make them come true takes work. So our man behind the cow must be a worker. And he must keep his eyes open, too, or he will have to a lot of work for nothing. Often things will need doing right away, that will not be done at all, if he is not always on the watch. He must be open-minded, too. The dairy world is like our planet itself in the fact that it moves. The open minded man knows this and is always watching and listening for new truths that may be of practical value to him.

Qualifications for Success.

The dairyman should remember the injunction of Paul, "Prove all things, hold fast that which is good." Not that our open-minded dairyman will need to actually try out everything that is advocated along the line of his work, but he will prove whatever new thing may appeal to him as worth his attention. It is possible often to prove a new theory by our knowledge of general principles without trying it out experimentally. But again, he should be a man of stability. When once he has determined to make a success of dairying he will not turn back because of any small obstacle.

As the story goes, a new fence had just been completed around the graveyard in a little village. The most attractive thing about the fence was the front gate. Now that it was finished the prominent men of the town were looking for a motto to place over the gate. Failing at last to find one good enough, they appealed to Pat, the man who had dug the holes for the posts. Pat thought a minute and then said, "Well, now, sure and I don't just know what to be saying, but the best one I can think of is, 'We're in it to stay.'" The man who makes Pat's motto his, in the dairy business is certainly right so far.

Necessary Knowledge.

What should he know? He should know some things that must be learned by practical experience. The older I grow, the more I appreciate men and women who are really practical. But the practical dairyman must make his practice conform to the best of up-to-date knowledge if he would accomplish the most in his work. He must read dairy literature. Not all of it, for there is a lot of it, and he must have plenty of time for actual work. But he must read enough to keep pace with the best thought in his business. And then he must know how to apply what he reads. He will be able, then, to distinguish between the things that are worth reading, and those that have no practical value.

If he has a lot of good common sense he should know something about veterinary science, but otherwise, "A little learning is a dangerous thing."

He should know everything that will help him in his work and to this end he should co-operate with his neighbors, should keep close to the dairy department of the college, and should

miss nothing that will add to his information upon dairy subjects.

Know Each Cow.

But I have left until the last the most important thing for him to know. He should know each cow in his herd. It is comparatively easy to acquire ordinary dairy knowledge. Anyone who has knowledge of mathematics and has studied nutritive ratios can figure out balanced rations. There are plenty of people who know much about the particular breed of cattle they may happen to fancy, but all this knowledge will not make successful dairymen of them unless they know the individual cows in their herds.

The man behind the cow must know her possibilities. He must be able to tell the ordinary cow from the winner, and do so without taking too much time. He must know when the cow is in perfect health, and must be quick to see when she is not normal. If she is out of health from any cause, he must possess the knowledge and practical sense to be able to tell what is the matter.

What ought he to do? It is doing after all, that counts. I know any number of men who keep cows who, if they did as well as they know, would be better satisfied with their results.

The man behind the cow must first breed right. The day of the scrub cow is passing. It will never come back. Every man can not at once breed a pure-bred herd; that takes time and some money. But there are few keepers of cows who may not use pure-bred sires, and this will give them a start in the right direction.

Keep Records of Individual Performance.

But the man we are writing about will be ever on the watch for good individual cows of his favorite breed. Knowing the cows in his herd, not as Jerseys, Holsteins or Guernseys, but first as individuals, he will treat them according to their individual requirements. He will never hope to make a "Brown Bessie" or a "Loretta D." out of an ordinary cow whose name is in the Jersey herd book. He has weighed the milk of each cow in his herd and tested it for fat, and he knows what they are doing. There is no guess work about it. And knowing, he will give to each cow the feed and care that will enable her to do, not some other cow's best, but her best. I wish I might put this great dairy truth in a way to make it stick. We must have knowledge, a lot of it, we must breed to a definite ideal, and must stick to our breed. But the thing that will determine our success finally, more than anything else, is our knowledge of the individual cow, and our doing according to that knowledge.

I have said that he should know when the cow is normal, and when for any cause she is out of health. Cows that are liberally fed often go off their feed. That is, they either eat less than usual, or refuse to eat at all.

Use Care in Feeding.

The successful dairyman will be very prompt in all such cases. A little delay may result seriously, while prompt attention to the cow usually takes care of the situation without much trouble. Allow the cow to miss one feed entirely, give her but little next time, and gradually get back to the usual amount, omitting the grain for several days in bad cases. A pound of epsom salts given to the cow as soon as the trouble is discovered will help matters wonderfully. Our man will keep this simple remedy always on hand. He knows that the average cow seldom needs medicine of any kind, but she does need intelligent attention, and now and then some simple remedy.

But it is in the handling of the truly great cow that the right man is revealed. Great records have followed each other during the past few years, until

we wonder sometimes if there is any limit to what a cow can be made to do, but in each case of these splendid performances we ought not to forget the man who has made it possible.

Someone has said, "The man who breeds scrub cows is a scrub, he who breeds grades is a grade, but that man who breeds pure-breds of high rank is a thorough-bred." I am not going to say that exactly, but I do want to emphasize the fact that the building of a good dairy is up to the individual man, and the other truth that the man who takes an ordinary bunch of cows and "sticks and hangs" through all sorts of hinderances, breeding, weeding and feeding as best he knows, until at last he develops a splendid herd, and perchance an animal with a magnificent record, is a thoroughbred and deserves to be ranked with the world's great men.

Oceana Co.

W. F. TAYLOR.

DAIRYING PROBLEMS.

How Large a Silo.

I would like a little information in regards to silos. Will a 10x30-ft. silo feed six cows 12 months? Will silage spoil in hot weather from not feeding enough of it? Will an 8x26-ft. silo feed six cows for one year? Have 40 acres of land, and basement for six cows, but no pasture to speak of. I am in the berry business mostly, but I am getting sick of it on account of the scarcity of hired help. I want more manure to raise good corn, but the stalks are a nuisance and a big waste when fed dry. Please give me some pointers. There are plenty of silos around here. One man says yes, and another no, and therefore I am on the fence. I can't keep more than five or six cows at most.

Genesee Co.

G. E. P.

A silo 8x26 would hold about 26 tons of silage which would hardly be enough to feed six cows every day for a year. But a silo 8x30 will be of sufficient capacity. Your cows will not eat, or should not eat, over 30 lbs. daily of silage. A silo 8x30 will have 30 tons capacity, which will furnish approximately a sufficient amount. If you should run a little short in summer you could feed a little less, and more hay or you could cut green grass or clover and soil them for a few days.

I don't think you will have any loss from feeding six cows from an eight-foot diameter silo.

Corn Meal and Wheat Bran.

I would like your opinion as to a good balanced ration for my cows. I have bean pods, corn fodder, clover hay, oat straw and ensilage, as rough feed for them. At the mills around here I can get only bran, cow feed, and corn meal, oil meal, and cottonseed.

Shiawassee Co.

N. L.

You can use all of your roughage to good advantage. Feed silage twice a day and hay once a day. The other feeds may be fed alternately as convenient. For grain you can get nothing better than corn meal and wheat bran, equal parts by weight. Mix two parts of this with one part oil meal, or one part cottonseed meal.

Mouldy Silage.

My silage was put in dry this year and there are some mouldy spots in it. Is it likely to do any harm to the cows. If so, how will it affect them, and what would be a remedy for them?

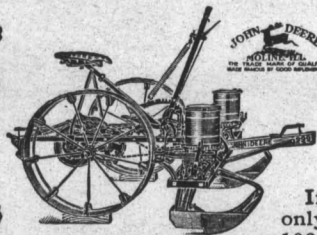
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A. S. W.

A little mouldy silage does not usually injure cows. I would throw out the worst of it. Of course, I would prefer not to have any mould at all, but you want to use all of the silage you can and not injure the cows. Now feed as little of the mould as you can and probably the cows will not be injured. The trouble is, all moulds are not alike. Some are apparently harmless, others are not. It is something like toad stools and mushrooms. One can scarcely tell the difference by their looks. If you eat one and it kills you it is a toad stool, but if it does not kill you it is a mushroom. Thousands of cows eat a little mouldy silage with no apparent injury.

COLON C. LILLIE.

JOHN DEERE IMPLEMENTS

BETTER FARM IMPLEMENTS
AND
HOW TO USE THEM

John Deere No. 999 is accurate. It has the John Deere Natural Cell Fill, Edge Delivery Seed Plate. Surface of hopper bottom and openings to seed cells are oblique, or sloping. Kernels move toward and enter the cells in their natural position. They do not have to be tipped on edge.

Merely move foot lever to change number of kernels per hill.

Drilling distances varied, and change hilling to drilling or back to hilling made easily.

John Deere Corn Planters

Accuracy in a corn planter means uniform drop—number of kernels the same in each and every hill.

If the planter misses only six kernels in every 100 hills, the loss in yield is nearly two bushels per acre.

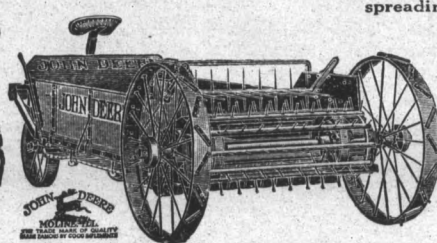
Accuracy in planting has been the main object in designing John Deere planters. One of the many advantages of using a John Deere planter is that with proper handling it will plant practically 2, 3 or 4 kernels in every hill, as desired.



John Deere Spreader

The Spreader with the Beater on the Axle

Mounting the beater on the axle simplified the construction, eliminated troublesome parts and made possible a successful low-down spreader with big drive wheels. There are no shafts to get out of line, no chains to cause trouble, and no clutches to adjust. The only spreader with beater and beater drive mounted on axle.



Low down, with big drive wheels out of the way. Easy to load. Revolving rake, driven by manure moving toward the beater—no bunching of manure. Ball bearing eccentric apron drive—a new and exclusive driving device. Makes uniform spreading certain.

Wide spread attachment for spreading seven feet wide can be furnished for the John Deere Spreader. No chains nor gears. Quickly removed.

JOHN DEERE, MOLINE, ILLINOIS

BOOK FREE 156 page reference book—tells all about a complete line of farm implements and how to adjust and use many of them. A practical encyclopedia of farm implements. Worth dollars.

Describes and illustrates Plows for Tractors; Walking and Riding Plows; Disc Plows; Cultivators; Spring Tooth and Spike Tooth Harrows; Disc Harrows; Alfalfa and Beet Tools; Farm and Mountain

Wagons; Manure Spreaders; Inside Cup and Portable Grain Elevators; Corn Shellers; Hay Loaders; Stackers; Rakes; Mowers and Side Delivery Rakes; Hay Presses; Kaffir Headers; Grain Drills; Seeders; Grain and Corn Binders.

This book will be sent free to everyone stating what implements he is interested in and asking for Package No. X-5.

JOHN DEERE, MOLINE, ILL.

John Deere Beet Tools

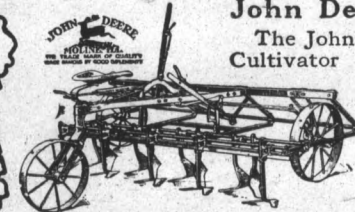
The John Deere No. 15 Beet Cultivator cultivates four rows at a time, and does the work right under the most trying conditions.

A great variety of equipment can be furnished—disc weeder, duck feet, irrigating shovels, deer tongues, diamond-point shovels and weeding knives.

John Deere Four-Row Beet Seeders are leaders in their line.

They plant fifteen to thirty pounds of seed per acre.

Different widths of rows and depth of planting may be had.



John Deere Beet Cultivators cut an even depth.

Pivotal wheel foot dodge. Wheels automatically return to position.

Tools easily adjusted. Shovels can be zigzagged on the sides of each row.

Lifting lever for raising and lowering tool bars.

Hinged pole applies draft direct to drawbars—relieves horses' necks of strain.

Steel tool frame, well braced and strong.

Can furnish also two-row walker or rider.



Your Home Town Dealer

There is a big advantage in buying implements of your home-town dealer.

He gladly "backs up" the implements he sells, and he is on the ground to see that they make good. He makes his home in your locality—the place his goods are sold.

He handles a line of high-grade implements—and you can see before you buy. In the busy season, when work is pressing, he can furnish repairs promptly for the goods he sells.

If, by chance, he has not in stock just exactly the style of implement you want, he can give you quick service in getting it to you.

John Deere factory warehouses with immense storage rooms have been established in various sections of the country. Every John Deere dealer is conveniently located to one of these houses.

This, really, gives you two supplies of implements—the stock carried by your home-town dealer and that of the factory warehouse.

KALAMAZOO SILOS

Will Solve Your Silo Problems

They're built to meet the exacting farmers' needs and are the best in design, material and workmanship—combining every desirable feature a silo should have and embodying the "know how" acquired through more than twenty years experience in silo building.

Glazed Tile Silos

This construction is fire-proof, frost-proof, storm-proof, decay-proof, vermin-proof. Galvanized reinforcing. Requires no paint, no upkeep expense or repairs. First cost is the last cost—a written guarantee goes with every one.

Wood Stave Silos

Your choice of four time-defying woods. The Kalamazoo is the only factory where this outfit is manufactured complete from the raw material to the finished product. Our silos are quickly and easily erected by inexperienced home labor.

All Kalamazoo Silos are made with Galvanized Steel Door Frames, continuous doors, forming safe ladder entire height of silo.

Write today for our free descriptive booklet, and early sales plan.

KALAMAZOO TANK & SILO COMPANY, Dept. 100 Kalamazoo, Mich.

Ear Tags FOR STOCK

Tag your stock—best and cheapest means of identification for Hogs, Sheep and Cattle. Name, address and number stamped on tags. Catalog mailed free on request. F. S. Burch & Co., 263 W. Huron St. Chicago

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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. Electric Wheel Co., 35 Elm St., Quincy, Ill.

B-V-T-Silo

"The Gibraltar of Silos" will withstand the storms and destroying influences of ages. Built of vitrified Brazil fire clay tile, impervious to air and moisture. Reinforced with steel. The strongest and most permanent silo in the world. Absolutely air-tight and 100% efficient. Never needs painting, repairing or rebuilding. Write today for illustrated Silo Book. Brazil Hollow Brick & Tile Co., Brazil, Ind.

SAW YOUR WOOD

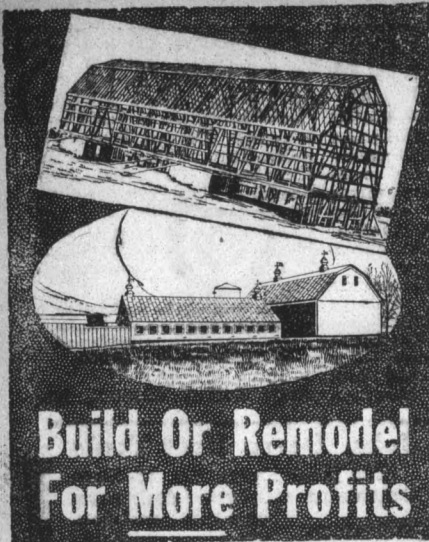
With a FOLDING SAWING MACHINE. 9 CORDS by ONE MAN in 10 hours. Send for Free catalog No. E 44 showing low price and latest improvements. First order secures agency. Folding Sawing Mach. Co., 161 W. Harrison St., Chicago, Ill.

SUPERIOR SILOS

Sold on guarantee. Shipped on approval. Pay for the silo after you have inspected it at the car. Prices for January orders: 10x32 Oregon Fir, clear one piece stave \$188; 10x32 Redwood, clear two piece stave \$183. Delivered 20c rate points. Write for other sizes. SILO SUPPLY CO., DAYTON, OHIO

Wanted by married man, experienced as farm manager, position on farm about Apr. 1st. State wages. Box 262, Montague, Mich.

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Build Or Remodel For More Profits

James planned and equipped dairy barns mean more milk and less work. Make your dairy barn an efficient work shop and profit maker. Install

JAMES Sanitary Barn Equipment

Give your herd contentment and comfort and they'll give you more milk. James equipment is the practical profit-maker that thousands of America's dairymen use. Tell us when you intend to build or remodel and for how many cows—we will send you the big "Jamesway" Book Free.

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EE31 Cane Street, Ft. Atkinson, Wis. Elmira, N. Y.

P. R. ZIEGLER CO.,
Boston, Mass.

DE LAVAL SEPARATOR CO.,
San Francisco and Seattle



EMERSON FOOT PLOW

—the share comes off or goes on in 5 seconds. No nuts to turn—no wrench needed—just your hands. Saves time and work—helps you get plowing in on time. Built for tractor or team. One of the many implements in the E-B line. Backed by 65 years' experience. Look for the E-B trade mark on the implements you buy. Our pledge of quality—your guide to more profitable farming.



Emerson-Brown Implement Co. (Inc.) 78 W. Iron St., Rockford, Ill.
Please send me free literature on articles checked:

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Name _____
Address _____

Says the Calf—

Ask ME — I know

The calf knows that when he has a sore udder or teats the milk comes hard and the cow is restless and irritable. A cow that is nervous and uncomfortable cannot yield her full milk supply.

BAG BALM is a wonderfully effective, healing ointment, and quickly clears up scratches, cuts, chaps, bruises, inflammation, or caked bag. A valuable aid in treating lumps and strictures. Have a package on hand and keep little hurts from getting big.

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

DAIRY ASSOCIATION CO.
Lyndonville, Vt.

BAG BALM

MADE BY THE HOW-KUKE PEOPLE

Mention the Michigan Farmer when writing Advertisers

The Live Stock Meeting

THE annual meeting of the Michigan Improved Live Stock Breeders' and Feeders' Association held at the Agricultural College last week was fully up to the standard of previous years in points of attendance and general interest. As usual, most of the breed meetings were held on Wednesday in the various rooms assigned to them in the Agricultural Building at the College. Most of these meetings were well attended and enthusiastic in character. Brief reports of their sessions will be given in a future issue.

The Cost of Producing Milk.

At the first session of the general meeting held Wednesday afternoon, an interesting feature of the program was an illustrated address by Prof. A. C. Anderson, relating particularly to the studies in the cost of milk production which have been conducted under the auspices of the Dairy Department of the College. Prof. Anderson explained in detail the methods which were followed in the collection of data relating to the cost of producing milk.

Briefly summarized, the price basis was made as follows: Upon the value of the investment in buildings, yardage and water supply ten per cent annually was charged to the dairy as part of the cost of milk production, this charge being estimated to just cover the interest on the investment, taxes, insurance and depreciation on this necessary equipment. Upon the value of the cattle estimated wholly from the dairy utility standpoint, a similar charge was made to cover the same items, except that in this case twelve per cent of the value of the dairy cattle was annually charged to the cost of production. In the item of dairy equipment twenty-five per cent of its value was charged to the account of milk production for the current year. Feeds, including bedding, were figured at their sale value in the barn. Cost of pastures was estimated at five per cent of the value of the land, plus the cost of upkeep of fences. Under overhead costs were grouped a number of factors not otherwise classified, including cash sundries, or small items purchased, or small sums expended on account of the dairy, also veterinary services, cost of drugs, etc., tuberculin tests and losses, and finally the excess earning power of the owner of the dairy as compared with the cost of hired labor, which was figured at about fifty per cent above the average labor cost.

The silage used was figured to have a value of \$4 per ton, other feeds being charged at their market value in the barn. In figuring the receipts, the value of the manure was estimated at approximately \$1.50 per ton, or \$17.59 per cow in the 1915 test. No credit was given for the value of calves and no overhead charge made for maintenance of a herd sire, it having been determined that these two factors were about equal.

Figuring on this basis the annual cost of keeping a cow was in 1915 found to be as follows:

Cost Per Cow.	
Value of feed.....	\$ 64.72
Value of labor.....	41.96
Overhead.....	43.61
Total.....	\$150.29
Product Per Cow.	
Milk.....	\$139.01
Manure.....	17.59
Total.....	\$156.60

In 1914 the relative values were as follows:

Cost Per Cow.	
Cost of feeds.....	\$ 67.99
Labor.....	44.22
Overhead.....	38.36
Total.....	\$150.57
Product Per Cow.	
Milk.....	\$141.25
Manure.....	17.45
Total.....	\$158.80

In estimating the present cost of the product from data gathered in work

now in progress, Prof. Anderson estimated the probable present cost of milk on the following rate of increase in various items as follows: Estimated increase in labor cost, twenty-five per cent; in roughage, cost ten per cent; in cost of concentrates, thirty-five per cent; in cash sundries, drugs, etc., fifty per cent; in barn tools, fifty per cent; in additional earning power of manager as compared with common labor, twenty-five per cent. He deduced that a conservative estimate of the cost of producing 100 pounds of milk at the present time on the basis of computation above described would be between \$2.00 and \$2.20 per cwt., as compared with \$1.91 per cwt., and \$1.85 per cwt., respectively, in the two tests described in detail in his lecture.

Dairymen everywhere will be interested in knowing that the data gathered in these investigations and demonstrations are now being published in bulletin form and that the bulletins will be available for general distribution in the near future. This feature of the program was of great interest to the large number of dairy farmers who came primarily to attend the breed meetings.

The Banquet.

On Wednesday evening the members of the organization participated in a banquet tendered by the State Board of Agriculture in the large dining-room of the Women's Building at the College. Chairman Graham, of the State Board acted as toastmaster. After the members had partaken of the excellent dinner prepared for them under the auspices of the Home Economics Department of the College, toasts were responded to in a happy manner by the various speakers from outside the state, College officials, members of the Legislature and others. This feature of the meeting added the social element in a pleasant manner, and as usual was enjoyed by the stock breeders and feeders who participated.

The Farm Building Problem.

Following the comprehensive report by Secretary Brown of the last annual meeting and a brief address by President Schantz, the first number on the Thursday morning program was an address by Dean Shaw on "The Farm Building Problem." Dean Shaw handled his subject in a happy manner, taking up the subject from a general standpoint, rather than from the standpoint of details, which are to a great extent an individual consideration. He referred briefly to the evolution of the farm building problem from the period when building material was plentiful and the farmer's problem was to get rid of the timber, and when the best of it could be cheaply utilized in building operations, to the present time when timber has become relatively scarce and labor is a much more important factor than in the early period of farm building.

He roughly divided the farm buildings found throughout the state into three classes, viz: good substantial buildings adequate to the purposes for which they are needed; old buildings which are more or less dilapidated and unsuited to present needs, and new buildings which have been constructed often with particular regard to their adaptability for special purposes rather than to their cost.

New buildings were subdivided for purposes of discussion into two classes, viz: rational and luxurious. In speaking of the illustrations and descriptions of farm buildings given in the press and through other mediums he emphasized the need of the placing of more emphasis upon a rational type of building adapted to the average farm which would give a maximum of service for the purposes needed at a minimum of cost. In planning farm buildings too little thought is given to their construction, the type being too often dictated by the local carpenter rather

than planned for the greatest utility in use.

In discussing the economic factor of farm buildings in our farming operations Prof. Shaw referred to the fact that the last census showed the value of our farm buildings to be \$1,088,000,000. Stupendous as is this sum, yet the fact was pointed out that the total value of farm buildings, implements and machinery aggregate but 26.2 per cent of the total value of our farm lands, and the point was raised as to whether this was an adequate proportion of investment in this class of farm equipment.

While the fact was pointed out that the live stock farmers was far better equipped in this direction than the average of other farmers, yet the average percentage of investment in building equipment is too small for maximum efficiency. The economic importance of this problem to the average farmer, however, was emphasized by an illustration of a proposition which was recently submitted to the speaker by a farmer in need of advice. In this case the farmer's resources were limited and he recognized that three classes of investment were required to increase the efficiency of his farm, viz: buildings, fences and drainage, and he sought advice as to the relative importance of these three classes of investments. Frequently the farmer of limited means or the young man just starting out for himself is obliged to meet and solve these and similar problems. Prof. Shaw did not diverge from his subject to discuss the relative importance of these factors, but gave this example to illustrate the importance of a proper consideration of this phase of farm management.

He dwelt at some length on the possibilities of rejuvenating old buildings which with some remodeling would still afford generations of good service, and emphasized the importance of first giving such buildings a proper foundation and a good roof as a means of preserving them for a maximum of future usefulness.

In touching upon the matter of location, Prof. Shaw expressed the opinion that in general the location of farm buildings is unsatisfactory, and the general building policy is uneconomic. While in many cases the matter of location cannot be profitably changed, yet where buildings are to be constructed or remodeled their proper grouping is important, and the combination of smaller units into larger buildings is good economy. He would prefer to have the buildings conveniently grouped near together and protect them by a proper equipment of lightning rods and adequate fire and cyclone insurance. He emphasized the fact that the business of farming had come to be somewhat of a mechanical business through the development of modern farm equipment, and that there was plenty of opportunity for the development of the mechanical instinct, in adapting the farm buildings and equipment to the special needs of the farmer and particularly the farm upon which live stock is made an important factor of production.

"The Place of Live Stock upon the Efficiently Managed Farm."

This was the subject of a very able address by G. F. Warren, Professor of Farm Management at Ithaca, New York. The speaker had many carefully prepared charts giving the results of investigations in farm management, which clearly pointed to facts of great economic value, which personal experience and observation alone could never teach the individual farmer, thus illustrating the value to our agriculture of investigational work along this line.

At the outset, to demonstrate the possibilities of maintaining and increasing soil fertility through live stock farming Prof. Warren referred to an Ohio experiment which had been conducted for twenty-one years in a manner to forcibly demonstrate the great value of farm manure in this

Why More Draft Horses Should Be Bred

By WAYNE DINSMORE

THE danger of over-production of horses is remote. It costs more to produce them than any other class of live stock. For that reason many farmers sit back and proclaim that it doesn't pay to raise horses; that there never was a time when the horse market was so dull as now; that the motor truck and tractor have killed the horse business and the horse is a thing of the past. Some people believe all of this, even though the truth of the matter is the opposite. Those who have allowed such thoughts to direct their operations for the past five or ten years, will soon see the error of their ways. It takes time to make much headway in the horse business. Five years are needed to grow a horse. At best one should not expect more than two colts from three mares as an average per year. Moreover, not more than sixteen per cent of our farmers are raising colts. Not long hence the American farmer will wake up only to learn that a great opportunity has passed.

A Shortage of Horses.

The next ten years is bound to see the greatest demand for horse-flesh the world has ever known. It can't be met on short notice. The man who is breeding every mare old enough, to the best stallion available and is taking proper care of the offspring is the man who is sure to be rewarded. There are plenty of men who have bought and paid for farms within the past ten years by their pure-bred draft mares. In the same community there are farmers who are no better off financially than they were a decade ago because they failed to foresee the profits from using the right kind of horses in their farm work. The men who have made money and who are going to reap the fruits of their efforts in the future are those who early saw the undeniable need for heavy draft horses for farm work; who bred that kind and who will continue to do so without a halt.

Cheaper to Raise than Buy.

Why is there a general tendency among farmers to buy their horses rather than to raise them? Farmers say, "I don't want to be bothered with a colt. When I get ready to plant corn or cut wheat I want horses ready to work; I don't want to have to pay \$25 for a little scrub colt and then have all the bother to raise it, besides." Men with such ideas have to buy a horse or two nearly every spring at a cost of \$150 to \$250 a head. Instead of having a horse or two to buy, better have some to sell. There is no unusual training necessary. Any farmer can raise good horses if he will only use common sense. He can even succeed with pure-bred drafters if he will select good parent stock, take reasonably good care of them and develop the offspring rightly. Therein lies the secret of success.

The Cause of Demand.

A careful consideration of the situation cannot fail to convince us that there is no danger of an over-production of heavy draft horses for our farm and city uses. Almost a million horses and mules have been exported from this country in the last twenty-seven months for use in war. These figures show almost one horse or mule taken for every twenty-five left. As surely as this war continues another two years, good farm horses will be at a premium; and even after the war is over, exports will not cease, for thousands of horses will be needed to start European agriculture anew.

It follows, as a necessary consequence, that the demand for pure-bred draft horses for breeding purposes will continue to be good. Importations have been, to all practical purposes, cut off. We are producing only twelve or thirteen thousand pure-bred draft horses eligible to registry. This means, in substance, that we are producing

only five or six thousand stallions fit for service, per year, when we need at least seven or eight thousand. An excess of demand over supply always makes good prices, and the present is no exception.

The farmer who uses heavy draft mares does better farm work, and raises bigger crops, than he who relies on small horses. Furthermore, he has horses to sell each spring, at a profit. If you don't believe it, go ask any country banker for the name of the most successful farmers in the neighborhood. You will find them to be live stock farmers, and men who keep and use heavy draft mares, either grade or pure-bred, in their farm work.

OX WARBLES DAMAGE CATTLE.

The characteristic lumps or swellings which may be found under the skin on the backs of many cattle from January until April contain grubs. If these grubs are allowed to remain, they will complete their growth, drop to the ground and transform to heel flies, which may reinfest the cattle during the spring and summer. The grubs weaken the cattle, cause them to fall off in flesh and milk, and decrease the value of the hide. The beef in the immediate vicinity of a grub becomes slimy and of a greenish color, and is known to the butcher as "licked beef." On an average the damage to the hides is placed at one-third their value and the loss of beef to each infested animal ranges from \$3.00 to \$5.00.

Removing Grubs.

The grubs may be pressed out through the opening at the top of the swelling. A sharp knife and a pair of tweezers will often facilitate the work of removing the grubs. Care should be taken to crush all the grubs removed, to prevent their further development and transformation into flies. It is advisable to examine the cattle for lumps or swellings over the back every two or three weeks during late winter and early spring to detect the pest. Various oils are often used. The lotion is either smeared over the infested region or applied to the mouth of the breathing hole of the grub. One or two applications will usually be sufficient. The objection to this method is that the wounds do not heal readily unless the grubs are removed.

Some have claimed that the arsenical and coal tar dips can be used in the case of large herds which can not readily be treated by direct removal of the grubs. It still remains to be determined, however, whether practical means of eradication can be made by the use of dips. Dips applied during the spring and summer will no doubt kill many maggots, and eggs which are attached to hairs on animals' bodies.

The Ox Warble Fly.

The adult of the ox warble is a fly about half an inch long, very hairy, and resembles a small black honey bee. The females in depositing their eggs on cattle worry and torment the animals and frequently cause them to stampede for shelter or water. The fly does not sting or bite, but the animals seem to have an instinctive dread of its approach just as the horse has for the bot-fly.

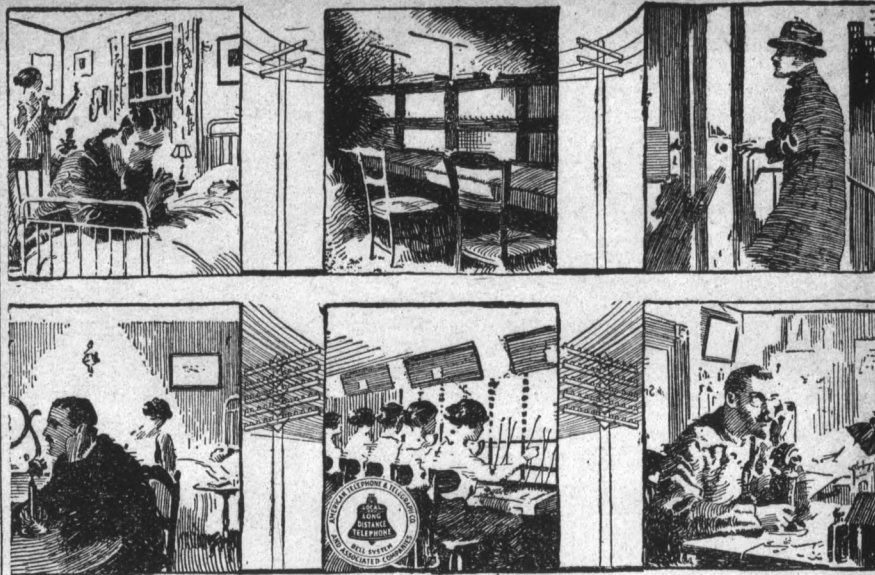
Fish oil, train oil, and other substances are often recommended as a spray to keep off warble flies. To be effective, their use would have to be continued during the spring and early summer, and such a practice would be difficult and expensive and impracticable except in the case of small herds of valuable cattle.

Missouri.

T. J. TALBERT.

Testimonial.

"I call your paper one of the best I have ever used for my business, selling Ferrets. I expect to be with you again another year. Calls and orders came pouring in from the Michigan Farmer. —N. A. Knapp, Rochester, Ohio."



Best and Cheapest Service in the World

Here are some comparisons of telephone conditions in Europe and the United States just before the war.

Here we have:

Continuous service in practically all exchanges, so that the telephone is available day and night.

A telephone to one person in ten.

3,000,000 miles of interurban or long-distance wires.

Prompt connections, the speed of answer in principal cities averaging about $3\frac{1}{2}$ seconds.

Lines provided to give immediate toll and long-distance service.

As to cost, long-distance service such as we have here was not to be had in Europe, even before the war, at any price. And exchange service in Europe, despite its inferior quality, cost more in actual money than here.

Bell Service is the criterion for all the world, and the Bell organization is the most economical as well as the most efficient servant of the people.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES

One Policy

One System

Universal Service

Jay Brand Cotton Seed Meal

36 to 38
per cent
Protein



We highly recommend this Brand to your consideration. Finely ground, good yellow color, and free of excess lint, runs uniform in analysis.

Cotton seed meal is cheapest concentrate on the market, and no grain ration is balanced without it. Animals need protein. Everything now is high, and best results are absolutely necessary to show proper profits in your operations. Use more cotton seed meal, more farm roughage, less grain, and get larger profits.

Let us quote you.

F. W. BRODE & CO. (BRANCH OFFICE)
DALLAS, TEXAS

Established 1875

MEMPHIS, TENN.

Incorporated 1915

OWNERS: Celebrated — Owl Brand Cotton Seed Meal—41 to 43% protein
Dove Brand Cotton Seed Meal—38½ to 41% protein
PRICES ON REQUEST

BOWSHER

Saves 15% to 20% of Feed

Keep Stock Healthier Crush ear corn (with or without shucks) and grind all kinds of small grain. 10 sizes 2 to 25 H. P. Conical shaped grinders—different from all others.

Lightest Running
Feed Mills

Handy to operate. Ask why, and state size of your engine. We also make Sweep Grinders.

FREE A folder on values of Feeds and Manures.
D. N. P. BOWSHER CO.
South Bend, Ind. 118



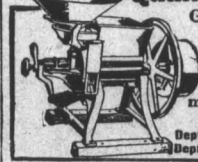
Letz Self Sharpening Plates

Running empty does not injure them—actually puts on an edge. One set of Letz plates will grind 1000 to 3000 bushels—outlast 8 to 16 sets ordinary plates. Silent running and self-aligning. Letz grinds all grain and forage crops fine as dust in one grinding—ear corn, snapped corn, oats, wheat, alfalfa, clover, etc. Make your own appetizing combination stock foods and save fifty per cent waste in feeding roughage. 10 days free trial. Valuable Feeding Book mailed free. LETZ MFG. COMPANY 210 East St., Crown Point, Ind.



Quaker City Feed Mills

Grind corn and cobs, feed, table meal and alfalfa. On the market 50 years. Hand and power. 23 styles. \$3.80 to \$40. FREE TRIAL. Write for catalog and farm machinery bargain book.



THE A. W. STRAUB CO.
Dept. 0-3727-3731 Filbert St., Philadelphia
Dept. 1-3701-3703 S. Ashland Ave., Chicago



It Pays to Dehorn

Dehorned cows give more milk; take less room; are gentle and easily handled. Steers fatten quicker and are harmless—they pay better. The new Improved Keystone Dehorner removes horns quickly, cleanly and safely. Shear has sliding cut; no bruising. Easy to dehorn. Money-back guarantee. Send for booklet.

M. T. Phillips, Box 126, Pomeroy, Pa.

Mention the Michigan Farmer when writing Advertisers



Don't Pay Taxes on Unproductive Land

EVERY cent that you pay in taxes on unproductive land is money wasted. You can eliminate this waste—not by getting rid of the taxes but, by getting rid of the land—the *unproductive* part of it.

Take it out of the unproductive class—make it *productive* by means of

HERCULES DYNAMITE

If you own land rendered useless by water, stumps, rocks, or by all three combined, Hercules Dynamite will clear it at the least possible expense.

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connection. In this experiment, where manure was used in a rotation of potatoes, wheat and clover, it had a value of \$4.20 per ton where used at the rate of four tons per acre, \$2.25 per ton where eight tons per acre were used, and \$2.43 per ton when sixteen tons per acre were applied.

Here the speaker paused to note the fact that the greatest value from the use of stable manure is secured where a light application is made. This is also in accord with the results at the Pennsylvania station where an experiment conducted over a period of thirty years on plots on which a still heavier application of manure was made and in which it was found that where very heavy applications are made, the last few tons of manure per acre used in the rotation returned a value of only thirty cents a ton as compared with a very high value where light applications were made over larger areas.

In connection with this proposition of maintaining soil fertility the question was raised as to whether it would not be more profitable to feed all of the crops grown upon the farm. By use of a chart showing the results on a large number of farms included in the investigation Prof. Warren showed that the best results were secured where mixed farming was practiced in connection with live stock on the farm. One reason for this is the seasonal variation in crop production. In cases where a sufficient amount of live stock is kept to consume all of the products in the years of maximum production, there will be a shortage of feed in lean years. Consequently it is better to adjust the amount of live stock to the capacity of the farm in average years and supplement the income from the live stock with cash crops which may be much more profitably grown by the proper use of the manure product of the live stock. As illustrating this point it was noted that in the Ohio experiments above referred to, the value of the manure in the rotation was increased 75 cents per ton by using it on potatoes rather than on wheat in the rotation.

By way of illustrating the comparative profits from special farming and mixed farming, statistics were given from investigations covering a large number of farms, which showed conclusively that mixed farming with poor cows gave more profitable results than specialized dairying with good cows. Commenting upon the quality of the dairy herd as a factor in profit making, the speaker took issue with the idea that it is better to sell the poorer half of the herd than to keep low producing cows. He demonstrated conclusively that a herd of from twenty to thirty cows gave more profitable results even where the standard of production was low than a smaller herd of high-producing cows in many cases. This was shown to be true because of the fact that the overhead charge on stable equipment which he termed barn rent was a constant factor, as was the full employment of the available labor; since the hired man had to be paid anyway, he declared that it was possible for a cow to pay when theoretically she was so poor an individual that she could not possibly pay.

Another point of interest to the young man or the farmer with limited capital was emphasized in that the best course to pursue depends upon the capital which the farmer has or is able to borrow. Prof. Warren advocated the borrowing of capital for the proper development of a farming enterprise, provided the farmer was not afraid to make the venture, in which case he would not advise it, since unless he had confidence in the business and in his ability to make it pay, he was not so likely to succeed. He conceded the possibility of maintaining the soil fertility without live stock, and also the fact that the keeping of live stock does not in itself assure the maintenance of soil fertility.

Speaking of the comparative advantages of using green manure crops by plowing them down, or keeping live stock he declared that the plowing

(Continued on page 112).

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Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

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

The FARM BOY
and GIRL
SCIENTIFIC and
MECHANICAL

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

How the Trapper Outwits the Cautious Mink

By G. F. De LaMATER

ONCE asked an experienced trapper what he considered the most important point in mink trapping; his answer was, "common sense;" and he was right, too. I may sum up briefly, by saying that success in trapping is determined by what is located above the trapper's ears. When a man, or boy, becomes a successful mink trapper he has graduated into the science of trapping and is entitled to the degree "Trapper."

In former articles I urged the value of an acquaintance with the habits of the animal to be trapped; this is even

more important with respect to the mink. I have read trappers' guides of various kinds and from the pen of various authors, and never yet came across one that gave an adequate impression of what was required to become a successful mink trapper. There is much that can not be put on paper; however, trappers' guides are often very useful to those who understand the fundamental principles of trapping. But the man who takes a book in one hand and a trap in the other will not

break any records for mink catching.

Mink trapping cannot be learned in a day; I think I am as observant as the next one, and I had a great deal of experience before I could boast of any appreciable success; and I don't know it all yet; I never go trapping without learning something of value.

When learning to trap I used to read a description of some trapper's favorite set, which looked good to me, and then go over my entire trap line only to discover that there wasn't a single

place to use the set; from such experiences as this I learned the lesson of adaptation.

In seeking to capture Mr. Mink remember first, that you are pitting your wits against those of the mink, who is no mean competitor. He often displays cunning that is amazing. His sense of smell is very keen and his sense of suspicion is even keener. Second, you should find what he is feeding on and use that for bait, when bait is used; for he is more likely to investigate a bait if it is what he is looking for. Third, set your trap where the mink is

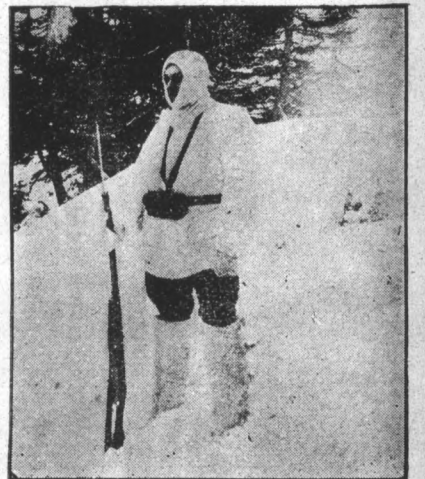
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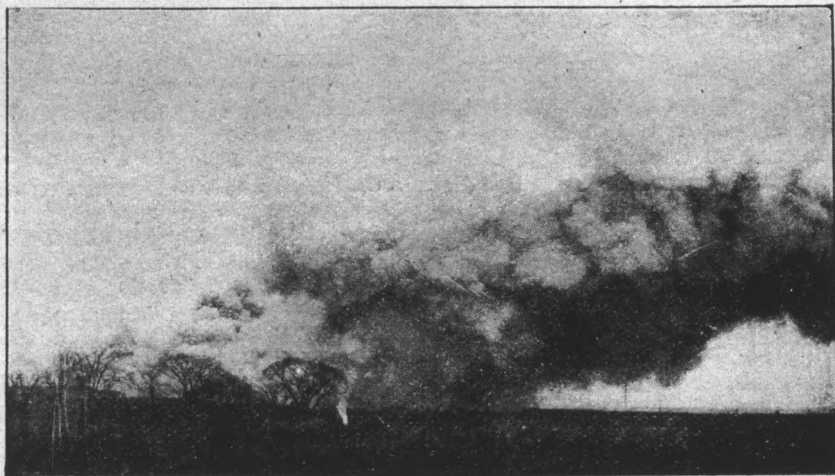
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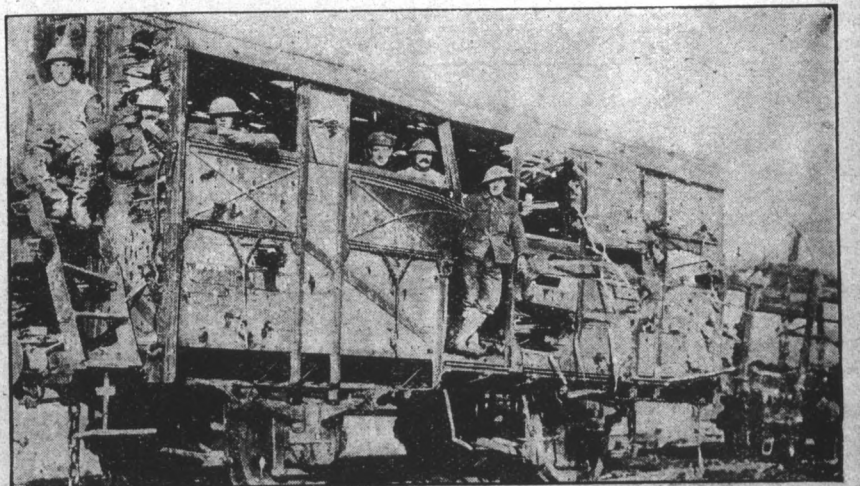
Scores Killed and Injured in Great Munitions Explosion at Kingsland, N. J.



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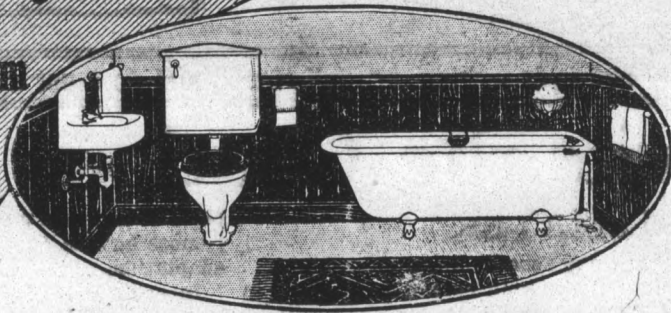


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Additional Clubbing Offers on Page 109

apt to step into it without the use of bait whenever possible.

Always set traps under water whenever possible; about the only time to catch mink in dry sets is when the weather is extremely cold and the scent is frozen out of the trap, as it were. Always cover a trap under water, as the mink's eyes are as keen as his nose; a crab, or crawfish, tied to the pan of a trap, with the rest of the trap carefully covered, is very attractive. Always be careful to avoid getting sticks or bunches of leaves or moss over the hinges of the trap jaws; for instance, a small stick placed close down in the hinge of a trap will spread the jaws enough in the center to allow a mink to pull his foot out. Be sure to leave everything looking natural; set the trap from the water and avoid touching the bank whenever possible. It is curious to note here that mink will pay less attention to human scent at bridges, culverts, etc., than they will elsewhere.

As to traps: The mink requires a stronger trap than the muskrat; a good strong No. 1 will do, but a No. 2 is better as there is always the chance of catching a coon or otter.

Regarding scents: I am neutral. I have used a great many scents that are sold by the fur houses and, while I am convinced that, in most cases, they are not a hindrance, I have never been positive that they are a help.

Here are a few methods of setting which, when properly used, are usually successful: When trapping along a small brook six feet or so wide, find a place where there is a bank two or three feet high overhanging one side; then place a good sized bait on the opposite side, in a pen of stakes if the bank on that side is low, and on the

side of the high bank place a trap in a couple of inches of water, carefully covered. Now it is the mink's nature to be curious, while he is too timid to approach the bait; he will consequently go all over the premises and, sooner or later, will step into the trap.

When trapping along the shores of a pond, lake or large stream find an overhanging bank, stump or bog where a bunch of heavy grass hangs a foot or two above the water, which must be shallow. Take a piece of wire screen and make a small cage two or three inches square; in this little cage place a couple of live mice with a few grains of corn; secrete the cage in the bunch of grass above mentioned. With a carefully placed trap in the water below, you are pretty sure to get Mr. Mink when he tries to get the mice.

There is another set which I usually resort to when I have to deal with an old, trap-wise mink. It can be used almost any place, though I prefer running water. The set is my own design and I have yet the first time for it to fail me, and since the old mink are usually the valuable ones I place especial store by it. I kill a rabbit or partridge (I say rabbit or partridge because I have never used anything else), run a stake through the bait and, placing the chain below the bait stake the trap to the bottom of the stream in from one to two feet of water with this same stake. Place the trap beside the bait and when the mink tries to secure it he gets caught. I don't always catch my mink right away, sometimes it is a week or two before he ventures to the bait, but he always comes to it sooner or later. It is worth remarking that I have never caught the second mink in the same set of this kind.

A Great Power Is Liberated

By ALONZO L. RICE

IT is instructive to reflect occasionally upon the apparently insignificant origin of splendid discoveries. Nature furnishes agents and leaves man to discover, to develop, and to apply them.

Thales, the Milesian philosopher, is said to have been the first to observe the fact that if a piece of amber be rubbed, it receives and retains for a short time, the power of attracting light substances; as, for instance, a bit of paper, or a small feather. Some hundreds of years passed over before it was found out that glass and sealing wax, rubbed in the same manner as amber, will also draw light bodies. But from these facts nothing very great could certainly be looked for.

Otto Guiricke, one of the inventive geniuses of history, contrived a machine in which the glass should turn round by means of a handle, while it rubbed against a cushion covered with silk; and he obtained in this way a greater attractive power from the glass than before. He also obtained another thing, which it seems he did not appear to have expected; namely, sparks of fire darting from the turning glass toward any body which was put within a short distance. Still there was no method of collecting this power, so as to get it in large quantities and preserve it for further experiments.

The object was long afterwards attained by the invention of the Leyden jar, which answers all the purposes just stated, and which, by the experiments to which it led, gave rise almost immediately, to a new science. Now the Greek name of amber is electron; and, as the amber was the substance by which the agent was first found out, the new science was, from the circumstance, called electricity.

Dr. Franklin, who was captivated by the curious and amusing experiments in electricity, made several important additions, and had even the boldness to conceive that this principle was the same as that of lightning. For this conjecture he was laughed at and

ridiculed; but, as he knew that laughter and ridicule cannot disprove anything, he still upheld his opinion, and finally determined to put it to the test of a decisive experiment. Of this experiment, and of the hopes and fears which it excited in him, Franklin has left a full and graphic account.

He relates that he and his grandson went one day into a small summer house; that they sent up a kite formed of a handkerchief spread out by means of some slender sticks; that they fastened a key to the string of the kite and brought the key near to a Leyden jar. The Doctor expected a spark to be thrown from the key to the jar; but for a long time no such appearance occurred, and he confesses that he almost gave up in despair. At last the kite soared into a cloud; and to the great delight of the Doctor a powerful discharge of the electric fluid was produced. He thus proved as many have confirmed since, that the lightning of heaven is the same agent which is excited, or brought into action, when we rub amber.

The Doctor was one of those men who, when they made a discovery, lost no time in turning it to some useful account. He contrived the lightning rods, which, by carrying electricity of the clouds quickly to the earth, prevent those explosions by which, in thunder storms, buildings have been dashed to pieces.

Not many years ago it was ascertained that electricity and galvanism are the same thing, that is to say, the same agent merely produced under different circumstances; and more recently the identity of electricity with magnetism has been established; all the operations in each of these departments of science being occasioned by the agent which manifests itself on the friction of amber. The same principle has been supposed to cause chemical affinity; and some very striking illustrative and almost confirmatory facts have been given by writers on the subject.

"Mister 44" By E. J. RATH

CHAPTER XIII.

"Us for a Raft."

Later, when the pail had been suspended across their fire on a green stick and Stoddard had dropped a number of pieces of meat into it, he explained that an indefinite amount of parboiling was the first step toward eating porcupine of advanced age. Sadie agreed with him when after an hour of parboiling and several minutes of roasting over the flames, she attempted to set her teeth in a juicy strip.

"It chews like an automobile tire," she observed. "Keep it boilin', No. 44."

Long after dark the contents of the pail were still simmering.

"We'll try again in the morning," yawned Stoddard.

The wind had died with the day; the trees above them stood motionless. There was a peaceful somnolence about the island that stole into the minds of the castaways. They were indolent and content. There was nothing to live for but the moment. Tomorrow would be another day; it could take care of itself.

The subtle mesmerism of the big outdoors had placed its spell upon them. They asked nothing, wanted nothing. Everything worth having was theirs.

Stoddard had fallen asleep by the fire when Sadie stole softly into the little shelter he had built for her. She knelt for a moment on the balsamboughs, her head bowed, her lips faintly moving. Then as she lay down with a comfortable sigh she murmured:

"That was twice, because I forgot 'em last night. And I put him in!"

Stoddard went swimming at dawn. When he tiptoed out of camp and made his way toward the farther end of the island he chuckled at having repeated Sadie's trick of the day before. He did not know she was watching him through half-closed eyelids, feigning sleep. As he disappeared from view she smiled.

"No. 44 thinks he's puttin' something over," she murmured. "I guess he gets tired havin' a woman hangin' around all the time. I would if I was him."

She settled herself contentedly for another nap. Her mind would not have been so peaceful had she known that he would soon be rolling luxuriously in water ten times over his head.

There is no chill in the Deepwater in early September. It has been storing warmth from the sun the summer long and has not yet begun to yield back that which it has put by. The cold water has settled to the depths and the big fish have followed it, whence they are to be taken only by the angler whose line runs far below the surface; above, the summer has been preparing the swimmer's bath.

Stoddard struck far from the shore in his morning revel. The touch of the water thrilled him. He felt that he could swim on and on the day long if he chose. Time and again he plunged his head beneath the mirror-like surface, fairly wallowing in the crystal medium that sustained him. Then he would lift it, shake the shining drops from his hair, and dash forward with mighty overhand strokes as if there were a goal to be reached.

All the boy of him was awake. Sometimes he dived, swimming swiftly beneath the surface, to rise again twenty or thirty yards distant. This was "playing loon." Again he lay upon his back and thrashed the lake furiously with his arms and legs until forced to rest from sheer want of breath. Then he would float, staring at the blue sky.

No longer was he pent-up, marooned, on a lonely island; he felt free again; he could go where he willed.

In truth, had it not been for the girl in the camp Stoddard would have given no thought to turning back. He would have laughed at his prison and left it to its solitude in the mists of the morning.

Reluctantly he doubled on his course and swam lazily back toward the point from which he had dived; still more grudgingly did he draw his dripping body from the sunlit water. At his feet he could see far down among the rocks, where the bass lurked in the shadows in the heat of the afternoons. He wanted to plunge again and explore. Oh, for a day in the wonder-lagoon of "The Coral Island," with Ralph Rover, Peterkin, and Jack!

He dressed slowly and followed the shore back to camp. Sadie had risen and was sitting on a rock down by the water, trying to comb her bronze aurora with her fingers. As she drew heavy strands of it across the sunlight it flamed gorgeously, until it seemed to give forth a light of its own.

Stoddard, softly approaching, halted for a little and watched with eyes that marveled.

"She's wonderful!" he whispered. "And she comes from a factory! I don't believe it. It can't be true! Why, it's impossible! It's easier to believe she has stepped out of some ancient legend."

His musing was interrupted when Sadie turned suddenly, as if feeling his presence through a sixth sense.

"Mornin'!" she called gaily. "I ain't seen that comb you was goin' to make me."

The spell was shattered. Somehow the breaking of it hurt; it filled him with vague sensations of annoyance and pity. He wondered if she was doomed forever to speech like that. Kitty and Estelle talked differently; they were "educated." Would this splendid creature never be permitted to talk as they talked?

No; he did not mean that either. His Fifth Avenue friends, Kitty Fitch and Estelle Wallace, talked much foolishness and shallowness; they purred comfortably and quite contentedly about the feathery things that floated on the surface of life. He did not want Sadie to do that; he knew she could not, for her mind reached into the quiet depths. The soul in her was strong and brave and wise. But—if only some magic would touch it and give it speech!

"Your hair's all wet," she observed as he stood staring at hers.

"I've been swimming."

"O-o-oh! It was fine, I bet."

"I almost hated to come back," he confessed. "I just wanted to go on forever."

"And how far did you go?"

"Oh, a quarter or a third of a mile, perhaps."

"Straight out from shore?"

He nodded. Sadie frowned and her face became suddenly grave.

"You mustn't do that, No. 44," she said.

"Why not?"

"Suppose anything happened to you?"

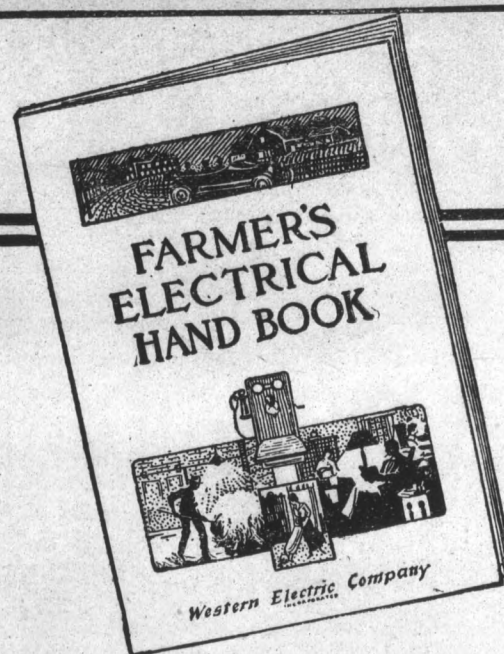
"But nothing could happen."

"It might," she said, unconvinced. "Then I'd be in a nice fix."

Just why she added the last sentence she was not clear in her mind. It did not carry the real reason, for her anxiety. It was not her plight that would disturb her if anything happened to him; it would be the plight of No. 44 himself.

Perhaps the explanation slipped from her in a moment of purely feminine evasion; it seemed to come automatically, to cloak a thought that her lips were too shy to utter.

"I'm always careful Sadie," he an-



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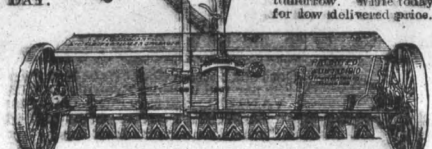
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swered. "I don't take chances just for the fun of it."

"Well, I'll let it go this time," she said solemnly.

A few seconds later she burst into laughter.

"I was just tryin' how it sounded to boss somebody," she explained, her gray eyes animated with amusement. "I ain't ever had a chance at that. I've always been bossed myself. Of course, I can't really boss you. I bet nobody can."

"I'm not so sure, Sadie."

"I am. You're one of the bosses yourself. You boss me."

"I don't mean to."

"Yes you do, No. 44. You bossed me out there in the water; you boss me here on the island. You bossed me yesterday when—"

"I'm sorry," he broke in. "You must stop me whenever I start."

"Stop nothing!" exclaimed Sadie. "I wouldn't stop you. Why, I oughta be bossed! Suppose I hadn't took orders from you night before last. Where'd I be now? Drowned—like my wardrobe."

"No; you just got to boss me! I need it. You mustn't think I mind. Not a bit! Why, I like it! That is, I like bein' bossed when—"

She hesitated, undecided whether she ought to say it. As a result of the pause, she compromised.

"—when I ain't gettin' orders from the Shrimp."

"He's absolutely barred, is he?"

"Forever and amen! Why, No. 44, when I think of what I've took from him I could just jump out into the middle of that water. I get ashamed of myself. Of course, I talked back. But that didn't really count. I had to do what he told me."

"It wasn't what he told me, either; I didn't mind doin' the work. It was because the bossin' come from him. I never stood for much since when I was in school."

Stoddard contemplated her for a moment before he spoke.

"You went to school—back in Ohio?" he suggested.

"Uh-huh. It's a good while back, too. I was through with that before I was fourteen. I've been working since." Sadie wound a strand of her hair round 'one finger.

"I want to ask you something," she said after a little.

"Go ahead."

"Will you answer it straight?"

"I'll try to."

"Do I talk very bad, No. 44?"

She almost whispered the question. "I don't think you talk badly at all, Sadie."

"That's not answerin' straight," she said, looking up at him. "You promised."

"I think you talk a lot of sense," said Stoddard hastily. "Truly I do."

"That might be," she assented. "Sometimes I'm sensible, I know. But I mean, the way I say it?"

"Every person talks in his own way," he temporized.

She shook her head and twisted another strand of hair.

"You don't want to hurt my feelin's," she said. "I understand. But it's like this: I've been listenin' to you talk a whole lot, and you and me talk different. It's because you're educated and I ain't."

"And I guess most of the things I say sound pretty awful to you. I noticed you looked at me kinda funny once or twice."

"Sadie!"

Stoddard flushed with mortification. "It's all right," she continued calmly.

"Why, I can understand. You see, even if I don't say things right, I can 'most always tell when somebody else says 'em right. A good deal of the way I talk is habit, but not all of it. The rest's because I'm ignorant."

"Back in Ohio, before I left the farm, I could talk better 'n I do now. But workin' in the city I sort of fell in with talkin' like the people I worked

with. None of us had no real education. Back there it was all right. Maybe it wasn't all right, either; what I mean is, it was good enough to get by with."

"It's a slack way of gettin' on, of course. You get to slangin' along and by and by you talk that way all the time. I never noticed it much till I got up here. But now—" She made a little gesture of resignation.

"Sadie," said Stoddard gently, "remember this. The most important thing about talking is not how you say it, but what you say."

She pondered this and slowly nodded her head.

"You said something, then, No. 44, even if it was meant to let me out. But then it's better, when you have got something to say, to be able to say it right, too. Do you guess I'm too old to learn? I'm twenty-four."

"We're never too old to learn anything," he declared vehemently.

"I suppose I could, if I got my mind onto it," she mused. "You see, I'd hate to have to always be workin' at some job like packin' shirts. You got to have an education if you want to get good wages. Of course, you got to have sense, too, but the education's part of it—a lot of it."

"Some day I'm goin' to try to begin all over again. I'd like to get a job where I could use my head. But I ain't ready for that now. Maybe it'll be years; I don't suppose I'll ever get very good at it. What sort of a job do you think I'll get here, No. 44?"

Thus they were back to the topic that most disturbed Stoddard.

"You see, havin' interests here," she added, "you oughta be able to give me a pretty good idea."

"The trouble is, Sadie, you'll want to be outdoors, and I can't think of any outdoor jobs for women right now."

"I wouldn't expect it to be all outdoors," she said. "Just so 's I could feel outdoors was right next to me, and I could look at it once in a while and get into it after the whistle blew. There ain't no factories here, I suppose."

"I don't know of any. The trouble is, up to date it has been mostly a man's country. Nearly all the women here are tourists."

"I guess that's right," she nodded.

"Would you want to work in the hotel?"

Stoddard had not the least idea whether he could get Sadie a place in the hotel. He merely grasped at the straw.

"Why, that'd be all right!" she exclaimed. "You mean waitin' on the table or doin' washin'? I'm strong enough, easy. I'll tackle anything, No. 44—except where they're lookin' for education. I can't go that yet."

"I'll see what I can do at the hotel then, as a starter."

"It'll be a cinch for you," she declared confidently. "They won't turn you down! They can't afford to turn down people with big interests."

Stoddard stirred uneasily. He felt himself slipping deeper into the mire of misunderstanding. He did not even know who was managing the hotel; he merely knew it had changed hands. As for his "interests," they were mythical in the sense that Sadie meant.

"Well," she said, smiling, "I guess that settles the job-question. I'll go to work in the hotel."

In great peace of mind she resumed the combing of her hair with her fingers. Stoddard went up to the camp, cursing himself, and set about the getting of some breakfast.

The flesh of the aged porcupine after a night of simmering over the fire seemed that it might yield grudgingly to human teeth. He spiked several strips of it on green sticks and set them over the embers to broil.

After he had scrubbed their lard pail with sand, Stoddard proceeded to

put it to another culinary use. When he called Sadie to breakfast a surprise awaited her.

Hot chocolate!

She clapped her hands in wonder.

"It's a little weak," he apologized, "because I used only half of what was left. But it's better than cold water."

"It's grand!" she cried after she had sipped gingerly. "Where's yours?"

"We'll both have to drink out of the pail."

The porcupine had one sterling merit—he promised to last a long time. It was out of the question to chew him rapidly. On the contrary it required much perseverance and excellent teeth to reduce even one strip of him to the point where it could be swallowed.

But here was meat, fresh and very much like pork, and both Stoddard and Sadie were ravenous. They drank alternately from the tin pail and had an altogether gay breakfast.

"What's the program," demanded Sadie after she had washed the dishes an occupation which consisted of rinsing the tin pail in the lake.

"The program is to get off this island," he replied with emphasis.

"All right. How?"

"Well, how does this strike you? I'll swim over to the mainland, resting at one island on the way. Once there I'll go along shore until I come to the entrance to this bay. From there I can see across to the hotel on Deepwater Island. I'll make signals with something and get help."

Sadie considered this, then shook her head.

"You got that idea from goin' in swimmin', didn't you?"

"Partly."

"You mean to swim as far as that land over there?" she asked, pointing across the water.

"That's not very far."

"No, No. 44; I can't let you."

"But it's easy. I've often swum twice as far. Why, I swam as far as that this morning."

"But just suppose you didn't make it," she said. "Just suppose—"

Sadie covered her face with her hands for an instant.

"No; nothing like that, No. 44," she declared earnestly. "I won't let you. I'm goin' to do that much bossin'."

Stoddard shrugged his shoulders.

"And besides," she added, "how about me? If you don't make it maybe I'm here for the winter. I suppose I'd have to hole up like a bear. I never tried it, but I bet I ain't any good at it. Let's think up something else."

"It's the best chance I can think of," he said grumblingly. "Of course, if you won't—"

"That's right; I won't," said Sadie. "I just can't!"

"But it's perfectly safe."

"That's one thing I ain't goin' to take your word on," she replied slowly. "Maybe I'm silly, but I can't help it. And don't get mad at me, because— Well, because. That's enough reason."

She reached across and patted him on the hand.

"There now," she said soothingly. "We won't talk about that any more."

You wouldn't leave me here alone, No. 44. And I wouldn't let you!"

He laughed a little and drew gently at his pipe. It was the next to the last smoke.

Sadie was experiencing something akin to elation, but was careful to repress signs of it. She had bossed him! She was not altogether sure she had a right to do it; she freely admitted that in the ways of the Deepwater country he knew all, while she knew literally nothing.

If he said he could swim it he could. But she did not want him to go! She felt that he must not, even if it was the only chance. Yes, she would rather starve right there on the island—so long as she was not starving alone.

As for Stoddard, he did not put the scheme out of his head. He merely laid it aside until Sadie might be in a more reasonable or desperate mood. One or the other would doubtless make her content to let him swim for it, he figured.

"You know we went over all the chances yesterday," he observed. "And they're not any different today."

"Maybe there's some we didn't think of," she said. "Let's try and find some more. And it is a little different today, anyhow. It's not blowin'."

"Well?"

"You said the blowin' would keep boats from comin' out. Now they can get around all right."

"Yes. But I also said it was very unlikely that any would be coming into Pickenel Bay."

Sadie mused over that for a while.

"It seems to me we've just got to get a boat of our own," she observed. "Couldn't you build one?"

"With a knife?"

Sadie subsided. She did not think even No. 44 could do that. And if he could, it sounded like a task that would take years.

They sat in silence for many minutes, Sadie alternately frowning and shaking her head as she groped for ideas and found them elusive. Suddenly she sprang up.

"I got it!"

Stoddard regarded her with an amused look.

"I got it from the movies!" she exclaimed. "Don't laugh. I got to rememberin' about two shipwrecked folks, a man and a woman. They was away off somewheres on a island, where there wasn't any ships likely to come by, only they'd been there for months and months, and we've been less than two days. So what do you suppose the man done?"

"Grew wings," suggested Stoddard. He knew that all things were possible on the flying film.

"He built a raft!"

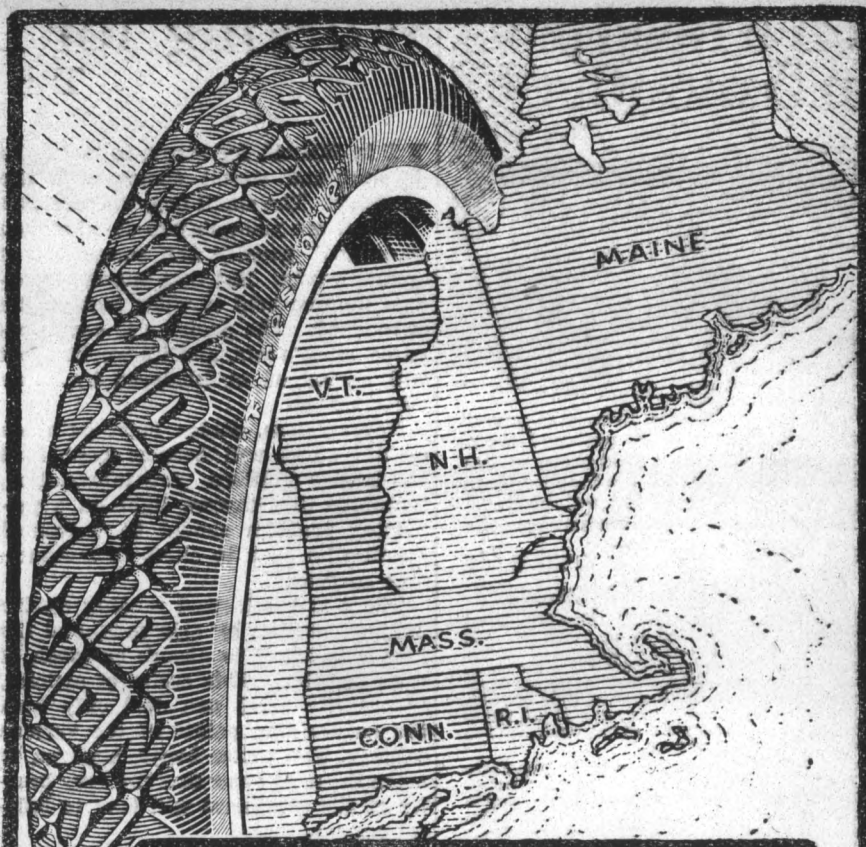
Sadie stood beaming down upon him. "And they got on the raft and sailed away until a ship found 'em," she added. "And then—"

"Well, then what?" he asked.

"Then they was saved," she said primly.

"Sadie," he said, rising. "I believe there's something in that raft idea of yours. Want to try it?"

(Continued next week.)



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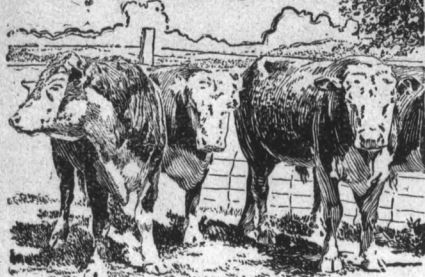
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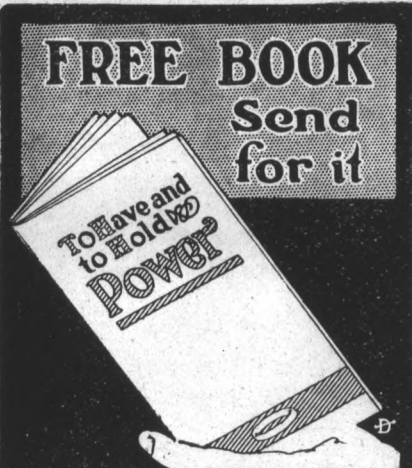
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Working for Life—Some Ways of Doing It

The Teacher's Way

By EARL R. RICE

IT is difficult, for many, to make the best and wisest choice of a life work. The small boy, when asked: "What are you going to do when you grow up?" usually has some sort of answer ready. But that answer is seldom the one held to when mature life is reached. The decision is conditioned by many facts, and its working out will be helped or hindered by many other things.

Nevertheless, choice must be made or life effort will become haphazard and largely fruitless. Any information, therefore that throws light on a perplexing problem should be welcomed by all who seek to climb to measurable success.

There is much good reading on the subject, written by able men, and the reader is urged to absorb as much of it as possible. This series of articles, necessarily brief, can deal only with the outstanding points of the various callings. The writer hopes, however, to make these so clear that the very brevity of the treatment will lead to helpful service.

The person who is at the point of making choice of a definite life work should not forget that organized society works along five lines, and only five. These lines of activity have developed five great institutions, as follows: The home, the school, the church, the state, and the industries. The first four of these terms are self explanatory but the last one covers so wide a field that it must be stated in terms of familiar work.

Everyone, in greater or less degree, contributes something to the development of home, school, church or state, but the lines of industry cross and recross so many times that the individual is rare who can follow more than one of them at one and the same time. Six of these lines of effort will be discussed, and in the following order: Teaching, the law, medicine, the ministry, mechanical arts, and last, but by no means least, agriculture, or farming.

The teaching profession, for it is being called, more and more, and perhaps rightly so, a profession, is a most excellent one. Our country boasts of its schools, from the little red one in the country to the big red one in the city. A successful teacher occupies no mean place in the nation's economy. The country school teacher used to be, and in many sections is still, one of the most romantic and pleasing personages of the whole community. The influence of the teacher, exerted during the plastic stage of mind and morals, is, and always will be, deep and lasting. The true teacher is remembered with gratitude and veneration.

In all fairness to teaching as a life work, three things should be said:

First of all, a fitting preparation for teaching, vital and necessary to success as it is, seems reasonably easy.

There never was another time when so many educational opportunities were to be had as today. The schools are of easy access, every village having its high school and each section of the state its country or state normal school. Many independent schools, under competent management, give great inducements to the student who wishes to advance faster than the regular curriculum plans.

Besides all these, the great city school systems provide regular normal training for prospective teachers. These training schools are open to candidates who have shown an aptness for teaching and usually the only investments necessary are those of time and diligent effort.

It is a fact that the state normal schools are among the best equipped institutions of learning. The tuition fees are only nominal, barely covering cost of registration and supervision. But choice talent, both from the view-

point of academic preparation and professional fitness, is at the service of all comers. Moreover, nearly all work done in the normal schools may be applied on courses leading to degrees, either in the school itself or in other related institutions. The prospective teacher is usually helped to a position at the close of his course. After that his future is in his own hands and the place he occupies depends largely upon the devotion and efficiency he brings to his task. No one need hesitate to make choice of teaching as a life work on account of difficulties in the way of preparation.

In the second place, the field of real service is a larger one. The size of the field is constantly growing.

The opportunity to come close to young life during its formative period is one that many men covet. The influence of a true teacher is powerful in character building. The intimacy of

What will be your life job?

Are you personally adapted to the calling you have chosen? Will the opportunities offered by it demand the best that is in you?

This article on how the teacher works for life, is the first of a series written to help young people to select their life work more intelligently.

Succeeding articles will tell how the lawyer, the doctor, the minister, the engineer, and the farmer all face their problems and opportunities in the big business of working for life.

Dr. Rice is thoroughly qualified to speak upon these matters out of his wealth of experience in dealing with people and his unusually wide opportunity for observing the successes and failures of persons coming to his attention.

the relation, especially in the smaller schools, is such as to make for easy exchange of confidence and help. Many examples could be given of character developed, hidden talents discovered, or unknown powers brought to light through the kindly interest of teacher in pupils. A number of years ago the writer, at that time a teacher, had as a pupil a boy whose home surroundings were discouraging and whose mental and moral outlook were extremely limited. Through the touch of interest on the part of the teacher a way was found by which to get into the life current of the lad and means were developed to catch and control his attention. Only a fortnight ago word was received that this unpromising boy had himself come up to manhood with high ideals and large visions of what he could do and be. So far has he advanced, in fact, that he is now about to receive his master's degree from one of the greatest schools of the land. He is thoroughly equipped for a worthy place in life. It is a satisfaction that comes to many a teacher to see pupils of former years embark on life's big voyages with assurance and confidence of making safe run to the ports of success.

Teaching has changed very much during the last few years, both in regard to method and matter. The district schools have felt the change. Many of them have been merged in the township school. Methods of instruction in vogue ten years ago are now obsolete. The school in the rural section, if alive to its opportunity, and that means a live, competent teacher, deals with vital, everyday matters that would have been laughed at a decade ago. Special courses are in the high

schools, such as farm studies, soil chemistry, stock selection, household economy and others. All of which gives wide range for the exercise of the teaching faculty, and assures spice and variety to the profession.

As the successful teacher rises to higher positions of supervision and administration, he finds a constantly opening field. The narrow limits of the school-man, as such, widen out to those of the community man. High school principals and superintendents occupy exceedingly strategic positions in regard to the problem dealing with the foreign population.

It is no easy matter to provide a safe basis of citizenship for the newcomers. No other institution offers so many means of helping as does the school through its highly patriotic teachers. The field of the teacher thus becomes nation wide and he becomes, if faithful and efficient, a most valued factor in building a bigger and better America.

The third point, and perhaps the last, to be made, is worthy of much thought. The teacher is poorly paid. This is not a welcome fact, but is a fact nevertheless, and every young person preparing for teaching must face it.

A glance at the directory of the schools of the state will confirm this declaration. It is no intuition of the writer to deplore the fact, nor to offer a remedy. This is beyond the scope of this paper. But a life work must be based on realities. It is not too much to say that the teacher must be prepared to reconcile himself to productive work during only ten months of the year, and for that to receive a wage often inferior to the local blacksmith, cheesemaker, or section hand. Sixty dollars per month for grade and high school teachers, with one thousand to twelve hundred for principals, are low figures for so useful and needed a work as that of the teacher. But these are the common prices.

Few teachers can hope to reach a competence and rich men in the profession are scarcely ever known. The teacher must look to other things besides a stipulated wage for his larger compensation. The satisfaction of service rendered, the joy of contributing something to the world, a place in the esteem and affection of others, all these are considerations. If a man, or a woman, can find these returns of sufficient value to give a life work for them he has one of the essential qualities of the teacher.

Pensions for teachers will sometime be provided and rightly so. The spirit of the age is running along that line. But in the meantime the facts are here. There always comes a time in life when rest and quiet will be needed. Any comprehensive plan for the output of a man's soul through life's energies must take into account the necessary care for his body.

A careful study of the situation along these lines, should help to a right decision in relation to it on the part of young men and women who read this article. Remember that preparation may be easily secured, that the field is a wide one and is bound to grow wider each year. Don't forget the amount, measure and kind of compensation.

That you are fair or wise is vain,
Or strong, or rich, or generous;
You must have also the untaught strain
That sheds beauty on the vain.
—Emerson.

Alone to guilelessness and love
That gate shall open fall:
The mind of pride is nothingness;
The childlike heart is all.
—J. G. Whittier.

Thy friend hath still another friend,
And he a friend as well:
Be silent, lest to all the world
Their lips the secret tell.
—From the Hebrew.

Land O' Nod Stories.

By HOWARD T. KNAPP

Frisky's Toothache

I BELIEVE Frisky the Red Squirrel has the toothache," said Billy Be By Bo Bum.

"What makes you think so?" asked Tinker Teedle Tee.

"I just saw him come sneaking out through the trees with both cheeks so swollen that they stuck way out."

"Ho, ho, ho!" laughed the merry little elf. "That is the best joke I've heard for a long while."

"Well, it wasn't any joke to Frisky," retorted Billy. "I know it must have hurt him terribly, for he wasn't making a sound, and I've noticed that whenever he stops chattering and scolding, even for a minute, something is the matter."

"He was quiet for two very good reasons," said Tinker. "In the first place he couldn't have said Boo if he had wanted to, and in the second place he didn't want to attract any attention or let any of the Little People see what he was doing."

"Why couldn't he make a sound?" demanded Billy.

"Can you talk or sing when your mouth is crammed full of candy?" asked the elf in turn.

"Of course not, but what has that to do with Frisky?"

"Everything in the world," answered Tinker. "Frisky's mouth was full of something good to eat which he was carrying to a safe hiding place, so of course it was impossible for him to make a sound."

"Huh! that's a lot of trouble to take for such a small amount of food," said Billy scornfully.

"That's where you are wrong, Billy Boy," replied Tinker. "Frisky can carry half a dozen chestnuts in his mouth."

"He can? Why, I should have said that one small nut would make a good mouthful for him," said Billy in surprise.

"You see, Frisky's mouth is his market basket," replied the elf. "Old Mother Nature, who is always thinking of ways to help the Little People, made the skin of Frisky's cheeks very loose and baggy. When his mouth is empty it doesn't show but when he wants to carry some treasure to his storehouse, the skin stretches and stretches as he gathers nut after nut, until his cheeks bulge out just as though he had a toothache."

"But why didn't he want anyone to see him? Surely he wasn't ashamed of carrying home a mouthful of nuts?"

"Frisky is a very suspicious fellow," replied Tinker. "He never trusts any one and he didn't want anybody to see where he hid his treasure. And to tell the truth, he had good cause to be suspicious, for if Busybody the Bluejay discovered his storehouse, the next time Frisky went to his hiding place he would find he had been robbed."

"Frisky is a happy-go-lucky little scamp, living from hand to mouth and generally content to let each day take care of itself. But after Jack Frost has paid a visit to the woods and there is no more green corn or berries for him to eat, then for once he begins to think of the future."

"After the first frost has opened the chestnut burs, and the leaves begin to fall, the big woods is a mighty busy place and the Little People have no time to bother with a lazy bones. In every nook and corner little feet go pattering after winter supplies, and then Frisky also begins garnering, for he suddenly remembers the hungry days of last winter."

"Now, Frisky is always more anxious to see what the other Little People are doing than he is to fill his own storehouse. When he does gather some nuts, he seldom trusts to one hid-

ing place, he is too suspicious for that, but hides his treasures in twenty different places."

"I should think he would forget some of the hiding places, with things tucked away in so many out of the way corners," said Billy.

"He often does," replied Tinker. "Then every once in a while he gets a delightful surprise when he stumbles onto a little store of nuts that he had forgotten all about. He enjoys the contents of that storehouse far more than the others, for he thinks he is robbing one of his neighbors, and he is such a mischief maker that to him stolen sweets always taste better than those he has garnered himself."

"Even when he is laying in his winter supplies, he never gathers much at one time. The minute he sees anyone else preparing for the hungry days to come, he forgets his own work and goes spying to see where the others are hiding their store. The little chipmunk, who knows Frisky's thieving ways, always makes at least one turn of the tunnel to his den too small for his big cousin to follow."

"Sometimes Frisky is so elated over the discovery of a neighbor's store that, with all the fields laden with food, he cannot wait for winter but falls to eating or carrying away the treasure. More often he marks the spot and goes away quietly. Then when he is hungry he will come back and steal the nuts before eating his own store."

WINTER LIGHT.

BY L. MYRTLE SOURS.

A cloudy morning, dull and dark,
Of the sunshine rays there was not a spark;

A storm seemed coming, but—surprise!
The sun broke through before our eyes.
It shone out bright and clear and warm
No danger now of threatened storm.
The snow on the fencetop steaming

stood
Where the sunshine warmed the white-washed wood;
The bushes were flashing like the sun,
Or like stars of evening when day is done.

The sky had changed to a deeper hue,
A radiant, brilliant, shining blue.
A cherry tree with its gray-black bark
Against the blue sky standing dark,
On every branch had a burning sun
That looked like a jewel where it hung.
A shingle roof all spread with snow
Added its brightness to the glow
That stood above the snow clad ground
And the glistening beauty all around.
A sheet of white between the blue
And the gray of an old shop's duller hue.

While the glowing light of the noonday sun
Made millions of jewels flash one by one—
Green and carmine, scarlet and gold,
Like stars of light, or gems of old;

Clear lemon yellow, a dazzling hue
When the white sun ray was shining through.
Where the willow switches gently swung
What looked like oldtime "eardrops" hung;

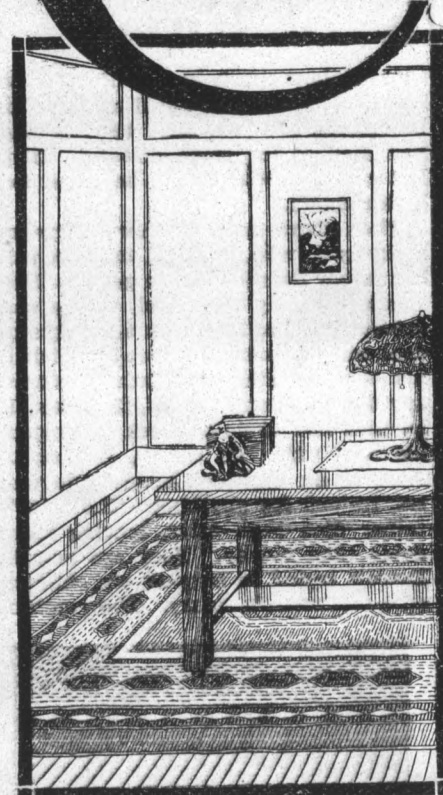
They were made of crystal that flashed with light
And set with diamonds clear and bright;
Snow white, then green, then flame, they flashed
As the rays of sunlight through them splashed.

Ah! the glory of winter, clear and bright,
Brings a thought to the heart of a clearer light
Where the gates of Heaven are thrown ajar
And the light of its glory is seen from far;

We would go to that country, by and by,
Beyond the blue of the shining sky,
For our home is there in that land above
With its glory and beauty, its light and love.

No storm of life, however dark,
Can turn aside or upset our bark
If Love Himself is our guiding star;
He will bring us safe to those gates ajar.

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Woman and Her Needs

At Home and Elsewhere



On the Folly of Envy

A GREAT deal of philosophy has been handed out to unthinking mortals since the days when the Grecian wise men first started the fashion. Some has been worth while, more, the merest twaddle. But none of it has yet surpassed the offerings of the originators of philosophizing, the Greeks. And of all their wise sayings, none sticks with me more closely than the saying,

"Count no man happy until you know the manner of his death."

It's quite a corrective to me when I start that very human trick of envying my neighbor. I see only externals with her, and usually only the pleasant externals, for of course she keeps the unpleasant things hidden as much as possible. When she talks with me she has not a care, evidently. She is happy, serene, smiling, the soul of contentment. She has money and pretty clothes, and leisure to do things for pleasure. When she arises in the morning, which is at her own sweet will and not at the whirl of a maddening alarm clock, someone else has her breakfast ready and the furnace taken care of. The downstairs is dusted and bright when she comes down, and while she eats at leisure someone takes care of her room. Breakfast over, her hardest task is to stand up to be fitted by a dressmaker or to go to a morning musicale. Lectures, theaters, receptions, club work and travel fill her day rather than washing and cooking and mending and dusting, hurrying children to school, straightening out quarrels and wrinkling the brow over the best way to make ends meet. She is indeed a creature to be envied.

But stop. Quite by accident I learn that she has not a real cent of spending money. Everything is bought on account, and the account is limited by a stingy husband. She, too, has troubles making income match desires. Further, I find her husband drinks and comes home quite maudlin.

I pick up the stocking darning with real pleasure, and thank the Lord that if my husband doesn't have much money, at least he isn't miserly with the little he has. And best of all, he helped vote Michigan dry.

Here is another woman, though, who must be perfectly happy. She has not the life of ease the other friend enjoys (?). But she is devoted to her husband and he is to her. She does her own work, but there is only one child, a model youngster who never soils her frock or wears holes in her stocking knees or has to be sent from the table to wash her face and hands. She is a real comfort and help to her mother, and is actually learning to make her own clothes. She can get up mornings and get breakfast if mother wants to "sleep in." The home is paid for and there is a snug bank balance. Here is complete happiness.

Last week she was hurried to the hospital. Cancer of the stomach the doctor said. Her own doctor had been calling it slight indigestion for a year. Once more envy recedes, and I think me of the words of the wise old Greek.

There was the first chum I had when I started to school. She had a nice thick black braid of hair, and I had stubby yellow curls. She always had pretty clothes and no dishes to wash. It went on so through our young girlhood. I always felt abused when I

thought how much easier life was to her than to me. She died at 28 of tuberculosis, one year after her husband had died of the same disease. They left a six-year-old boy to be cared for by strangers.

Then there was another happy-go-lucky girl, who has had only to ask her father for a dollar, to get five. She was sent away to school, where she promptly fell in love with a young student and they eloped before he finished his course. His irate father refused any more aid, and the lad, that was all he was, had to go to work to support his new wife. Of course, he had to start as an unskilled laborer, he was not trained for anything. The bride's father died soon after, leaving more debts than money. They are now in Detroit trying to support six children on a motorman's salary. The youthful

ladies and three young men comprised each committee.

The first group led off splendidly with an old-fashioned corn husking on a moonlight night with everybody competing for a prize. It was a most delightful, informal affair with refreshments of cider, pumpkin pie, apples, doughnuts, hot baked potatoes, and other hearty good things. The big barn was aglow with light from several automobile lamps and the first social affair was a great success. Young and old joined in the sport and the farmer who generously donated the use of his barn had a goodly pile of corn husked out to pay him for his trouble.

The next group provided an evening lecture at the school house by an eminent man who had once lived in the county, and served refreshments at the close. This was a more formal occasion though the address was humorous and reminiscent, rather than heavy and instructive. The refreshments were

work was opening and the nights getting short, and many of the neighbors thought this eclipsed all the others. There were various mirth provoking stunts for young and old, and the social season wound up with so much hilarity that some of the good old people are still laughing over the good time.

It took planning and it took co-operation and it took hard work, but it paid richly. The young folks stopped running to the "movies" and the elderly people found they were not laid on the shelf by any means. Even the grandparents had a good time and all are eager to repeat the program.

POND LILY LACE.

BY MAE Y. MAHAFFY.

For edging curtains, trimming underwear, etc., the pond lily lace illustrated makes an unusually charming and practical decoration. It is quickly made when once the worker grasps the plan, and may be of fine or coarse materials, as preferred. Each scallop is completed before another is commenced, so that the length may be increased at will.

To begin, chain (ch) 18, and slip stitch (sl st), back into 1st ch, making a circle, this circle afterwards taking the form of a triangle as the work progresses. These triangles appear in the upper half of the lace.

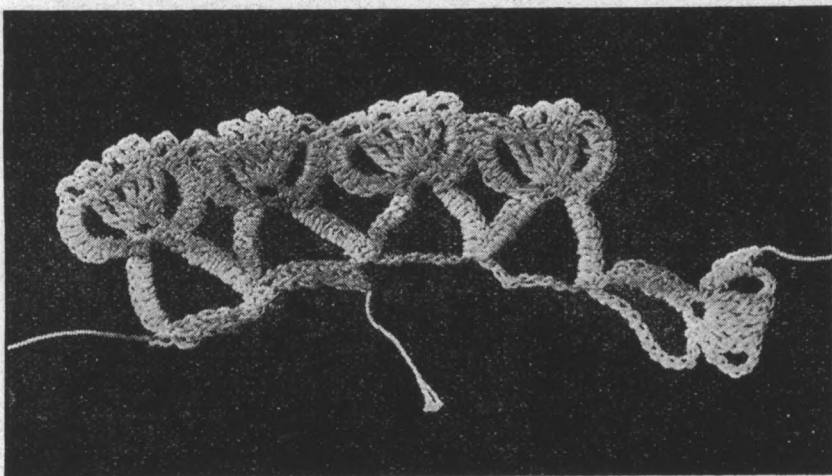
Single crochet (sc), 8 over 6 of the ch. Ch 3, and sc 1 over circle. Ch 6. Triple crochet (tc), 5 over ch of 3. Ch 6, and fasten in ch of 3. Turn, and sc 8 over last ch of 6. Ch 3, sc 1 between 1st and 2nd tc; ch 3, sc 1 between 2nd and 3rd tc; ch 3, sc 1 between 3rd and 4th tc; ch 3, sc 1 between 4th and 5th tc; ch 3. Sc 8 over remaining ch of 6. Sc 8 over opposite side of triangle formed of the original 18 ch.

Each succeeding scallop is made in like manner, except that before working the picots at the bottom of a scallop a sl st is made to secure it to the scallop previously made.

If a heavier top edge is liked better than the simple line of chain stitches this line may be enlarged by working back along its entire length with alternate ch and sc stitches, as is shown on two of the pictured scallops. One scallop is also left unfinished to show the work in progress.

CLEANING ALUMINUM.

Unless an aluminum kettle is badly discolored it is best to clean it by scouring. An aluminum utensil which is given proper daily care probably will not become so stained as to need cleaning by other methods. The kettle should first be freed from all adhering food and washed in hot water with a mild soap. Scraping should be done with a wooden spoon, since aluminum is a soft metal and easily scratched. The scouring preparation chosen should not contain hard, sharp particles of grit which would scratch the aluminum. The grit should either be very fine or else should consist of rounded grains. Those who live near the ocean can obtain sea sand for scouring, others may be able to purchase it, for it is sold in many stores. This has rounded grains which clean effectively without scratching. A moist, soapy cloth is dipped into the sea sand and rubbed on the metal. Care should be taken not to allow the sand to run



An Easily Made Edging of Pond Lily Lace.

fancy has long since died and there is not much to life for either but sordid cares, unrelieved even by mutual love.

Thus I might enumerate case after case, to show that no one person has a monopoly on good luck and happiness. We are all served about alike. Some seem to have more, but after all it is not possessions that make for happiness. The woman who washes her own clothes is ten times as likely to be happy as the one who hires a laundress. For nine times out of ten the laundress doesn't show up, and when she does come she tears off buttons and leaves as much dirt in the garments as she takes out. So the old Grecian was right. Happiness is such a fickle thing that it should never be imputed to any man until his life is ended.

DEBORAH.

THE FRIDAY NIGHT COMMITTEE.

BY HILDA RICHMOND.

Some enterprising young people anxious to give up the rather staid country neighborhood in which they lived formed themselves into eight groups of six each and gave to each group the name "The Friday Night Committee." Then they planned a series of social meetings for the months of November, December, January, February and March, pledging themselves to furnish a novel, entertaining, attractive social evening for the entire neighborhood each alternate Friday evening, the time and place and character of the entertainment to be entirely in the hands of the committee. Three young

sandwiches, hot escalloped oysters, pickles, salad and cake. These things were served on paper plates and the work of cleaning up was very slight. Music before and after the lecture was a pleasing feature of the evening.

Though slightly late the next group gave an entertainment appropriate to Thanksgiving, with the Grange hall beautifully decorated with corn, apples, autumn leaves, vegetables and late flowers. Next day these exhibits were sold to town people who called, and a neat sum netted which the committee put away for the community Christmas tree. The refreshments on this occasion took the form of a big harvest home supper with every good thing the farms afforded, in evidence in the long table. After that came an old-fashioned singing school, and then the community Christmas tree.

That Christmas tree deserves more than a paragraph for it stirred up the neighborhood as nothing had done for years. The people brought gifts for the poor until it required a two-horse wagon to get them to town to the Aid Society, which thankfully received them. There was a supper, a pleasing program, souvenirs for all, good cheer and the feeling above everything else that the young people were serving their neighborhood as no other young folks had ever done.

Of course, New Years, Washington's Birthday, St. Valentine's Day, and other holidays furnished the subject for the following entertainments, but in between they had an old-fashioned taffy pulling and other gala evenings. In March the committee combined and gave a farewell party for spring

down the sink drain, since it may result in clogging the pipes. Steel wool is also useful for scouring and may be purchased at most hardware stores. A small pad of the material is rubbed on a neutral soap and applied to the aluminum. Only a very fine grade should be employed, since the coarse is liable to scratch. A mixture of equal parts, by volume, of powdered whiting and alcohol, with the addition of a few drops of ammonia, is sometimes used for polishing aluminum which is not very badly discolored.

Commercial scouring pastes and powders containing soap and gritty material are on the market and are in many cases satisfactory. Scouring soaps which come in cakes are also effective, but less convenient to use because of the time and strength consumed in rubbing off enough from the cake upon the scouring cloth.

In cleaning aluminum strong alkali should never be used since it attacks and dissolves the metal. Such household alkalis as washing soda, potash, lye, or even strongly alkaline soap, should be avoided.

The action of acids on aluminum, such as dilute vinegar, fruit juice, or sour milk, on the other hand, is comparatively slight, although it is appreciable and may result in pitting the surface of the metal if long continued. The action of acids is taken advantage of in cleaning aluminum ware. No acid which is poisonous has a place in the kitchen and nothing of the sort should be used for cleaning aluminum. There are, however, a number of acid solutions available, especially those occurring in many fruits or vegetables, such as rhubarb, apples, or tomatoes. If rhubarb, either fresh or canned, is used, one or two stalks cut in small pieces are added to each quart of water and boiled in the discolored kettle until it is clean. The rhubarb or other fruit so used must, of course, be thrown away. After a kettle has been cleaned in this way it should be polished to remove any adhering particles of metal or metallic compounds, and to secure a bright, smooth surface, for this is less easily attacked chemically and so stains less readily than a rough one. The housekeeper who has access to the larger markets can usually buy rhubarb in winter as well as summer, but she, as well as housekeepers not living near large markets, may find it a convenience to can rhubarb especially for this purpose. It is well known that rhubarb stalks, whole or cut in small pieces, will keep well if washed thoroughly, put in sterilized jars, covered with cooled freshly boiled water, and sealed tightly at once.—U. S. Dept. of Agriculture.

SHORT CUTS TO HOUSEKEEPING.

Take a tall, smooth, round, glass bottle, fill with cracked ice and use in rolling out pastry. It will aid materially in keeping the dough at the low temperature that is so necessary if good results are to be obtained.—Mrs. F. W. S.

If the working man will wear a suit of light gauze underwear next to the body under the heavier woollens, sweating and cooling off again in the winter air will not affect one at all, as the gauze remains dry and the dampness from the cooling of the perspiration in the outer suit does not touch the body.—G. P. C.

Salt placed in the bottom of lamps greatly improves the light, making it very much brighter.—G. P. C.

Try substituting ginger for mustard in the many ways the latter is used, to give a sharp flavor.—E. L. C.

A good way to clean sinks and oil-cloth is to wet a cloth with kerosene and rub thoroughly, after which wash with soapsuds.—J. B.

If your large rugs curl up along the edges or at the corners, sew large pieces of pasteboard on the underside, making the edge of the pasteboard just meet the edges of the rugs. They will then lie flat and in shape.—M. A. P.

Your Reputation

as a cook is no better than your cooking.

Your cooking will be no better than the materials used.

Expert workmen select the very best tools to insure perfect work.

And to maintain their reputation as good workmen.

The reputation of

Lily White

"The Flour the Best Cooks Use"

is built on a sure and safe foundation—Quality—Not hearsay nor guess-work.

Lily White is made to make good. It fulfills its purpose and has developed a wonderful reputation.

In fact, Lily White Flour bakes perfectly delicious Bread, Rolls, Biscuits and Pastries. It meets every requirement of home baking in the most pleasing manner.

That is why the reputation of Lily White is so good, and why the best cooks in the land use Lily White Flour.

Besides they value their reputations as good cooks.

VALLEY CITY MILLING CO.,
Grand Rapids, Mich.

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I want to send you a copy of my big new Buggy Book right away. You will be interested in the 150 new 1917 styles—the new improvements and especially in the low prices I am quoting this year on these famous light-running, easy-riding long-life

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On this unbeatable quality hot air furnace. Quick shipment direct from manufacturers. We pay freight. Heats the whole house through one register. Separate cold air returns. Easy to install. Powerful and healthful heating plant at money-saving price, cash or credit. Satisfied owners everywhere. Write today.

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The Beacon Lamp Makes and Burns Its Own Gas. Better, brighter, safer, cheaper than Gas, Gasoline or Electricity. Every home interested. 500,000 satisfied users. Agents wanted. Write quick for selling plan, exclusive free territory and trial offer.

HOME SUPPLY CO., 28 Home Bldg., Kansas City, Mo.

Our winter production of
FRESH FROZEN FISH

will start as soon as cold weather sets in. Your name and address on a postal will bring our price-list.

WISCONSIN FISHING CO.
Dept. Y. Green Bay, Wis.

Special Club Bargains --- Continued from Page 102

No. 7.	No. 13.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Choice of any daily in Detroit or Grand Rapids except Detroit News.....\$2.50 to \$3.00	Review of Reviews, 1 yr., mo..... 3.00
McCall's Mag. and Pattern, mo..... .50	Mothers' Magazine, 1 yr., mo..... 1.50
People's Home Journal, mo..... .50	Young People's Weekly..... .75
Every Week..... 1.00	
Poultry Advocate, mo..... .50	
Regular price.....\$6.50	Regular price.....\$6.50
OUR PRICE ONLY \$4.25	OUR PRICE ONLY \$3.50

No. 8.	No. 14.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Any Detroit or Grand Rapids Daily (except Detroit News) \$2.50 to \$3.00	Kimball's Dairy Farmer, semi-mo. .25
Poultry Success, mo..... .50	Poultry Success, mo..... .50
Boys' Magazine, mo..... 1.00	Swine Breeders' Journal, mo..... .50
Today's Mag. with Pattern, mo..... .50	Woman's World, mo..... .35
Regular price.....\$6.25	Regular price.....\$2.85
OUR PRICE ONLY \$4.00	OUR PRICE ONLY \$2.00

No. 9.	No. 15.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wky.....\$1.25
Choice of either:	Detroit Free Press, 1 yr., daily.. 3.00
American Sheep Breeder or Hoard's Dairyman..... 1.00	Every-Week, 1 yr..... 1.00
Poultry Advocate, mo..... .50	Woman's Home Companion, 1 yr., mo..... 1.50
Boys' Magazine, mo..... 1.00	
Ladies' World, mo..... 1.00	Regular price.....\$6.75
Regular price.....\$4.75	OUR PRICE ONLY \$4.75

No. 10.	No. 16.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wky.....\$1.25
McCall's Mag. and Pattern, mo..... .50	Pictorial Review, 1 yr., mo..... 1.50
Ladies' World, mo..... 1.00	Little Folks, 1 yr., mo..... 1.00
Poultry Advocate, mo..... .50	Green's Fruit Grower, 1 yr., mo..... .50
Every Week..... 1.00	Poultry Success, 1 yr., mo..... .50
Regular price.....\$4.25	Regular price.....\$4.75
OUR PRICE ONLY \$2.15	OUR PRICE ONLY \$2.50

No. 11.	No. 17.
Michigan Farmer, wky, 3 yrs.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Review of Reviews, mo., 1 yr..... 3.00	People's Popular, mo..... .25
Hoard's Dairyman, wky, 1 yr..... 1.00	Today's & Housewife Mag., mo.. .50
Little Folks, mo., 1 yr..... 1.00	Woman's World, mo..... .35
Regular price.....\$6.25	Every Week..... 1.00
OUR PRICE ONLY \$3.25	Poultry Success, mo..... .50
	Regular Price.....\$3.85
	OUR PRICE ONLY \$2.00

No. 12.	No. 18.
Michigan Farmer, wky., 3 yrs.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
People's Popular, mo..... .50	Any Detroit or Grand Rapids Daily (except Detroit News) \$2.50 to \$3.00
Mother's Magazine..... 1.50	Review of Reviews..... 3.00
Jersey Bulletin..... 1.00	Woman's Home Companion, mo.. 1.50
American Boy..... 1.50	
Regular price.....\$5.75	Regular price.....\$8.75
OUR PRICE ONLY \$3.25	OUR PRICE ONLY \$5.50
NOTE CAREFULLY.—These prices are good only to February 1, 1917. After that date add 50 cents for three years, \$1.00 for five years, or deduct 50 cents if wanted for but one year.	

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Power!
Speed!

Bring out the best your engine's got, with the hot, fat spark of Columbias.

National Carbon Co.
Cleveland, Ohio
Fahnestock spring-clip binding posts no extra charge.



What's on the Fertilizer Bag?

Does your manufacturer print on the fertilizer bag, how much immediately available nitrogen (viz., Nitrates) it contains?

Many do not.

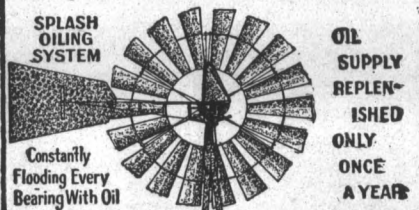
Home mixing is the safe, economical method. Mix your own fertilizers and know what you get.

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DOUBLE GEARS—Each Carrying Half the Load
Every feature desirable in a windmill in the
AUTO-OILED AERMOTOR
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Answer the farmer's big questions:
How can I have a good garden with least expense? How can the wife have plenty of fresh vegetables for the home table with least labor?

IRON AGE Combined Hill and Drill Seeder

solves the garden labor problem. Takes the place of many tools—sows, covers, cultivates, weeds, ridges, etc., better than old-time tools. A woman, boy or girl can push it and do a day's hand-work in 60 minutes. 38 combinations. \$3.25 to \$15.00. Write for booklet.
Bateman Mfg. Co., Box 24C, Grenloch, N.J.

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You get best Results with our **Champion Evaporator**
Quick work, fuel saving, durability and **BEST QUALITY OF SYRUP**

Write us for CATALOGUE.
Champion Evaporator
Company, Makers, Hudson, Ohio



Some Municipal Marketing Problems

By R. G. KIRBY

A SHORT time ago the municipal market was advocated as a sure cure for the high cost of living.

It was represented as the only method of bringing the farmer and the consumer together without the aid of a middleman and the producers and the city buyers were expected to take immediate advantage of such a method of buying and selling. The municipal market has come to stay, but as yet its influence is but a small per cent of what it should be and it does not seem to be appreciated by either the farmers or the mass of city buyers.

One of the reasons for the inefficiency of the average city market is that it is a new thing or sort of a novelty. This means that many buyers visit the market once or twice with a great deal of enthusiasm and then fall back into their customary habits of ordering provisions and forget that the municipal market exists. The average consumer has not been educated to carrying a market basket. The men of the home are busy in factories, offices and stores and feel that they have no time for buying provisions for the home table. In many cases the women of the home are so in the habit of staying in the house until two o'clock in the afternoon that they would never think of going shopping until after dinner, and farmers are busy people who cannot linger all day around a municipal market. The telephone and the delivery wagon have fitted nicely into the average American's desire to live a life of ease whenever it is possible. Of course, it is necessary for the middleman to charge for his services of delivering goods and the buyer unconsciously pays the bill. The delivery system is so rooted in the grocery and meat business that you have to pay your share in supporting the system—even if you go to the store, pay cash and carry your purchases home. The first profit that a buyer should realize in municipal market purchasing is the cost of carrying the provisions home. One of the first problems of the friends of municipal marketing is to educate the general public along these lines.

Locating the Market.

The location of a municipal market has a great bearing on its future success. Several years ago I visited one of the finest municipal markets I have ever seen, at Madison, Wisconsin. It was located on the edge of the city, quite a distance from the business section and during three morning visits the business was so slack that they might as well have closed up. Buyers were scarce and sellers much scarcer, and in spite of the fine construction of the building it was evident that this municipal market was of no value in bringing the buyers and sellers together. My observations were made in 1913 and it is possible that the people of Madison have learned the value of a good market site by this time, and made other arrangements to bring the producers and consumers together.

It would seem that an ideal site for a municipal market would be in the factory district of a city on a main street over which many of the employees of local industry had to pass on their way to work. In spite of bad weather these men would probably pass within a short distance of the market and they would soon learn to appreciate its value. In many factories the men are furnished with individual lockers where they might store any farm products purchased in the morning until they went home at noon or at night. A machinist on his way to work might purchase a couple of pounds of butter, a chicken, several dozen eggs or a burlap sack of vegetables and place them in his locker until night and then be his own delivery boy. It might mean some incon-

venience and a little extra work, but this man might save all he would earn in an hour's work in the factory. By purchasing and delivering his own food supply he might save as much in a week as he could earn by a couple of evening's overtime work, and at the same time his health would be benefited by better food and possibly fewer hours of work at his machine.

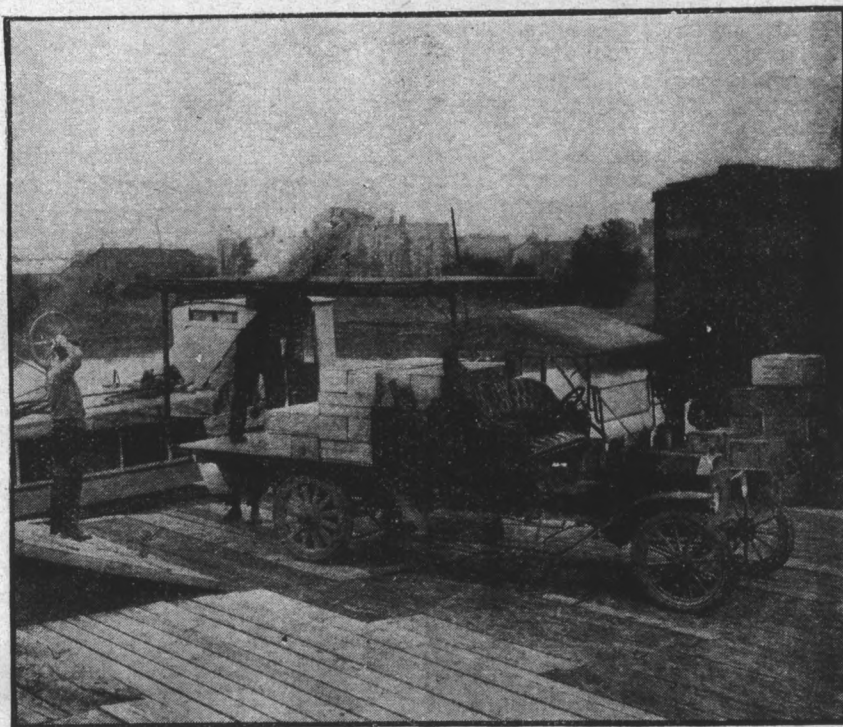
In selecting the site for a municipal market it pays to give the problem intense study. The owner of a chain of five-and-ten-cent stores might spend several weeks in studying out the best location for his store. He would count the number of people that passed a certain corner every hour, and note which side of the street contained the largest number of pedestrians at certain hours of the day. In placing a municipal market many towns are apt to pick out the cheapest place they can find and then build the market where it is bound to compete as little as possible with the established merchants. The municipal market which is located in a part of town off the regular line of traffic must depend for buyers on the housewives who have time to walk over there with the market basket on their arm and take plen-

ers and sellers in the market so that Farmer A. will have plenty of buyers for his butter, and Citizen B. will be fairly sure of buying a few eggs if he happens to visit the market early enough in the morning.

The supply and demand seems to work out very well in a large city when the advantages of the market are well known. In Detroit many citizens who can afford the delivery system liberally patronize the markets because they enjoy looking over and selecting first-class fresh products. In a city like Lansing the market is fairly successful, and yet it is not well enough known by the people in general to make it the greatest possible success. The longer a market is established the better should be the results if it is located on a good site and well managed. It should increase in the value of its services in the same manner as a well managed private institution.

Future Favors Municipal Markets.

In spite of all the difficulties to be overcome the future of the municipal market seems bright. The high cost of living is forcing people to save the pennies. In every community there are many buyers who will never patronize the municipal markets exten-



Auto Made into Truck Carries Fruit from Farm to Docks at a Very Low Cost.

ty of time to complete their transactions. Buyers of this class should be encouraged in every way but the market should also serve the masses of busy people who are now so rushed in keeping up their regular schedules that they have no time to visit a municipal market if it takes more than a few minutes of their day. One of the problems confronting the town intending to establish a municipal market, should be the acquiring of a site which will serve the greatest number of buyers.

Supply and Demand.

The municipal market must receive the right kind of boosting to keep it before the farmers and city buyers if it is to succeed. Here are some of the problems. Farmer A. recently went to the market with 100 pounds of fine butter. The weather happened to be a little stormy and there were no buyers, although for two or three days the visitors at the market had been asking for butter. The farmer made two or three sales and then disposed of his butter to a local dealer. He will not be enthusiastic over selling butter at his municipal market. Citizen B. desires some fresh eggs and goes to the market. It happens that there are no eggs on the market that day, and the buyer hunts up his local merchant and continues trading with him. The whole problem is to sufficiently interest buy-

sively and for this reason the local dealers have little to fear. When the municipal market was first advocated many local dealers fought it strenuously and considered it unfair competition but time seems to have proven that there is plenty of room for both. It is now a common thing to see local dealers buying produce in municipal markets for their customers who have no time for such work.

The market basket is coming down from its place in the attic. Several years ago when the cost of living seemed high, the city buyer knew that he could fall back on beans and potatoes and cut the grocery bill whenever necessary. Beans and potatoes are not cheap this year and market reports do not predict low prices for food stuffs for at least a year or more. It is evident that the average man needs some co-operation from his municipal government in keeping down his cost of living. Meat strikes, egg strikes and butter strikes will prove only fads, as in the past, and will do no good in reducing prices. An institution like the municipal market should be of great benefit to both the farmers and city buyers in every community. In spite of all of the problems to be overcome to make it more profitable and practical it is worthy of a trial in every section.

SEED CORN NEEDED.

Home-grown seed corn, repeatedly found the "best by test," will be one of the most sought-for farm commodities in Michigan next spring.

The growing conditions of the past summer have been the most unfavorable recorded for a number of years. After June 30 no considerable amount of rain had fallen until September 26-27, when a fall of 1.72 inches was recorded. The past summer has been the driest, with the exception of that of 1894, of them all since the station records were started at the Michigan Agricultural College. These began in 1863. Then, too, the past June was the coldest ever noted and July holds the record for heat and lack of rain-fall. Thus we have the coldest, the warmest and driest summer ever experienced.

The early frosts damaged a number of fields, especially those planted to late varieties. So poor growth and lack of maturity are the things the farmers will be up against in selecting their seed corn this spring.

Those who are fortunate in having high-grade seed corn in fairly large quantities, should let others know about it. "Seed corn for sale," advertisements will be read and acted upon next spring as never before, according to farm crop specialists.

Ingham Co. G. O. STEWART.

A FARMERS' CO-OPERATIVE MILK DISTRIBUTING ASSOCIATION.

(Continued from first page).

members themselves may constantly increase as time goes on with the growth of the city, the larger number of uses made of dairy products and the increase in the price paid to the consumer.

From a purely co-operative point of view it is possible that the Dairymen's Milk Company does not offer an opportunity for the best sort of co-operation—"one man one vote" type, "community organization," "state federation," etc., and all the other features which go with ordinary farmers' co-operatives. But it does furnish a means whereby the producers for the whole milk market may very profitably control the sale of the product of their dairies all the way to the consumer and it would seem to be a form of undertaking which is practicable everywhere.

Crop and Market Notes
Michigan.

Ingham Co., Jan. 17.—Enough snow to cover fields nicely. Not much feeding stock kept. Plenty of roughage; other kinds of feed rather scarce. Most farm products sold. Potatoes \$1.75; beans \$5.50@6; corn .90c@1; wheat \$1.75; milk \$2; butter-fat 40c; cattle \$6@6.50; hogs \$9.

Muskegon Co., Jan. 16.—We have about a foot of snow on the ground. As this is a dairy section, farmers are busy caring for stock, getting up wood, etc. Some are hulling beans, others getting up ice. Very little feeding stock here. Hay and other roughage plentiful. A good deal of the grain fed is shipped in. Potatoes are mostly marketed. Wheat \$1.75; potatoes \$1.80; beans \$5.50; corn \$1.04; oats 61c; milk 17c; beef \$9.50; pork \$13.50; veal \$14; mutton \$12; chickens 17c; hay \$14; rye \$1.20; buckwheat \$1.25; eggs 45c; they are very scarce.

Cheboygan Co., Jan. 12.—About a foot of snow on the ground. Farmers are busy making wood, hauling logs and doing chores. The amount of feeding stock kept below the average. Plenty of hay and fodder on hand, but not enough grain. Not many potatoes to be sold. Potatoes \$1.40; beans \$6; corn \$1; wheat \$1.60; butter-fat 36c; cattle \$6@7; eggs 36c; butter 35c.

Sanilac Co., Jan. 11.—Most of the stock is looking good. Hay is plentiful, as it was a good crop last year, and the low price discouraged its sale. Farmers are looking forward to a favorable season, as a great amount of fall plowing was done. Wheat \$1.85; oats 55c; hay \$8@10; beans \$6.25; live hogs \$9.50; butter-fat 39c; eggs 35c.

Minnesota.

Waseca Co., Jan. 15.—The old year closed with a severe spell, the thermometer registering as low as 23 de-

(Continued on page 112).

The Car Shortage— The Cause and The Remedy

Transportation conditions in Michigan are at this very moment of the greatest importance to every citizen of the State. It is becoming a question, and a very serious one, whether enough freight cars can be secured to safeguard our food supply, and whether enough coal cars can be had to keep our coal bins full.

The condition calls direct attention to the importance of railroad transportation which, in normal times, performs a service that is accepted as a matter of course with little or no thought as to how it is provided.

Everything we eat, everything we wear, everything that goes into the houses in which we live, is at one time or another handled by the railroad. *Our transportation system is an artery through which the life blood of our daily existence flows. We rely on our railroads for our daily needs.*

Industrial companies rely on the railroad for their coal and other supplies; merchants simply carry stocks necessary for their current demands, depending on the railroads to bring more as needed, saving both the manufacturer and the merchant an investment for storage which would otherwise add much to the cost of doing business.

Now, with transportation facilities jammed with an overload of traffic, the question naturally arises as to why the railroads have not cars enough so that we need not worry about our food supply and our coal supply. The answer is easily found. *Cars cost money and the only way a railroad can get money to buy cars is to earn it or borrow it and both ways are founded on ability to earn.*

The earnings have been so poor until this last year that railroads have not been able to buy equipment, and in many cases, like the Pere Marquette for example, they have been obliged to take their good earnings to pay up debts incurred in lean years.

If a railroad were like any other business and could regulate the price of the only commodity which it has to sell—transportation—subject to the law of supply and demand, the question of having cars enough would be up to the railroad entirely and to nobody else, but when the State steps in and says "You may charge only so much" then the ability of the road to furnish enough cars is not altogether up to the railroad, but partly up to the people of Michigan.

The remedy lies in a broader policy of regulation, a constructive policy for the future, based on co-operation and mutual interest.

Paul H. King
OPERATING RECEIVER.

SPRAY YOUR FRUIT TREES AND VINES



Destroy the fungi and worms, and thus secure of large yields of perfect fruit.
Excelsior Spraying Outfits and Prepared Mixtures are used in large orchards and highly endorsed by successful growers. Write for our money-saving catalog, which also contains a full treatise on spraying Fruit and Vegetable crops.
WM. STAHL SPRAYER CO.,
Box 725 Quincy, Ill.

TIMOTHY \$2.25 PER BU.

SAVE MONEY—Buy Direct from Grower. New reclaimed Iowa-Grown Timothy, free from noxious weeds. Guaranteed Satisfactory or money refunded. Write today, 100-page catalog and Free Samples. Low prices on Clover and all grass seeds. Write before advance.
A. A. BERRY SEED CO., BOX 531, CLARINDA, IOWA.



FRUIT-FOG Finest Known Spray
Hayes Hand & Power SPRAYERS
Fruit-Fog insures big profits. We make 50 styles of Sprayers; from small Hand to largest Power. Spraying Guide and big catalog FREE. Send postal.
50 Styles
HAYES PUMP & PLANTER CO., Dept. D, Galva, Ill.

ALSIKE \$4.00 PER BU.

AND TIMOTHY
INVESTIGATE—Best and Cheapest Seeding Known. Alsike Clover and Timothy mixed. Fully 1-3 alsike, a big bargain. Greatest hay and pasture combination grown. Write for Free Sample and 100-page catalog and circulars describing this wonderful grass mixture. Beats anything you can sow and ridiculously cheap. We handle only best tested reclaimed seed guaranteed. Write before advance.
A. A. BERRY SEED CO., Box 531, Clarinda, Iowa

SEED CORN 7 varieties—30, 100 and 110 day corn, all northern grown. Full line farm seeds—everything guaranteed. (Gir. free.)
C. H. & J. GRAVES, Antwerp, O. (Paulding Co.)

Markets.

GRAINS AND SEEDS.

January 23, 1917

Wheat.—While the market reacted downward the past week, the general situation is very bullish with statistical news favorable at least to the maintaining of the present values. The large number of grain boats sunk by submarines and raiders has acted as a bullish advantage. The address of President Wilson before the United States Senate on world peace, caused a temporary dip in prices on Monday, but the change was short-lived and the sessions closed with advances over Saturday's figures. The United States visible supply decreased 1,674,000 bushels during the week, which leaves the present visible supply 17,105,000 bushels smaller than for the corresponding period a year ago. Besides foreign demand is much more urgent at this time than during January of 1916 with the supplies of wheat below actual requirements. One year ago No. 3 red wheat was quoted locally at \$1.33½ per bushel. Last week's Detroit quotations were:

	No. 2 Red.	No. 1 White.	May.
Wednesday	1.95½	1.90½	1.98½
Thursday	1.96½	1.91½	2.00½
Friday	1.94½	1.89½	1.98½
Saturday	1.92½	1.87½	1.97
Monday	1.93½	1.88½	1.97½
Tuesday	1.91½	1.86½	1.95½

Chicago.—May wheat \$1.84½; July \$1.52½; Sept. \$1.35½.

Corn.—An active home and foreign demand gives the corn market a very firm tone. Reports from England state that the supplies of corn there are considerably below actual requirements, which means that needs from that quarter will stimulate higher prices here during the coming few months. This export outlook has kept the best broker concerns interested on the bull side of the market. The advance in prices for good cattle and other stock is also helping to make higher corn values by encouraging more extensive feeding operations. One year ago the local price for No. 3 corn was 73c per bushel. Last week's Detroit quotations were:

	No. 3 Mixed.	No. 3 Yellow.
Wednesday	1.01½	1.02½
Thursday	1.02	1.03
Friday	1.02½	1.03½
Saturday	1.02	1.03
Monday	1.05	1.06
Tuesday	1.05	1.06

Chicago.—May corn \$1.01½ per bu; July 99½c.

Oats.—The call for oats has been a little less urgent and prices showed a fractional decline on Monday in the face of substantial advances in wheat and corn departments. Standard oats a year ago were quoted at 54c per bu. Last week's Detroit quotations were:

	No. 3 Standard.	No. 3 White.
Wednesday	60	59½
Thursday	60	59½
Friday	60½	60
Saturday	60½	60
Monday	60	59½
Tuesday	60	59½

Chicago.—May oats 58c; July 55c; Sept. 55½c.

Rye.—Higher. Cash No. 2 \$1.49.

Beans.—There is renewed activity for bean supplies at country points, and while values on the local market have not advanced, dealers are anticipating higher quotations. Immediate and prompt shipment are now quoted in Detroit at \$6.40. At Chicago the demand is good and offerings are small. Michigan pea beans hand-picked are quoted at \$6.75; red kidneys \$6.75@6.80 per bushel.

Seeds.—Prime red clover \$10.80; March \$10.80; alsike \$11; timothy \$2.55.

Peas.—Market firm, demand good. At Chicago field peas are quoted at \$2.75@3.

DAIRY AND POULTRY PRODUCTS.

Butter.—Market lower. Creamery extras 36½c; do firsts 34½c; packing stock 24½c.

Elgin.—Prices off 2c which, based on sales is 36½c.

Chicago.—Market quiet and easy, with prices ½c lower. Extra creameries 36½c; extra firsts 34½@35c; packing stock 25½@26c.

Poultry.—Values lower. No. 1 spg chickens 21c; No. 2 do 18@19c; No. 1 hens 20c; No. 2 do 18@18½c; small do 14c; ducks 22@23c; geese 20@21c; turkeys 28c.

Chicago.—Market easier. Turkeys 12@22c; fowls 15@18½c; spring chickens 18c; ducks 15@18½c; geese 14@16c.

Eggs.—Market firm at prices lower

than last week's. Firsts 39½c; current receipts 37½c.

Chicago.—Prices lower. At present levels the market is steady. Fresh firsts 39c; ordinary firsts 35@37c; miscellaneous lots, cases included, 35@37c; refrigerator firsts 36c.

FRUITS AND VEGETABLES.

Apples.—Market steady with prices unchanged. Baldwins \$5.25@5.50; Spy and King \$5.75 for best. At Chicago the market is fairly active at former prices. No. 1 stock sells at \$3@6 per bbl; No. 2 at \$2@2.50.

Potatoes.—On account of freight congestion no carlot shipments of potatoes are quoted at Detroit. At Chicago the market is quiet at a decline of 10c from last week's quotations. Michigan white potatoes are quoted at \$1.75@1.85 per bushel.

GRAND RAPIDS.

The bean market opens this week at \$6, the potato market at \$1.50, though it is understood that in some instances \$1.60 is offered. Not many potatoes are moving because of scarcity of cars. Washington and Oregon potatoes are coming east. Fresh eggs are quoted at 42@43c; dairy butter 33c.

DETROIT EASTERN MARKET.

Operations on the Eastern Market were of small volume Tuesday morning, due to lack of offerings. The recent snow prevented many farmers from getting to the city. The apples offered were of very ordinary quality, and sold from 75c@1.50 per bushel; carrots \$1.70; cabbage \$1@2.50, according to quality; pork 15@16c; loose hay was scarce and no prices could be secured.

LIVE STOCK MARKETS.

Chicago.

January 22, 1917.

Cattle. Hogs. Sheep.
Receipts today. 22,000 77,000 21,000
Same day 1916. 26,470 72,807 16,821
Last week. 66,273 63,200
Same wk 1916. 59,652 282,039 88,851

This week opens with a moderate cattle supply and stronger to a little higher prices. Despite the huge supply of hogs, prices are firm to 5c higher, with a lively demand at \$10.55@11.20. The best lambs are selling as high as ever, but killers are bidding lower for others, including heavy lots. @12.

Cattle were in animated general demand during the first half of last week the cold winter weather stimulating the consumption of beef throughout the country, and prices for the bulk of the killers averaged 15@25c higher, with keen competition among buyers for the steers selling at \$7.50@9, and the lower-priced cattle going sharply higher. Subsequently the demand was much smaller, and much of the advance was lost, cows and heifers sharing in the decline. Taking the week as a whole, the bulk of the beef steers sold at a range of \$8.75@11, with the better class of the long-heavy cattle purchased at \$11@11.75, but no strictly prime beefs were offered. Inferior to fair light-weight killers in the steer line sold at \$6.65@8.95, medium grade steers at \$9@10, good steers at \$10.10 and upward and the choicer lots of yearlings at \$10.50@11.50. There was especial activity in the demand for steers selling at \$8.75@10.75 on the big trading days, while cheap cattle were much sought after by the packers for their canning department. Butchers stock had a large demand, with cows taken at \$6.10@9.50 and heifers at \$5.50@10.75, but not many of the yearling heifers offered were choice enough to go over \$9.50, although several lots of steers and heifers mixed went at higher figures. It was a great market for canners and cutters, which sold higher than ever before in the history of the market, canners going at \$4.50@5.45 and cutters at \$5.50@6, while bull prices advanced to \$5.50@8.50.

Lambs have continued to advance in values for still another week, showing fresh high records, with choice feeding and shearing lambs also selling higher than ever. Prime light-weight yearlings on the lamb order had their share in the upward movement, as well as choice wethers and ewes, and altogether it was a great market for sellers who had any desirable live muttons or feeders to offer. Colorado sheepmen had a number of flocks of lambs, ewes and yearlings on the market which sold very satisfactorily. Lighter receipts last week sent prices up mainly 25c for fat lambs, 10@15c for most yearlings and 15@25c for aged sheep. Lambs closed at \$11@14.40, feeding lambs at \$11.50@13.90, yearlings at \$9.75@13, wethers at \$8.50@11, ewes at \$6.50@10.50, feeding ewes at \$6@7 and bucks at \$8@9.

Hogs have been marketed this month in western packing points in smaller numbers than a year ago, and an active

local and eastern shipping demand has placed prices on a higher level than at any previous time since last September. Hogs sold not far from the highest price ever paid, the top price of last year being \$11.60 per 100 pounds.

BREED SALES AT THE LIVE STOCK MEETING.

The breed sales held at the Agricultural College during the live stock meeting last week were both successful events. A large crowd assembled for the sales and the selling continued from the opening at ten o'clock in the morning until six o'clock in the evening without interruption.

The Horse Sale.

This was the third annual sale of registered draft horses held under the auspices of the Michigan Horse Breeders' Association. The offerings were mostly Percherons of good quality, but included large proportion of young stuff and a few aged mares, considering which the average made was most satisfactory. In all 33 head were sold for a total of \$9,490, making an average of \$284.55.

The Shorthorn Sale.

The bidding in this sale was a sharp competition from the opening until the last animal was sold. The offerings included a considerable number of young bulls and bull calves, for which there were plenty of buyers at fair prices. The average quality of the offerings was good and a satisfactory average was made, especially in view of the fact that some of the offerings were delayed in transit, and came into the sale ring directly from the car in which they were shipped, after being on the road more than three days. A total of fifty head were sold at an average of \$192.80 per head or a total for the sale of \$9,640.

A detailed report of these two sales will appear in the next issue.

THE LIVE STOCK MEETING.

(Continued from page 100).

under of a good forage crop when grown, always seemed to him like working an example of arithmetic on a slate and then rubbing out the answer. He presented the result of some original investigations showing the proportion of organic matter in a forage crop which is returned in the form of manure by live stock. The dairy cow returns forty-three per cent of the organic matter, 44.3 per cent of the nitrogen and 63.6 per cent of the ash. Other live stock, notably fattening steers, return much greater percentages of soil fertilizing constituents in the form of stable manure, hence the greater economy of feeding forage crops to live stock and returning the manure to the soil.

It was pointed out that the maintenance of a proper amount of live stock eliminated waste from the operation, including waste feed and waste time of the farmer and his hired help, also waste time of children which might to their advantage be employed in connection with the care of live stock.

In a study of the relation of the size of farm to a profitable business it was noted that live stock production involves a farm of fair size, and that the maintenance of live stock in connection with mixed farming enables the operator to enlarge his business. In these studies it was found that 160 acres is a profitable sized farm unit, since it enabled a profitable investment in a larger proportion of needed equipment. In this connection it was noted that on farms where less than six cattle units were maintained only seven per cent had silos, while on the farms where thirty-five cattle units were maintained seventy-eight per cent had silos.

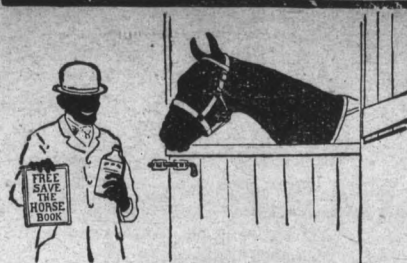
In closing, Prof. Warren called attention to a chart which showed the comparative labor income from the farms where pure-bred live stock was maintained, as compared with farms where grade stock was kept. This comparison was greatly in favor of the pure-bred stock, pointing plainly to the fact that by growing into the pure-bred stock business the young farmer particularly would be able to increase both the size and quality of his business, both of which are important factors of success.

(Continued from page 111).

grees. We have enough snow here for good sleighing now. There is plenty of feed on hand and stock is well cared for. Sales are selling high. Potatoes cannot be had at any price for weeks at a time. Wheat \$1.83; flour \$2.70; corn 85c; hogs \$10; potatoes \$1.50; butter 40c; chickens 7@13c; eggs 35c.

BE GOOD TO YOURSELF.

Save money by renewing your subscription, even if it does not run out for some months yet. The price advances February 1, absolutely sure. It is up to you.



This Book and This Bottle Makes Him \$800

Ogden, Ia., April 18, 1915.

Troy Chemical Co., Binghamton, N. Y.
Gentlemen:—I have used Save-The-Horse for years and I never found any case but it would do just what you claim for it. At present I have a horse I want to race and want your advice and another book. I lost or mislaid mine. The last time I bothered you your advice and treatment did the work, and I sold the horse for \$800. Yours truly, H. S. HELPHRY.

Do you know HOW simply, comprehensively and authoritatively our FREE "Save-The-Horse BOOK" clinches the diagnosing and TREATMENT of all lameness?

SAVE-TH-HORSE

(Trade-Mark, Registered)

The greatest-of-all remedies is sold with a signed Contract-Bond to return money if it fails on Ringbone, Thoropin, SPRAIN, or ANY Shoulder, Knee, Ankle, Hoof, or Tendon Disease. Every year, for over 21 years, thousands of stubborn and supposedly incurable cases are cured by SAVE-TH-HORSE after all other methods failed. Be prepared! Write today for Save-The-Horse BOOK, sample of contract and expert veterinary advice—ALL FREE. Keep a bottle of SAVE-TH-HORSE always on hand for emergency.

TROY CHEMICAL CO.

20 Commerce Ave., Binghamton, N. Y.
Druggists Everywhere sell Save-The-Horse with CONTRACT, or we send by Parcel Post or Express Paid.

CREAM WANTED

Farmers Ship Us Your Cream

We have a daily capacity of 5000 lbs. Butter. We are located nearly across the street from the Ford factory and have a large sale of Butter and Butter Milk which enables us to pay the very highest market price for butterfat at all times. We will pay this week 40c for butterfat delivered in Detroit. We pay the same day we receive the cream, and will return the cans the next day. We want cream buyers also. Give us a trial shipment. Write for shipping tags.

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Highland Park, Mich.

SAW WOOD THIS WAY

Be independent of hired help. Save your time, work and money. Saw big timbers at the rate of 25 to 40 cords a day. It's only "boy's play" with an

IRELAND Drag Saw Machine

STRAIGHT LINE Has no equal in convenience, simplicity and long life. It's light, compact, strong, well-built and warranted. Saws whole log in short length without leaving lever. No turning for last cut. 7 advantages. Write for free printed matter. Also details on our Wood Saw Machines, Saw and Shingle Mills and Hoists. Equally low prices on canvas, belting.



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STANDS PRE-EMINENT

It cures thrush, scratches, calks, quarter cracks, contracted hoof, brittle hoof, sore heel, hard swelling, cuts, galls, sprains, bruises, sore teats of cows, takes out fever, allays itching, makes hoofs moist and healthy and is a positive preventive of fleas or lice.

A valuable animal may be saved from blindness by its timely use. For human use it is unequalled. Excellent for chapped hands, face & lips. Write for description and testimonials. Price 50c at dealers or will mail direct.

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N. A. C. BRANDS

Acid Phosphate, Nitrate of Soda, Steamed Bone, Tankage, etc., the highest quality of fertilizer materials. Bag, ton or car lots. Prices always lowest. Also inoculating bacteria for legumes and "spraying materials. Write us before buying. Nitrate Agencies Co., 451 Central National Bank Bldg., Columbus, O.

EGG'S

We want new laid stock and can pay top prices for them. AMERICAN BUTTER & CHEESE CO., Detroit, Mich.

BUY YOUR FEED IN CAR LOTS

We can save you money. Write for delivered prices RANDOLPH, HALL & YOUNG, Cwosso, Mich.

HAY

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

Consign your Hay to us. If you prefer to sell, describe quality, quote prices your track. The E. L. Richmond Co., Detroit. Reference, your bank.

FOR SALE

One 18 H. P. F. old Brundage Portable Gas Engine, equipped with two size of pulleys and Havana Double Grip Friction clutch. Will sell with or without truck. Voorhees Bros., Route 6, Albion, Mich.

100 Sheets Letter Paper 6x9½ and 100 Envelopes printed to your order for \$1.00. Crescent Printing Co., Elkhart, Ind.

ROCK PHOSPHATE USED NOW

Will become thoroughly mixed with the soil by the action of Winter's freezes and thaws. It cannot be leached out and lost and you may expect 8 to 10 bushels more grain and 1-2 to 1 ton more hay in your next crop from its use.

The continued use of DAYBREAK PHOSPHATE means permanent fertility at a cost of \$1.00 per acre per year.

Let us quote you prices and tell you more about it.

FEDERAL CHEMICAL CO.

12 Clark St. Columbia, Tenn.

LIME Pulverized lime rock for "sour" soils. Write for LOW PRICES DIRECT TO YOU and we will send sample and full particulars. Write to office nearest you. LAKE SHORE STONE COMPANY, Muskegon, Mich., and South Haven, Mich.

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304-Acre Farm Only 15 miles to Washington, D. C.

Over macadam auto road; 1 1/2 miles to village, R. R.; high school, etc.; near school, store and neighbors; about 150 acres in cultivation; wire fenced pasture, 300 cords wood; 100 valuable black walnut trees; comfortable house; two big barns, one nearly new; alfalfa, corn, wheat, tobacco, potatoes, vegetables, fruit, poultry and livestock are our money-makers. Washington's population is 350,000. We enjoy short and long, delightful summers with abundance of rain. To close immediately \$22 an acre takes it, with horses, cows, hogs, poultry, tools and fodder included. Full details page 17, "Strout's Peace and Plenty Catalogue," filled with farm bargains throughout a dozen states. Write for your free copy today. E. A. STROUT, FARM AGENCY, Dept. 101, 150 Nassau St., New York.

YOUR CHANCE IS IN CANADA

Rich lands and business opportunities offer you independence. Farm lands, \$11 to \$30 acre; irrigated lands, \$25 to \$50; Twenty years to pay; \$2,000 loan in improvements, or ready-made farms. Loan of live stock; taxes average under twenty cents an acre; no taxes on improvements. Personal property, or live stock: Good markets, churches, schools, roads, telephone. Excellent climate—crops and live stock thrive. Special homesteaders' fare certificates. Write for free booklets. Allan Cameron, General Superintendent Land Branch, Canadian Pacific Ry., 15 Ninth-av., Calgary, Alberta.

Virginia Stock and Fruit Farm

150 acres located in Albemarle Co., Va., near University of Virginia in famous Red Shot Fruit Belt. Over 1,000 Fruit and Nut Bearing Trees. Good 10-room dwelling with running water all over house. Fine large modern barn and all necessary outbuildings. Must sell soon and offer at great sacrifice of \$3000 on easy terms. Farm implements, Mules, Horses, Cows and Growing Crops all included. For full description address the owner JOHN S. PARRISH, EASTHAM, VA.

140 Acres Out Grand River. Private Lake On Farm.

Fine up-to-date 7-room residence; 30x56 barn; silo; windmill; other buildings, all nicely painted. 1 1/2 miles to Brighton. Price \$70 an acre, \$3,500 cash, easy terms. Live stock and crops at reasonable prices. 1 1/2 hours from Detroit. See photos.

ROSS LAND CO.

Farm Dealers Exclusively.
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Offices open Monday evening until 8:30

MONTANA OFFERS EXCEPTIONAL OPPORTUNITIES to the farmer, stockman and investor. Sure crops by ordinary farming methods. Harvest every year—not once in awhile. No irrigation, splendid climate, excellent water, good markets. You can do better in the Judith Basin. Buy direct from the owners. Prices lowest, terms easiest. Free information and prices sent on request. Address The Cook-Reynolds Co., Box W1405, Lewistown, Montana.

For Sale My farm of 120 acres near Cooper'sville. No waste land, and nearly all improved. Basement barn fully equipped for dairy and stock raising. 13 room house nearly new, and with all modern conveniences. Soil, rich clay loam, well tilled. Has never been rented nor offered for sale before. As it was taken from the Government by the owner's father. Easy terms. For further particulars inquire of the owner Chas. M. Dunning, Coopersville, Mich.

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A Small Farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Low prices. Easy terms. Sure profits. Hospitable neighbors. Good roads, schools and churches. Write for our San Joaquin Valley Illustrated Folder free. C. L. Seagraves, Ind. Comm., AT & SF Ry., 1257 Ry. Ex. Chicago

For Sale Clay Loom Farming Lands, in Houghton County, on easy terms, good roads, good markets. Employment furnished settlers during winter months. Worcester Lumber Co. Ltd., Land Dept., Chassell, Michigan

Galdwin Co. Farms Looking for a don't know just where to find it. I do, that's my business getting you a square deal, write me just what you want. U. G. Reynolds, Gladwin, Mich.

1000 Acre Stock Ranch, fine new buildings, excellent soil, 400 acres cleared, no waste, market close. Bargain \$30 an acre. Gleason, Farm Man, Greenville, Mich.

60 Acres, 2 Houses. Near all conveniences, mild winters. Come live with Pennsylvania Germans with good farms nice buildings. Preston Slauson, (Owner) Pottsville, Pa.

A FINE FARM of 120 acres sandy loam, one mile from Portland with plenty of good buildings, for sale to settle Estate. Inquire of Michael Thelen, R. R. 3, Fowler, Michigan

For Sale—Elegant farm—135 acres fine soil, buildings, location, Description and price. Write Forrest Fiebach, Charlotte, Michigan

Georgia \$7.00 acre up, rich soil, ranches, farms, crops season. Ideal climate. Investigate. H. LEE DAVIS, AIKEN, S. C.

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 25, 1917.

Cattle.

Receipts 2165. The receipts in all departments were again light this week and as usual the railroad service was again poor, quite a bunch arriving too late Wednesday to be sold.

In the cattle division the market was the most active seen here in a very long time and prices on all grades were very high, \$9 being a common price for steers, and one full load went at \$9.75, the general market being a big 25c higher than last week on anything good and strong on the common grades. Milch cows were scarce and anything good was \$5@10 a head higher. The close was active as follows: Best heavy steers \$9@9.75; best handy weight butcher steers \$8.50@9; mixed steers and heifers \$7.50@8.25; handy light butchers \$6.50@7.25; light butchers \$6@6.50; best cows \$6.50@7.50; butcher cows \$6@6.25; common cows \$5.25@5.50; canners \$4@5; best heavy bulls \$6.75@7.50; bologna bulls \$5.50@6.50; stock bulls \$5@5.50; feeders \$6.50@7.50; stockers \$5.75@6.75; milkers and springers \$4@8.5.

Bishop, B. & H. sold Newton B. Co. 8 cows av 923 at \$5, 8 do av 1000 at \$6, 5 heifers av 616 at \$6, 1 cow wgh 1030 at \$5.50, 1 do wgh 850 at \$4.75, 4 do av 962 at \$5.75, 2 butchers av 730 at \$6, 12 steers av 933 at \$8, 2 do av 915 at \$7.90; to Breitenbeck 20 do av 823 at \$8.25; to Sullivan P. Co. 1 cow wgh 1280 at \$7, 9 do av 980 at \$6.25, 1 do wgh 950 at \$5, 2 do av 830 at \$5, 15 steers av 987 at \$8.25, 3 do av 770 at \$6.50; to Mich. B. Co. 1 bull wgh 1190 at \$7; to Thompson 12 steers av 1080 at \$8.65; to Hammond, S. & Co. 2 cows av 860 at \$5.50, 12 do av 1052 at \$7, 3 do av 980 at \$6.75, 1 do wgh 820 at \$5, 5 do av 994 at \$6.75, 1 do wgh 1150 at \$5.20, 4 steers av 1200 at \$8.75, 10 do av 770 at \$7.60, 20 do av 863 at \$8; to Garber 6 butchers av 750 at \$6.25; to Mich. B. Co. 10 steers av 853 at \$8.50, 3 do av 743 at \$7, 19 butchers av 770 at \$7.50, 2 cows av 975 at \$5, 1 bull wgh 970 at \$6; to Newton B. Co. 8 butchers av 1097 at \$8, 2 cows av 960 at \$5.50, 1 bull wgh 820 at \$6, 1 cow wgh 1000 at \$6, 20 steers av 1073 at \$8.50, 20 butchers av 649 at \$6.25; to Garber 7 do av 736 at \$6.75; to Parker, W. & Co. 20 steers av 1127 at \$9.25, 20 do av 1046 at \$9.75, 4 do av 970 at \$8, 12 do av 944 at \$9; to Newton B. Co. 4 do av 790 at \$7, 8 do av 762 at \$8; to Sullivan P. Co. 12 do av 1136 at \$9, 9 cows av 993 at \$6.25, 4 do av 930 at \$5, 1 bull wgh 1280 at \$6.25; to Heinrich 7 steers av 1060 at \$9; to Hammond, S. & Co. 6 cows av 993 at \$7; to Bray 4 canners av 745 at \$5.

Veal Calves.

Receipts 759. The veal calf trade was fairly active at last week's prices, a few extra fancy bringing \$13.75@14 but the bulk of the good at \$12@13.50; mediums \$10@11.50; heavy \$6.50@8.50; the close was steady.

Erwin, S. & J. sold Newton B. Co. 1 wgh 110 at \$10, 9 av 145 at \$13.50, 8 av 135 at \$13.50, 2 av 120 at \$10; to Mich. B. Co. 5 av 150 at \$13.75; to Thompson 10 av 147 at \$13.

Haley & M. sold Parker, W. & Co. 3 av 115 at \$13, 2 av 160 at \$13.50. Sandel, S. B. & G. sold Newton B. Co. 3 wgh 115 at \$12.50, 5 av 125 at \$13, 6 av 135 at \$13.50; to Thompson 3 av 210 at \$6, 4 av 135 at \$13; to Nagle P. Co. 3 av 135 at \$13, 2 av 125 at \$13.25, 7 av 135 at \$13.

Sheep and Lambs.

Receipts 4379. Never have lambs brought the money they did this week in the history of the Detroit market, and the general market was 15@25c higher than last week, the top grades bringing \$14@14.10; sheep were strong and at the rate they are climbing just now turkey will be common food in the near future. The close was strong as follows: Best lambs \$14@14.10; fair lambs \$12@13.50; light to common lambs \$10@11.50; yearlings \$12.50@13; fair to good sheep \$8@9; culls and common \$5@6.50.

Sandel, S. B. & G. sold Newton B. Co. 7 sheep av 115 at \$7.50, 50 lambs av 55 at \$12.50; to Nagle P. Co. 170 do av 85 at \$13.50, 8 sheep av 130 at \$8.50. Haley & M. sold Parker, W. & Co. 166 lambs av 85 at \$13.85.

Erwin, S. & J. sold Nagle P. Co. 39 lambs av 70 at \$13.85.

Hogs.

Receipts 4104. In the hog department the market was 10@15c higher than on Wednesday and 40@70c higher than they were at the same time a week ago. Pigs \$10.25@10.40; mixed grades \$11.25@11.60.

Automobile Insurance Is Popular Among The Farmers in Michigan

The Citizens' Mutual Automobile Insurance Company, of Howell, closed the second fiscal year with 15,337 members. The Company paid 102 claims for liability, 36 claims for fire, and 38 claims for theft during the year 1916; the Company was able to meet these claims promptly.

On account of the damage by theft, stock companies have increased the rate on the low priced cars from \$2.75 per hundred to \$4.00 per hundred. The Citizens' Mutual is following the plan of all successful mutual companies in making an advanced assessment of 25c per H. P.; this will cover members who joined before October 3rd, 1916. This will enable the Company to have a sufficient fund to meet the claims promptly as they occur. When the members of a mutual company pay their assessments promptly, it cuts the expense and all obtain the benefit. The farmers of the State have saved several thousand dollars by carrying their fire, cyclone and automobile insurance on the mutual plan. They are able to do this because they have become educated in paying their assessments promptly upon receiving notice.



BOTTS

WE REMOVE THEM

How the Destroyer Works

Aberdeen, S. D., Jan. 6, 1917.
TO WHOM IT MAY CONCERN: I gave "Get-Em" Bot and Worm Destroyer to my horses recently and it produced quick, satisfactory results. I lost eight 2-year-old colts last winter from bots. I have two colts now that showed the same symptoms before giving this medicine that the ones did that died last year. These two colts passed great quantities of bots and are now greatly relieved, and show it in increased appetites and lively appearance.
It gives me pleasure to say that I believe this medicine is doing more for horses than anything I know of on the market. In fact, I do not believe there is anything like it for sale elsewhere.
—E. J. ANDERSON.
Subscribed and sworn to before me this 6th day of January, 1917, at Aberdeen, S. D.—Fred H. Gannon, Notary Public. [SEAL]

It will do the same for your horses. It will rid them of bots and worms in 16 to 48 hours.

Sold with a guarantee on each package to remove these parasites, or money refunded.

Sample Package for 12 Horses.. \$5.00

Write for Booklet of Complete Information

Local Distributors Wanted

NORTHWEST MFG. & MILLING CO.
56 Manufacturers Bldg., Aberdeen, S. D.

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In the same place when he ordered our Fine Trees and Shrubs to make their Home beautiful and Attractive. There's always kisses, happiness, beauty and fragrance where our plants are used "Because they Grow." Send list of your Home needs and get our New 50 Page Book that tells what to plant and what it costs.

The Progress Nursery Company,
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THE FARMERS' BANK

This soil! The bigger the crops the bigger the deposits! N. A. C. Fertilizer materials produce biggest crops at lowest cost. Write us for prices on Acid Phosphate, Nitrate of Soda, Tankage, Bone, etc. Also for spray materials and inoculating cultures for legumes. Write Agencies Company, 451 Central National Bank Bldg., Columbus, Ohio.

"Strawberry Plants That Grow"

"PROGRESSIVE" Best Fall-Bearer; also Std. June sorts, including our New Seedling "COLLINS." Free Full Assortment other Fruit Plants Catalogue. Free C. E. Whitten's Nurseries, Box 14, Bridgman, Mich.

Seed Oats and Corn. Best Varieties. Send for circular. E. A. Bywater, Memphis, Mich.

TIMOTHY WHOLESALE PRICES

Extraordinary big values. New tested re-cleaned seed. Quality guaranteed. Sold subject to your approval. Lowest prices on Sweet Clover, Alsike, Blue Grass, Clover, Alfalfa and mixed grass and all field seeds. Samples, prices and big valuable profit-sharing Seed Guide Free. AMERICAN MUTUAL SEED CO., Dept. 331, Chicago, Illinois

CLOVER SEED

Write us and we will send free sample envelopes. Then send us a sample of your clover seed and let us make you an offer either machine run or after cleaning. W. L. IRELAND & CO., Grand Ledge, Mich.

Build a Steady Business from Your Home in your own community. Either sex. All or part time. No take orders; we deliver, collect and pay you weekly. No investment. Splendid opportunity. Ask about plan A. PERRY NURSERY CO.—Est. 1895—ROCHESTER, N.Y.

CLOVER SEED

SEND US SAMPLES FOR OUR BIDS. YOUNG-RANDOLPH SEED CO., Owosso, Mich.

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To the planter of Strawberry and Raspberry plants. Other kinds at low prices. Catalogue free. A. A. WESTON & CO., BRIDGMAN, MICH.

SWEET CLOVER

for Soil Building. Prices and Circular on request. Everett Barton, Box 129, Palmyra, Pendleton Co., Ky.

FOR SALE, Good clean, disease free, seed potatoes. Northern grown. John V. Harrison, Sec'y Manton Potato Assn., Manton, Mich.

Fruit Trees and Garden Seeds, Guaranteed true to name at an honest price. Send for catalogue. Allens Nursery & Seed House, Geneva, Ohio

UNTIL MIDNIGHT JANUARY 31, 1917

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Two 1 year subscriptions to the Michigan Farmer for only \$.75

Two 3 year subscriptions to the Michigan Farmer for only 1.50

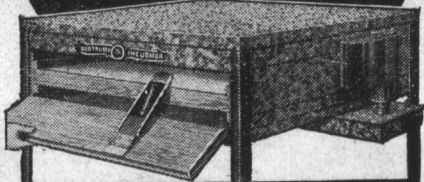
Two 5 year subscriptions to the Michigan Farmer for only 2.50

Clubs of two or more may be made up of 1, 3 or 5 year subscriptions at the Club price—BUT, they must be for different persons and the subscriber must be charged the full subscription price.

There will be but a few days to raise these clubs, so hustle, get out among your friends and make some money. Address all orders to The Michigan Farmer, Detroit, Mich.

BUT NOT AFTER THAT

13 Years of Big Hatches For Less Than 20c Each



—And Good For Many Years More

Our oldest Old Trusties are now 13 years old and still in use. For example figure Old Trusty at \$10. Thirteen years' use would be about 77c per year and if four hatches per season were made, each hatch would cost about 19 1/4c per hatch. That makes a pretty low cost for big hatches in



Old Trusty

And big hatches are easier than ever with the new conveniences in Old Trusty. Note the handy thermometer holder and the big oil drawer that is instantly removed but doesn't have to be removed to fill, nor is it used as a leg brace. Saves time and work. Quick shipment from factory at Clay Center, Neb. or warehouses in St. Joseph, Mo. or Seattle, Wash. We pay the freight and guarantee safe arrival.

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The M. M. Johnson Co.
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\$8.55 Buys 140-Egg Size World's Champion Belle City Incubator

The Prize Winning World's Champion Model

Hot-water—Double-walled—Copper Tank—a Thermometer Holder—Deep Nursery—Self-regulating, same as used by Uncle Sam and America's most successful Poultry Raisers.—When ordered with my \$4.85 Double-walled, Hot-water 140-chick Brooder—Both cost only \$12.50.

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East of Rockies Allowed that far to points beyond. Satisfaction Guaranteed—Handiest machines, sure to please—and you can share in my \$1000 Cash Prizes. Conditions easy to get biggest prize. Write early—order now—anyway write today for my Big Free Book, "Hatching Facts". It gives short cuts to poultry success. Jim Rohan, Pres.

Belle City Incubator Co., Box 14 Racine, Wis.

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Ironclad Incubator Co.
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64 BREEDS Valuable New Poultry Fine pure-bred chickens, ducks, geese and turkeys. Choice, hardy, Northern raised. Fowls, eggs and incubators at low prices. America's greatest poultry farm. 24th year in business. Write today for Free Book. R. F. NEUBERT CO., Box 817, Mankato, Minn.

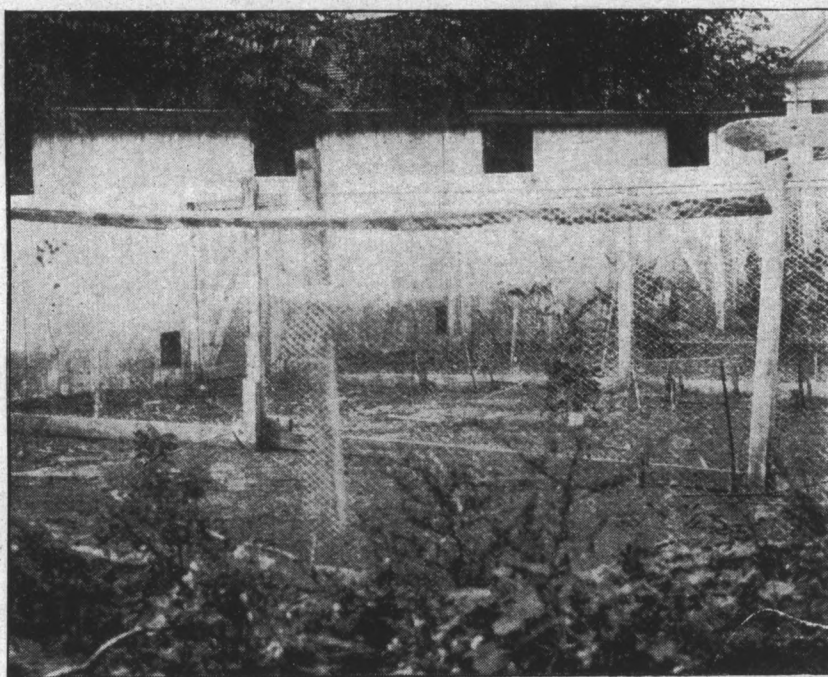
The Cost of Egg Production

THE profitability of any kind of a business depends upon the cost of production to a very large extent. No manufactured article will be disposed of at a price below the cost of manufacture for any length of time. Eggs are manufactured or produced by the poultry raiser via the hen. Some poultry raisers are selling their eggs below the cost of production. They have no way of getting at these figures. It is of course, true that the cost of producing a dozen of eggs varies very much. It varies with the season of the year, location, and weather. It invariably costs more to produce a dozen eggs in the eastern states than in the central states. It costs more to produce a dozen eggs in the northern states than in the southern states. It costs more to produce a dozen eggs in the mining districts than in the farming districts. It costs more to produce a dozen eggs in the village than on the farm. It costs more to produce a dozen eggs on the ocean

or fast approaching, when the haphazard system of farming will no longer be profitable, if ever it was. Expensive land, labor, and other commodities make it necessary, in fact forces the farmer and poultryman to conduct his project along business lines. The fact remains that poultry raising nowadays to be a success, must be operated or conducted along business lines. The work must be done systematically and in a business-like way.

Are Eggs Produced at a Loss?

We poultrymen are facing the same proposition eastern dairymen faced in 1912 and are facing now in many sections of the country. They found dairying unprofitable because their cost of production was too high, and were not able to tell what was the cause of this excessive cost of production. If these farmers had conducted their business along business lines and kept a set of books, they could have learned why the cost of production was too high and remedied the cause or gone out of



Yarding Chickens Makes them Susceptible to Disease. Fence the Garden and let the Chickens Have Free Run.

than on the continents. Eggs are produced cheaper in China than in America. Why is it that the cost of production varies so much? What must we consider in the cost of producing eggs? This can be answered by itemizing the expenses entering into the annual cost of egg production, as follows: Cost of feed, labor, housing, depreciation of stock, litter, delivery, cost of rearing, taxes, insurance, interest, depreciation of buildings, mortality, wear and tear of equipment, packing and packages, and errors.

Keep Cost Accounts.

This clearly brings out the fact that it is impossible for any poultry raiser to know the amount of money it costs him to produce a dozen of eggs, unless by keeping accurate accounts of all transactions.

The foregoing statements also produce sufficient evidence that it is impossible to accept the cost of production from any other source but our own.

Did you ever hear of manufacturing concerns accepting the cost of production of a certain article from another concern? No, indeed not. Each and every one employ expensive help to enable them to know the cost of production. Did you ever hear of a manufacturing concern selling any of its products without knowing the cost of producing the same? No, indeed not. If any such attempted it, they soon changed hands or business methods.

Poultry raising and egg production is a business and in order to be profitable must be handled as such. Poultry raising and other agricultural pursuits are fast being revolutionized into so-called business. The time is here,

the business before suffering a very heavy loss. As it was, they were groping along in the dark and went out of the business when forced to.

The thing to do, according to all this, is to run our poultry farms along business lines. Keep a set of books. Systematize our work. Cut down all expenses as much as possible, consistent with good management. Economize wherever possible. Market where you can realize the most. Grade and standardize all of your products. Pack in fancy packages and sell to the consumer as direct as possible.

Learn of Market to Advantage.

My opinion is that in order to make it possible for us poultrymen to realize the right profits, it will be necessary for us to organize and not only market our products co-operatively, but produce them co-operatively. We know that all businesses are well organized. I know of a manufacturing concern, manufacturing tables, that found that they manufactured more the first year than they could profitably sell; so the next year they manufactured less and sold these for more. They knew exactly how much it cost them to produce a table. They had a certain percentage of profit that they would add to the cost of production and the tables had to bring this price or they could not leave the factory.

There is one great factor that we poultrymen as a rule do not lay enough importance on, and that is the marketing end of our business. All factories consider the outlet of their products first of all. They place more importance on the marketing end of their business than on the producing end. I am sure that we all could well afford

to spend part of our time in marketing our produce. The last farm on which I was manager had a flock of 1000 layers producing non-fertile eggs. By special marketing, we figured that we cleared over \$500 from this flock, in addition to the common profits. It surely pays to spend some of our time in the marketing of our produce.

Texas.

F. W. KAZMEIER.

SPROUTING OATS.

Can you tell me how many sprouted oats should be fed to 100 hens each day, or rather how many oats should be put into tray each day for sprouting, and how many before feeding? What time of day is best to feed them? Monroe Co. W. A. S.

The most convenient way of sprouting oats for poultry is to make trays six inches wide and ten inches long. The oats should be spread in these trays to the depth of one to two inches. Enough trays should be made so that there will be a supply on hand for the coming day.

A tray of this size will contain enough sprouted oats for a day's supply for 100 hens. The oats should be allowed to grow until they are from four to six inches high.

We believe the best time of the day for feeding them would be about noon, as the chickens are usually quite busy scratching in the litter during the morning, and before going to roost should have a substantial feed of grain.

RAISING GEESE.

I would like to know how soon geese should be hatched, and do they require any different feed than chickens do? I only want them to sell in the fall. Iowa. Mrs. G. H. O.

It is not profitable to hatch geese early, as one of the most satisfactory foods for young geese is grass. Also, goslings are very tender when first hatched, and cannot endure any bad treatment, but after three or four weeks there is no more hardy bird among our domesticated fowls.

The chief essentials in successfully raising goslings is to keep them without food in a dry, warm place for 24 hours or more after they are hatched, then give them tender grass or a mixture of one-third corn meal and two-thirds middlings with the grass.

Until they are a week or ten days old, keep them in a small enclosure, moving it every day so that they can get a fresh supply of tender grass. After this allow them a larger place to run in and feed them often but a little at a time. After they are a month old they can be turned out to range to be where they will find pasture. It is advisable to feed them at least once a day in order to keep them in the habit of coming when called.

WHITE DIARRHEA.

This disease is a common one among newly hatched chicks. Diseases by this name are often the cause of mortality among chicks because most of the digestive derangements of the newly hatched chick are called white diarrhea. About 50 per cent of the chicks hatched in this country are said to be lost through the various forms of white diarrhea. However, the true white diarrhea, the one called bacillary white diarrhea, which is transmitted from the hen through the egg, is not as common as supposed.

The characteristic symptoms of the disease in its various forms are stupor, drooping wings, rough feathers, no appetite, and a loss of weight. There is also the diarrhea present which causes what is called "pasting up behind. The chicks almost constantly peep or chirp as if in pain, and become "big bellied."

The chief causes of the trouble are usually digestive, resulting from getting chilled, poor ventilation, sanitation, or food. Debilitated breeding stock, of course, is more susceptible than vigorous stock.

Methods of control are to keep the newly hatched chicks from getting

chilled, keep the incubators, brooders and nests sanitary, also keep the nursery tray of the incubator dark so that the newly hatched chicks cannot pick at the droppings. This picking of the droppings is often a cause of this disease. The incubators and brooders can best be kept sanitary by spraying them with some disinfectant each time between hatches.

In addition to using these precautions a quite certain preventive is the feeding of sour milk to the chicks the first few days of its life. In fact, it has been found very beneficial to keep sour milk before the chicks all the time. Care must be used to keep clean and sanitary the utensils for feeding the sour milk. It is also advisable to put a screen over the sour milk dish so that the chicks cannot get into it.

Almost any chick which comes out of the shell healthy on the twenty-first day will live the first week. If white diarrhea is going to strike the brood it usually shows up about the end of the first week. The heavy loss is caused between the first and third week. If the brood remains healthy the first three weeks of its life it is practically safe from this trouble.

BEEF SCRAP AND GROUND BONE.

How do you meet the beef scrap problem for poultry? What is the highest price permissible for beef scrap within the profit limit on an average farm? Will green bone from any kind of an animal of any age give approximately the same results?

Bay Co.

A. O.

Beef scrap is considered necessary by practical poultrymen and many breeders say that they could not afford to omit it from the ration if it cost much more than at the present time. Four cents per pound is a safe price to pay for beef scrap, considering the present price of eggs, and a good grade of beef scrap can be purchased for three cents per pound. When you try to go below three cents per pound in buying beef scrap it may result in obtaining an inferior quality and this is a very dangerous feed for poultry. Beef scrap is about the only poultry feed that has not greatly increased in cost since the era of present high prices. Even three cents per pound seems like a high price to pay for poultry feed but when we consider the price per pound of good sound wheat or corn and then consider the feeding value of beef scrap, the scrap seems like a sensible purchase.

In the dry mash about ten per cent of beef scrap is usually recommended. It is a very rich food but the hens do not seem to become tired of it. There are many farm flocks receiving no beef scrap and laying very few, if any, eggs when the addition of the scrap in the ration would make them profitable birds. Always test beef scrap by pouring boiling water on a handful. If an odor of spoiled meat rises in the steam the scrap is not fit for feeding the birds and the dealer selling such material should refund the money.

Green bone from any kind of an animal of any age will have about the same feeding value when given to the farm flock. One ounce given twice a week for each bird in the flock will be a safe method of feeding ground green bone. The birds will eat it readily and enjoy it when it is only fed twice per week, but if the green bone is fed too frequently the hens do not seem to have much appetite for it. It is usually considered safer to feed beef scrap than ground bone. The reason is due to the fact that the freshly ground bone heats and spoils rapidly. If the bone is fed it pays to grind it on the farm and then feed it up immediately. Two ounces fed to a bird in a week will have a good influence on the egg record in many cases but an overfeeding of the bone will result in sick birds. On many farms where ground green bone is used in the ration there is a tendency to overfeed at slaughtering time when there may be a large supply of bone. It is then left out of the ration

entirely and of course such a method of feeding is not the best if healthy birds and good egg records are desired.

Ingham Co.

R. G. KIRBY.

FOWL CHOLERA.

Of all the diseases that afflict poultry, cholera is, perhaps, the most feared by poultry raisers. Cholera is distinctly a germ disease and must not be confounded with common diarrhea. While cholera can be checked by prompt and energetic measures, it will work great havoc in the flock if allowed to run its course.

I had a near scare the latter part of July. One morning two half-grown pullets were sick. They appeared dumpy, would not eat and had purplish combs. I didn't pay much attention to them, thinking it was but a slight indisposition. The next morning they were dead, and two more had the disease. I immediately buried the dead birds and put the sick ones in the "hospital." The "hospital" is a small colony house situated some distance away from the main buildings and used for the treatment of sick fowls exclusively.

Then I began a thorough campaign against the common enemy, cholera. I fed the sick birds sparingly, giving them, however, plenty of fresh water. Twice a day I gave them a wet mash composed of wheat bran, powdered charcoal, bread crumbs and enough logwood to color the mash to a claret red. Permanganate of potash was always in their drinking water. In two days they were well, but I kept them confined for a week on account of the other fowls. All the poultry houses, in the meanwhile, were fumigated with formaldehyde then sprayed with a commercial coal tar disinfectant.

They, the main flock, were also given permanganate of potash in their drinking water as a preventative. From that time on I have had no more trouble with cholera. The disease had been checked.

The chief symptoms of cholera are easily recognized. Digestion is arrested, the crop remains full, the comb becomes purplish, due to a thickening of the blood, and the fowl appears dumpy and in distress. The bird is in great thirst and drinks, but refuses food. The discharges from the kidneys which are normally white, become a greenish yellow. The diarrhoea grows more severe and the bird generally dies the second day.

Treatment as above stated, for cases not too far gone, will often effect a cure. Gum camphor and powdered capsicum are also good but the former is almost unobtainable on account of the war.

Segregation of sick birds and thorough fumigation and disinfection of all the poultry buildings are, however, the most necessary measures to take in combating the disease. The virus of cholera remains in the soil which becomes infected from the discharges. The soil should be disinfected by saturating it with a weak solution of sulphuric acid in water. Cleanliness and sanitation are, after all, the best remedies to use, both for preventing and for curing diseases. L. STRICKLER.

POULTRY ITEMS.

Birds housed in small flocks during the winter can be watched closely. They can the more readily be kept free from disease. In the large flock a sick fowl might go unnoticed for several days. Vicious habits, such as feather-eating and egg-eating, spread rapidly in large flocks. In the small flock such vices are noticed before they become serious.

In saving cockerels for breeders, I choose those that show the best development—those that are attentive to the hens—that are always willing and ready to fight. A cockerel that is too cowardly to fight is discarded no matter how perfect form he shows. A cowardly streak in a male bird denotes physical weakness.

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Everbearing Strawberries our specialty
Bargains and Low Prices
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SWEET CLOVER seed, special, scarified, hulled prices on request. John A. Sheehan, R. 4, Falmouth, Ky.

Grange.

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

STATE GRANGE OFFICERS.

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

THE GRANGE AND PUBLIC OPINION.

All important legislation affecting the people, should have its origin in public opinion. All important laws do not so originate a because special interests get in while we sleep, and sow their crop of legislative tares. And for the same reason, some laws that should be on the statute books, never get there.

Again, by so amending bills before legislative bodies as to "take the punch out of them," special interests often get in their damaging work. And these things and many other things are possible because public opinion is not sufficiently enlightened, or is not strong enough, or possibly for both reasons. I wish to speak in this connection, of the duty and privilege of the Grange to be a moulder of public opinion.

There is no better way of arousing and educating the public upon live practical questions than through a great organization like the Grange. The unit of Grange endeavor is the subordinate organization. All that the Pomona, the State Grange or the National Grange has accomplished has been made possible because of the subordinate Grange.

The lecturer's hour is the opportunity for those lessons, discussions and investigations which make public opinion a thing to be depended upon. The responsibility of this work falls heaviest upon the worthy lecturer. It is she who must lead. If she is to lead intelligently she must have a plan, and if she has a plan that is worth having, she must read widely, and think even more than she reads. She must ever be on the lookout for modern thought in all phases of agriculture so that it may be imparted to members through the programs.

I often wish that we had more practical and convenient helps for lecturers. Along some lines, help is plenty and always at hand, but upon many important questions of the hour, it is very hard for the average person on the farm to find just the information that is needed.

The Grange has done valuable work in the past along this line, but it has always owed its success to the presence among its members of those who read and thought and gave the Grange the benefit of their investigations.

Interstate commerce legislation, laws for the preventions of trusts, legislation in the interests of pure food, these owe their origin and their effectiveness largely to the influence of our Order. Who can forget the part taken by the Granges of Michigan in those years when we were working to abolish direct nomination. The Grange was ever at the front in that effort for primary reform.

The questions to be settled as the years pass by, will grow not less, but more and more numerous, and greater in importance. The Grange is not going to run out of work.

Now here is this matter of the bud-

get system. It should receive our careful attention this autumn, for the next legislature is probably going to enact some sort of law relating to this matter, and we are interested in having a law that will accomplish the greatest possible good along this line. To simply provide a system of reporting through which the public may know how much money is likely to be appropriated by the next legislature to keep the machinery of the state in motion, will be of some benefit. Publication is generally a safeguard. But if we have budget system that is worth while, it must tend not only to publicity, but to economy and efficiency. The people everywhere are asking for a dollars' worth of service for each hundred cents that they pay in taxes. To this end they want competent and faithful service.

In every department of the state they want the different institutions to buy their supplies with the same care that characterizes the good business man everywhere. They are tired of giving people state jobs as rewards for political work, and realize fully that the time has come when the same business care and economy should be used in state affairs as marks the conduct of the successful man in private matters. But if we are to have such a law, the Grange must promote a strong sentiment for it.

"While I was asleep," said the unfortunate man, "an enemy sowed tares." That man was asleep just when he should have been awake, and a lot of us are like him.

A number of years ago the Granges of Michigan declared for a state tax commission. We felt that there was much property in the state that was not assessed at its true cash value, and much that was not assessed at all. We put the railroads, the telegraph, telephone and express companies upon an ad valorem basis for purposes of taxation. For years we have been endeavoring to get adjusted. Forms of property are changing and increasing. Fabulous fortunes are made in some instances very quickly, an ever increasing number of our people are earning large salaries and practically escaping taxation, and evidences are multiplying on every hand to impress us that the question of taxation is not yet settled.

The present congress has passed a law providing for rural credits. The Grange has advocated rural credits for years, but there is much criticism of this particular law.

Here is an opportunity to mould public opinion. If those of us who must borrow money may form ourselves into an organization of this kind, hire money for a term of forty years if necessary, pay not to exceed six per cent, own shares of stock in the bank, and if eventually it shall turn out that the farmers may own all the stock in the bank, then those who are obliged to hire money will get it at cost. The law may work out to the interest of the banks. The farmers may be slow to subscribe for more stock than they are obliged to, and there may be other defects in the law, but this is for us to find out. It is a matter that should receive our earnest study. We should not be in too much of a hurry to condemn the law, but should endeavor to discover its defects and assist in remedying them.

We can not spend all our time in the Grange in this kind of work. We must have a variety. Every person is not interested in these questions, and those of us who are, do not want to talk about them all the time; but they must be studied and discussed. We need throughout the nation, just such a school out of school as the Grange might be under proper leadership. Let us build our Grange ideal broader and higher, to the end that our Order may more fully accomplish its purpose in the world.

Oceana Co. W. F. TAYLOR.

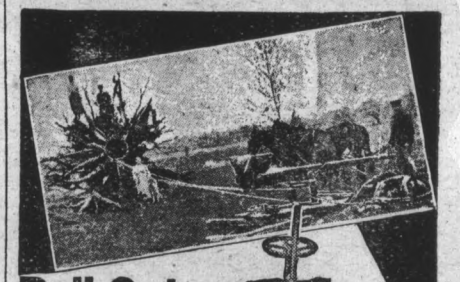
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Farmers' Clubs

Associational Motto:

"The skillful hand with cultured mind is the farmer's most valuable asset."

Associational Sentiment:

"The Farmer: He garners from the soil the primal wealth of nations."

ASSOCIATIONAL TOPICS.

At the recent annual meeting a committee was appointed to prepare suggestive topics for general discussion by the local Clubs during 1917. These topics have been prepared and published in a convenient pamphlet for distribution to the local Clubs, and can be obtained by application to the secretary, Mrs. J. S. Brown, Howell, Mich.

The suggested topics for February are:

"Quotations responded to roll call from Washington and Lincoln."

"Cost of production of milk, and is price satisfactory?"

"Torrens system of land transfers."

"Should we have military training in our public schools?"

Question box.

WHAT THE LOCAL CLUBS ARE DOING.

We have been running upward of twenty years, I think, and in that time we have had no printed programs, but yet there has been more or less discussion among some of the members who seem to think it would be a good thing. Now, while we are a live Club and have a lot of young people, I think within a year we are going to try it out. We have Clubs about us using printed programs that seem to have pretty good success. Why isn't it a good thing to have these printed programs and yet to have a place on the program for these live issues as they come up. We can pick here and there for a part of the program and yet have a line of thought running through the whole thing. The last two meetings before the election were devoted to the Michigan dry campaign. We had music and speeches along that line and our organization put out election day as many as eight or ten of our members and we posted every road leading to the booth and we interviewed every voter that came there, and our township piled up next to the largest number of votes for it.

We have never had any programs, but I am convinced that we are kind of a back number. At our last meeting I had the honor of being appointed chairman of our program committee for next year and I have promised myself that we are going to have printed programs this year and I think no better step can be taken by any Club. I believe that the thing for us to do is to go on and get busy and have printed programs.

Mr. Grover, Cambridge.

We tried for years to get along without any printed programs. Now we have a topic for every month of the year. We have our local program made up by the committee appointed for that purpose. This program is made by the executive committee and we elect three one year and three the next. If they fail on that program we don't have a Farmers' Club that amounts to anything. Take up your local program, made up of people living in the vicinity, and then have someone that is alive, to fill the gaps. This is the result of thirty-four long years' work of the Cambridge Club, and we are alive today and just as strong as we were thirty years ago.

Mr. Gage, Wixom Club.

We have a yearly program. We have tried both ways and find the printed program much the better. We had a fair in October with a school exhibit.

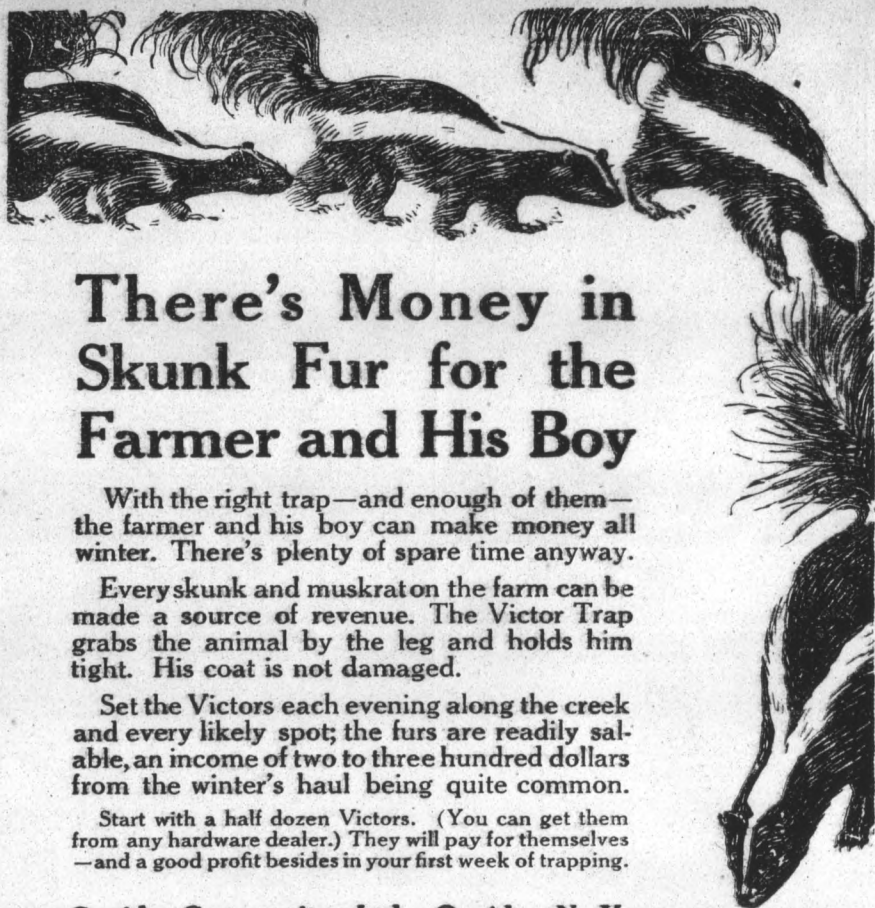
At the last meeting a home economic club in connection with the Agricultural College Extension club was organized to work in connection with the Club and we have gone a step farther. We have a federated committee of five members—one from each of the two churches, one from the school, one from the school, one from the Grange and one from the Farmers' Club, and they are working for the community uplift, all of these societies working in harmony—the school, the church, the Grange and Farmers' Club. We think we are going to accomplish great things by the federated committee. We also have the lectures from the university extension course.

CLUB DISCUSSIONS.

Adopt Yearly Programs.—The Salem Farmers' Club held its first meeting of 1917, on Wednesday, January 3, at the Salem Town Hall. About 50 members and guests were present to enjoy a fine dinner and pleasant social hour. The first on the program was a vocal selection by Miss Ruth Ross, which was followed by invocation by Rev. Baker. The delegate, Mr. C. R. Ross, then gave a very pleasing report from the State Association, especially on the paper read by Mr. Reed on "The Life Situation," and the paper by Mr. Hagerman on "The County Agent and His Work." By request Mrs. I. R. Johnson read the paper on "Club Methods," she gave at the association. We then listened to another selection by Miss Ross. A discussion was then taken up as to whether the yearly program should be taken up and tried out and it was decided in favor of same. The president appointed Mr. C. R. Ross as chairman of the committee. It was then decided to hold the next meeting in connection with the annual farmers' institute, which is to be held some time in February. A motion was made and supported that Rev. Baker and wife, also Rev. Carter and wife, be extended honorary membership to our Club. A special committee was then appointed to take charge of the March meeting, which is to be in charge of the men, giving the ladies a much needed rest.—Mrs. I. R. Johnson, Cor. Sec.

Men's Day.—The Wells-Dayton Farmers' Club met at the farm home of Mr. and Mrs. Alfred Walls, January 3. It was Men's Day and a very good dinner was served under the direction of Mr. Ross. The meeting was called to order by President Stokes. Song by the Club, "My Old Kentucky Home," followed by prayer by Mr. H. Johnson. Report of the Beet Growers' Association, which met at Saginaw, January 2, was given by Mr. Adams. This was very interesting. Discussion on the High Cost of Living by Mr. Ross, Mr. A. Walls and Mr. Adams. Vocal solo and encore by Mr. Guy Forbs. Question box. Program closed by singing "Work for the Night is Coming." The next meeting of the Club will be held at the home of Mr. and Mrs. Stanley Stokes.—Mrs. Clarence Harmon, Cor. Secretary.

Enroll New Members.—The East Nankin Farmers' Club met Tuesday evening, January 2, at the home of Mr. and Mrs. Wm. Lathers. The house was well filled, there being about 60 present. Our new officers took charge, the president, Mr. Henry Lathers, called the meeting to order, but in the absence of the secretary no roll was called, but instead a lively discussion was brought on over the legality of the annual election of officers that had taken place at the December meeting. Two songs were listened to, one by Mr. and Mrs. Joseph McGarvey, and one by Miss Lillian Lathers, after which the matter was threshed out in regard to the election of officers. A new election was called for but by an impromptu expression of opinion this was overruled, except to fill the office of recording and corresponding secretary, and treasurer. The ballot resulted in the election of Wm. Lathers for corresponding secretary, but the others had to be tabled until next meeting on account of lack of time. This was followed by a debate on the question, "Resolved, that the federal government should be given power to enforce arbitration as a means of settling industrial differences." Robert McMullen, Mark Lathers and Everitt Thompson composed the affirmative team, while R. J. Lathers, Henry Lathers and E. M. Stewart were their opponents. The negative side won. Two instrumental musical numbers by Miss Flossie Baker completed the program which was followed by a lunch of coffee and cake. Eight new members were received. The meeting was adjourned to meet with Mr. and Mrs. Chas. Honk, Tuesday, February 6.—Edward M. Stewart, Temporary Secretary.



There's Money in Skunk Fur for the Farmer and His Boy

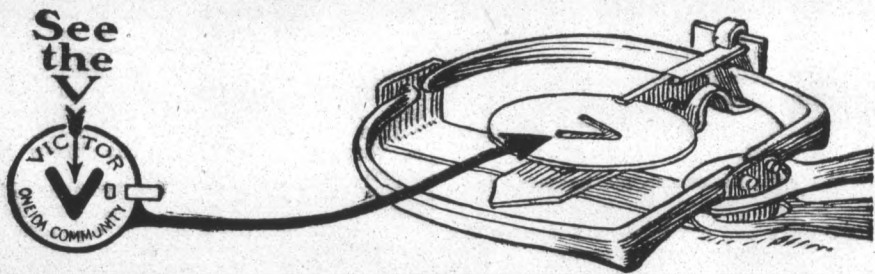
With the right trap—and enough of them—the farmer and his boy can make money all winter. There's plenty of spare time anyway.

Every skunk and muskrat on the farm can be made a source of revenue. The Victor Trap grabs the animal by the leg and holds him tight. His coat is not damaged.

Set the Victors each evening along the creek and every likely spot; the furs are readily salable, an income of two to three hundred dollars from the winter's haul being quite common.

Start with a half dozen Victors. (You can get them from any hardware dealer.) They will pay for themselves—and a good profit besides in your first week of trapping.

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It is a modern horse power system of hoeing in which the roots of the plant are not disturbed. The corn grower should discard every shovel implement. Save all the corn this season and save more than price of the implement in a season by increase of yield. Don't be deceived by talk that shovel cultivation, the first time, is needed. Our large experience proves differently.

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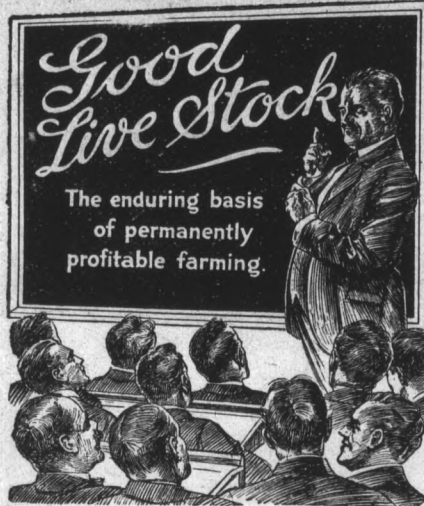
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If there is any one fact in connection with soil management standing out more clearly than any other it is the proposition set forth on the blackboard.

War-born booms with accompanying fancy prices for grain may tempt us to put the plow through rich blue-grass sods that represent the work of many years.

Don't do it.

FEED the land instead of robbing or STARVING it.

He who shapes his course in any business from the basis of fancy or abnormal returns being temporarily enjoyed is on dangerous ground.

Stand by established standards, and consider general averages covering a series of years, and do not be blinded by sensational financial fireworks—no matter how alluring they may appear.

THE BREEDER'S GAZETTE stands for permanency.

It has been under one management for 35 years.

Its growth and development has been that of the oak, and not the cottonwood.

It teaches steadfastness as the cornerstone of all success in farming or any other business.

It wanders off after false gods not at all, no matter what the temptations of the moment—and counsels all its readers to be firm in the faith of good live stock as the essential factor in right farming systems.

It sticks to its text always—the text on the blackboard.

If you are farming you will find it a congenial companion.

Just now you can subscribe to it for one year for \$1, or THREE YEARS for \$2!

That is the lowest price at which it has ever been sold, and the offer will not be duplicated another year.

On March 1 we expect to announce a sharp advance in the price.

Before that date our production costs will begin to jump like a jack rabbit.

We must have more money for the paper, or let THE GAZETTE drop to the level of the "scrub."

We do not propose to do that.

We want to make it ever and ever better.

With the cooperation of all who believe that we stand upon a sound platform we shall be able to do so.

See our agent in your vicinity, or if there is none, write us for terms to agents, and help introduce a GOOD paper to your friends. Sample copy free. Address

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Veterinary.

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

Nasal Catarrh.—Some of my sheep (Hampshires) have a thick mucus discharge from nostrils; can you tell me what to do for them? They are in good condition (flesh and wool) and have good feed and comfortable quarters. E. D., Nottawa, Mich.—Mix together equal parts of cooking soda, ginger, gentian and powdered charcoal and give each sheep half a teaspoonful at a dose in ground feed twice a day. I am inclined to believe that their ailment is due to local causes. Perhaps sudden changes of weather from hot to cold, or exposure to rainstorms.

Driving Horse Scours.—Irritation of Throat.—I have an eight-year-old gelding that scours badly when driven on the road but when used for slow work, his bowel movements are about normal. I also have a three-year-old filly that had an attack of distemper last October; she appeared to recover, but now coughs some when drinking and a portion of the water passes out of nostrils. I might add that both horses are in good condition and apparently in good health. W. C., Chelsea, Mich.

—When fast driving or increased exercise bring on extra bowel action, I believe the feeder should be the person to control it. The writer has overcome this ailment by feeding a good quality of oats and well-cured timothy. Besides, avoiding to water the animal too soon after eating grain, and also limiting the quantity of water given, before and while driven on road. The evening after the day's work is done is the proper time to give a horse of this kind all the water he wants. I have always thought it a mistake to use this kind of a horse for road driving. Apply equal parts of tincture of iodine and camphorated oil to throat of three-year-old filly three times a week.

Navicular Disease.—My five-year-old horse has been lame in fore foot for the past 12 months and we are inclined to believe it a case of coffin joint lameness. H. D. B., Charlotte, Mich.—Unless you are pretty certain of having located the lameness, don't apply any treatment. If in foot, clip hair off coronet all the way around and apply one part red iodine mercury, one part powdered cantharides and eight parts of fresh lard twice a month.

Chronic Cough.—Incipient Heaves.—Have a mare seven years old, somewhat nervous, that has had a cough for about one year. When excited you can hear a rattling in her throat and she is now breathing very much like a horse that has heaves. O. M., Wooster, Mich.—Feed her no clover, or dusty, musty badly cured non-nutritious fodder. Allow her very little bulky food, feed mostly grain and silage or vegetables. Rub her throat with one part tincture iodine and two parts of camphorated oil daily. Give her ½ dr. of fluid extract nux vomica, 1 dr. fluid extract lobelia and 3 drs. of Fowler's solution in feed or water three times a day.

Sore Head.—I have a six-year-old cow that holds her head as if it ached. Her horns are cold most of the time and close to head the horns are smaller than three inches from there. So far as I can tell the cow is in a healthy condition. F. D. M., Breedsville, Mich.—Mix together equal parts turpentine, aqua ammonia and olive oil and apply to roots of horns three times a week. Give her 1 dr. of potassium bromide at a dose in feed twice a day.

Choking.—Spasm of Larynx.—We have a litter of pigs about three and a half months old that appear to be in good thriving condition, but when they come up to the trough to eat, they take a mouthful or two, then back up and appear as if choked. One has already died and two more are ailing. Will you be kind enough to state cause and give remedy? E. C. S., Nunica, Mich.—Feed your pigs warm swill and heated sloppy food; also spread it out thin so that it will be impossible to grab a very large mouthful at once. By following these instructions you will perhaps save future trouble. I might add that the slop should be made fairly thin.

Chronic Collar Gall.—I recently purchased a six-year-old horse which has a shoulder gall of long standing. There is a soft moveable bunch two inches in diameter in middle of which is a spot an inch in diameter covered thinly with a scale of dry tissue. Can you recommend some course of treatment during the winter months while the animal is not in heavy work, which will heal the gall and prevent trouble after the spring work commences? H. W., Williamston, Mich.—Surgical removal of the loose flabby malignant tissue is the

only remedy and cutting out such sacks or bunches is what I always do in my practice, then there are never any further troubles. Apply one part iodoform and six parts powdered charcoal to wound twice a day and it will soon heal.

Abnormal Appetite.—I brought from the southern part of the state last spring to this high dry climate a mare that is not doing well; her coat is very rough and she has an abnormal appetite. I have been giving her gentian, ginger and soda, equal parts, and I have thought that it helped her some. I forgot to say that I bred her last summer, but do not know whether she is in foal or not. F. J. F., St. Helen, Mich.—Increase her grain ration, feed her some clover and roots. Groom her well twice a day, admit plenty of fresh air into stable. Give her one part of ground nux vomica, one part of ground red cinchona, one part powdered charcoal, one part powdered fenugreek and four parts of ground gentian; give her a tablespoonful at a dose in feed three times a day.

Indigestion.—I have a horse 11 or 12 years old that is well fed, but he fails to lay on flesh. W. H., Yale, Mich.—His molar (grinder) teeth may perhaps need floating and if you do the work yourself, file off only the sharp points on outside of upper rows and inside of lower. Mix together one part of salt, one part of ground nux vomica, one part fenugreek, one part ginger and four parts ground gentian and give him a tablespoonful at a dose in feed three times a day.

Chronic Indigestion.—My horses are inclined to chew pieces of wood, lick plaster and nibble on things they should not eat, and I have given them cooking soda, air-slaked lime, ground bone, etc., but it fails to do them much good. J. B., Holland, Mich.—Give each horse 2 drs. of hydrochloric acid, diluted V. S. P. in 50 parts water, then mix with feed three times a day. Above dose can be increased, but remember it should be thoroughly mixed with water and given in either feed or water.

Blind Staggers.—I have a 14-year-old mare that has been troubled with falling spells since last May. She first jerks head, holds it sideways with a short twitching motion for a few seconds before falling flat on her side. When down she struggles vigorously to regain her feet. After getting up she appears perfectly at ease and natural. She has had five attacks since last May. I first thought it might be worms, but was mistaken. O. R. C., Van, Mich.—A case of this kind should be considered incurable; however, if it is brought on by too generous feeding, lack of exercise, or indigestion, then the feeder is the proper person to treat the case. Give her a teaspoonful of bromide of potash at a dose in feed or drinking water two or three times a day. She should be exercised every day and the bowels kept open.

R. W. G., Belmont, Mich.—A cow is considered at her best for dairy purposes when at or near seven years old. The other cow's milk is all right.

Indigestion.—Stocking.—I have a nine-year-old mare that has not done well for some time and she stocks up in her hind legs, which drives out, but stocks again at night. Will you please advise me what to do for her? A. T. S., Oak Grove, Mich.—Her grinder teeth may need floating, but if you do this work yourself, only file off sharp uneven edges of outside of upper rows and inside of lower. Mix together one part powdered nitrate of potash, one part powdered sulphate iron, two parts ginger and four parts ground gentian and give her a tablespoonful at a dose in feed two or three times a day. Be sure and keep her stable clean and well supplied with fresh air.

Mange.—Opacity of Corena.—Garget.—I have a large black mare troubled with an itchy condition of the skin. I also have a horse that ran against a barb wire some years ago, scratching eyeball, leaving it partially covered with a white coat. But his sight is not affected. Can I remove the film? Is there any harmless way to produce a white star on head of horse? I also have a Holstein cow due to freshen next month that has garget affecting one quarter of udder. F. A. H., Wayland, Mich.—Apply one part sulphur, half a part carbonate potash and four parts lard to itchy parts three times a week. Leave the eye alone. Perhaps peroxide of hydrogen would bleach the hair, but as you did not state color of horse, I am unable to prescribe the best remedy. Apply iodine ointment to cow's udder three times a week.

Cow Fails to Come in Heat.—I have a young cow which fails to come in heat and I would like to know what can be done to assist nature in this kind of a case. N. C. H., Jackson, Mich.—You will obtain some results by feeding her a stimulating nutritious feed, keeping her warm, giving her good care, also give her 1 dr. ground nux vomica and 2 drs. of powdered capsicum at a dose in feed twice a day.

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12 head of choice young bulls old enough for service. All sons of Black Monarch 3rd. Grand Champion Bull Michigan State Fair 1914, 1915 and 1916. Black Monarch 3rd has been sold to W. E. Scripps, Wilcox Farms, for the record price of the breed in Michigan, \$1200. U. L. Clark, Hunters Creek, Mich. Sidney Smith, Mgr.

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Bulls by BLACK QUALITY ITO, sire, First prize. Breeders and Calf Herds Mich. State Fair 1916. We also won first on Exhibitors Herd, Jr. Champion Bull, Jr. Champion Female and Grand Champion Cow. Also breeders of Percheron, Ha kney and saddle Horses. WOODCOTE STOCK FARM, IONIA, MICH.

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Eight bulls from eight to ten months old. One show bull, eight yearling heifers bred. Our motto: size with quality, best of breeding. Prices reasonable. Inquire of F. J. WILBUR, CLU, MICHIGAN.

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

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

4 Heifers and 1 bull calf High Grade Guernseys nicely marked \$20 each, express paid or the five, express paid for \$95. Extra promising calves. Meadow Glen, Whitewater, Wis.

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

For Sale: At farmers prices, registered Guernsey bulls old enough for service, from advanced registered cows. L. J. Byers, Coldwater, Mich.

For Sale 2 A. R. Reg. Guernsey cows, 2 yearling bulls, 2 bull calves from A. R. cows. Cheap. JOHN EBELS, R. 10, Holland, Mich.

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100—Registered Holsteins—100

Bulls for sale, of ages from a few weeks to 14 months, from 30-lb. sires and choice A. R. O. dams. Have some special bargains for quick sale. Come and see them or write for pedigrees and prices.

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Do You Want A Bull?

Ready For Service.

From a grand daughter of The King of the Pontiacs. Sired by a bull that is more than a half brother to the Champion Holstein Cow of the World, and whose dam is a 30 lb. 65 ½ fat daughter of Pontiac Aggie Korndyke who has more 30 lb. daughters than any other living bull. If you do write for pedigree.

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Reg. Holstein Bull calves. Michigan Champions 1916. Male and female. World record breeding at Farmers price. John A. Rinke, Warren, Mich.

Extra Good Registered Holstein Cows FOR SALE
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HOLSTEINS

Herd No. 1, Five cows, one two year old bull.
Herd No. 2, Five yearling heifers, one yearling bull.
Herd No. 3, Five Heifer calves and one bull.
Bulls ready for service and 6 to eight months old bulls. Prices will please you. If interested, write as soon as you read this. L. E. CONNELL, Fayette, Ohio.

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

30 lb. bull for sale, 2 years old, by a son of King of the Pontiacs. Dam sold for \$1000 in Detroit sale. Ferd. J. Lange, Sebawing, Mich.

FOR SALE 4 registered Holstein cows, Fairview Segis Marie No. 99601, A. R. O. 9 years old, due March 1. Queen Butter Boy No. 187193 A. R. O. 4 years old, fresh Sept. 18, with heifer calf. Joan Saginaw No. 181794, 4 years old, fresh Dec. 21, male calf, by side Lady Otsego Korndyke No. 210210, 4 years old, fresh Dec. 16. Easy milkers and guaranteed all right. Write or come and see them. Lewis J. Benjamin, R. D. 1, Olio, Mich.

Holstein Calves, 10 heifers, and 2 bulls 15-16ths pure, 15 weeks old, beautifully marked, \$20.00 each, crated for shipment anywhere. Edgewood Farm, Whitewater, Wis.

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1 to 9 months old. Dan's A. R. O. Our herd size is Johanna McKelvey Segle 3d. 7 nearest Dams average 27.35. BLISSVELDT FARMS, Jenison, Mich.

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I have several young bulls for sale, good individuals and the kind that will credit to head any herd at farmers' prices. E. H. Gearhart & Son, Marcellus, Mich., R. No. 4.

Registered Holsteins. Young bull ready for service. 39 lb. breeding. Satisfaction guaranteed. W. B. Jones and J. F. Lutz, Cohasset, Mich.

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A 26 lb. Jr. 4-yr.-old and a 15 lb. Jr. 2-yr.-old were among the records recently made in our herd. All cows in the herd have creditable A. R. O. records and are tuberculin tested.

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FOUR Heifers and one bull calf high grade Holsteins nicely marked, \$20 each Express paid or \$35 for the five all Express paid. Meadow Glen, Whitewater, Wis.

REG. Holsteins. Place your order now for a bull calf. I have cows due to freshen soon, bred to the best bull in Mich. Elmer E. Smith, Redford, Michigan

FOR SALE Holstein-Friesian Bull Calf of Hengerveld De Kol blood lines, 4 weeks old, also 4 Chester White (O. C.) Boars, 2 and 4 years old. SERRADELLA FARM, Oscoda, Mich., Carl E. Schmidt, Prop.

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\$200 Buys Reg. Holstein heifer 1 1/2 yr. old fresh next summer and Reg. bull 1 mo. old, not a kin, both evenly marked. B. R. REAVEY, Alcona, Michigan

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Six Registered Holstein Cows all in calf to a son of Segle Champion, Mobile; also six calves by same sire. Edgerly Farm, Geo. W. Burt, Prop., Redford, Mich.

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Both sexes and all ages for sale, our herd comprises about 100 head representing the blood of such sires as Prime Lad 9th, Perfection Fairfax, Bonnie Brae 3d and Dale. Write us your wants.

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The All-Around Jersey

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



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

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You keep cows for profit. Brookwater Farm breeds bulls that will increase value of every calf you raise. The following are sired by Benedictine King who went to R. of M. this year on his record as a sire of R. of M. cows. Not one of his daughters ever failed to make the Register of Merit. Calved June 5, 1916. Solid color: dam, Brookwater Veda 25876, now on test, has made in 5 months and 21 days, 302.97 pounds of butter. Calved July 3, 1916. Solid color: dam, Brookwater Foretta 27198, now on test, has made in 4 months and 25 days, 300.72 pounds of butter. Also three other bull calves, one of which is of unusual promise by Majesty's Intense and out of a tested (will make 70 pounds fat during January) granddaughter of Loretta D., champion cow for production at the St. Louis World's Fair. One of these bulls we will sell at \$50. Others higher. Extended pedigrees and production records furnished on application. Let us know what kind of a bull you need. Visit the farm and see the calves, their dams and sires. **BROOKWATER FARM, ANN ARBOR, MICHIGAN.** H. W. Mumford, Owner, G. F. Foster, Manager. Duroc Jersey Brood Sow Sale, February 23.

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Sired by Long Beach DeKol Korndyke. His sire Friend Hengerveld DeKol Butter Boy. Dam a daughter of Pontiac Angie Korndyke. She has a 120 lb. record, 11-30 lb. sisters, 3-120 lb. sisters. Her dam a daughter of Friend Hengerveld DeKol Butter Boy has 1000 lb. year record. Has 4-30 lb. sisters, 3 sisters above 1200 in year. **LONG BEACH FARM, AUGUSTA, (Kalamazoo, Co.) MICH.**

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Berkshires, Boars, serviceable age, best blood lines. Registered. ELMHURST STOCK FARM, Almont, Mich.

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10 Reg. Shropshire yrl. Ewes that are first class in every respect. Price \$25 per head. Bred for Apr. lambs. M. A. BRAY-ESTATE, Okemos, (Ingham Co.) Mich.

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Duroc Jerseys One Apr. g't bred for Apr. farrow. Price \$5. Also some Sept. pigs, either sex. H. G. Keeler, Cassopolis, Michigan.

CHESTER WHITES Gilts bred to farrow in Feb. or March. Fall pigs, either sex. F. W. ALEXANDER, Vassar, Mich.

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O. I. C's. 4 last fall boars big growthy ones, also last spring pigs either sex, not a kin. Farm 1/2 mile West of depot. Otto B. Schurz, Nashville, Michigan

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I HAVE started thousands of breeders on the road to success. I can help you. I want to place one hog from my greatest 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

CHOICE BRED GILTS Bred to farrow in March and April farrow. Prince 59002, sired by Wildwood Prince 1110 lb. 3 yr. Grand Champion at Iowa, sold for \$750. Ship C. O. D. —J. Carl Jewett, Mason, Mich.

O. I. C. and Chester White Swine, all ages. A few service Boars and open gilts, 400 fall pigs either sex, sired by Grandella Wonder, Grand Champion at Ohio State Fair, Schoolmaster the champion of champions and highest price boar of the breed and others. Get a sow bred to Galleyway Edd Grand Champion Mo. State fair, we are looking orders. We had the undefeated breeders age herd at six state fairs. Get our catalogue, buy the best it pays, we have them. We ship on approval. Rolling View Stock Farm, Cass City, Mich. R. 2

O. I. C. SWINE: 20 gilts due to farrow the last of March and for part of April. Will be sold at knock-down price. Have also fall pigs. Write me your wants. Satisfaction guaranteed. A. J. GORDEN, R. No. 3, Dorris, Mich.

O. I. C. Serviceable Boar's, Gilts bred for March and April farrow. Prices reasonable. H. W. MANN, Danville, Mich.

O. I. C. & CHESTER WHITE SWINE strictly big type, 25 gilts, bred for Mar. and Apr. farrow, bred to Big Wonder 4th, and Prince Jumbo. Both boars are sired by Champion's. These gilts will be sold at Farmer's prices. Three boars ready for service, also fall pigs that will be sold cheap. Can furnish in pairs not skin. Willship C. O. D. Newman's Stock Farm, Marietta, Mich., R. 1.

O. I. C. Serviceable boars. Yearling sows and gilts bred for Mar. farrow. Summer and fall pigs. G. P. Andrews, Danville, Michigan.

O. I. C. Year-old boar 2nd prize winner at Grand Rapids fair also spring gilts and boars ready for service. A. J. Barker, Belmont, Mich. R. R. 1.

FOR SALE. Thoroughbred O. I. C. Swine, sows bred, gilts and boars. O. D. Somerville, Grass Lake, Mich. R. 2.

O. I. C's. Have only a few boars of May, June and Sep. farrow. ROCKFORD, MICH.

O. I. C's. 25 choice Gilts bred to Son of Schoolmaster to farrow in Mar., also fall pigs. Clover Leaf Stock Farm, Monroe, Mich., R. 1.

O. I. C. Choice bred gilts for Apr. & May farrow. Serviceable boars, fall pigs. Out of prize winning stock. Write for low prices. A. V. Hatt, Grass Lake, Mich.

HAVING sold my farm I will sell my entire herd of O. I. C. and Chester White swine at Public Auction on Wed. Feb. 14. Write for catalog. E. B. MILETT, Fowlerville, Mich.

Big Type Poland China bred for March and April farrow. July boars. Satisfaction guaranteed. G. W. Holton, Kalamazoo, Mich. R. 11.

LARGE Type P. C. largest in Mich. Boars all sold. Have 30 of the best big stately bred gilts lever raised. Sired by & bred to the largest boars of the breed. From massive dams & large litters. Come & see & be convinced. Expenses paid if not as represented. Free livery to visitors. W. R. Livingston, Parma, Mich.

BIG TYPE P. C. Boars and Gilts all sold for this season. Armstrong Bros., R. 3, Fowlerville, Mich.

Francisco Farm Poland Chinas Big Types With Quality

Ten 200 lb. Spring Boars from prize winning stock. They're long, strong, big-boned, rugged fellows. Pictures, circular and price list sent on request. P. P. POPE, MOUNT PLEASANT, MICH.

Big Bone Poland China Spring boars. The quality and price will surprise you. G. T. Ellis, Charlotte, Mich.

NOW IS THE TIME TO BUY Twenty-five tried Big-Type Poland-China brood sows to be bred for March and April farrow. Ten splendid Spring boars at \$25.00 each for quick sale. Worth \$50.00.

Hillcrest Farm, Kalamazoo, Mich.

At Half Price and Sold Out Except some dandy fall pigs, and a big rugged black Percheron Stallion, (registered) coming three, for \$350.00. Come and see him. J. C. BUTLER, Portland, Mich. Bell Phone.

BIG TYPE Poland Chinas. Boars all sold except 4 extra good B. Boars of May farrow sired by Big Type King 91609 & Tesemeyer & Wonder Jr. 91339. To close them out in the next 10 days we offer them at half price. W. Bee whicker & Sons, Elsie, Mich.

Large Sired Poland China spring and fall pigs; also B. P. Rock cockerels at special low prices to quick buyers. Robert Neve, Pierson, Mich.

Big Type P. C. Four choice spring boars left Big Type P. C. growthy fellows. A bargain for you. Some choice spring sows bred for April farrow. L. W. BARNES and SON, BYRON, MICHIGAN

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Big Type Poland China Gilts, bred for April farrow, with size and quality. A. A. WOOD & SON, Saline, Michigan

10 Yorkshire Gilts, 2 Boars one mature; Red Polled cattle. E. S. CARR, Homer, Michigan.

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

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