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The Woodlot, Its Place In Farm Management

By W. I. GILSON

DURING the last decade the woodlot situation in Michigan has been brought forcibly to the attention of agriculturists because of increasing timber scarcity and the extension of cleared land areas for agricultural use. The management of woodlots has been treated as a side issue of farming until the woodlot situation has come to be very depressing.

Very little has been accomplished in acquainting farmers with scientific methods of producing, harvesting and marketing wood products, while progress along strictly agricultural lines has made rapid strides. It is, nevertheless, maintained that timber production for various aesthetic and economic reasons should go hand in hand with the production of other crops, form an integral part of the general practice of agriculture, and receive its due attention.

The general attitude of individuals has not changed materially since timber ceased to be abundant. Present stands are removed and the areas which produced them are mismanaged, so that no provision is made for a future crop. Under natural conditions in forests, trees usually reproduce abundantly. The scattered remnants of the original stands now remaining are more seriously affected by natural elements and the ravages of insects, live stock and human beings than large continuous tracts.

The volume of Michigan woodlots is decreasing at the rate of over one per cent per year. In the great majority of cases the removal of the present stands will prove to be the end of the woodlots as no provision is being made for future crops. Pastured woodlots contain trees only of the older age classes and have extreme scarcity of seedlings upon which future stands are absolutely dependent. Contrasted to this condition is that of the well cared for timber tract where there are numerous trees of every age. When mature trees are removed the next younger class develops rapidly to form the next crop, and material which will develop a succession of future crops is present in the young growth.

The woodlots of Michigan comprise

3,000,000 acres and in 1910 brought a total revenue of \$7,900,000. The material sold from individual woodlots (not including maple sugar and syrup products) had average value of \$50 with material of about equal value used for home consumption in each case. The total income from woodlots is about one-twentieth that of all Michigan crops. The meaning of these figures should not be misconstrued or taken to mean that Michigan woodlots are cap-

management are adopted. Deducting from the statistics of total income and total acreage, the net returns from woodlots at present are less than three dollars per acre. They show that the income per acre is low compared to that of other crops. The question once arises as to whether a farmer is warranted in maintaining an area in timber or if it would pay better to harvest it and to plant some other crop. The answer depends upon a number of fac-

tracts under present conditions, indicates that they should occupy the poorest acres for ordinary crop production. These may be poor because of low fertility, lack of drainage, roughness or any combination of these conditions. It is an advantage to have timber tracts located relative to farm buildings so they break the force of the winter north and west winds. They are of value also in keeping the snow on wheat crops immediately to the leeward, and in preventing rapid evaporation in summer. The primary object in location is to seek the poorest soils to produce the timber crop. Forests have greater power to utilize poor soils than do other farm crops. There are very few farms without some areas that cannot be farmed profitably and have a low value for pasture. These poor areas represent the ones upon which trees should be grown.

Logical Reasons for Maintaining Farm Woodlots.

There are many and varied reasons for preserving farm timber tracts, some of which are purely economic and others which are of an aesthetic nature.

1. Foremost among these is the convenience of such timber for farm use. The woodlot furnishes material for fuel, farm buildings, and all the various kinds of repair work where wood is suitable.

2. Next in importance is probably the fact that harvesting wood products fits in so admirably with the other farm work. It is usually carried on during the winter months when other work is not pressing, and it can be done at any season of the year.

3. Logs or any form of wood need not be harvested in any definite season. If left standing longer, the trees usually increase rather than decrease in value. Many have fallen back on the tree crop to pay the taxes and keep up the expenses of farming during the lean years. The timber crop is a valuable resource in this respect. The timber represents the reserve capital and the annual growth the interest on the investment.

4. Trees have a renovating effect (Continued on page 28).

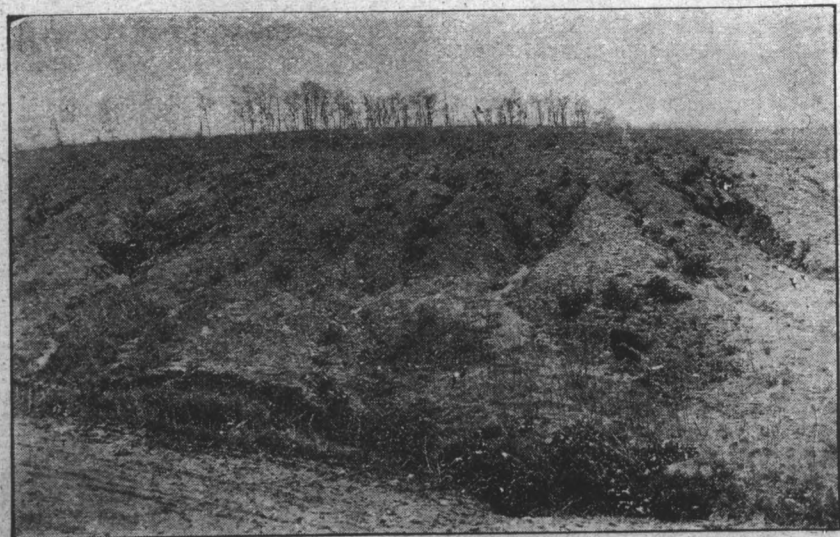


Pasturing Destroys the Young Seedlings, which Should be Present to Make up the Timber Crop of the Future.

able of producing \$100 worth of material each year indefinitely. The amount harvested during 1910 represents not only the amount produced during the previous growing season, but the volume that accumulated during several seasons, indicating that more was cut in 1910 and is cut each year from woodlots than is produced in one growing season. One hundred dollars worth of wood material represents a greater value of products than can be taken each year indefinitely from the average woodlot unless better methods of

tors, such as the value of the land, the proportion of the farm at present in timber, facilities for marketing, age of the timber, etc. It can be definitely stated that timber crops on land of high value for farming cannot at the present time produce crops yielding money returns which compare favorably with those from most agricultural crops.

In very many cases a mistake has been made in selecting the area left uncleared and to be used as a woodlot. The limited earning capacity of timber



Trees, if planted, will Hold the Soil in Place on Steep Hillsides.



It is a Great Sacrifice to Cut Trees in the Pole Stage.

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DETROIT, JANUARY 13, 1917

CURRENT COMMENT.

The Business Outlook. At a time when the commercial poise of the world is at such delicate balance that the mere official mention of the possibilities of bringing peace to Europe sends the price of grain and stocks tobogganing, there is more than the ordinary amount of speculation with regard to the business outlook for the future. There are many prophets as to what will occur after the war, and many opinions as to how foreign and domestic policies may be shaped and what effect they will have upon the continued prosperity of the United States.

General business conditions are of just as much interest to the farmer as to the man engaged in any other line of business, and an analysis of the situation is just as profitable for the farmer as for any other business man. Many readers will say at first thought that the farmer is in no position to analyze the business situation because of his isolated location. This is, however, a most erroneous idea. General business conditions are largely reflected by local conditions the country over. When there is a stringency in the money market the local banker will promptly conserve his reserve funds and hold would-be borrowers to the minimum of their necessary requirements. The local merchant will likewise exhibit more activity in the making of collections and will be less inclined to extend unlimited credit, while the desire to convert goods of all kinds into money to relieve the stringency will create a noticeable downward trend of prices all along the line.

That there is nothing of this in the present situation will be conceded by every thoughtful reader. The drops in a nervous market are quickly recovered, the pendulum swinging each time further in the direction of higher prices than it has done before. Bankers have a large surplus of funds and money is easy; merchants instead of trying vainly to convert shelf-worn stocks into currency are just as anxiously trying to buy for present needs. Every farmer has had occasion to observe in undertaking to purchase goods at local stores, that stocks of goods of all kinds are greatly depleted, and that merchants everywhere protest the impossibility of filling their lines with fresh stock. This condition is general in almost every department of merchandising, and insures a continued movement of goods of all kinds for domestic use as rapidly as manufacturers can produce them to supply the needs of domestic merchants.

In this connection the shortage of materials in many lines—notably iron, steel and chemicals—is likely to limit the volume of production in a manner which will result in higher prices and

short supplies of many articles of manufacture required in considerable quantity by farmers. For this reason it will be wise for farmers to anticipate their future needs and do their spring shopping early, since only by placing early orders for needed goods can be prospective purchaser be certain of securing delivery of the goods when needed.

So far as a continued demand for agricultural products is concerned it seems well assured. Regardless of whether peace may be declared in Europe before another harvest, America will be drawn upon heavily by European countries for food stuffs. Indeed, that demand may be greater following peace than it is in war, due to the restoration of better shipping facilities which would follow the cessation of hostilities. Thus viewed from any angle the outlook for the American farmer is exceptional for the ensuing year, hence the desirability of planning upon the maximum of production at a minimum of cost upon each and every farm.

General business, particularly in many manufacturing lines, has already reaped a rich harvest from the advanced price coupled with an unprecedented demand for their products. All signs point to a similar harvest for the farmers of the country during the coming year, if they "make hay while the sun shines."

The Milk Producers' Opportunity.

Now that the fight is over and the milk producers contributing to the Detroit milk supply have won a substantial victory in the making of the 1917 price for their commodity, a little calm reflection on the part of every contributing milk producer relating to the influences which contributed to the winning of the fight will be profitable.

In securing an advance over last year's price of 42.8 cents per cwt., the aggregate of which will run well into seven figures in representing the increased revenue to the milk producers contributing to this market, and in establishing a price which to date stands as a record for metropolitan markets, and all accomplished without an expensive strike which would be weakening to the organization, the milk producers have won a victory of no mean proportions. The result should be a great strengthening of the milk producers' organization, not alone at every point contributing to the Detroit milk supply, but as well in every Michigan community where milk production has assumed commercial proportions.

The organization is in a much better position to strengthen its various local units than would be the case had a victory been won through the medium of a milk strike. Such a strike not only means an antagonistic public opinion in consuming centers, but means to some extent the arraying of class against class and even neighbor against neighbor in many cases where individual producers are forced to suffer a financial loss through the organized action of their fellow men. Instead of facing such a condition, the loyal members of the milk producers' organization can easily show the producer who is not already identified with the organization the beneficial effects of its work, and it will be comparatively easy to perfect an organization which shall not alone conserve the producers' interests in the making of future milk contracts, but which may also accomplish valuable educational results which will be reflected in a better product in future years, and a higher appreciation on the part of consumers of the food value of a high-class market milk.

The producers who have been interested in this fight should appreciate the value to them of an efficient state organization of milk producers. Perhaps one of the most potent influences in the winning of the recent victory was the solid backing of a state milk producers' organization which has available a guaranty fund of more than

\$10,000, subject to the call and use of its officers in the conduct of any campaign in which they may engage for the benefit of producers. Another potent influence was the fact that in every contest which has arisen since the organization of the Michigan Milk Producers' Association last spring the producers have won out by securing an advanced price which would cover the cost of production and afford the producers a profit instead of entailing a loss which would eventually force them out of business.

These facts are worthy of the attention of every milk producer in the state. They point forcibly to the future opportunity of milk producers to conserve their interest by promoting a still more perfect and comprehensive organization in all sections of the state. May the zeal which characterized the work along this line during the days preceding the settlement of the Detroit controversy be continued throughout the coming year, to the end that the interests of producers may be still better conserved in the future and the other benefits mentioned accrue in greater measure to the united producers in an important industry.

The Sugar Beet Controversy.

The report of the mass meeting of sugar beet growers held at Saginaw on January 2, under the auspices of the State Grange, which will be found in another column of this issue, shows conclusively the attitude of a large element of the sugar beet producers of the state. That their attitude is warranted by the situation is clearly indicated by the analysis of the contract offered by the sugar companies, which was made in a recent editorial comment in this paper.

By that analysis it was shown that the sliding scale contract which is being offered by the sugar companies this year, while apparently designed to impress the individual grower as being more liberal than the so-called Ohio contract used by some Michigan companies last year, in reality gives the grower a lower price by forty cents per ton than did that contract, provided the average price of sugar for the months involved is six cents a pound or more, which would seem to be a practical certainty under existing conditions.

Undoubtedly the sugar companies will contend that the demanded price of \$8 per ton is unreasonable, and will undertake to secure acreage sufficient for the operation of the factories on the contracts offered; but a careful analysis of the situation will convince almost any fair minded man that the offering of a contract which is really less favorable in its terms than that enjoyed by some Michigan growers last year, especially by factories which have profited by high-priced sugar made from low-priced beets, is much less reasonable, and the result of such an attempt on the part of the factories will undoubtedly be a very low acreage of beets, and consequently low production of sugar at a time when domestic production should be at its maximum. In this event the manufacturers, rather than the farmers, will be primarily responsible for this result, through their refusal to confer with the growers in the matter before fixing the season's price or to fairly meet the economic situation from the growers' standpoint.

Whatever the outcome, the sugar beet growers are to be congratulated on taking so firm a stand for an equitable division of the profits from this industry which they have helped to build and the executive committee of the State Grange merits general commendation for taking the initiative and assuming leadership in the matter.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—The central powers continued their advance in Roumania until the first of this week, when they were arrested by a counter blow by the Czar's troops. Desperate fighting is now on for the occupation of po-

sitions commanding the lower section of the Sereth river, a branch of the Danube. Last week the Germans captured the important Roumanian city Braila and won heights that may ultimately give them Fossani. On the other hand, they were thrown back at three other points and their line was pierced near Obilecti, a fact admitted by Berlin. It is apparently the object of the Teutons in this section to prosecute the campaign until they have complete control of the railroad connecting Lemberg in Galicia with Galatz on the Danube, and Odessa, the chief port of the Black Sea.—At the extreme north end of the Russian front both sides have launched furious attacks in effort to gain military advantages. The Czar's troops repelled assaults along the river Aa, the village of Katzen, and the Tirul marshes.—On the western front the Germans attacked the French on the right bank of the Meuse river before Verdun, and also in the Vosges mountains. According to Paris reports, these advances were repulsed.—Italian forces advanced about 500 yards during a surprise attack on the Austrian frontier. British troops failed in an effort to advance their lines in Macedonia.—The United States Senate has voted to support the peace move of President Wilson.

Meagre reports have reached this country of a battle between the forces of Generals Carranza and Villa in Mexico to the south of Chihuahua City. Although the first statements indicated a battle of some magnitude, it is now believed that the forces engaged were of comparatively small numbers.—It appears that the American-Mexican commission which has under advisement matters of issue between the United States and the de facto government of Mexico will recommend that American forces be withdrawn from Mexican territory.

According to dispatches from Austria, Dr. Dumba, recalled ambassador to the United States, is to be made a prince by Emperor Charles Joseph.

National.

A congressional hearing is on in Washington this week to take testimony on the alleged leak regarding the recent peace note of President Wilson, the advanced knowledge of which is said to have made millions of dollars for certain New York city speculators.

A campaign to nationalize the non-partisan political league which swept the political boards of North Dakota in the last campaign has been inaugurated. It is the purpose of this League to organize Iowa, Nebraska, Michigan and Wisconsin in the near future. North Dakota, South Dakota, Minnesota and Montana are already organized. The program of the League seeks to find a remedy for alleged economic abuses from which farmers have suffered.

To reduce freight congestion out of Toronto it has been agreed by railway and transportation officials to discontinue the running of 49 passenger trains in order to give greater freedom to the movement of freight. The revised schedules will be in operation until April 30.

There are 61 local papers in northern Michigan which have been compelled to advance their subscription price because of the print paper situation, 14 other papers have adopted a strictly cash in advance program, 12 have cut down their size, eight increased their advertising rates, and in five cities and towns the papers have consolidated.

The State Railroad Commission has given the city of Detroit and the Grand Trunk Railway 15 days in which to get together on the construction of grade separations on Dequindre street in this city. A mandatory order was given to this effect.

The seventh annual automobile show is now on in New York City. Unusually large crowds are attending the sessions and showing interest in the new automobile styles.

Republicans of Michigan will hold their state convention in Detroit on February 20.

Congress has appropriated \$243,000 as expense money for distributing free garden seeds.

The thirty-first regiment of Michigan has returned to Detroit from the Mexican front on January 5.

A new re-enforced concrete dock to cost \$1,500,000, and having a capacity of 60,000 tons of ore is being constructed at Ashland, Wis.

MICHIGAN BEAN JOBBERS MEET.

The Mid-winter Meeting of the Michigan Bean Jobbers' Association will be held at the Hotel Cadillac, Detroit, commencing at 2:30 p. m., January 24. A cordial invitation is extended to every grower of beans and every person interested in the development of the bean industry of this state to attend this meeting. W. W. Gilbert, an expert on the control of bean diseases will be present at that meeting from Washington, D. C. We will have a good program prepared, copy of which will be mailed to you later.

—W. J. Orr, President.

Beet Growers Organize

A DOMINANT note in Grange progress was pressed over and over again at State Grange session this year in the resolutions expressing the need and demand for stronger co-operation that the farmers may obtain a fairer price for their products.

One particularly pressing need that was taken up at the first State Grange executive meeting was from the sugar beet growing sections. After careful consideration a call was sent out by the State Grange executive committee to all the Granges and farmers in the beet growing counties for a mass meeting to consider the price of sugar beets for 1917.

On January 2, over 1000 men crowded into the rooms of the Saginaw Auditorium to discuss this vital question. John C. Ketcham, Master of Michigan State Grange, was made chairman of the meeting, and Robert P. Reavey, of Caro, Tuscola county, secretary. C. H. Bramble, overseer of State Grange, who grows sugar beets on his farm near Tecumseh presented some carefully compiled figures on the cost of growing the beets and also the manufacturing side of the question.

He said in part: "The farmer has more capital invested in land acreage growing sugar beets than the factory has in its plant, and more than double the labor costs. In 1915 the acreage was 124,781, at \$100 per acre represented a capital of \$12,478,100, farm capital.

"The sworn statement of the sugar factories taken from reports filed with the Secretary of State for 1916 was \$12,478,024, almost the identical farm capital valuation. Interest, taxes and depreciation were not figured on either farm or factory capital.

"According to figures based on report of sugar factories to the Commissioner of Labor of the number of men employed, acreage of sugar beets, sugar produced, amount of coal consumed, number of tons of sugar beets, the average test and price of 1915 crop, and verified by year book of the agricultural department at Washington, Michigan farmers grew 1,075,681 tons of beets in 1915. With an average of eight and a half tons per acre at an average price for four years of \$5.50, at an average cost price of \$40 per acre, they received \$47.17, giving a net return of \$7.17 per acre.

"The Commissioner of Labor's report shows 4,839 men employed by Michigan sugar factories with an average of 81 days, who manufactured 251,140,139 pounds of sugar. City wage earners average \$2.28 per day.

Cost of Manufacture.

Labor cost (\$2.50 per day)...	\$ 980,022
Salaries and incidentals.....	351,597
Coal, estimated 185,193 tons	555,579

Total\$1,887,198

"The total factory cost of manufacturing sugar on this basis would be $\frac{3}{4}$ c per pound.

Factory Cost.

1,075,681 tons of beets at \$5.55	\$5,970,029
Mfg. cost as shown.....	1,887,198

Total\$7,857,227

Value of Product, and Manufacturing Profit.

251,140,391 lbs. sugar at —7c (aver. jobbers' price since last January)	\$17,578,967
76,834 tons beet pulp at \$20	1,536,680
Syrup not figured	

Total\$19,115,647
Less total factory expense... 7,857,198

Total factory profit.....	\$11,256,249
Total farmers' profit, 1915 basis	978,789

Estimated on a \$6.00 Per Ton Basis.

Total factory profit.....	\$10,784,563
Total farm profit.....	1,463,846

"A single sugar factory costing \$750,000 will handle 10,000 acres of beets, which at 10 tons per acre would produce 100,000 tons of beets. At \$8.00 per ton the results would figure as follows on the above basis:

Factory Cost.

100,000 tons beets at \$8.00...	\$ 800,000
Cost of mfg. at $\frac{3}{4}$ c per lb...	187,500

Total\$ 987,500

Value of Product.

25,000,000 lbs. sugar at 5c (12 $\frac{1}{2}$ per cent av. test)....	\$1,250,000
Pulp on above basis.....	148,840

Total\$1,398,840

Comparative Profits on this Basis.

Factory profit	\$ 411,000
Farmers' profit	400,000

"This the farmers consider a fair division of profit."

Following this talk, A. B. Cook, a beet grower of Shiawassee county, made a strong plea for the farmers to organize and "stick together" for a living price. The \$8.00 a ton flat rate was voted enthusiastically. To back this enthusiasm these men representing 16 counties proceeded to organize.

John C. Ketcham was made chairman of a committee of six. The further members that were ratified by this body were A. B. Cook, of Shiawassee county; L. W. Oviatt, of Bay county; Robt. Reavey, of Tuscola county; Timothy O. Hearn, of Huron county; W. T. O'Connor, of Sanilac county, and P. Morris, of Genesee county.

Membership dues were fixed at \$1.00 and a booster fund of \$160 was taken up in a collection, "just to start the ball rolling."

At the close of the meeting the counties represented met in various parts of the building where county and local mass meetings were planned to

sugar. As far as observed, this practice causes no noticeable injury to the trees excepting a small scar where the holes have been made. Based upon syrup at \$1.50 per gallon, the gross yield per tree is 60 cents and the net yield about 30 cents per season.

8. Hilly land under cultivated crops is liable to wash badly. When the surface soil is removed the cropping value is almost negligible. The thick undergrowth and leaves on the soil in timber stands holds the soil intact in the roughest country. Forests decrease the proportion of rainfall which runs over the surface to lower land and increase that which penetrates into the soil.

9. The recreational value of woodlots should not be overlooked. They may be used as picnic grounds for the owner's family, as nature study laboratories for the children, and as community assembling places where topics of general interest can be discussed.

Farm timber tracts usually do not appeal to the younger generation as much as to the older. The sentiment connected with their existence increases with the age of the owners. Many young farmers have immediately cut down woodlots as soon as control passed to them from the hands of older people. Man soon passes the commercial stage of youth, the appetite for aesthetic and restful features increases and he begins to entertain the other aspects of life not dominated by the dollar sign alone.

10. Before a woodlot is removed to increase the area adapted to growing other farm crops, careful observation

of the scheme is that the area occupied by the old woodlot and that occupied by the new are temporarily withdrawn from agricultural use. It must be remembered, however, that the area planted represents the poorest land of the farm, while that gradually being made available by cutting is much more valuable.

The tenant system is one great drawback to any plan of management covering a long period of years. The average tenant's interest in the farm is temporary only and he is primarily an exploiter of its resources. His interest is in taking as much out and in putting as little back as possible. Most notable among his offences have been pasturing the woodlot, being careless with fire during dry periods, and in taking the very best trees for wood or for farm repair work, where poorer ones would have done as well. As over one-third of the farms of the country are run by tenants, the damage to woodlots, because of them takes quite extensive proportions. It is not intended here to give any discussion of the effects of pasturing upon woodlots. It is sufficient to state that the producing power of a timber tract cannot be kept up indefinitely if it is pastured.

A great fire hazard and risk of insect damage have made investors skeptical of timber properties as a form of investment. The fire hazard in woodlots is low in most sections because the tracts are isolated and timber does not constitute large areas. Insects seldom destroy whole stands of mixed species but often will attack one particular kind of tree.

It is difficult to make the establishment of forests appeal to the average farmer because returns are so long deferred. The planter seldom survives to harvest his own crop. People have not yet reached the stage of unselfishness which makes them willing to take such a keen interest in posterity as to plant forests for them to harvest and sell. The timber crop is one which requires that the same plan of management be followed over a long period of years. If one owner plants trees and the one who succeeds him decides to cut them while they are in the pole stage there is a great sacrifice in value. The crop is of low value and quantity at this time because the stage of most rapid growth and development is just being approached.

The marketing of woodlot products is very difficult for the average farmer because it is a field of work in which he is not experienced. Very few sales of woodlot timber are made at any near approach to the true value. Wood products represent a small percentage of the products sold from a farm and the sales are generally not annual. The farmer has not the opportunity to become skilled in measuring the quantity and deciding the quality of saw logs and sawed material as he has with his annual crops. To escape a line of work with which he is not familiar, he usually sells for a lump sum or in the log and thereby loses the profit from the work of preparing the timber for a special market by putting it through a sawmill. As many at this time are interested in selling their timber more than retaining it, the methods of marketing woodlot products deserves attention. Failure to make a sale is often a fortunate circumstance as the timber is thereby saved for a future market when prices are higher and the trees have attained greater volume.

The Future of Farm Woodlots.

Just what the future of farm woodlots is to be is problematical to a considerable extent. Prices of lumber and all wood products have been steadily rising since the early days of the lumber industry and all economic conditions point to the fact that they will continue to do so for a number of years at least. This country has the last great storehouse of timber wealth containing woods best adapted to our needs. Importations cannot be made except at great cost. Woodlots will probably come to be prized more high-



Young Trees Spring up Naturally in Great Abundance in Unpastured Lots.

complete the local organizations. The meeting adjourned with pledges by nearly all present to not contract for less than \$8.00 and to stick to it.

DORA H. STOCKMAN.

THE WOODLOT, ITS PLACE IN FARM MANAGEMENT.

(Continued from first page.)

upon the soil. They will draw nourishment from such depths beneath the surface that most crops cannot reach it. Land improves under timber crops where it will gradually lose fertility under other crops. Food elements are taken up from the under soil and formed into leaves or wood structure. The leaves and wood in turn fall and decay upon the surface of the soil. Plant food of the under soil is by this continuous process brought up and concentrated near the surface.

5. The value of trees for protection of crops and buildings is becoming more important with the greater scarcity of large protective belts of timber. If farm buildings are located properly relative to the woodlot, both crops and buildings can be protected.

6. The majority of people who are in the market for farms desire woodlots in connection and are willing to pay more for farms containing them.

7. The forest crop of wood does not always constitute the sole source of income. Tracts containing maple trees in sufficient numbers may be tapped for the production of maple syrup and

should be made to ascertain if considerable valuable land is not lying idle in other parts of the farm that could be put to use before cutting the woodlot. These wasted areas will be found principally in open ditches, crooked ditches, unnecessarily wide fence rows, unnecessary lanes, roadways wider than standard, scattered and inconveniently located farm buildings, etc.

Pertinent Woodlot Problems.

The subject of the farm woodlot presents many problems which at the present time are confusing and difficult of solution. One of these is to determine what procedure is most advisable where timber occupies the best land of the farm and poor land is being farmed. The condition shows very clearly a mistake which was originally made in selecting the areas to be used for farming. The tracts cannot be shifted about as easily as when annual crops are being grown. The only method which obviates the necessity of being several years without a local supply of sizeable timber for use is to harvest only a small part of the crop each year and when cutting begins to plant up the poor land, which is to be the woodlot of the future, with trees of the desired species. The progress of cutting in the old woodlot is regulated so that upon its completion some of the new crop will be of usable size. Young thrifty trees do not attain great age before they need thinning. The thinnings are adapted for use as poles, posts, and fuel wood. The drawback

ly because they are so well distributed throughout most of the farming sections and form so convenient a source of supply of wood materials.

The present consumption of timber, which is 250 cubic feet per capita, will probably be reduced because of high prices, limit of supply and the very important role that wood substitutes will play in our everyday life. Wood posts have partially been replaced by those of metal and concrete and various forms of wood construction are giving way in favor of stone, cement, brick or metal. As the price of coal goes up and the supply is less available it may be that stove wood will come back into everyday use.

The history of foreign countries has shown that private forests are in time replaced by public forests. In the far distant future this will probably take place here also. Timber growing is primarily not a private enterprise. Entire success demands that it be carried on by men who are specialists in the art. The long periods necessary to produce mature crops do not adapt it as a field for average individuals to enter. Poor lands worn out by cropping or those originally worthless represent the proper places for tree crops and will in time be taken over by the federal, state or local governments for such use.

Private forests pay in Europe and eventually can probably be made to pay in this country also. The outcome however, is dependent on higher prices for wood products, more complete knowledge among owners of how to grow timber, and that they occupy land not too valuable to yield fair returns on investment when put to such use.

ROAD BUILDING IN MICHIGAN.

Macomb county commissioners have let a contract for building 3.9 miles of the Hulett-Messmore road in Armada township to Campbell, Baldwin & Bennett, for \$11,780, work to start in early spring.

Shiawassee county has let the work for rebuilding three and a half miles of gravel road out of Byron to Louis Heath for \$9,445.

Ottawa county has let contracts as follows: To Cline & Boelens for building a mile and a half of concrete road running south of Grand Haven; to Ray Scott for building two and a half miles in Allendale township; also a number of contracts for furnishing and hauling gravel on roads in Blenden, Allendale, Holland and Robinson townships.

About 20 miles of gravel road in the eastern part of Muskegon county will be repaired and resurfaced during the winter. Men and teams are secured more easily and at lower rates in winter than in summer and gravel can be hauled better on sleighs.

Mason county commissioners do not favor putting any more unscreened gravel on the roads and have bought two screening outfits. Contracts have been let for 11 miles of gravel road.

Branch county road officials have been making a trip over Wayne county's 140 miles of concrete road and were pleased with this type of construction.

Saginaw county has completed the work of placing sign posts at each of the crossings on all improved roads. Each post is numbered on four sides to show exactly where it is located with regard to the state meridian and the base line. Danger signals are placed at railroad crossings and bad curves.

The United Commercial Travelers of Michigan are urging that the state take over and complete all trunk line roads, maintaining them by the patrol system; also that the state borrow \$15,000,000 (the amount required according to an estimate of the state highway department), and let contracts to build all gaps in trunk line highways at once.

Kent Co. ALMOND GRIFFEN.

Applying the Rural Credit Act

By JAMES N. McBRIDE

THERE are large areas of land in Michigan which have every element of fertility, but simply lack drainage. While this is generally true each community has particular knowledge of its own necessities. There are upland soils in Tuscola, Huron, Gladwin and Bay counties which might be cited as particular examples of unexcelled resources and location, with the constant menace of a wet season. From the standpoint of drainage the problem is not difficult from an engineering view, but finance has been the obstacle.

The general community gain of drainage would, based on the results and experience of drained areas in Ohio and Indiana, double the value of land in the neighborhood. Individual farms have increased in value over 100 per cent. Here is a proposition that equals investment in what has been the most profitable stock deals. The investment has absolutely no risks, and to the individual farmer, whose crops are at the mercy of wet conditions, drainage writes an insurance policy, for as a rule this soil has every virtue when drained.

Representative Cull, of Gladwin county, secured the legislative sanction of a constitutional amendment to allow land owners to form drainage districts, issue bonds and in a general way do for themselves, to "unwater" land as the federal government does to water the soil under irrigation projects. Any proposition permitting bonding is not popular, and a most meritorious proposition was defeated because misunderstood.

Now comes the rural credit act which will allow long time, and a low rate of interest to do this very necessary work of drainage. Possibly the minimum of five years of extent of time would accomplish the drainage, however, this could be an individual matter. One method of procedure would be to call a public drainage district meeting and proceed in the usual manner to secure a drain under the state law, and provide for payment by organizing a rural mortgage bank or farm loan association to meet the apportioned cost with cash payments. If the project is a small one, a signed agreement of apportionment of the expense can be agreed upon and obviate much of the overhead expense of procedure by law.

There are many places in Michigan where a swampy area of comparatively small amount, say from one to ten sections, has been an eyesore and also a breeding place for mosquitoes and disease and a place of disrepute for farm-

ing. Already capitalists are buying such swamps, putting in dredging machinery and making money on the transaction. It is quite within the range of local initiative for a community to buy this land in 40 or 80-acre units, and mortgage the home farms under the rural credits act for drainage and purchase price of the swamp area. There are usually in each community young men of mechanical ingenuity who possibly are the local threshers. Staking these men, if necessary, for a dredging outfit is good business. There is more or less winter work possible on these jobs for unemployed farm labor. When the job is finished the additional value added to the land is enormous. There probably will be a gain of 100 per cent on the transaction, and all possible, by the use of credit which an average community has in great plenty, but has not used.

Unless these areas are used and improved locally they will be bought by outside parties and the chance to maintain these lands for the local people is gone. There is also the possibility of an alien colony being planted in the midst of a local settlement which is now a common social purpose.

There is a land hunger and the father should employ his credit to provide sons with farm land. The glamour of the golden west is gone and there are many more chances of success immediately than the more remote and weary waiting on the irrigation projects. The experience of the pioneer was not valuable in his privations which were incidents, but in his accomplishments in spite of obstacles. The man, in whose community there exists valuable land lacking drainage, can also add to the achievements of "subduing the earth" by reclamation from water, just as a past generation reclaimed the higher land from the wilderness.

A soil survey in some places may be desirable, for not all swamp land is valuable for drainage. A quicksand bottom is not desirable. Deep peat swamps lack mineral matter and cropping under these circumstances must be adapted to conditions. Silty clay bottom land when drained is a joy forever, and makes a fat land.

The man who can take the initiative in using the rural credits act to finance a community drainage plan deserves well of his fellow men.

For further advice write to W. W. Flannagan, United States Treasury Building, Washington, D. C., Secretary Farm Loan Board, for advice how to start a local bank or federal farm loan association.

Winter Care of Farm Machinery

By R. G. KIRBY

THE modern farm business requires considerable investment in farm machinery. A farmer's earning power today is in a measure determined by the amount of money which he can invest in tools to save his time and energy. It follows that every implement should be made to give as many years' service as possible. On driving through many farming communities we observe fine tools allowed to rust beneath the trees in the field or stand unprotected from the rain and snow in neglected fence corners. We do not wish to criticize the farmer who dumps out a tool in the snow after it has become unfit for use by many years of service. It is customary to blame farmers for every piece of scrap iron lying around their farm, even though the scrap may not be worth storage space and not contain enough good material to pay for the time of breaking it up. However, this fall I have seen binders, corn cutters and silo filling outfits standing in the snow although they did not appear to have seen more than one year of

service on the farm. It is simply a case of allowing the elements to destroy farm capital, because these machines will certainly have several years less of service to their credit when they are scrapped than as if they had been protected.

Moisture is a great destroyer of farm implements and the tools which are unprotected never give as good service as they should, even if they are still fit to use. I have heard it stated that tools can be protected without a shed if they are carefully painted in the fall so that every spot is proof against moisture. However, it is just about impossible to cover every spot and crevice with paint. Paint costs money and painting takes time and it should not be necessary to paint farm implements every year. It is far better to give them the protection of a good dry shed.

When storing machinery for winter it pays to clean it thoroughly and wipe it with an oiled rag. The fine film of oil over the iron and steel parts will prevent rust and the tool will be clean

and in fine condition for spring work. In the winter broken parts in machines should be repaired and it pays to tighten up the gears and bearings and give the machine a thorough inspection to find if it is in perfect condition for a hard day's work in the field. It pays to order repair parts before spring as they may be delayed in transit and it is expensive to wait for repairs when the field work is pressing and every hour is worth a day in the winter.

It is a common occurrence for farmers to prepare their binder two or three days before it is needed. It takes all of a bright summer day possibly to clean up the machine or drive to town after a needed repair part. Possibly it may be necessary to stay half a day at the blacksmith shop waiting for a job that should have been finished in the winter when time was not so valuable.

Of course, it costs money to build a storage room on a farm for farm tools. If the buildings are now full and an extra implement has been purchased it means the building of more shed room in a year when lumber and building materials are very expensive. Sometimes a lean-to shed can be added to an old building with scrap lumber and a few two-by-fours. The building can then be covered with a good grade of roofing paper and it will furnish protection for the tools until a better building can be afforded. I am not an advocate of building a lot of small sheds all over the farm but anything is better than allowing expensive tools to rust and wear out years before their time.

ACTIVITIES OF MICHIGAN FARMERS.

The second annual round-up of the boys' and girls' clubs of Barry county, held at Hastings, proved very successful, with fine displays of corn, potatoes and of garments made by the girls. Speakers from outside included H. G. Smith, farm agent of Kent county, Miss Anna B. Cowles, Prof. W. H. French, and E. C. Lindermann, all of the M. A. C. Total enrollment in club work in the county was 148, with 110 members completing the work. Three leading prize winners in yields of corn per acre were: Emerson Cortright, 69 bushels; Robert Eaton 63; Lyle Harper 55.7; on the half-acre basis, Floyd Harper 53 bushels; Russell Leonard 44; Earl Johnson 38; best profits per acre, Robert Eaton \$46.55; E. Cortright \$40.50; Lyle Harper \$30.35; championship on four points of yield, story, profits and quality, acre class, E. Cortright, Don Hall and Ralph Harper; half-acre class, Floyd Harper, Russell Leonard and Kenneth Garrett; potato growing contest, first, Arthur Willets; second, Paul Foreman; third, Lyle Vanderbrook.

The Allegan County Farm Bureau met at Allegan and elected the following officers: Pres., Irvin Fox, Cheshire; vice-president, Geo. Schutmaat, Hamilton; secretary, Glen Overton, Allegan; treasurer, Earl Delano, Allegan. Alfred Bentall will continue his efficient work as farm agent. Very interesting talks were given by Dr. Mumford, of East Lansing, director of farm bureau work in the state, and by Chas. E. Bassett, of the Federal Bureau of Markets, Washington.

The Calhoun County Fair Association has elected the following officers for 1917: President, Chas. C. Green, Battle Creek; vice-president, H. C. Albaugh, Marshall; secretary, Thos. C. Bigger, Marshall; treasurer, Frank E. Smith, Marengo; directors, R. P. Kingman, Battle Creek; James Wilkinshaw, Convis; Russell Conley, Marshall. The fair paid about \$3,500 in premiums last season, as compared with \$1,600 the previous year.

"I have been taking your paper for a number of years and look forward with a great deal of pleasure to its coming, as I gather a lot of valuable information from it and find it very helpful in the better management of my farming interests."—J. V. Wise, 15 E. Lake Street, Chicago, Ill.

Applying European Co-operative Methods to America

By WM. B. HATCH,
Michigan Member of American Commission

HAVING concluded my observations and that of the American Commission in the thirteen European countries in the chronological order visited, I thought our Michigan farmer readers would be interested in a final article suggesting to what extent the lessons learned in Europe are being applied in America. I have endeavored to gather this information so far as possible through the members of the American Commission in their respective home localities.

As might be expected in general the larger service which the American Commission has rendered and will render is along educational lines. Each member of the Commission became a more interested citizen in the subject of co-operative agriculture. And as such he had talked about it to his neighbors, has discussed it in agricultural organizations and meetings of farmers and in his local press and in the larger agricultural press. Some have gone to the legislature and helped to draft appropriate legislation. Some have been appointed to official positions in their respective states which keep them actively at work in promoting co-operative agriculture.

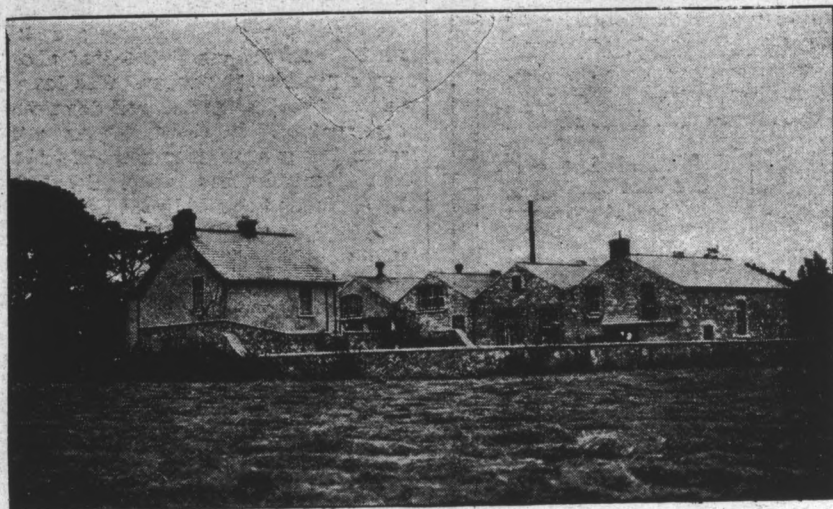
It should be said at the outset, I think, that the American Commission and the United States Commission were merely concrete expressions of conviction that something systematic and comprehensive and enduring needed to be done to promote American agriculture. This had been recognized for years before any concrete activity resulted. The Country Life Commission appointed during Roosevelt's administration was one of the most conspicuous expressions of this conviction and was an efficient instrumentality in focusing attention upon general needs and directing specific attention to the character of those needs as reflected in the report of this Commission.

During President Taft's administration our ambassador to France, Honorable Myron T. Herrick, was instructed

to gather data to be used to compare agricultural conditions there and here. Federal authorities were simultaneously instructed to gather official data in this country. From these two sources of data we get the following background:

There are twelve million citizens of the United States engaged in agriculture. There are thirty million directly dependent upon the farms for a living and our entire population is indirectly dependent. The estimated value of our

capital on the same basis as the European farmer in order that they might fairly compete with him, there would be an immediate annual saving of one hundred and fifty million dollars a year in interest alone. The annual value of farm products is nine billion five hundred million dollars. One-third of this is consumed by the farmers who produce these products. Over six billion dollars' worth of the product goes to market. The consumers pay thirteen billion dollars for this six billion



Buildings Housing an Irish Co-operative Creamery Plant and Manager's Office.

farms is forty billions of dollars. There are six billion dollars of farm debts—six dollars for every minute of the Christian era. Three billion dollars of this indebtedness is in the form of farm mortgages. The cost of the farmer's money represented by his indebtedness averages eight per cent or a little better, covering the whole country. This represents an annual interest cost of three hundred million dollars. The European rate is not over half ours. If American farmers had their working

dollars of marketed farm products. Seven billion dollars disappears in distribution between producer and consumer. In three years since the last census the number of food animals has decreased seven million three hundred and fifty thousand, while our population has increased about seven million. We had beef exports in 1904 aggregating \$150,000,000. Today we are importing beef, mutton, poultry, dairy products, grain and even vegetables. New Zealand mutton, and butter and eggs

from China are on our Pacific Coast markets. And 900,000 pounds of Argentine beef came into Washington, D. C., in a single day within the past year. We are even importing corn from Buenos Aires.

The American Commission in its report says among other things in conclusion:

"The experience of thirty years by a dozen European countries, has demonstrated beyond all question the decided advantages to the farmers and to consumers as well, of the co-operative or collective method of doing the business incident to agriculture—whether in obtaining credit, in buying, in selling, or in manufacture of food products, such as butter and cheese—over the older but much less effective method of purely individual business activity.

"For nearly the same period, in America, farmers have experimented with the co-operative method. There have been many failures. But today the conspicuous success of co-operation in the selling of fruit and vegetables, in butter making, in establishing grain elevators, and in organizing supply stores, indicates that collective farm business is feasible in America as well as in Europe.

"The underlying need in American agriculture is to organize in every farming neighborhood in the land a well considered co-operative effort for making that community in all respects—in its farming and in the life and character of the people—the best possible neighborhood. This is rural community-building."

The following brief report of activities in the various states is given in the order of the arrival of the reports: Pennsylvania. Considerable work has been done in Washington and adjacent counties in the way of farm development plans, corn and pig feeding clubs and fruit associations. The farmers here have also organized a buyer's and sellers' association which is incorporated. (Continued on page 46).

THE gooseberry as a product for the local market has never received much consideration from the average fruit farmer because of the fact that the demand for gooseberries has been limited. There are buyers who can several crates of this fruit every year. It is put up as jam and also eaten as sauce or in pies and the gooseberry is greatly relished by many people. In talking with the owner of a boarding house she stated: "I find that my people are very fond of gooseberries when they are properly prepared but every year I have great difficulty in procuring first-class fruit for canning." She had no trouble in purchasing quantities of all other kinds of small fruits but gooseberries of quality seemed to be lacking.

I believe that the demand for gooseberries is still limited and with due regard to the above buyer's statement the appetite for gooseberry sauce doubtless must be cultivated and this seems to have been neglected in the majority of homes. No grower of small fruit could expect to make much money from the gooseberry without first carefully studying the local market and noting if there really is any demand for the product. Without careful cultivation a good crop cannot be produced. Without careful study of markets a good crop cannot be sold at a profit. The past history of fruit growing has always placed the cart before the horse. Its maxim has been—produce something and then try and sell it. At present the prospective fruit grower can reverse the old idea. First find out if there is a demand, then try and fill it more successfully than the other fellow. The study of markets is necessary in the profitable culture of all small fruits but it is doubly necessary in the case of a fruit like the gooseberry where the demand is limited.

Commercial Gooseberry Culture

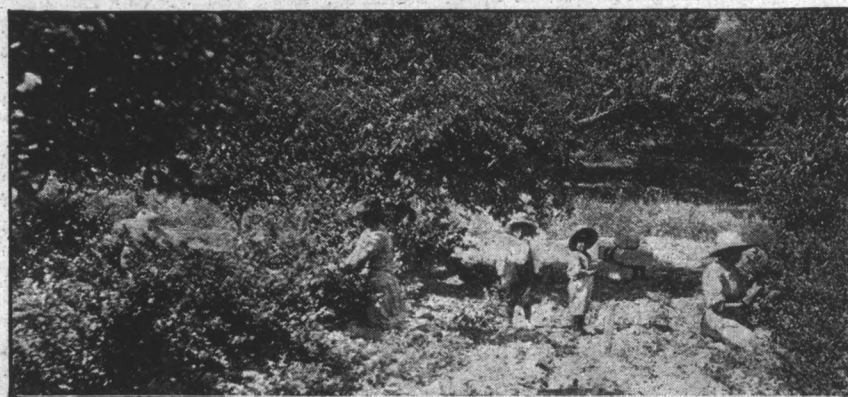
By R. G. KIRBY

ited. If you know that there is a market for this fruit in your community a study of the natural requirements of the plant is in order.

Gooseberries should be planted three feet apart in rows four feet apart. The bushes do not spread out like blackberries and consequently less space between the rows is necessary for cultivation.

wood should be removed annually to keep the new wood steadily developing. When the patch becomes old, manure may be spaded in around the roots to advantage and doubtless the old patch will need quite a little cultivation to keep the soil in the condition that will produce large fruit.

The greatest danger to commercial



Gooseberries do well as Fillers in Orchards.

Gooseberries are propagated from cuttings of the shoots which grew the previous year. The gooseberry being a hardy fruit is frequently neglected and a lack of pruning, cultivation and manure soon reduces the size and quality of the berries produced. When a cane has borne two or three crops it should be removed so that the young canes which bear better fruit will have an opportunity to develop. As a usual thing six or eight canes will do fairly well when more will mean a crowded berry patch and fruit that is small in size. When the bushes are three or four years old some of the

gooseberry culture has been the mildew and it is one of the difficult mildews to control. The imported varieties have proven more susceptible than the plants originating in this country and for this reason it will probably be safest to plant the native stock. Winter spraying with an application of lime-sulphur seems to have an effect on the disease but a spray of potassium sulphide (one ounce to two gallons of water) seems to be more generally successful in controlling the fungus. The first application of this mixture should be made at the time the buds open and it may be used again at intervals of

ten days if the weather is humid and disease is very prevalent in the vicinity.

Among the varieties generally planted now are the Downing, Chautauqua, Columbus, Houghton, Industry and Smith's Improved. The Downing, Houghton, Smith's Improved and Chautauqua are American varieties, and quite resistant to the mildew so they can be generally recommended for planting in the commercial fruit garden. The Columbus is an American seedling of the English type berry and is considered by many growers to be of very fine quality. The Industry is one of the best and largest varieties of gooseberries and it is considered about the hardiest of the English types. However, as with all the imported gooseberries, it is more subject to the mildew than the American sorts and I doubt if it should be planted extensively although it produces a very fine fruit for the home table.

Gooseberries will stand a lot of hardship in transportation because of their thick skin. They should be picked before becoming too ripe and if for the local market they can be left on the bushes until nearly matured. The market will pay well for a limited amount of this fruit and undoubtedly the demand will increase as consumers learn that gooseberries of quality are not the small sour seed specimens that they possibly have purchased in the past. Some growers make a profit on gooseberries by growing them as fillers in young orchards. In cases of this kind they may be removed when the trees are old enough to need all of the fertility that the surrounding soil can supply them and a new gooseberry patch can be started from the old one in plenty of time to insure a crop of fruit by the time the plants used as fillers must be destroyed.



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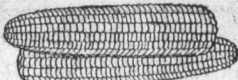
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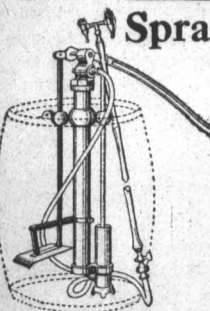


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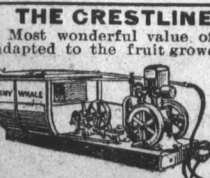
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RASPBERRY CURL OR YELLOWS.

Raspberry curl or yellows is a very obscure disease. About all that is known about this disease is the characteristic signs and the infectious nature. No definite parasitic organism has been shown to be connected with it. In this regard it is similar to peach yellows, a disease of another fruit which shows many similar characteristics.

The infectious character seems certain. The usual history of diseased patches is something like this: A few plants showed the disease one season and in the course of two or three years the disease spread through the whole patch.

Leaves from diseased plants show a characteristic curling and dwarfing. The grooves which normally are shallow become deep and the leaf shows deep creases at the veins. The leaves, which normally are flat, roll downward at the edges. In the late stages the leaves become slightly yellow. Fruit from diseased vines is worthless, usually shrivelled and half-filled out.

No control is known for this disease other than the sanitary measure of destroying all diseased plants. If the first cases of the disease are thus eradicated, a plantation may be freed from infection. Commonly the disease is not seen until the infection is widespread. Such a plantation quickly becomes unprofitable. Care must be taken to protect young settings. Nothing is as yet known of the method of spread of this disease, other than that cuttings from diseased vines carry the disease. Judging from other diseases of this type, we may expect that some insect plays the role of carrier in this disease. Accordingly old plantations may lead to the infection of new. The disease has been noticed on wild plants hence wild berries in the vicinity should be destroyed.

Red varieties are more severely affected than the other varieties. If several varieties have been tried, doubtless some difference in susceptibility has been noticed. The resistant types should be selected for replanting. The growers of raspberries in Ohio claim that the St. Regis, Early King and Herbert are not so susceptible to this trouble as the Cuthbert. No information from Michigan growers is available.—Dept. of Botany, M. A. C.

HINTS FROM THE HORT. MEETING.

Mr. C. E. Bassett, of the U. S. Bureau of Markets, commented very favorably upon the plan of certifying cars of grapes which came up to a certain standard, tried out by the Michigan Market Director. The method has been worked with success in some of the western districts, and will grow rapidly in popularity in the future. The fact that a state official has inspected the car of fruit and passed it as O. K. gives the buyers added faith in the high standard of grade and quality of the pack and in most cases the fruit is bought "sight and unseen" at higher prices than other fruit which was on sale with the privilege of inspection. In fact, in one instance the buyer refused to accept a car because the certificate which was to be attached to the bill of lading was lost, so much confidence did he put in this sort of inspection service.

Mr. Bassett likened this method to rewarding a boy when on good behavior instead of punishing him when he was naughty. He believed that the reward system was more productive of good behavior than the penalty method. So with the fruit grower, the system of awarding a certificate when the fruit was up to standard would do more toward encouraging better grading and packing of the fruit than any amount of legislation providing for penalties when the standard was not maintained.

Prof. L. R. Taft said that there was no set rule as to definite times for

spraying but for good results spraying should be done often enough to keep the growing fruit and foliage well covered with spray material. Occasionally it was necessary to make two sprayings when the blossoms are in the pink as at times from two to four weeks would intervene between the first showing of the pink and the opening of the blossoms. Bordeaux is considered a better spray than lime-sulphur because it sticks better but on account of the economy and convenience of use, Prof. Taft believed that lime-sulphur was preferable.

Mr. George Low, who has had considerable experience girdling a large orchard of Duchess trees to bring them to bearing, said that he found the method of twisting a wire tightly around the trunk until it was smooth with the bark gave most satisfactory results, no damage resulting from it. The wires are left on from ten days to three weeks, depending upon the growth of the trees. This method has successfully brought Mr. Low's trees into bearing.

In the students' speaking contest, R. L. Lepper gave a very interesting discussion of the potash fertilizer problem. On account of the scarcity of muriate and sulphate of potash American investigators have been working on substitutes. The most promising found thus far is kelp, a seaweed which yields about 16 per cent of available potash when ground and dried. Alunite, a rock from the west, the ashes of hard maple, oak and ash, tobacco stems and the gases from the manufacture of cement are other sources of potash which have showed promise.

In a discussion of the bitter rot of the apple, David L. Peppard, in his talk, given in the students' contest, said that it and other fungous disease were caused by an unequal supply of sap which was brought about by the derangement of the water supply. This causes a breaking down of the cell tissue and the resulting fungous trouble. Apples on spurs were found to be more susceptible than others, and the use of quickly available nitrogenous fertilizer seem to make conditions more favorable for the development of the rot.

A GOOD TREE PROTECTOR.

It is not too late yet to protect those young fruit trees from rabbits, as they do most of their damage after snow has lain on the ground, and kept the green food covered up for some time.

We were not troubled very much until last winter when some of the trees we had set out the previous spring were girdled.

This may be due to the fact that rabbits are getting more numerous since every boy or man has to hand over that dollar and get a license before he can hunt them. Therefore, we have been on our guard this year and just got our trees protected.

Thinking that our plan might help someone we will pass it on through the columns of the Michigan Farmer.

We took two lath, cut them in two in the middle. Then laying the four strips about a half or two-thirds of an inch apart on a board or even surface we lay some pliable wire, hay baling wire will do, cut in foot lengths, across the slats, and fastened them with staples.

The wire should be placed so that it will project about four inches for tying purposes after the frame has been put around the body of the tree.

The wire should be about six inches from each end of the laths. Be sure to clinch the staples to prevent scratching tree, and drive a six-penny nail in the outside lath for fastening the projecting wire after you have protector around the tree. When it is in place the lath should be next to the tree and the wire on the outside.

You can make one of these in less time than you can read this. In the spring they can be taken off and packed away for future use.

Both last spring's and the previous year's setting should be protected. Hillsdale Co. S. K. KINNEY.



Be Particular about the Fertilizer you Use

You want to get the most from your land. These are prosperous times, prices are good, and this is the one year you cannot afford to take chances on the fertilizer you use. When you consider that your crops make their growth in 100 to 150 days, and *must have their plant food ready and waiting for them* during that short period, how important it is that the fertilizer be of the right kind. A.A.C. Fertilizers have satisfied the most exacting farmers for years. Then there is the question of farm labor which will be scarce and high in 1917. Therefore every step possible will be taken to make the best use of it. The use of labor-saving machinery will increase. A.A.C. Fertilizers will be used more extensively than ever because they require the least labor, and bring the greatest return for the money.

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<input type="checkbox"/> Vetch and Its Culture	Name _____
<input type="checkbox"/> Seeding to Grass and Clover	Address _____
<input type="checkbox"/> Alfalfa and Its Culture	This season I plan to put in the following crops: _____ acres of " " " " " " " "
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<input type="checkbox"/> Corn and Its Culture	
<input type="checkbox"/> Crops That Pay	

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Producers Fix Milk Prices for 1917

THE value of organization among producers has again been demonstrated by the success of the organized dairymen contributing to the Detroit market milk supply in securing what stands as a record price for their product for the ensuing year. This result was achieved as the culmination of a series of meetings held in this city by local organizations affiliated with the Michigan Milk Producers' Association whose members sell their product for distribution in Detroit.

At a previous meeting a tentative price of \$2.35 per cwt. was fixed by the delegates present from the various locals, this figure being arrived at as the consensus of opinion of the dairymen in the various producing communities contributing to the Detroit supply, as the price demand which should be made for the ensuing year. A selling committee composed of the president of the local organization and seventeen members selected from the outlying districts was appointed to negotiate a sale of the producers' milk on the basis of the tentative price demand. This committee met with the committee of buyers, representing the organized distributors of the city of Detroit, on December 29, but failed to reach a satisfactory basis of settlement, the buyers refusing to concede anything about an average price of \$2.00 per cwt. at receiving stations in the first shipping zone.

Due apparently to a reluctance of both sides to break off negotiations in the matter and precipitate a fight to the finish, the two committees agreed to meet again on January 4. So small, however, appeared to be the prospects of an amicable settlement of their differences, that the intervening period was, in military parlance, little more than an armistice in which both sides were making preparations for a finish fight. In the meantime volunteer committees of the producers' organization held meetings among dairymen at reported weak spots from an organization standpoint, with the result that numerous new locals were formed, and the splendid loyalty of the dairymen in what had been contended to be doubtful territory, was demonstrated by the unanimity with which they obligated themselves to withhold their milk from the market in case a settlement of the differences with the Detroit dealers could not be effected, and it became necessary to call a milk strike.

A Big Assembly of Producers.

As a means of further demonstrating the unanimity of opinion among the dairymen and facilitating early and united action in case a strike were the only alternative, another meeting of the delegates from local unions was called for January 4, and more than 600 loyal dairymen representing the great body of producers of market milk going to Detroit assembled at the Board of Commerce, to await the outcome of the deliberations. During the morning a meeting of the selling committee was held to determine their course of action in the final conference with the dealers' committee, in which meeting it developed that upon mature consideration a majority of the selling committee after a thorough survey of the field, and in consideration of reports from outlying stations, favored the offering of a final compromise price of an average of \$2.10 per cwt. f. o. b. shipping stations in the first shipping zones on a yearly contract for 3.5 per cent milk.

Upon the calling of the afternoon session of the general convention, minority members of the committee representing largely the so-called gallon shippers and producers in territory adjacent to the city, made a minority report disclaiming responsibility for the contemplated action of the committee. The general convention was composed of a preponderance of delegates of like representation, and due to the fact that the personnel of the convention was

not the same as that of the meeting at which the selling committee was appointed, there was a rather general misunderstanding of the power with which this committee was clothed for the bargaining of the producers' product. On this account, the secretary being a member of the selling committee, the committee was recalled for the purpose of determining this point, which was established to the satisfaction of the delegates by a reading of the minutes of the preceding meeting. The committee then retired for their final conference with the buying committee, which lasted until well toward midnight before the committee's proposition was accepted by the buyers, and the details over which there was a difference of opinion were satisfactorily adjusted.

As a result, the committee received its final proffered price of \$2.10 per cwt., f. o. b. receiving stations, for 3.5 per cent milk in the first shipping zone, with three cents per cwt. advance for each one-tenth per cent additional butter-fat test above 3.5 per cent. Under this contract the distributors are to accept all the product of present patrons who are members of the association at the stipulated price, with the proviso that no shipper shall increase his last year's product more than ten per cent without permission of the individual distributor to whom he sells.

The new contract will date from January 15.

In making this contract the organized dairymen contributing to the Detroit market milk supply are not only getting what stands to date as a record price for their product but have won complete recognition as an organization through the acceptance of this price on the part of buyers and the recognition of the organization in other ways.

Milk Prices in Other City Markets.

A comparison with the contracts in force in other cities where dairymen's organizations have been active will prove of interest to every member of the milk producers' association. In New York, after a bitter fight, the producers got a six months' contract running from October to April inclusive, at an average price of \$2.15 5-6 for three per cent milk, as compared with a probable average at the tentative figures advanced for these months under the Detroit contract of \$2.29 1-6 for three and a half per cent milk. Producers for the Chicago market, after their memorable fight, secured a contract for the winter months of \$2.00 per cwt. on a 3.5 basis. Their contract for the previous six months was \$1.55. In Cleveland, after the recent contest, the dairymen settled on a basis of \$2.25 on direct lines and \$2.15 at stations not on direct lines for 3.9 per cent milk, contract expiring April 1. Producers for the Philadelphia market receive from January to April inclusive \$2.05 for 3.8 to four per cent milk. From October 15 to December 31 previous, the price was \$2.30 per cwt. At Pittsburgh the price from November to January was \$2.05 and from February to April \$2.00 for 3.5 per cent milk, with no contract for summer months. At Cincinnati from December to March inclusive, \$2.00 is paid at country stations for four per cent milk, with no contract after April 1. Minneapolis distributors pay \$1.75 for 3.5 per cent milk at shipping stations in January, with no contract for future months.

This will afford a comparison showing the benefit of organization. It will thus be seen that the dairymen contributing to the Detroit supply have secured a better price without a finish fight than have the dairymen of other districts after expensive strikes. On the most conservative estimate the added income to farmers contributing to this supply will exceed one million dollars during the ensuing year, and will probably approach double that figure. This is certainly a substantial reward for organized effort.

HOW TO ABATE THE DOG NUISANCE.

There are many reasons why our present laws, relative to the dog tax, methods of collection, etc., should be changed. The damage done by the worthless curs yearly in this state would amount to enormous sums, especially to the sheep industry. It is almost impossible to raise sheep. Not only the sheep that are killed by the dogs, but after a flock has been chased they are afterwards practically worthless, and under the present laws the owner can only get damages for those that are killed, and therefore the farmers are simply forced to quit the business.

I know of two farmers within two miles of my place who had nice flocks of sheep, entirely ruined and who have been obliged to give up the business. I, myself, have had, at least calculation, \$500 worth of damage done to my flock within the last two years.

Then, again, there have been a great many cases where dogs have gone mad and run through the country and bit and destroyed other stock and people, some of whom had to die, others have had to go to Ann Arbor to take

for the fuel used. On any number of animals, it would no doubt pay for the fuel, and heater also, in one winter.

Not only this, but with dairy cattle it is estimated that the increase in milk and butter production made by giving warm water instead of water at 35 to 40 degrees is from 15 to 25 per cent. The cows drink more water and the food they eat goes to sustain them and for milk, none being wasted in heating the cold water they have drank.

If this is true, and the testimony of those who have tried it seems to agree, it will certainly pay to warm the water for the cows and also for the fattening stock and feeders. The whole thing seems to come to this point. Whether it pays to keep the stock warm in winter by good quarters and warm water, or let them hustle out doors, eating from snowy stacks or on the ground, drinking water which is reached by breaking a hole in the ice, which often covers a sluggish and contaminated pond and protecting themselves from the storm and on the sheltering side of a wire fence.

Where the line runs between care that pays, and care that pampers the stock, we are not sure, but there is no



A Good Litter at Five Months, on the Farm of H. V. Sober, Livingston Co.

the Pasteur treatment, and sometimes even that did not save them from a miserable death.

The dog is everywhere, especially the worthless kind, which generally have to hunt their own living. And in case of disease among our stock, such as we had recently, with the foot-and-mouth disease, the dog becomes one, if not the most dangerous, agent to carry disease from one farm to another.

If the dogs were taxed \$10 each and a proper law provided for the collection of same, so that all would have to pay their dog tax, there would be less of the worthless kind. If a dog is worth having at all, either for company or profit, he surely ought to be worth \$10 per annum. I am sure the dogs in this state each and everyone of them cost somebody that much, if the damage done by them were properly estimated.

Let us get a bill before our legislature at this very session, for it is absolutely necessary not only for the protection of our sheep industry, but for the protection of other property and human lives. We as a nation stand ready to protect the lives of American citizens against being wantonly or accidentally killed by foreigners, even to the extent of declaring war against such aggressors, why should we not protect our people against a nuisance like the worthless dog?

Gratiot Co. CHAS. KERR.

WARM OR COLD WATER.

The question of warming water for stock has been widely discussed for the past few years and the weight of evidence is in favor of warming. The water must be warmed in some way. It is only a question of whether it shall be warmed by the animals themselves.

The expense may prevent some cattle owners from warming water, but it is an open question whether the feed saved would not much more than pay

doubt it is on the far side of warm quarters, wholesome feed and warmed water.

In these days of high priced products it certainly pays the farmer, whether he produces these products on a large or small scale, to make the most out of his capital invested, both in dairy and beef stock. The days of scrub cattle have nearly passed, and for the saving of some added expense in the management of the dairy and beef products no farmer can afford to neglect the paying methods of the present time.

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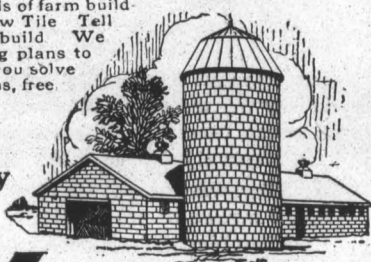
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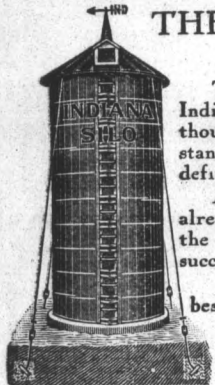
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The Cost of Butter-fat

By W. F. TAYLOR

LET us see what butter-fat will cost on the farm under present conditions.

True, there is a great deal of difference in the cost of butter-fat due to conditions other than the price of feeds consumed. The individual cow, the care of the herd, the length of time the cows have been in milk, and yet other causes, vary the cost of dairy products. But we shall make our estimate by using just an average cow as an illustration.

If she is producing a pound of fat daily she will eat 35 pounds of ensilage, 10 pounds of hay and from eight to 10 pounds of grain, depending upon what kind of grain is fed, and the variety of hay consumed. If alfalfa is fed, she will get along with less grain, but not much less if she has but 10 pounds of hay.

The Cost of Feeds.

Considering the price of corn, ensilage is worth \$5.00 a ton this season, her ensilage will be worth 7.6 cents, 10 pounds of hay will be worth five cents, and 10 pounds of grain will be worth 25 cents.

This brings the raw material out of which a pound of butter-fat is to be made, up to 36.6 cents. But this is not all. Every farmer who keeps cows realizes what it means to him in labor that must be done on time and will not wait. Then there is the overhead expense, and the large number of cows raised by nearly all dairymen that do not make good, and have to be slaughtered or passed on to someone else, providing the owner has forgotten "The Golden Rule." Then there is the danger of accident. A little while ago I sold a pure-bred Jersey to a neighbor. The last day she ran on pasture, she tried to get through between two barbed wires that were too close together. She got through, but now one teat refuses to retain the milk, and she is out of it. Three-quarters of a cow is not enough nowadays.

The Income.

Looking at the other side, a cow that will make a pound of fat in a day will usually give from five to 10 cents worth of skim-milk. Then the fertilizer is worth something. But if we let the manure and the skim-milk balance the labor we shall not get a bit too much for our work. Thus it will be seen that even at 40 cents a pound butter-fat is not too high.

I have said 40 cents per pound. As a matter of fact, it is worth more in some localities, and less in others, according to the way in which it is marketed.

Our creamery paid its patrons forty-three and a fraction cents for November fat, and will probably pay about 41 cents for the December product if prices do not go any lower than they are at this writing, December 18.

The Average Cost Hard to Learn.

It is very hard to say from present knowledge just what the average cost of butter-fat is. We know what the feed is worth, but we do not know as much about the necessary labor, or rather the actual labor expended, as we might. We have said at the outset that the labor might be balanced by the manure and the skim-milk, but if the herd is to receive the kind and amount of care necessary to the production of a high quality of cream or milk these by-products will not pay for the labor. In many cases they undoubtedly will, for the cows are neglected, and the cream is not properly cared for. But the disadvantages incident to such cream must be overcome by the product of dairies where better methods prevail, even though these better dairymen do not produce quite as economically as those who are slack in their methods.

A little while ago the writer was in the northern part of the lower peninsula where pastures were "the best ever," and met some people who were

shipping their cream to a distant creamery through a local dealer in the town.

An Advantage to Producers of Inferior Grades.

The cows were doing well, the owners were encouraged and were delivering their cream in the very best of condition. As I considered the high quality of that cream, I could not help thinking how fortunate were some other people whom I knew who were furnishing cream of very inferior quality, to have that fine sweet cream delivered to the dealer the same day. It simply made it possible for the dealer to handle their inferior stock. True, he paid, both of them the same price, which was not right, and we must admit that the slack dairyman made the most money, and, again it might not, for slack methods always lead to loss in one way or another, but in any case I would rather be the producer of the article that is right.

But coming back to our question about the value of the manure and the skim-milk, as against that of the labor, few of us have figured much on our labor in caring for cows.

The Payment for Labor.

We have done a lot of this work after supper and before breakfast. No one goes to the field to work before breakfast, and few go back after supper, so if we can milk cows and get anything for it we are just so much ahead.

And then, too, there are our wives, our sons and daughters—they can help. They are going to be with us anyway, and so we don't count the hours and hours of labor performed by them each week.

To sum it all up, taking care of cows, feeding calves and pigs, and a lot more things we do on the farm, are not work, they are only chores, and of course we charge nothing for doing chores. As far back as the record goes our family has done chores, and what they ever got for it will probably not be known.

Overhead Charges.

And then there is the cost of the barn, the expense of the cow stable with its modern fixtures which enable us to save some labor and which help in the furnishing of a clean product. We have not figured their cost in estimating the value of a pound of butter-fat. Why should we? Everybody who keeps cows must have a barn and a stable. Who would want to live on a farm without a barn? We simply must have barns and the finer they are, the more they will add to our prestige in the community so why should we figure in the cost of stables and of equipment generally?

I imagine this is just about the way in which the average man has looked at this matter in the past, providing he has given it any thought at all. But really, reader, are not 'chores' work? Have we not a right to charge up the hours of labor performed by ourselves and others of our household in caring for our herds and consider that charge in ascertaining the cost of dairy products and should we not carefully consider the value of our equipment in stables, and the fixtures that pertain to them, in milk cans, in pails and separators, and should we not allow intelligently for depreciation in each instance? Are we getting down too fine? I am sure we are not.

The Cost of Pasture.

In estimating the value, or rather the cost of a pound of butter-fat in summer we are apt to be equally inaccurate. Take, for instance, the matter of pasture. Who knows what pasture is worth? If the land is not fit for cultivation, and there is no other use we can make of it, then we may estimate its value for purposes of pasture with more accuracy. But if the land is tillable and is worth from fifty to one

hundred dollars an acre our pasture is going to cost us heavily.

An item in the cost of pasture which is apt to be overlooked is the fence. We buy a good wovenwire fence from the profits of last year, stretch it around our pasture field and forget it. Should someone happen to suggest that its value should be considered in figuring the cost of summer butter, we are apt to say, "Never mind that. My fence is paid for. I bought that last year, and I didn't go in debt for it." We forget that it will be worth less and less each year, and that some day not far away we shall have to build a new one from the profits of some other year, or if there are no profits, we shall have to run in debt for it. The average life of a good wovenwire fence is about twelve years, and we should figure the depreciation accordingly.

Other Possible Costs.

But I have mentioned the matter of accident, and the even more important matter of the non-paying cows that are sure to come along in spite of all we can do. Tuberculosis, contagious abortion, and some other troubles not quite as bad are common enough to be considered as possible, at least, in every dairy. They are more serious than they would be if proper precautions

QUANTITY OF FEED IMPORTANT FOR WINTERING DAIRY COWS.

Quantity of feed ranks next to the kind of feed in dairy rations. Economical feeding demands that cows be fed as individuals, not as a herd. Too frequently each cow in a herd is fed the same amount of grain, regardless of how much milk she is producing. By this practice some cows will be underfed, while others will be overfed.

It should be understood that an animal always uses a certain amount of the food it receives to maintain the body. This is the first use to which the food is put, and is called the ration of maintenance. This amount of milk is required by the animal whether or not she is producing milk. All feed above this amount is used for milk production, or is stored on the body of the animal as fat. In the case of the young animal part of this excess is used for growth.

Under Feeding Common.

Of the two mistakes made in feeding, perhaps underfeeding is most common, according to C. H. Eckles, of the Missouri College of Agriculture. It is a serious mistake to feed a cow only enough to keep up her body. She



Well-bred Cows well Fed Are Essentials of Good Production.

were taken, but it will be a long time before they may be overlooked when we estimate the cost of dairy products.

Depreciation of the cows in the herd is another matter that the average man does not fully realize. We can figure this out fairly accurately for ourselves if we think back over the years. Let us see. How long have we milked the cows now in our herd? How old are the oldest ones? How much are our best cows worth and what are we likely to get for them when we can no longer milk them with profit?

How many are we likely to have that are so poor that we shall want to get rid of them as soon as we can? It costs just as much to grow a heifer into a cow that turns out badly as to produce an animal that will give milk at a splendid profit.

Investigations Furnish Information.

Very careful investigation has been proceeding during the last year to ascertain the cost of market milk in a number of herds of different sizes and conditions, and the results of these experiments will be furnished by our Agricultural College. Like investigations will be made concerning the cost of butter-fat in herds kept for the production of butter under ordinary conditions. When the results of this much needed work are in the hands of the public, we shall know more than we now know about the profits of the dairy business.

However, we know enough already to say with confidence that butter is not a bit too high this winter, and that considering all the conditions the average dairyman will produce it at a loss if he is obliged to take much less for it.

The annual convention of the Michigan Dairymen's Association and auxiliary organizations, will be held at the Armory, Detroit, Mich., March 6, 1917, and will continue three days. For information write Geo. H. Brownell, Secretary, 142 Lafayette Blvd., Detroit.

must receive feed to keep her milk production up to capacity. If a cow loses weight while in milk, she is not receiving sufficient food. A good cow, if not fed enough, will produce milk for a time at the expense of her body; that is, she will take the surplus flesh from her body, and convert it into milk and thereby lose live weight. On the other hand, when a cow is overfed she will begin to fatten in a short time. This condition may be corrected by giving her only the amount she needs for maintenance and for milk production. Such feeding will maintain practically a uniform weight.

Roughness is the first important consideration in feeding cows. A cow is not contented unless her stomach is full. She should always have all the roughness that she will clean up and then the amount of grain she receives should be regulated by the amount of milk produced. A dry cow in good condition should be fed roughness only, and does not need any grain. In feeding grain to milk-producing cows, the following rule may be used, and is found to work fairly well: Feed one pound of grain for each three pounds or pints of milk produced. A Jersey cow producing very rich milk may need a little more grain than the amount given.

GOOD CARE INCREASES PRODUCTION.

One cow at the Ohio Station when given extra feed and care produced 80 per cent more milk and 67 per cent more butter-fat than in previous years. This increase was produced at 77 cents less per 100 pounds milk and 29 cents per pound of butter-fat. Another cow gave 87 per cent more milk and 80 per cent more butter-fat than in former years. Her increase cost 57 cents less per 100 pounds of milk and 15 cents less per pound of butter-fat.

I MET HIM ON THIS VERY SHIP!



It was within an hour of sailing time. I was on my way home beside her Liverpool wharf. Everybody was hurrying to get on, as we were to sail at five o'clock. Suddenly, without warning—without a propeller turning—she commenced to pull away from her moorings. The gang planks creaked—broke loose—and there was quite a commotion as the mighty Mauretania tore loose from her moorings and floated out into the water. It was not a serious accident, but it was exciting. In the excitement I met a man leaning over the rail who looked at me and we laughed together. Then we just naturally got acquainted, like people do when they are traveling. He was J. J. Berrigan, of Orange, N. J., the famous cream separator expert and inventor. I had never seen him before, but I had heard of him. I told him I was from Waterloo, Iowa, and he said, "You are Galloway." I soon found out that he was the great cream separator expert and a man I was very glad to meet. Naturally we became very well acquainted. He told me what he had done in perfecting cream separator patents and improvements. I told him he was just the man I was glad to get acquainted with. After the Mauretania had been lashed to her wharf again the excitement was over, and we pulled out of Liverpool several hours late. Berrigan and I began to talk cream separator, and every day after that we spent several hours together visiting. I told Mr. Berrigan that we were perfecting what I thought was the best cream separator ever produced, and also told him that I would come to Waterloo and put on the finishing touches, go over the separator, test it, criticize it, find fault with it wherever he could and suggest any possible improvements. I would pay him well for his time. In a few days after we landed in New York he did come to Waterloo. He said our separator was one of the finest designs he had ever seen, and with the few recommendations which he made, he pronounced it O. K.—good as the best—and better than many of the separators on the market today. Our engineers, designers and separator builders had produced a machine with graceful lines, simplicity of construction, combined all the good features and left out all the faults. Mr. Berrigan commended us on the work and immediately put his stamp of approval upon this machine. That's why I say

We Perfected This Separator

before we offered it on the market. We put out in the hands of farmers and dairymen enough of these separators to know that they would stand up under any test, whether operated and used in the kitchen, the milk house, the creamery or elsewhere, used two or more times per day, every day, week after week, month after month. I JUST WANT YOU TO TRY IT. If you like it, buy it. If you don't, send it back. We pay freight both ways. If the new Galloway Separator is as good as I say it is you can't afford to buy any other kind. If it is not as good as I say it is, I could not afford to make this ninety-day trial offer and I could not afford to guarantee it for ten years.

Buy Direct--Save Money

Try a Galloway Sanitary cream separator for ninety days. Stand it side by side with cheaper machines and you will see the difference in material and workmanship, design and skimming qualities. Stand it beside the highest priced machines, test them side by side for months. Higher priced machines will not run any easier or skim any closer, can't be more perfectly sanitary nor better built. I want

You to Read This Book

It tells the story of how we took four years to design and perfect this separator, to build into it every good cream separator feature and retain its beautiful proportions. How we did not build it down to a price, but built it up to a high standard in our own factories right here in Waterloo. It tells how we build Galloway Sanitary Separators from the ground up, how they are designed, and many other separator secrets and facts.

CHOCK FULL OF DAIRY WISDOM

A meaty, exact concise, truthful book about cream separators, engines, tractors, spreaders and other odds. Why by selling direct I can make a machine as good or better than many high-priced separators sold through other systems. That's why I want you to get this book. It tells the whole story. It tells the truth. It tells the facts. Ask for it today. A postal gets it. Mention separators in writing.

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What their competitors are doing, what the condition of the market is, what appears the expedient thing, concern them not at all.

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They are concerned with no other affair than to serve to the fullest extent a tire may serve.

Their quality is definite, uniform and unusual, regardless of outside conditions.

We simply go on making them month after month along the plan originally laid down: that Goodyear Tires shall be as good as the finest materials and the greatest care can make them—trying to improve them where that is possible, but never for an instant permitting them to recede from the high standard first conceived.

It happens that the prices on Goodyear Tires are very moderate—but do not buy them solely on this account.

Buy them because you expect more in tire

value, in tire goodness, in tire endurance—in miles, comfort and security.

Buy them because you expect more in satisfaction, in untroubled travel, in plain usefulness.

They'll deliver—they're built to deliver just such a return on your investment.

There is a Goodyear Service Station Dealer in your neighborhood—buy them from him.

He's trained and ready to do more than just sell you these tires—he's eager to help you get out of them the last mile we put in.

While you're in his place, ask him about Goodyear Tubes. They're *better* tubes than you're used to. They're the right kind of a tube to put inside your casing if you want it to deliver its maximum mileage.

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Goodyear Tires, Heavy Tourist Tubes and "Tire Saver" Accessories are easy to get from Goodyear Service Station Dealers everywhere.

GOODYEAR
AKRON

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

MICHIGAN FARMER
AND *LIVE STOCK* JOURNAL
PUBLISHED WEEKLY. 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

LAST winter all bird lovers, some about-to-be bird lovers, and a host of too-young-to-be bird lovers got busy with saw and hammer and constructed what each thought to be a model bird house. The object of all this labor was, of course, the production of something to which the returning song birds would be attracted and in which they would nest. Such intentions are worthy of the highest praise. In most cases the birds responded to the attraction and all concerned were pleased.

On the other hand, many an embryo ornithologist made efforts that were more vigorous than wise. Better luck to this fellow next time—after he has

Winter Birds on the Farm

By V. E. LeROY

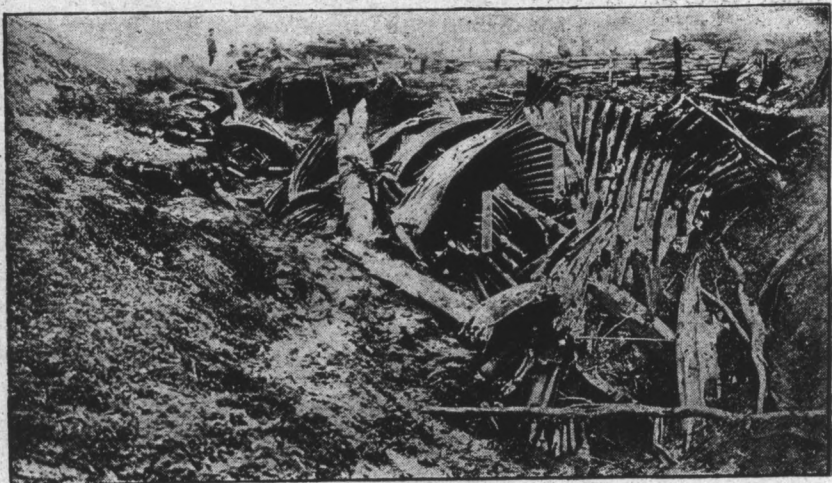
learned to place his bird house where the cat can not get at it or to build a wren-house with a door too small for the troublesome English sparrow to enter. But even if he did not succeed with his bird house he has reason to be proud of the fact that he tried. At least the house was doubtlessly ornamental and it certainly stood out as a conspicuous sign of thoughtfulness and generosity on the part of its creator. All that, however, happened last spring. By this time the bird house is

largely forgotten. Maybe it is full of ice and snow. Maybe some pestiferous red squirrel has turned it into winter quarters for himself. Most of the birds have gone to southern lands to wait for the coming of another spring. But not all have gone by any means. There are still thousands of them with us and they will stay through all the winter wind and snow because it is not the cold weather in itself that the birds dislike, but something else that is far more dangerous to their lives.

Every boy knows what the winter weather does to his appetite. This particular winter every father knows what the winter is doing to the food supply. Similar conditions have to be met by all living creatures. A bird whose appetite calls for insects chiefly has, to say the least, a hard job getting enough to eat in the winter months. There are, however, many birds whose appetites are not governed by such strict rules. What they eat depends largely on what they can get. In the winter they will eat voraciously of stuff that they would not notice in the summer. Such a trait is no doubt a happy one. Maybe it goes far to ex-

(Continued on page 42).

WORLD EVENTS IN PICTURES



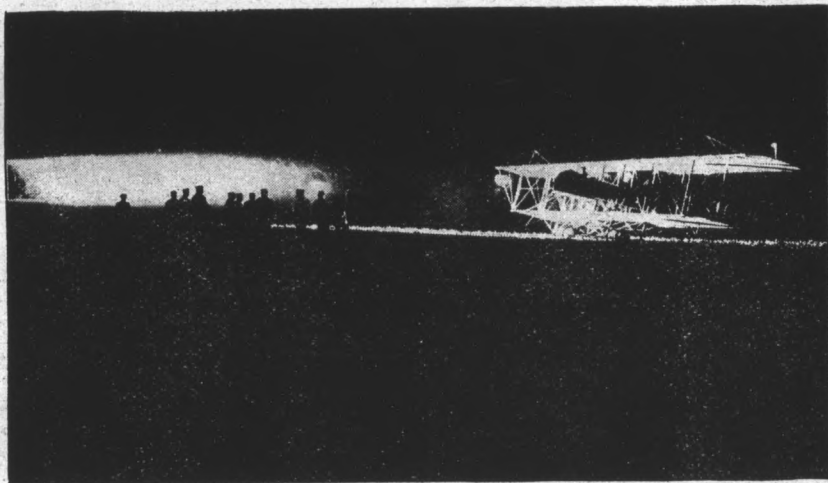
Ruins of a German Trench Constructed Similar to American Subways.



French Mayor Binding the Wounds of a German Soldier.



Dutch Soldier Wearing Gas Mask and Steel Helmet.



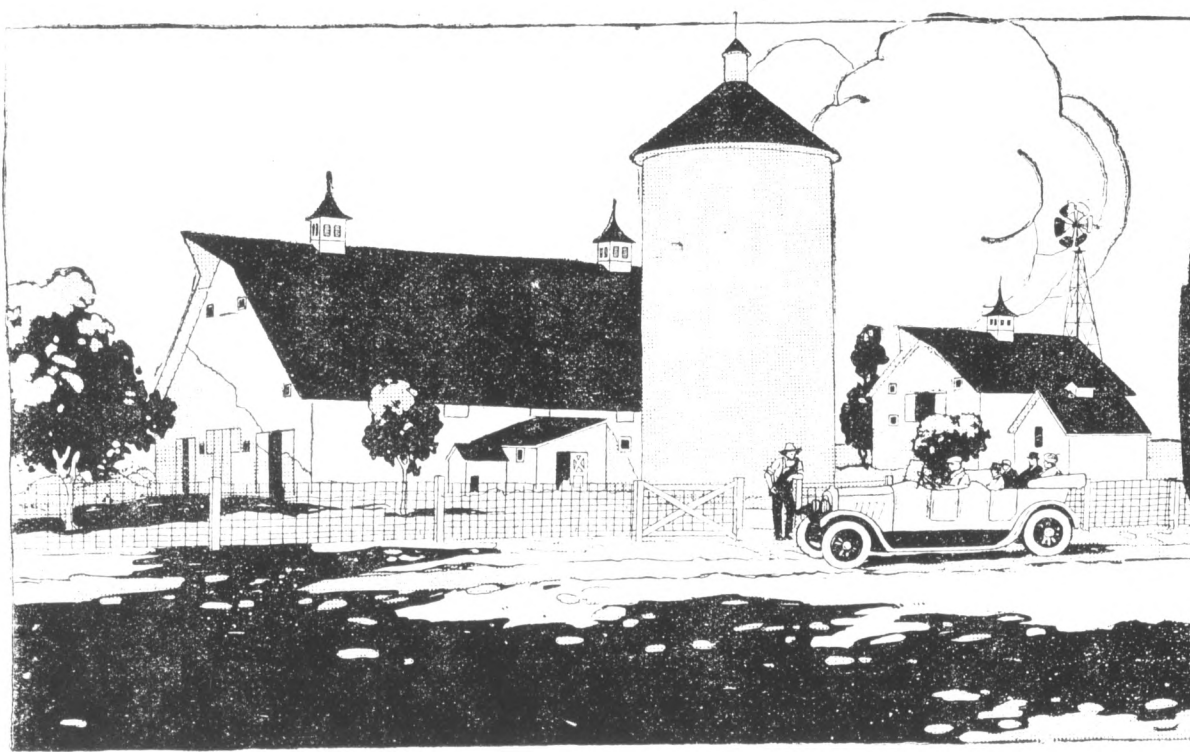
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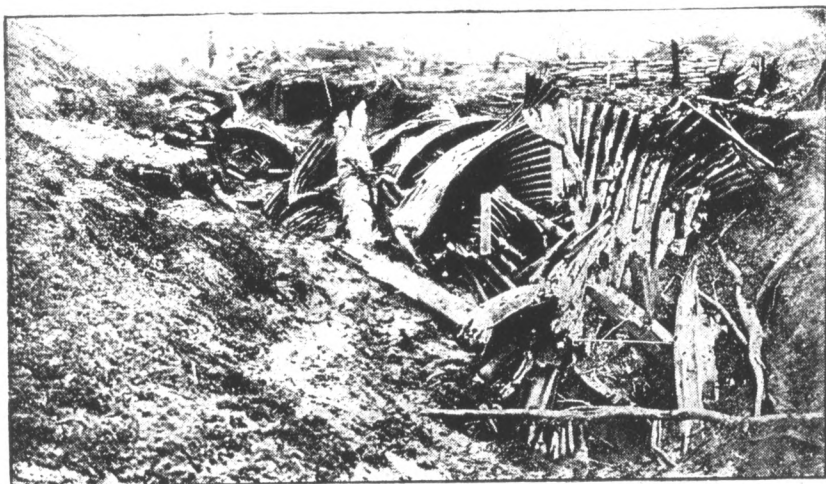
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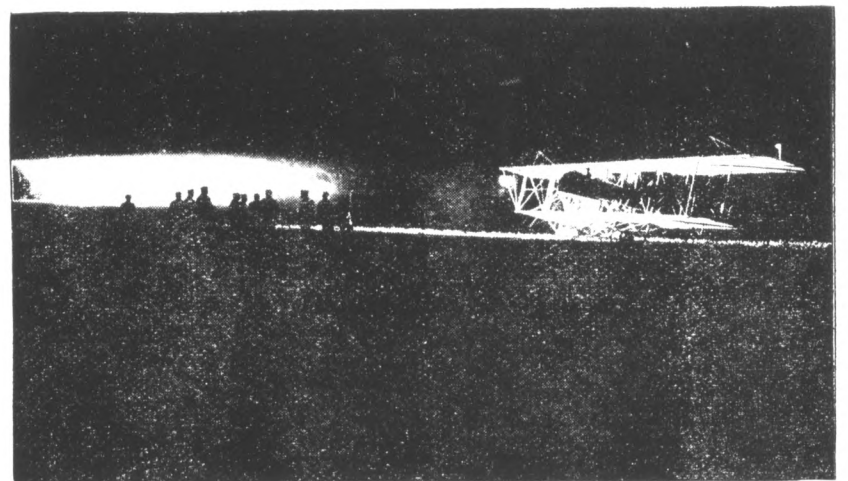
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Land O' Nod Stories.

By HOWARD T. KNAPP

Frisky the Mischief Maker

THE White Forest was so still that Billy Be By Bo Bum could hear even the smallest twigs whispering together as they nodded in the gentle breeze, only of course, he could not understand what they were saying. For several minutes he sat on top of the stump fence that separated the open fields from the big woods, straining his ears to catch the faintest sound that would tell him that some of the Little People were stirring. But the woods were as still as a school house in the middle of vacation, and Billy Be By Bo Bum was beginning to get lonesome. So he puckered up his lips to whistle, for a merry tune is always bully good company, you know, but before he could utter a single note, a frightful racket broke out at the other end of the White Forest.

Billy was so startled by the sudden commotion that he tumbled over backwards into a snow drift, but when he scrambled to his feet he found that all the racket was being made by Frisky, the Red Squirrel.

"Something awful must have happened to Frisky," said Billy as he rubbed the snow out of his eyes, "for never before did I hear him carry on like this."

"That shows you do not know Frisky very well," said Tinker Teedle Tee, who just at that moment came flying up and alighted on Billy's shoulder.

"Oh, what is the matter, Tinker?" demanded Billy. "Is Frisky being murdered?"

"Murdered? I should say not," replied the merry little elf. "There is nothing at all the matter with Frisky except his temper, which he has never learned to control."

"Why, I always thought Frisky was the best natured fellow alive," said Billy in surprise.

"That proves you don't know the old rascal," replied Tinker. "He has the worst temper of any of the Little People. And that is not all, for in his way, Frisky is as big a villain as Slinker the Weasel. He should be called the Mischief Maker, because when he is not robbing birds' nests or stealing the winter store of nuts garnered by his big cousin the Gray Squirrel, he goes about the woods stirring up trouble among the Little People. He is never so happy as when he has succeeded in making trouble between friends, and whenever you see two of the Little People fighting, you are sure to find Frisky in a nearby tree, chattering and chuckling in evil glee at the mischief he has stirred up."

"From sheer meanness he will sneak into the nest of the big Gray Squirrel when Father and Mother Squirrel are away and kill the babies. Then he will hide and gloat over the sorrow of the parents when they return home and find their children murdered."

"But tell me Tinker, how does it come that such a little fellow as Frisky has such an evil temper?" asked Billy earnestly.

"Long, long ago, in the days when Reynard the Fox ruled the White Forest and all the Little People who made their homes in the woods, Frisky the Red Squirrel was much larger than he is now," replied Tinker. "In fact, he was as big as old Stumpy Tail, the big Black Bear. But his temper was so fierce and his disposition so altogether bad that he was a terror to every furry and feathered dweller of the woods. All his thoughts were evil, and even in his sleep he dreamed of new ways to make life miserable for his neighbors. He was so big and strong that no one dared dispute with him, for with a single blow of his powerful paw he could

crush the life from any bird or animal that crossed his path.

"To make matters worse, he was more bloodthirsty than Slinker the Weasel, who kills merely for the love of killing. As he stalked through the forest he killed right and left for no reason at all except that he was wicked and cruel. As time went on he became more and more savage, until at last the Little People were threatened with destruction.

"So the Little People went to Reynard the Fox and implored him to save them, for things had come to such a pass that unless something was done at once, they would all fall victims of Frisky's rage.

"To save the Little People, Reynard the Fox made Frisky much smaller, as small as he is now. But unfortunately Reynard forgot Frisky's temper, which remained as big and as bad as before.

"So now Frisky goes through the woods with a small body and a great temper, barking, scolding and quarreling. Since he cannot destroy in his rage as before, he stirs up mischief and leads the other animals on to destroy each other.

"After you have listened to Frisky's scolding and quarreling and have seen him going from nest to nest stealing birds eggs or killing the poor, innocent fledglings; or sneaking into the den of his big cousin, the Gray Squirrel, while the parents are away, and killing the babies; or driving away his little cousin, the Chipmunk, to steal his winter store of nuts, or watching every fight that goes on in the woods, then you will understand while Frisky the Red Squirrel, is called the Mischief Maker."

"Mister 44" By E. J. RATH

She continued her journey, which carried her upon a devious course, for the shore was indented with many small coves. Always she bore in mind Stoddard's caution about getting lost. She knew that so long as she clung to the water's edge she was safe from that.

"No hairpins and not even a ribbon!" she said in a vexed tone as her shining hair streamed about her face and across her eyes for perhaps the twentieth time. "I'm a sight!"

Soon becoming conscious of thirst, she stepped close to the water, where a shelving rock sloped gently. Dropping to her knees and holding her hair clear of the surface with one hand, she bent forward, yet paused before she drank. She had discovered a mirror. Sadie was not vain; she was merely feminine. She inspected her image critically, then sighed.

"I'd like to fix up a little before he sees me in daylight," she murmured. "But how can I?"

Her survey completed, she drank deeply, and afterward continued her journey.

"Maybe I'd better be turnin' back," she said after she had followed farther the winding shore. I've been gone half an hour at least, and he'll be mad if he wakes up and thinks I'm lost. I mustn't be no more trouble than I can help."

There was, however, a little point just ahead, and Sadie wanted to see what was beyond that. She reached it after a scramble through a clump of bushes, for the rocks dropped steeply here and drove her back from the edge of the water.

Standing on the tip of the point and

THE BRAVE LITTLE MAID.

BY CORA A. MATSON DOLSON.

The little maid who worked for me,
Kept at her set task cheerily;
With sweet, quaint hymn and love-lilt
song

She whiled the hours the whole day
long.

Though carefully the blue-wreathed
plate

From which the dear grandmother ate
Was washed and wiped and put in
place,

The silver mirrored back her face;
Nor was a trace of dust allowed
The kitchen shelf or grate to crowd;
Yet, past each task, that note of cheer
Rippled and floated soft and clear.

"You love to sing!" I said one day.
The tears came to those eyes of grey,
And, though the while the brave lips
smiled,

Her words betrayed a home-sick child:
"I think and think of everything,
But half forget them while I sing;
For, though you people all are kind,
It is my home I left behind,
But when I sing and sing, you see,
I do not think to lonesome be."

She choked the tears with smiles, and
then

Turned to her task and song again.

THE BAND.

BY WALTER G. DOTY.

When the band goes marching by,
Every player stepping high,
Then the person's more than human
who won't let his business lie,
Let it lie till by and by.
Ah, the piccolo's shrill cry
And the Umpha! Umpha! Umpha! of
the bass horn going by!

The drum major sure is some!
See his stick whirl round his thumb!
But to me the most impressive is the
man who pounds the drum—
Pounds the drum, the big bass drum
With its Bummer! Bummer! Bum!
Ah, the solemn, stately grandeur of the
man who pounds the drum!

How I'd love to hear the strain,
Full of pleasure and of pain,
Full of melody delicious, of the band
back home again!
Home again, back home again,
Back in boyhood's happy reign!
Ah, to hear the mellow music of the
band back home again!

looking out across the lake, she became aware of something familiar in the landscape. The high bluff she had noted from a camp was visible again and so were the islands she had first seen. Sadie considered this phenomenon for several minutes; then glanced towards the woods behind her. Fifty yards beyond she glimpsed the figure of Stoddard, still prone on the earth.

"Huh!" she commented.

She hastened onward to the camp. A loose stone, dislodged by her foot, clattered down the rocky slope and plunged into the lake. At the noise of the splash Stoddard stirred, then sat up, rubbing his eyes.

"Hello!" he called, as he saw Sadie.

"Good mornin'," she answered. "I'm sorry I woke you up."

He rose to his feet and went down to the shore to join her.

"How long have you been up?" he asked sleepily.

"Half an hour, maybe."

"You should have called me."

"I was waitin' for the seven o'clock whistle," she said smiling.

"It's long past that," he assured her, looking upward at the sun. "It's more like nine o'clock. What have you been doing?"

"I took a walk."

"Trying to walk to the hotel all by yourself?"

"We ain't going to walk to the hotel," declared Sadie with a nod.

"How do you know?"

"'Cause we can't. It's a island."

The information did not surprise him, save for its source. He looked at her inquiringly.

"I started walkin' in that direction," she explained, pointing, "and I kept

goin' until I fetched back here. That makes it a island, don't it?"

"It does if you followed the shore," he assented. "I was pretty sure it was an island."

"You didn't say nothin' about it last night."

"No. Of course I wasn't positive; and there wasn't any use worrying you."

"Listen," said Sadie in a tone half chiding. "Don't keep thinkin' things are going to worry me. I ain't the worryin' kind. Anything you got on your mind you can shoot at me and I won't faint. You don't have to hold out nothing."

"Seeing you're already an explorer," he smiled. "I guess there's not much chance of holding out information. You seem to get it ahead of me. What else have you discovered?"

"Just trees and birds and fish and things like that."

He walked to the point, stood there for a moment examining their narrowed horizon, and returned with an announcement.

"This is Pickerel Bay," he said. "It comes in from the east side of the South Arm. That height you see over there is Indian Ridge. We're miles from the hotel. I'll show you."

He smoothed a spot on the ground and traced a rough map with the point of a stick.

"The island is here," he said, indicating it with a stone. "We're about three miles from the mouth of the bay. We came farther than I thought. The hotel is 'way round this point and across the arm."

Sadie nodded as she followed his explanation of the diagram.

"I've been in here often," he added, "but never camped on this island. You found a little beach below, didn't you?"

"That's right."

"I thought so. I know the island now. Did you see anything that looked like a camp?"

Sadie shook her head.

"It has been camped on, I know. But there may not have been anybody here this season. I'll have a look presently. How are you feeling?"

"Oh, fine!"

Stoddard stretched until the muscles in his shoulders cracked.

"My, but you're full of kinks!" she exclaimed.

"The sun'll take them out. It always does."

Stoddard's inspection of Sadie by daylight did not astonish him, yet it chained his glance for a long time. For the first time he sensed the true glory of the cascade of bronze hair that fell below her waist. As the wind stirred it and wafted stray pennants across the path of the sunlight they seemed ready to burst into flame. The pink of her cheeks and throat, shading softly into ivory-white tints, was a masterpiece of coloring such as he had never before seen. Sadie was an unspoiled triumph of Nature.

A compliment was on his lips but he stifled it. To Kitty or Estelle it would have come easily and as a matter of course. With Sadie it was different. It would be like paying some trivial praise to a Phidian sculpture, or a canvas by Titian. Mere compliments were childish.

She was conscious of his survey and a little confused, but not displeased.

"If I only had a comb!" she sighed, again reverting to her sorest trouble.

"I think it's all right that way," said Stoddard.

"You wouldn't if it was yours and it was blowing in your eyes every minute."

"I'll make you a comb later," he assured her. He also formed a silent resolution to be in no haste about the task. "I suppose you're hungry."

"I could eat," she confessed.

"We might nibble a little of that chocolate."

Sadie hastened to get it. He divided half of it between them and put the remainder aside.

"We'll need that for lunch if we don't find something else," he explained. "Meanwhile it's short rations."

Sadie looked hungrily at the forbidden bit of chocolate, but said nothing. She knew No. 44 would do whatever was right. If he had told her she must not eat at all she would have obeyed, confident that there were sound reasons.

"I wonder what Larry's thinking," he mused aloud.

"Larry?"

Stoddard was annoyed at his slip. He had not intended to tell her about Larry, just as he had no idea of letting Larry know anything about Sadie.

"The man I'm camped with," he explained. "He's a greenhorn in the woods. I'm just teaching him the ropes."

Sadie puzzled over this intelligence for a while.

"Aren't you working up here?" she asked.

"No," he admitted reluctantly.

"Why, I thought—"

"I'm taking a vacation."

Sadie began to look troubled.

"I sort of thought you belonged here," she said slowly. "I thought maybe you was buildin' a railroad in here, or a bridge."

"It's the same as home to me," he broke in hastily.

Stoddard did not welcome the turn of the conversation.

"Where are you from?" she asked.

"New York."

"Then you're just one of the summer boarders? You got no interests here?" Stoddard grasped desperately at a straw.

"Oh, I've got interests here, of course. Yes, indeed."

His camp was an interest, he reflected; Livingston was an interest; Sadie was an interest. He was not telling a lie. He was merely allowing her to infer a lie.

Not a very nice distinction, he admitted; but to let Sadie acquire the idea that he was merely one of the season's campers would lead to embarrassments about the job she still confidently expected to get.

It was no time for Sadie to discover that she had been following a will-o'-the-wisp all the way to Deepwater. In simple and confiding frankness she had accepted him as a responsible person in that part of the big outdoors, with influence and jobs at his command.

Not for a moment did she dream he was a mere idler from afar. It would be time enough for her to discover that when they were released from their island.

"I thought you must have interests," she said in a relieved tone. "It'd be an awful joke on me if you was just a butter-in up here, like I am. You couldn't do nothing for me at all then, could you?"

Stoddard felt his face flush as he met her clear gray eyes. Almost he yielded to the impulse to tell her bluntly the exact situation, yet he held back.

"Want to do a little exploring?" he asked. "I'd like to make a trip around this island myself."

"I'll show you the way," she said eagerly and not a little proudly. "I've been over it."

He marveled somewhat at the ease with which Sadie made progress over the uneven rocks along the shore of their island. Already she seemed to be adjusted to her environment, save for the occasional hampering of her movements by a skirt that conformed to modern fashion. It was evident she was not easily fatigued, for she led the way at a brisk pace and suffered from no shortness of breath.

Arrived at a point near the farther end of the island, Stoddard diverged from their course along the shore and struck the woods for the distance of a few yards. Then he called to her.

"Here is where there has been a camp," he explained as Sadie reached his side.

"I went right by it and never noticed."

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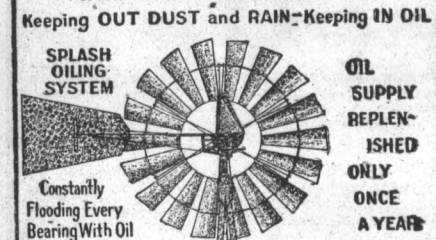
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ed," she said as she glanced about her with curious eyes.

There was not much to look at. The blackened stones of a fireplace occupied the center of a small clearing. There were a couple of benches, made from saplings nailed across convenient trees, and a table of like workmanship, its top comprised of bark strips.

A cupboard was represented by a wooden box fastened to a tree. There was a litter of rusted tin cans near by and a few sticks of split wood.

"Tin canners," said Stoddard contemptuously.

"Meaning—"

This was a phrase of Sadie's equivalent to a request for explanation of something she did not understand.

"Campers who carry a mess of canned stuff with them and are too lazy to throw the cans overboard," he enlightened her.

"Slack housekeepers," she said with a nod.

"That's it. A man ought to keep the woods as clean as he would his own house."

"Cleaner," declared Sadie emphatically. "'Cause the Lord made 'em." "Hunt around a bit and see what you can find," he advised. "Perhaps this time we'll be glad they didn't clean up."

It was Sadie who announced the first important discovery. Instinctively she made straight for the cupboard. The contents of a half-emptied jar of jam were moldy and spoiled, but in a covered tin box she found crackers. Her shout of triumph brought Stoddard to her side.

The box was a third full. Sadie gazed into its contents longingly.

"Can I have one?" she asked.

He did not know whether her question was amusing or pathetic. She was dreadfully hungry, but with food in her hands she would not eat until "the boss" accorded his permission. For to Sadie, Stoddard was her new boss, whom she was ready to obey without question.

"Why, you poor kid!" he exclaimed. "Eat as many as you want."

It was the first time since she had been big that anybody had called Sadie a "kid." Back in Buffalo she would have regarded such a form of address with derision and probably some resentment.

But from this giant who had suddenly become her protector and guardian in a strange land, she accepted it with complacency. It took a full-sized man to call her a kid, so she knew there was no possible opprobrium in it.

"I'll count 'em first," she said.

A moment later she announced that there were twenty-seven crackers.

"Half of 'em are yours and half are mine," she went on. "We'll divide the odd one. I'm goin' to eat three now. Neither of us must lose count. How many are you goin' to eat?"

"Oh, about half a dozen."

"My! That's only leave you seven and a half. Can't you do with four?"

"All right," he laughed. "Give me four. You're in charge of the cracker commissariat."

Sadie counted four crackers into his hand and three into her own, and carefully replaced the lid on the box.

"We've got to be as savin' as we can," she said shaking her head seriously, "the way you was with the chocolate. I ain't seen no quick lunches around here yet."

Stoddard continued his hunting about the camp, occasionally picking up and treasuring bits of twine. A lard-pail with a wire handle became the repository of his findings. Sadie, still hovering about the cupboard, discovered a rusty file in a crevice. Stoddard added it to his collection.

"Now look for fish-hooks," he directed.

"Where?"

"In the trees."

"Foolin' me?" she asked reproachfully.

"No; I mean it. Some campers have a habit of sticking fish-hooks in the bark around camp and forgetting to take them when they pack up."

When, a moment later, Sadie whooped joyfully, he knew that her sharp eyes had made a successful search. She ran to him with a pair of hooks attached to a gut leader.

"I thought so, from the look of the place," he remarked. "A lot of these people throw away more outfit than they use. They ought to have nurses instead of guides."

"It ain't for us to knock 'em, No. 44. We ought to be passin' resolutions and votin' thanks. They've even fed us. What! You've et your crackers already? I'm lingerin' over mine. You'll be beggin' for a bite in a minute."

To herself Sadie added:

"And he'll get it, too."

"Well, let's go on," he said after a final look around. "We'll come back if we need anything else."

"It's a regular notion-counter," she affirmed. "Say, this is some island, ain't it? Tell me something else to find."

"Bugs."

"Ugh! What for?"

"Bait."

"I ain't strong for bugs," she sighed. "But tell me where to look for them."

As they followed the shore line Stoddard indicated possible bug-haunts under loose stones near the water's edge. Between them they achieved the capture of three hellgrammites by the time they had completed a circuit of the island.

"If we only had the shrimp here we could use him, too," observed Sadie. "He's a grand size to go on one of them hooks."

Stoddard laughed.

"Your antipathy to littleness seems rather relentless, Sadie. I'm afraid you won't like my friend Larry."

"How big is he?" she demanded.

He indicated the approximate altitude of Livingston.

"That's a little more 'n a shrimp," she said judicially. "I'd say he was a peewee. But if he's a friend of yours I might stretch him into a sparrow. That's a little bigger yet. But it's a sinch he ain't a man, No. 44."

"Whatever he is I'll bet he's worried. If John—that's the Indian—isn't with him he's crazy. Put Larry alone with all our outfit and he's worse off than we are with nothing."

"Nothing!" she echoed. "I think we got lots. I guess you ain't as thankful as you ought to be."

"Perhaps I've had things too easy."

"I wouldn't say you'd had things easy, exactly," she mused, studying him with frank eyes. "I judge may be you could have 'em easy if you wanted to, but that you don't take 'em that way. Are you rich, No. 44?"

"No. My folks are pretty well off, I suppose."

"But you work?"

"Oh, yes."

"But if you didn't want to work, you wouldn't have to?"

"They'd take care of me, I imagine."

She nodded.

"That's about the way I figured it," she said. "You can take it easy, but you don't want to. You're all right, No. 44. I guess you're more thankful than you're lettin' on."

While he trimmed a rough fishing-rod with his knife Sadie sat at a little distance and watched him. She noted every detail of him, even to the rent in the shoulder of his olive-drab shirt and the tiny holes in the soles of his hunting-boots, where hob-nails had been torn loose by rocks. He was unkempt and unshaven, and his big arms, bared to the elbows, were a mass of cuts and scratches.

"And he's rich," she murmured.

"Think of findin' a rich man—here!"

Her glance wandered to the lake where white-crested waves glistened in the sun; then to the dark greens and browns of the forest, where tufts of yellow and flaming red were the outposts of early autumn. She closed her

eyes for a moment, and her mind carried her back to the packing-room, where there were thousands and thousands of shirts and tired girls and stifling air and endless order-slips—and the Shrimp. With a little shudder the vision fled from her as she looked again upon her outdoors.

"Rich!" she repeated softly. "Why, I'm rich, too!"

CHAPTER XII. Castaways.

It was not Sadie who caught the first fish, a fact that caused her tremendous chagrin. At her eager solicitation Stoddard allowed her to make the first try, which she bungled shockingly.

It was not the loss of the fish so much as the havoc played with their outfit that counted. Sadie managed to lose one of their precious hooks, all of the gut leader, half of the line, and the choicest of the trio of hellgrammites, in addition to a bass that promised a square meal for two hungry castaways.

There had come a savage jerk at the line after she had patiently tended it for half an hour without so much as a nibble. With a yell of triumph Sadie's strong arms yanked the pole skyward and backward, making it fairly whistle through the air. The bass remained in the lake, along with the equipment enumerated.

Seemingly on the verge of tears, she looked at Stoddard.

"I done something wrong," she said miserably. "What was it?"

"You struck too quickly, he explained. "The tackle wouldn't stand it, even if the fish's mouth did."

She surveyed the wreckage with troubled eyes. Then she thrust the sapling that served as a rod into his hands.

"You take it. I oughta known better. You can fine me out of that fourteen. It's coming to me."

"It wasn't your fault really, Sadie. It's largely the tackle. That knotted string isn't as strong as a regular line, and there's mighty little spring in the pole. I can see we've got to handle it gently."

He had sufficient string to knot together a new line, and to this he fastened the remaining hook.

"I had the best bug, too," commented Sadie ruefully as she watched him select a second victim for scientific empalement.

It seemed that at least another half-hour had elapsed before the end of the rod bobbed sharply. Sadie uttered a little cry of excitement. Stoddard was excited, too, but sternly repressed his eagerness to get that fish ashore instantaneously. It was too serious a business to be trifled with.

He managed to check the first rush without snapping the line; that gave him encouragement. To apply gradual restraint to a determined bass, with an outfit consisting merely of a sapling and twelve feet of none too reliable string, is a task for a fisherman even more skillful than was Stoddard. But he concentrated upon it.

"Shut up!" he commanded shortly, when a series of little squeals from Sadie vibrated through the air. Whereupon Sadie watched the struggle in silence.

Several times Stoddard nearly slipped from the rock in his efforts to afford his captive every bit of running-room that the limits of the tackle would permit. Back and forth the string cut across the water. Twice the fish jumped, but the hook held.

Even after the struggles became intermittent and weak, Stoddard did not dare to risk a lift from the water.

"Get down on that flat rock over there," he ordered. "I'll lead him to you."

Sadie scrambled to the chosen spot and waited, scarcely breathing.

Once Stoddard had the fish within a yard of her outstretched hands, only to be compelled to yield rein for a renewed struggle. Then he began again to urge his prey gently toward the shore. Slowly and protestingly into the shallow water came an object that was

to Sadie altogether the most desirable treasure her eyes had ever seen. It still struggled faintly and the line was ominously taut.

"Get both hands on it when I say the word," she heard Stoddard saying.

It was less than a foot from the tips of her fingers now, lying on its side in a few inches of water. He tried to urge it nearer, but the tension on the sapling warned him.

"Now!"

Sadie flung herself upon the fish with startling swiftness. There were a splash and a commotion in the shallows at the foot of the rock. A second later she arose, hugging an object to her breast.

She did not release her clutch upon the captive until she was yards away from the edge of the water, and even then Stoddard had to pry her fingers loose.

"You're the original human landing-net, Sadie," he assured her as he viewed the prize at their feet.

"Did I do all right?"

"Great! Only I didn't know you were going overboard after it."

"I ain't much wet," she said, viewing her dress. "There's only a little water down there. But I wouldn't 've lost that fish if it meant divin' to the bottom for it. Is it good to eat?"

"It's a bass. You wait."

But before Stoddard made any culinary preparations he tried the fishing again. Their third bug was lost with no result after a quarter of an hour's angling and, while Sadie went to hunt for more, he made their single catch ready for cooking.

The fire started the night before had not been allowed to die, for wood was plentiful, while matches were not. Consequently there was a fine bed of ashes, overlaid with glowing embers. Stoddard did not skin his bass, but, after cleaning it, proceeded to plaster it over with clay. The clay was not entirely suitable to his purpose, but he made the best of it.

Sadie, who had returned with additional bugs, watched the proceedings in silence, but no single detail escaped her. Just what No. 44 was going to do with that fish she did not know; but she knew that, in any event, it would be right.

Having applied a protective covering nearly an inch thick, Stoddard scraped out a cavity in the bed of fire and carefully deposited the fish within it. Then he raked the ashes and hot coals over the hole and added some fresh sticks to the blaze.

"So that's what you do when you ain't got pots and pans," she remarked in admiration.

"Sometimes you do it, anyhow, Sadie, from preference. Only you'll have to eat this fish without pepper or salt or butter."

"There you go again," she reproved. "You mustn't talk about what you ain't got when you've got enough. By and by you'll be complainin' because there ain't no waiter here to pass things."

Whether to eat the whole fish or to save part of it for a future meal became a subject of animated debate when Stoddard gingerly raked it out of the fire. Sadie, now impressed with the wisdom of a policy of conservation, was for keeping half, while Stoddard, confident of their ability to catch another, favored a full-sized meal.

She yielded to temptation, however, when he chipped away the baked clay and stripped off the skin on the upper side of the bass. The present outweighed the future. They ate the whole of it.

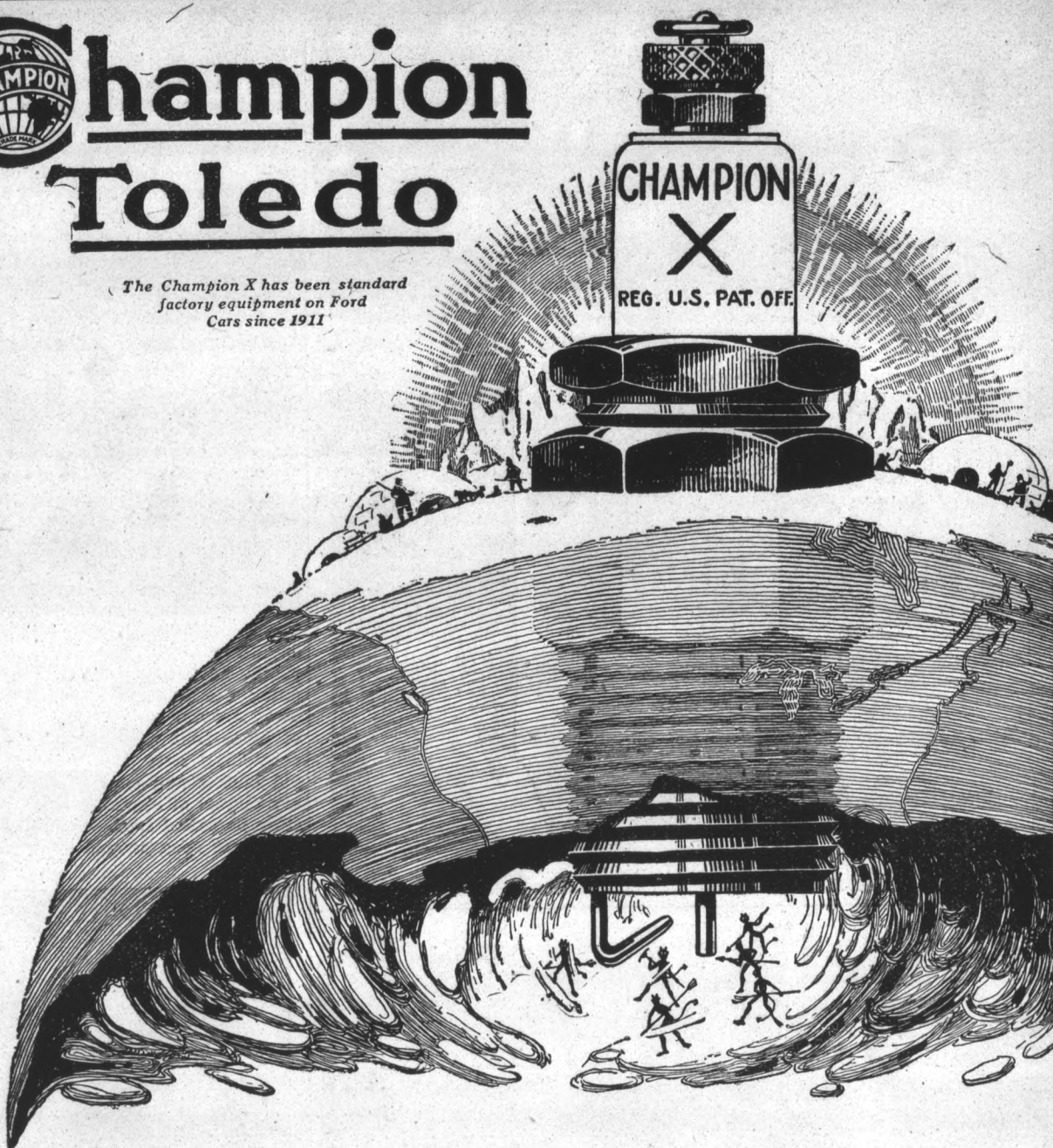
The afternoon brought a round of duties. Their camp was still a makeshift; Stoddard set about the task of providing some comforts.

A little lean-to for Sadie was his first achievement. It was no easy task to cut saplings with a knife, but he persisted until he had secured sufficient to form a framework for the shelter. It rose no higher than four feet above the ground in front, tapering off to nothing in the rear.

(To be continued.)

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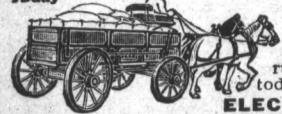
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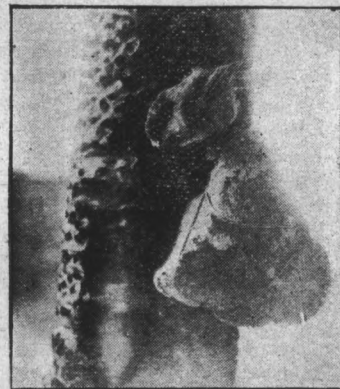
(Continued from page 37).

plain why we have with us all winter such birds as the chick-a-dee, blue jay, woodpeckers, etc.

It is a matter of common observation that there are places which, during the stress of winter weather, the birds seldom visit. The most noticeable of all these places is the neighborhood of some of our homes. But take a walk through the woods and one will be surprised at the comparative abundance and variety of bird life. Each bird seems as happy and contented with the freezing cold as with the warm days of last summer. The question is asked, why do they choose to stay in the woods all winter and leave other localities almost deserted. Protection from cold winds might do in part for an answer but there is a more important reason.

Most of our homes have at the back step a receptacle where mother puts scraps from the table and the refuse that accumulated during the preparation of each meal. On a cold winter day after a heavy snow fall, how many people have had the experience of opening the back door and frightening away several or maybe a whole flock of birds that were busily engaged in scratching over the contents of that old bucket and eagerly devouring every morsel of anything that could possibly be called food. Seldom or never are birds seen around such places in

in-law to her daughter, and behold, Mrs. Wife tames her man. Food works wonders anywhere in the world. In proportion to his weight a bird eats a monstrous amount of food but he needs it and especially in the winter. Why not, then, feed the birds in the winter. Why not try to get them into the habit of looking for food around your home—and finding it. If you have



The Chick-a-dee is the Best Bird Friend the Farmer Has.

trees or shrubbery about the house that are worth preserving it is almost certain that they are suffering more or less from insect attacks. Maybe it costs money and time to keep down the pests by the use of sprays. Insects have to be carried over the winter in some form or another and all that survive the winter will bring forth countless offspring next summer. Our winter birds will gobble an insect or grub with a relish not to be equaled by their summer companions. Each insect eliminated in the winter means the elimination of a possible family of insects next summer. And so many men figure that they have saved their orchards trouble for a season by encouraging birds to be on their premises during the previous winter.

In the winter, however, the days are short, insects are hard to find on the ice covered trees while the bird's appetite is even greater than it is during the summer. It is natural, then, for the places of greatest food supply to have the most birds. Usually these places are located back in the woods or thicket where the care of man has not been constant. If these birds are to be coaxed away from the thicket it will be necessary in most cases to furnish them with a supply of food that is greater than what they can find on the trees and shrubs about our homes. Such a matter is one of the simplest nature. Securely fasten to the limbs of the trees that are in need of protection, old bones that have particles of fat or gristle attached to them. Pieces of suet make an excellent attraction.

It will not be long before the chick-a-dees find the feast and they will pay regular visits to the spot. Every two or three hours they will come back. If



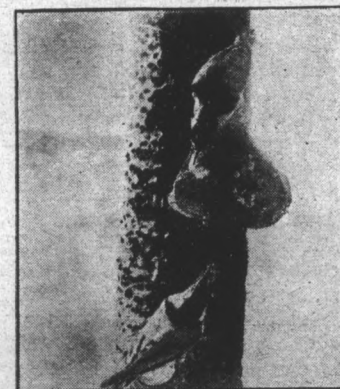
Securely Fasten the Suet so the Blue Jay Can't Carry it Off.

the summer. The most profitable explanation is summed up in the answer any boy would give if he were asked at the table, "Well, son, will you have some more pie or some more hash?" Anybody could make a safe bet on the lad's answer. As regards the matter of appetite and taste most animals, including boys, are alike in so far as they are always hungry and they will eat first the food they like best and when the supply gets low or exhausted they just have to fill up on "hash." So we find some birds living almost exclusively on insects during the summer but when winter comes they will tackle the frozen carcass of a dead animal or the dry gristle on an old bone and other things they would pass unnoticed during a season of plenty.

Spring is mating time the world over. Birds are doubtless the most conspicuous and active of all animals during this season. Of course, a home for the young birds is essential. This necessity may be supplied in part by furnishing more or less useful bird houses. The appeal attracts the birds and ever increasing numbers are found nesting close to our homes. As our experience in this matter increases the supply of birds will increase and by the association both man and bird will profit in no mean way.

There is another method of attracting birds to our homes that is founded on a more fundamental trait than the mating instinct. It is particularly adapted for winter use. It is an appeal that every living thing must heed because it has to do with one's stomach. In other words, food.

"Feed the beast," whispered mother-



Queer Gambols of Nuthatches are a Source of Interest to Children.

the supply is replenished they will stay around all winter, feeling secure in the knowledge that if they can not find other food in sufficient quantities for their needs there is always the lump of suet to fall back on. The welfare of trees is assured if a company of chick-a-dees has charge of them. No agriculturist has any better friend among birds than this little black-capped fellow. In pay for a small lump of suet now and then he will eat thousands of eggs of plant lice, tent cater-

pillars, canker worms, codling moth and bark beetles. The trees and shrubs of orchard, park and grove are fortunate if chick-a-dees have access to them.

Shortly after the chick-a-dees the nuthatches and downy woodpeckers will appear on the scene. The little downy has such a wonderful appetite for larvae, pupae, and insect eggs that he is considered one of the most beneficial of birds. He is easily attracted. His confiding nature makes him a great favorite with bird lovers. Of course, being a woodpecker he works largely on dead wood but he also searches healthy trees for insect life of any kind. Fruit growers recognize in the downy a friend of the best kind.

If a little hay seed is scattered on the snow juncos and tree sparrows will take time to call. Occasionally a goldfinch will stop for refreshments but it will take sharp eyes to recognize him. He does not look much like he did during the summer. One of the smallest birds we have, the golden crowned kinglet, sometimes stays all winter. And if he can not find insect eggs in large enough quantities he is likely to make a call and test the food that is so plentiful and costs so little effort to get. It may take several weeks of persistent tempting and again a day or two may suffice for the gayly dressed blue jay to overcome his habitual wariness and decide to join the bread line with his fellow creatures. If he comes there won't be anything left when he goes unless the lump of suet is securely bound with a string. What he can not eat he will carry away if he can get it.

Once the birds get accustomed to the surroundings and learn that there is nothing to fear, many of them, especially the chick-a-dee and downy woodpeckers, will become so fearless that with care and patient practice one can get them to take food from the hand.

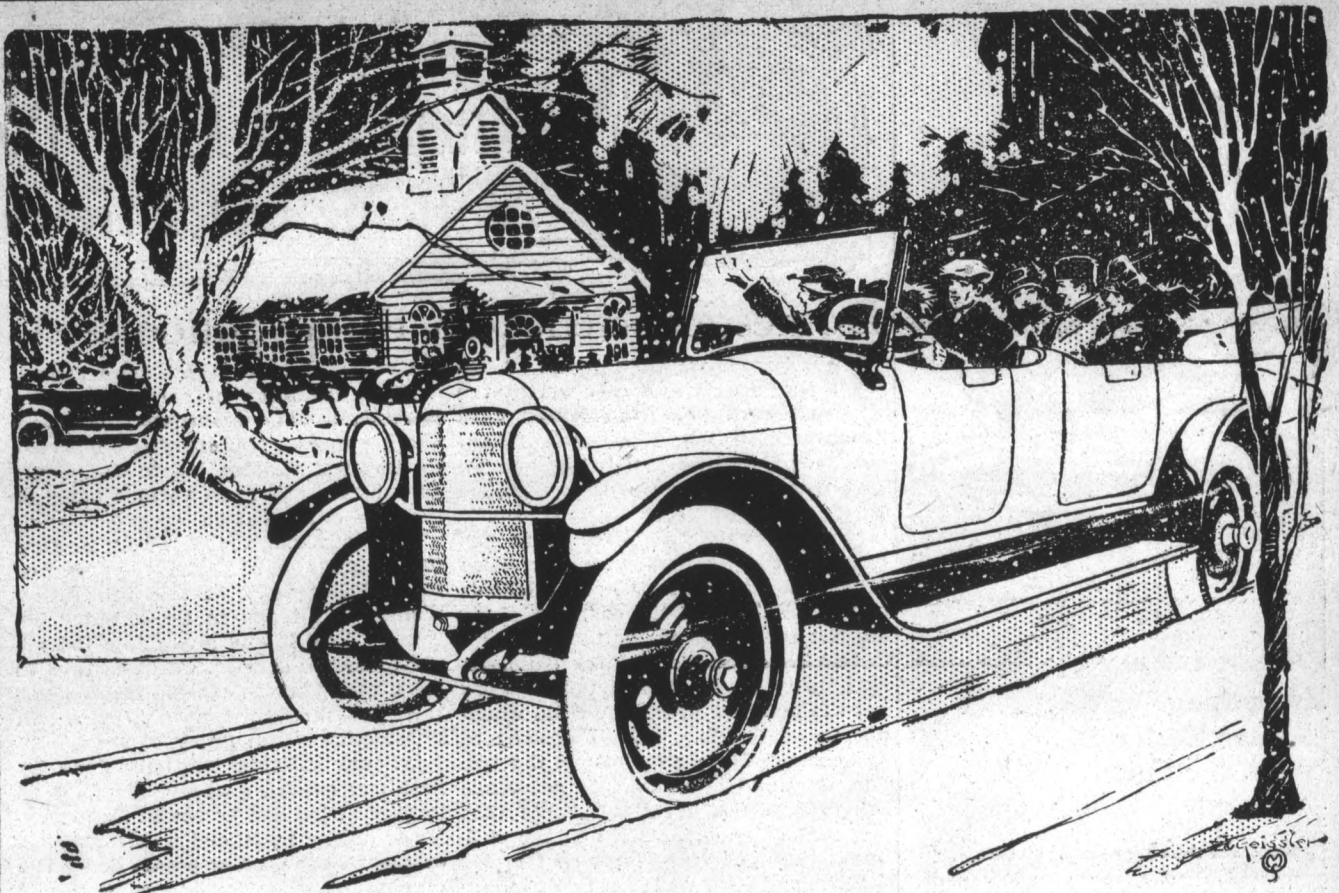
Everybody has heard the joke about hens' teeth. Birds need grit for the same reason that chickens need it—to grind food. But in the winter the snow covered ground offers small chance for procuring such materials. The want, however, can be supplied with siftings from coal ashes if care is taken to scatter them where the birds are accustomed to feed.

A board nailed to the window frame makes an excellent place to put both feed and grit. Moreover it gives opportunity for bird study at close range. A contrivance of this sort will furnish children with a means of entertainment during the long winter days and its educational value is as great as the entertainment. To awaken and to sustain in the mind of a child an abiding interest in animated nature is a matter that will never cause harm, and that has possibilities of most promising kind. No child can stand at the window and watch without profit, the peculiar antics of a nuthatch. The child's observational faculty will work in spite of him and work means development. Birds are such nervous, such sensitive creatures that the wink of an eye is almost enough to frighten them. If a child can be induced to persevere until he has succeeded in feeding the wild birds from his hand he will have accomplished something many men have failed to do. He will have learned his first lesson in self-control and will have accumulated a big feeling of tenderness and gentleness. Such traits are all good stuff.

If one of the older members of the family is fortunate enough to own a camera, let him attempt to photograph the birds as they come to the window for food. It seems easy. Try it. It will require many attempts before a real good picture is made.

The night hath a thousand eyes,
The day but one.
Yet the light of a whole world dies
When the sun is gone.

The mind hath a thousand eyes,
The heart but one.
Yet the light of a whole world dies
When love is gone. —Selected.



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Woman and Her Needs At Home and Elsewhere

Domestic Science In Rural Schools—V

THE work we have done in Wexford county is hardly worthy the name of domestic science," says Commissioner Roy Noteware. "However, for the want of a better one we give our poor efforts this dignified title.

"For a number of years there has been a growing feeling among those directly interested in the rural schools of this section that the course of study did not outline work for the complete development of the country children; that many of the things taught were not the material which the child would use in adult life. Then I desired to find something to supplement the truancy law and have tried to get those things into the country schools that will make them attractive to the children.

"Many of the pupils bring their dinners and I believe if we can change this traditional custom and serve warm lunches, a part of the time at least, we shall make the school a much more attractive place for the pupils, and will have a tendency to give them better health. We have made quite an extended effort in different kinds of sewing, etc., and served warm lunches now and then in a few schools. It is less work, it appears, for the teachers to do something with the sewing than with the lunch proposition. I believe this is due to the lack of proper facilities. For instance, many of our rooms are equipped with room heaters which afford little chance for the lunches. However, we are talking oil burners for school rooms. One teacher, Ida Davis, of Colfax, District No. 5, is making arrangements for a social in order to secure this stove. As a large percentage of our teachers are county normal graduates or have had normal training in some of the state normals they have had instruction in domestic science under a competent instructor. This places them in a position to carry on some work of this character in the rural schools, even though it is very elementary."

Mrs. Louise Laurens, of Wexford county, is enthusiastic about the work in rural schools.

"The northern district fair has been an event of unusual interest for some years in Wexford county," she says. "Housewives, husbandmen and stockmen are usually the chief exhibitors, and much interest has centered about prize horses, cattle, hogs, sheep, canned fruit, and fancy work. But from the first, the fair association has co-operated heartily with the county school commissioner to the end that the rural schools be encouraged to make exhibits of school work.

"Liberal prizes were offered to individuals and to schools making the best general exhibit. Each year, as the rural schools exhibited their work, it was seen that the teachers and pupils were getting a larger vision of what might be done in the rural schools where the curriculum is already crowded. Not only were the specimens of school work—maps, drawings, cuttings, posters, penmanship pages, business forms, etc., better, but each year there is always something new and interesting. Several schools are trying to do something in the lines of domestic science and manual training.

"Collections of mounted woods, showing the character of trees and shrubs, common to this vicinity and elsewhere, were shown. A collection of mounted weeds, correctly named and classified drew many favorable comments. It would have been a credit to

a student of botany in a high school.

"The exhibition of carpenter work, cooking, sewing, embroidery and crocheting was a happy surprise, not only to the rural visitors, but to the people of Cadillac, and from various parts of this and other states.

"In one school, that has been a heavy prize-winner for years, the teacher tells of her work in this interesting manner. "I teach in the country because I love it and appreciate the opportunity for service. Children love to work with their hands—to make something which they view with pride and satisfaction when finished.

"Spool knitting is easily done by first and second grade children. The knitted strips can be sewed into circular or oblong mats, and finished with a crocheted edge, older pupils doing the crocheting. The lower grades weave mats and make picture frames of raffia. The little doilies that are stamped with such designs as animals, birds, flowers, etc., please the children, are inexpensive and just the thing to teach the outline stitch. The edges of the doilies are finished with button-holed, crocheted or lace edging.

"Huck toweling, which sells for ten cents a yard, makes beautiful cushion tops when worked with sarsilk of contrasting colors, in the well-known zig-zag or step pattern. Make back of cushion of sateen to match one of the shades used in working and finish with cord and tassels and you have a cushion dainty enough for any home. My boys just begged to be allowed to make them, and their work was even neater than the girls' work. Baskets of various shapes and sizes are made of raffia. Books on basket-making can be purchased from any supply house.

"It has been the custom for several years for my pupils to make Christmas presents for their parents. Last year the girls embroidered guest towels and the boys made crates which held a peck. The little crates looked as if they were factory made. Finding the dimensions, which the crate must have was a problem in arithmetic. One boy made a beautiful rustic seat. Toy carts, wheel-barrows, doll push cutters and step-ladders were made and finished by painting or varnishing them. The patterns and directions for making step-ladders, wind-mills and many farm tools (toys), were obtained from Woman's Home Companion for twenty cents.

"For the fair, the girls made bread, cakes, cookies and jelly and canned corn and tomatoes. The baking was done in their homes, and some of the canning was done at my home under my supervision. The girls brought their material for canning and their fruit jars. All hand-sewing is done at school and machine stitching is done at their homes. We have an hour for sewing and manual training on Friday afternoon. Individual instruction is given at noon or recess, before and after school as needed or convenient. The older pupils assist in teaching the young ones. We take up something new every year in each grade. I have taught my home school five years, and have planned certain lines of work for each grade. It can readily be seen how pupils of one grade can assist those in lower grades, otherwise a teacher would have more than her hands full.

"The material used for all work has been bought with money earned at the fair. I find that the time taken for the hand work does not retard the other school work. No matter how busy a teacher may be, I believe that she owes

it to the boys and girls, to whom she is friend, guide, and, in some cases almost mother, to do what she can to train the hand as well as the head and heart."

"At the opening of school there was no equipment for this work so we started on a very small scale," says Miss Mabel Beard, of Boon. "We started sewing first, the girls furnishing their own material and necessary articles for sewing, which was done during the day when their lessons were finished. All work was done by hand at school with what directions I gave them. They made aprons first, hemming them neatly and putting on the bands and the pockets. Corset covers and a very plain nightgown were next made and they are now making plain dresses, cutting them out themselves to learn the use of the patterns. I have found the girls very interested in this work as the reports from the parents are, that they are much more willing to sew at school than at home where it was impossible to interest them in sewing.

"We have also done some work in domestic science, in serving hot lunches. We did not have any dishes so each child brought a small amount of money with which we purchased a large enamel kettle with cover, and a large spoon. The children each brought a cup and spoon, and we cooked on the top of the furnace. This constitutes our equipment at present though we hope to be furnished with a table on which to work and the boys are making in manual training a few other articles which we need. The lunches served were very simply prepared and all have been very successful. Each child furnishes his or her share for the lunch and the older girls cook the food. We have served vegetable soup, mashed potatoes, creamed carrots, bean soup and hot cocoa. The children enjoy these lunches and I have found it a great help in encouraging attendance."

Miss Olive Jewett, of District No. 3, Selman township, tells how she carries on the work.

"Divide the classes from the fourth to eighth grades into committees to prepare the dinner. Have four on a committee, one from each class so as to give each pupil a chance to prepare his lessons and recite in the class and still have some one preparing the meal.

"Tell each committee on what day of the week they are to serve. Have them make a note of it or have a committee timetable posted up in the room. On Friday or some other convenient day prepare a menu for the following week. Find out what each one can bring for the following week and tell them on what day to bring it.

"Now you have your committees and the menu. Each morning during or after the opening exercises tell the children what they are to prepare and how to prepare it, at what time they are to begin and at what time each thing is to be done. Have the children make a note of it as you tell them. Then when that time comes they will have their lessons for that hour prepared and will go ahead with the preparations for the meal without interrupting the regular class work.

When the noon hour arrives the committee will have something warm all in the dishes ready to serve as soon as the children can get their own lunch and are in their seats ready to eat. Have the committee put the dish water on to heat as soon as they serve. Then when the children are through with their dinners and they have the

dishes gathered, the water is ready for them to wash the dishes.

"Our stove and most of our dishes we got from the funds from a social held in the school house. The parents sent our dish towels and part of our dishes."

Miss Beatrice Engstedt, of District No. 1, Colfax township, has systematized her work in sewing. Each month sees a change of work, starting with work bags in September and following with crocheted edges in October; aprons, November; small Christmas gifts, December; work in raffia, January; bead work, February; underwear, March; simple wash dress, April, and straw hats, May.

"Our sewing club is known as the Priscilla club," says Miss Engstedt, "having a president and small green and white enameled pins. We meet once a week. The first thing we needed was something in which to carry our work. Accordingly during September white figured blue cotton material was made into round bottomed bags. A vote was taken and crocheting was elected for October's work. A simple white edge was taught and squares of linen were finished off with a pretty blue edge. The boys numbered the handkerchiefs and placed them on exhibition for the mothers club to choose a prize winner.

"This month, November, we have been making aprons out of white India linen, edged with lace. December will be spent making trifles out of ribbon, bits of silk, etc. During January we want to sew baskets out of raffia, and February will be given to beadwork. By the first of March I hope to have my sewing machine up here and teach the girls how to use paper patterns for simple pieces of underwear. By April they can make wash dresses and May will be devoted to making straw hats over wire frames."

Miss Mildred Cornwell, of District No. 5, Clam Lake, and Miss Esther Anderson, of District No. 3, Cherry Grove township, report some work done in sewing which has been received with enthusiasm by both parents and children.

"I suggested serving something warm at lunch at one of our community meetings," says Miss Mary Ellen Lewis, of Hillsdale county. "The patrons were in favor of the plan, so we partitioned off the schoolroom with a curtain. One of the mothers donated an oil stove, some others tinware and a cupboard. We have linoleum on the floor and an oil cloth placed behind the stove for hanging kitchen utensils. Each child has her own individual dishes, knife, fork and spoon. The school board consented to furnish the oil, so we are at no expense.

"I have the larger girls serve dinner alternately. The menu is planned on slips, placed in each dinner pail so the mothers know where to find them. Following is the menu for different days: Baked potatoes, cocoa, soups, rice and creamed potatoes."

Commissioner Harry McClave reports that several other schools in the county are serving warm lunches.

SCHOOL SOCIAL CLUB.

BY B. E. E.

When a mothers' club was organized in my school, the social disadvantage of a rural life was emphatically pronounced. Realizing then, the children were not obtaining any more education along those lines than their parents had, I organized a club for the pupils.

Our club was just like the "grown-ups." Each pupil was a member on paying a five-cent due. We met every Friday after recess and elected new officers each month. At first, to teach correctly, I made out the routine of business for the president, and wrote out the various motions for the pupils. It was surprising how quickly the children learned to conduct a meeting and very satisfactory when a first-grade pupil could make a motion correctly. We needed several new things in our

room, so the club had a box social and cleared \$8.00. When the district saw the improvement our \$8.00 made in the school-room's appearance, they were aroused, and made many needed repairs on the building.

We named it "Happy-Go-Lucky" club and used the following song as our club song:

"Happy-Go-Lucky is always gay,
Laughing and singing the livelong day,
Searching the attic and sliding down stairs,
Spoiling his clothes with the awfulest tears.

CHORUS.

"Happy-Go-Lucky, merry and bright,
Happy-Go-Lucky, my heart's delight.
He falls and he tumbles. He's up with a grin,
For bumps and for bruises, he cares not a pin.
He falls in the river, but swims like a duck,
He never is hurt, for it isn't his luck."

Later, when we had sleigh rides, we adopted club yells. Following is one: "One a zip, two a zip, a three a zip a zam, H. G. L. Club, don't give a razzle dazzle, hobble gobble, zip boom bom. H. G. L. club! Rah! Rah! Rah!"

At Christmas time we had a co-operative dinner and party. How those children enjoyed the feast. We also dressed and bought a doll for a poor child's Christmas. Even the boys were enthusiastic and wanted to help. These spreads all took place in the school room.

At the close of the year we had a picnic and a marshmallow roast, thus using our funds.

I taught in that school three years and the club was continued. Our colors were green and white and we purchased sterling silver enameled club pins with "H. G. L. C." engraved on them, for 25 cents.

The district was delighted with our work as few country pupils are given the opportunity of learning parliamentary rules. I am sure rural teachers will be able to add many helpful ideas in connection with this.

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APPLYING EUROPEAN CO-OPERATIVE METHODS TO AMERICA.

(Continued from page 29).

porated. They have built a hall and warehouse on the railroad for handling farm produce. They have also organized the county agent work in thirty-six out of the sixty-seven counties. These will form the nucleus for promoting co-operative agriculture all throughout the state.

New Hampshire. The American Commission has kindled considerable interest in co-operative agriculture. Farmers' county organizations are doing excellent work in the state. These have grown up since the passage of the Smith-Lever bill. Some of the counties employ women experts in addition to the regular county agents.

Saskatchewan, Canada. The legislature of this Province has passed a co-operative farm mortgage association act for farm credit.

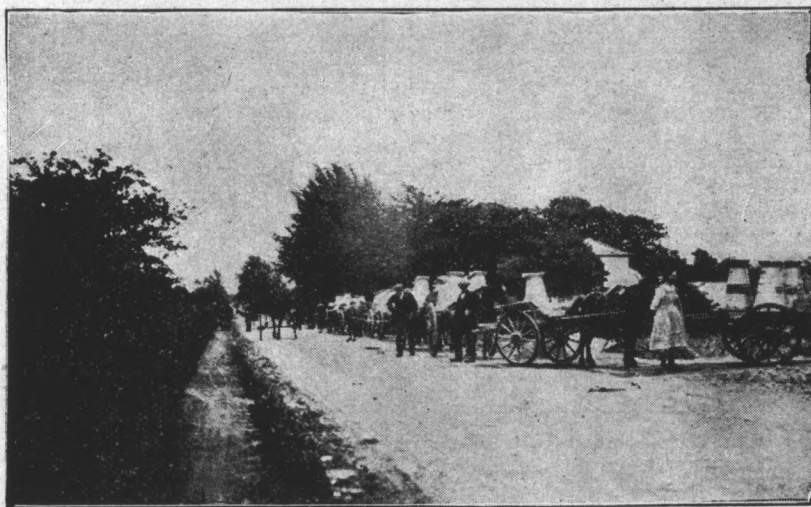
Virginia. This state has waited for federal legislation. This will probably be one of the zone centers for the operation of one of the federal land banks. Activity in co-operative agriculture will undoubtedly be much more marked from now on. A commission was appointed by the last general assembly to study and report on the rural

been accomplished in the organization of co-operative creameries and warehouses. These enable the farmers to raise money on the warehouse certificates and has reduced the insurance fully fifty per cent on the lines of produce which are now protected by warehouses constructed under this law.

Oklahoma. The Home Ownership bill perhaps is the most distinctive thing in the state. This permits farmers owning their own farms to borrow from state school land funds at about five per cent interest.

Nebraska. This state has passed a co-operative law which facilitates the organization of co-operative organizations of co-operative companies. The co-operative elevator is the most conspicuous form of co-operation in this state. There are about 280 of these farmers' elevators already. They also have established a number of co-operative stores. The Grange and the Society of Equity are doing considerable co-operative work. One co-operative warehouse in Omaha did \$30,000 worth of business last year and this year expects to reach the \$350,000 mark.

Minnesota. In addition to co-operative stores, banks, elevators and creameries, the organization of long-time first mortgage farm loan bond compa-



In Ireland the Milk is Usually Delivered at Creamery by Women or Children.

al credit needs of the state. Considerable co-operative purchasing is done by the farmers' co-operative union.

Texas. A comprehensive warehouse and marketing act went into effect in January 1915. This has been applied especially to the marketing of cotton and other farm products, notably sweet potatoes. There are something more than fifty organizations in the state already. As a direct and indirect result cotton storage in Texas has increased from 700,000 bales to about 1,250,000 bales. Storage has also been provided for something more than 200,000 bushels of sweet potatoes.

New York. The land bank of the state of New York has been in operation and the bonds are legal for savings banks in New York. New York also has a marketing commission and is doing considerable in the way of co-operative buying and selling farm products.

Ohio. The county agent activity has been the chief factor in getting the farmers to unite along co-operative lines. The purchasing of farm supplies is one of the conspicuous activities there.

North Carolina. The Credit Union has shown considerable interest in the co-operative movement. It has already realized a saving of 22 per cent on the purchase of fertilizers in one or more counties reported on.

Tennessee. A large number of co-operative organizations have been established throughout the state during the past two years. These cover creameries, co-operative stores, breeding organizations and a large amount of educational work through the Extension Division of the College of Agriculture.

South Carolina. This state has passed legislation providing for the organization of co-operative associations and rural credit union. Considerable has

is receiving considerable attention. First National Bank of Lakefield is run as a co-operative bank. There are several other co-operative concerns in this place which are financed largely by this bank.

Mississippi. Co-operative organizations in this state is by the stock raisers, dairymen, truck growers, and hay growers in the main.

California. California as a result of the work of the American Commission has appointed a State Rural Credits Commission and is at work on a state rural colonization system. The bankers are showing special activity in providing better facilities for farm credits. A state market director has also been appointed and is doing good work.

Massachusetts. A farm land bank bill has been passed and the credit union law amended to better facilitate co-operative organizations. Twenty-five farmers' co-operative exchanges have been organized. These handle co-operative purchase, sale and manufacture of farm products. Co-operative marketing is active. Most of this has been brought about through the activity of the Massachusetts members of the American Commission.

West Virginia. Laws have been passed providing for agricultural extension, laying foundation for co-operative work which is rapidly developing. County agents are at work in many counties explaining the co-operative principle and helping to organize co-operative associations.

Oregon. General co-operative laws were enacted two years ago, also credit union law recommended by the Russett Sage Foundation. Steps have also been taken to provide a state co-operative banking law. Through the power of initiation of legislation under the Oregon constitution there has been initiated a bill for the establishment of



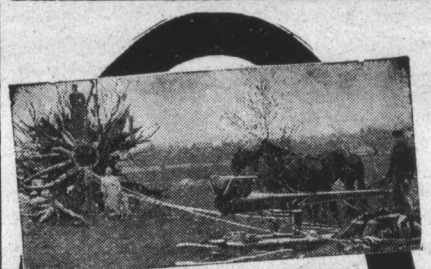
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When writing to advertiser please mention
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the Australian-New Zealand System of rural credit for the state.

Michigan. There are reported about 100 co-operative organizations in Michigan. It would be difficult to say just how fully co-operative in the real sense of the term these associations are. They cover a line of elevators, fruit exchanges, creameries, stores, live stock breeding, purchasing of farm supplies.

The land mortgage bank act recently passed by the congress will no doubt facilitate the financing of co-operative agricultural organizations throughout all the states. As the principles are better understood and the spirit more largely obtains it seems certain that this form of organization will much more largely obtain.

It is obvious that a system of agriculture which is sufficiently remunerative to be satisfying is a much larger problem than simply to make our pres-

ent agricultural population contented enough to stay on the job. The problem of an adequate food supply is fundamental to the success of the industrial and mercantile world as well and a failure to encourage those who produce the food supply so that they will furnish a dependable supply will react upon every department of civic life. We shall never get away from the truth uttered by the poet long, long ago:

"The King may rule o'er land and sea,
The Lord may live right royally,
The soldier ride in pomp and pride,
The sailor roam o'er ocean wide;
The writer thinks, the poet sings,
The craftsman fashions wondrous things,
The doctor heals, the lawyer pleads,
The miner follows precious leads;
The merchant he will buy or sell,
The teacher do his duty well;
So men may toil through busy days,
Or men may stroll through pleasant ways;
Beggar or King, what 'ere befalls—
The farmer he must feed them all."

A Help to the Business Farmer

THE typewriter has never been considered a farm implement, but it is a machine which can be used profitably in nearly every farming business. After a hard day in the field the average farmer is not in a mood to write letters, even to the best of friends, and for this reason "friendship correspondence" is sadly neglected by many farmers. It is easier to strike the letters of a typewriter on the machine and form a word than it is to form the same word with a pen. The word can be written more rapidly with no cramping of the hand and no eye strain and many farmers who have considered letter writing a bore with a pen have enjoyed pounding out their thoughts on a typewriter.

As a business asset the typewriter is of value to the farmer producing and advertising pure-bred stock. Inquiries answered on the typewriter are easily read by the prospective customer and there is little danger of a misunderstanding in prices because of careless writing. By making a carbon copy of business letters the farmer has a record of transactions which may be of great value in settling future disputes. In ordering materials for use on the farm it pays to typewrite the orders and then there is no excuse for a manufacturer sending the wrong article.

It requires years of practice to become a skilled stenographer, but only a few hours at intervals will teach the farmer to pick out words with the first finger and as speed increases it is possible to add a finger to the work until finally the operator can use all of the fingers on each hand in writing on the machine. The writer who never attempts to use more than one finger on each hand will make a mistake as it is possible, while using the machine in business correspondence to gradually accustom all of the fingers to striking the keys. Practically all typewriter manufacturers send simple directions with their machines, which are of assistance in learning to write.

In buying a machine the quality and make will depend on the amount of money which can be expended for that purpose. Of course, a brand new machine of one of the finest makes will give the best service, but such an investment is not necessary for the farmer who is only using the machine at intervals. In a city office a typewriter may receive constant pounding for about eight hours per day, and it is evident that such service requires a better machine than is necessary in the farm office, which may not turn out more than fifteen or twenty letters each week.

The old style of typewriters usually were invisible, or in other words, you could not see the words go down on the paper as they were written. The newer makes are visible and as you can see the words form before the eye it is much easier to learn to use a ma-

chine of the visible type. In buying a typewriter it does not always pay to buy the cheapest and a man with some idea of mechanics can determine whether a certain machine is a good investment or not. Of course, the typewriter is not in the class of absolutely necessary farm implements, but it is a great time saver for the farmer who is constantly worrying about correspondence stacking up when other work seems to demand about all of his time.

Ingham Co.

R. G. KIRBY.

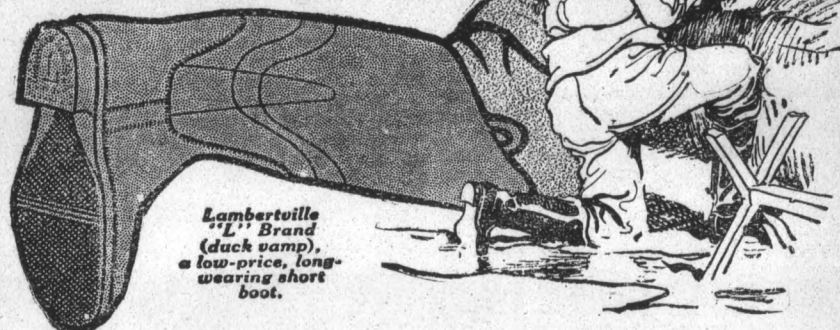
LIVE STOCK NEWS.

Cattle prices have widened out materially, of late because of the predominance of light, thin steers from the pastures and ranges of the country, but in a short time the grassers will stop coming, and then owners of cattle in the farming districts will have a much better show in the markets of the country. Monday is usually the big day of the week, and on a recent Monday close to 38,000 cattle arrived in the Chicago market, precipitating a big break in prices for the general run below good kinds, but the small percentage of fat beefs sold as high as ever. It is definitely known that there is a general scarcity of fat corn-fed beefs in feeding districts all over the country, and such cattle are destined to command extremely high prices all the coming winter period. Some cattlemen have the knack of producing good results in a short time, and a recent shipment of a carload of cattle arrived on the Chicago market from an Illinois feeding district which was bought 60 days before in Kansas City, having made a gain of three and one-third pounds a day, striking an average.

Ohio farmer-stockmen report many farms in central Ohio short on feeding cattle and hogs, because of ravages of hog cholera. One farmer has a farm of 1000 acres, and while he usually has hogs, today he has not a hog. Other at this season of the year 500 or more farmers have had similar experience.

Recent developments in the Chicago sheep market were highly favorable for sellers of desirable flocks of lambs, yearlings, wethers and ewes, with decreasing receipts. A short time ago the receipts rose to unusually liberal proportions, as the advent of winter weather caused many sheepmen to hurry up shipments, and shipments from the distant western ranges were especially heavy; but now that the range shipping season is over, the markets of the country will have to depend wholly upon shipments of natives and fed westerns. Careful investigations reveal the fact that approximately 20 per cent less feeding is being carried on than a year ago, with the greater part in Colorado, Nebraska and Iowa. Prices for all desirable offerings are extraordinarily high, and in all probability the winter season will see much higher values than ever before. This being the case, sheepmen cannot fail to see the great importance of finishing their flocks with the greatest care, as poorly fattened stock has to go at a sharp discount from prices paid readily for the best offerings. Of late a great many consignments were so full of burrs that they had to be sold at liberal concessions. Wool is selling extremely high, and so are the pelts.

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Markets.

GRAINS AND SEEDS.

January 9, 1917.

Wheat.—Wheat advanced on Monday to new high records. May wheat closed that day on the Detroit market at a half cent above \$2 a bushel. It is generally believed that foreigners purchased much wheat on the recent decline. The United Kingdom is facing a shortage in supplies of this cereal, which with the rather discouraging world crop news seems to be placing the food supply of that kingdom in an embarrassing condition. Much corn is being purchased here by exporters to substitute for wheat wherever this can be done. Political news is also bullish, particularly the agreement among the Allies to continue the war. Dealers are coming to believe that this country has already sold all that can be spared, and there is no more argument against the statement that the American supply of wheat will be scarce before the new crop is available. The U. S. visible supply decreased 2,598,000 bushels during the week. Primary receipts were one million bushels less than last year. No. 2 red wheat was quoted locally at \$1.24 per bushel at this date 1916. Last week's Detroit quotations were:

	No. 2 Red.	No. 1 White.	May.
Wednesday	1.95	1.90	1.99
Thursday	1.93	1.88	1.97
Friday	1.90	1.85	1.94½
Saturday	1.94	1.89	1.98½
Monday	1.96	1.91	2.00½
Tuesday	1.94	1.89	1.98½

Chicago.—May wheat \$1.89; July \$1.51; Sept. \$1.37.

Corn.—There was a large volume of trade in corn circles on Monday and prices have sprung upward with those of wheat. Foreign buying and the wide perspective demand abroad for cereals gave great impetus to the trading. There was a general demand in the United Kingdom for feeding and mixing while export offers ran very moderately. The U. S. visible supply increased 931,000 bushels. A year ago No. 3 corn was quoted at 73c per bushel. Last week's Detroit quotations were:

	No. 3 Mixed.	No. 3 Yellow.
Wednesday	1.02	1.03½
Thursday	1.03½	1.05
Friday	1.02½	1.04
Saturday	1.03	1.04
Monday	1.03½	1.04½
Tuesday	1.03½	1.04½

Chicago.—May corn 98½c per bu; July 97½c.

Oats.—While the quantity of oats in sight in this country is about 17,000,000 greater than a year ago, the recent strengthening of the wheat and corn deals gave firmness to this trade, causing general buying and a restriction of the late selling pressure. Export buying is becoming more urgent. The U. S. visible supply decreased 26,000 bu. last week. Standard oats were quoted at 48c per bushel a year ago. Last week's Detroit quotations are:

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

Chicago.—May oats 57½c per bu; July 55c.

Rye.—This trade is slow and of small volume with cash No. 2 quoted at \$1.43 per bushel.

Beans.—Further additions were made to local quotations last week, with the demand active and the market firm at the new figures. Immediate and prompt shipment are now quoted at Detroit at \$6.40 per bushel. The Chicago trade shows some improvement with only a fair supply on hand. Pea beans, hand-picked, are now quoted at \$6.50; red kidneys at \$6.90@7.10 per bushel.

Seeds.—Market is easy and demand fair. Prime red clover \$10.80; March \$10.85; alsike \$11; timothy \$2.50.

Peas.—Trade is light and offerings limited with prices unchanged. At Chicago field peas, sacks included, are quoted at \$2.75@3 per bushel.

FLOUR AND FEEDS.

Flour.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$9.90; seconds \$9.60; straight \$9.40; spring patent \$10.50; rye flour \$8.80.

Feed.—In 100-lb. sacks, jobbing lots are: Bran \$31; standard middlings \$33; fine middlings \$35; cracked corn \$31; coarse corn meal \$42; corn and oat chop \$38 per ton.

Hay.—In carlots at Detroit: No. 1

timothy \$14.50@15; standard timothy \$13.50@14; No. 2 timothy \$12@13; light mixed \$13.50@14; No. 1 mixed \$13.50@14; No. 1 clover \$12@13.50.

Straw.—In cars at Detroit, rye straw \$9@10; wheat and oat straw \$8.50@9 per ton.

DAIRY AND POULTRY PRODUCTS.

Butter.—The market is firm with supply light. Creamery extras 39c; do. firsts 37c; packing stock 27c.

Eggs.—Market conditions are somewhat easier but there is no change in price. Price, based on sales, is 39c.

Chicago.—The demand is moderate with the under grades quiet. Prices unchanged. Extra creameries quoted at 39c; extra firsts 37@38c; packing stock 28½c.

Poultry.—Scarcity of all kinds of poultry has caused a general increase in prices. No. 1 spring chickens 20@21c; No. 2 do. 18@19c; No. 1 hens 20c; No. 2 do 18@18½c; small do 14c per lb; ducks 22@23c; geese 20c; turkeys 28c.

Chicago.—Market fairly steady with the demand and supply light. Turkeys 12@22c; fowls 18@18½c; spring chickens 19c; ducks 15@19c; geese 14@16c.

Eggs.—Offerings of fresh eggs were light and higher prices resulted. Firsts 44c; current receipts 33@38c.

Chicago.—A firm feeling continues for strictly fresh and storage eggs. Fresh firsts are 1c lower than last week and are quoted at 39@40c; ordinary firsts 35@36c; miscellaneous lots, cases included 32@40c; Aprils, storage paid 35c.

FRUITS AND VEGETABLES.

Apples.—Market steady with prices slightly lower. Baldwins \$5.25@5.50; Spy and King \$5.75 for the best. At Chicago light supplies cause a general advance in prices. No. 1 stock sells at \$3@6 per bbl; No. 2 at \$2@2.50.

Potatoes.—Demand is good and supply light. Prices are higher. The quotations at Detroit in carlots are \$1.65@1.75 for bulk and \$1.75@1.85 in sacks. At Chicago prices are higher than last week, but increased receipts is causing an easier feeling. Michigan white potatoes are quoted at \$1.65@1.80.

WOOL.

Wool supplies are getting short and prices, as a result, are becoming stronger. Not only are supplies in smaller volume than at the corresponding time a year ago, but business must go on without the aid of the usual supplies from Australia for the next six months at least. A fair amount of territory wools and some fleeces were sold last week. Michigan unwashed delaines are quoted at 42c; do. combs 41@46c; do. clothing 34@38c per lb.

GRAND RAPIDS.

The potato market is around \$1.50 at the loading stations at present and the movement is light. The bean market has advanced to \$6 at Greenville and some points north of Grand Rapids, while local quotations are \$5.50@5.75. Wheat advanced 4c Monday, with buying price at the mills \$1.84 for No. 2 red. Oats range from 55@58c; corn 90c@1; buckwheat \$1.15@1.20.

DETROIT EASTERN MARKET.

Business on the Eastern Market is recovering from the slack trade following the holiday season. Large offerings of apples were made on Tuesday morning and prices ranged from 75c@2.25 per bu. Kings and Spies selling at \$2; carrots \$1.60@1.70; potatoes at \$2.10; parsnips \$2; pork 15c; butter 45c; eggs 60c.

LIVE STOCK MARKETS.

Buffalo.

January 8, 1917.

Receipts here today as follows: Cattle 123 cars; hogs 75 d. d.; sheep 25 d. d.; calves 800 head.

With 123 cars of cattle today, the demand was strong and all classes met a ready sale at strong prices. There were very few good shipping cattle here and the best load sold at \$10.75, with several loads from \$9.50@10.50. There was a good strong demand for what butcher cattle were here and they sold mostly 10c higher. We look for a fair run of cattle here next Monday and a good trade.

Receipts of hogs were very light today and market 5@10c higher, with some light weights as much as 25c higher than Saturday's best time. The bulk of the sales were around \$11.15@11.25, with a few selected loads at \$11.30; pigs, as to weight and quality \$10.25@10.50; roughs \$9.75@10; stags \$9@9. About everything sold at the close and it looks like we should have a fair trade balance of the week.

With another light run of lambs again today the market was active and

prices 25c higher than the close of last week. We look for shade lower prices balance of the week with moderate receipts.

We quote: Best lambs \$11.35@14.50; cull to common \$9@14; yearlings \$8@12.75; bucks \$5.50@8; ewes \$9@9.50; cull sheep \$4.50@7.50; wethers \$10@10.50; top veals \$14.50@15; heavy \$7@9; common and light \$8@12.50; grassers \$5.25@6.50.

Chicago.

January 8, 1917.

Cattle. Hogs. Sheep.
Receipts today...26,000 60,000 16,000
Same day 1916...16,759 79,792 12,200
Last week...60,024 207,696 60,349
Same wk 1916...48,758 334,279 80,192

Cattle were late in selling today, and it looked as though buyers would insist upon some concessions for undesirable kinds, but it was generally agreed that others would sell satisfactorily, the proportion of choice beefs being very small. Hogs were a dime or more higher, selling at \$9.85@10.75. During the past week hog receipts averaged 195 lbs., and 55,729 hogs were shipped from here, comparing with 46,224 a week earlier and 66,009 a year ago. Today's receipts of sheep and lambs were so small that sellers were asking higher prices for fat lots, and it was almost a foregone conclusion that prime lambs would sell higher, the Buffalo market being much higher.

Cattle receipts last week were not over large, and there was a much improved general local and shipping demand, following the slower trade during the holidays. The result was that sellers were in a position to assert themselves once more, and prices were largely 15@25c higher for desirable offerings. The bulk of the beef steers crossed the scales at a range of \$8.50@10.75, with the better class of the cattle going at \$10.85@11.50, while a fancy lot of long-fed steers that had been fed plenty of corn brought \$11.70. Steers classed as good found buyers at \$10@10.80, while a medium grade of cattle went at \$9@9.95, with fair killers taken at \$7.80@8.95 and inferior lots of little steers at \$6@7.75. Butchering cattle were in strong demand and unusually firm in price, with cows taken at \$5.90@8.50 and heifers at \$5.50@10.50; but canners and cutters were relatively the highest sellers of all, canners selling at \$4.50@5.25 and cutters at \$5.30@5.85. A good demand prevailed for bulls, which found an outlet at \$5.25@8, and calves were active sellers, prices extending from \$5@8 per 100 lbs. for the heavier lots to \$12@13.25 for light vealers of fair to prime quality. There was a marked improvement in the country demand for stockers and feeders at irregularly high prices, stockers selling at a range of \$5.50@7.75 and feeders usually at \$7.20@8.50. There was a poor demand for the commoner kinds of light stockers, and these went largely to killers. Demand centered mainly on a good class of feeders, although not many buyers were willing to pay the highest price. The sales at \$8 and upward were usually restricted to choice feeders that weighed well over 900 lbs. Among the feeder sales may be mentioned 24 head averaging 1015 lbs. at \$8.50, and 21 that averaged 1042 lbs. at \$8. Stockers and feeders were mostly 15@25c higher.

Hogs were in the accustomed good local and shipping demand last week following the Monday holiday, although buyers succeeded in forcing some breaks in prices, which were followed by the usual reactions. The outlook is generally looked upon as highly encouraging for stockmen who are so fortunate as to be the owners of thrifty young hogs and pigs, and marketing the youngsters where owners have sufficient feed is making a serious business mistake, according to the best authorities. Provisions are in the usual large domestic and foreign demand, and yet the stocks held in Chicago warehouses have grown to 121,323,856 lbs., comparing with only 93,518,964 lbs. a month ago and 87,125,772 lbs. a year ago. Although the week's receipts of hogs were larger than a week earlier, prices closed strong at \$9.50@10.10 for light bacon hogs, \$10.15@10.35 for selected light shipping, \$10.50@10.65 for the best heavy shippers, \$10.20@10.50 for heavy packers, \$10.30@10.40 for "singers," weighing 170 to 200 lbs. and \$8@9.50 for pigs.

Lambs, yearlings, wethers and ewes continued to sell extremely well last week, with prime offerings selling at fresh high records; while the next grades sold extremely high, too, as they were wanted as substitutes for first-class lots. Feeding lambs, too, were much called for, and the small offerings caused them to sell extraordinarily high, this being especially true of shearing lambs for finishing quickly. At the close prices were: Lambs \$10@13.75; feeding and shearing lambs \$9.75@12.75; yearlings \$9@12.25; wethers \$9@10.40; ewes \$5.50@10; bucks and stags \$7.50@8.25; shorn lambs at \$10.25@12.

Horses were in fair supply and in

active local and shipping demand last week, and prices remained firm, especially for horses of the army types. Sales were on the basis of \$25@100 for western branded horses up to \$185@285 for drafters, with drivers salable at \$100@200. A carload of mixed horses, weighing from 1400 to 1700 lbs., was sold to a Boston buyer at \$150@250.

LIVE STOCK NEWS.

Thos. Rust, of McLean county, Ill., says that in his opinion the time has arrived when long feeding of cattle should be stopped, his experience going to prove that the best results are obtained from feeding for 90 days or even for a shorter period. He says: "I bought a drove of 1,300-lb. steers in Missouri this year, fed them for 77 days, their gain during that time being 150 lbs. per head, and I sold them on the Chicago market for \$10.25 per 100 lbs., their first cost having been \$8.25 per 100 lbs. Compared with long-feds selling a dollar per 100 lbs. higher, they proved big money-makers. Unless handling calves, corn-belt feeders will be compelled to abandon the practice of carrying cattle in feed lots for a year, making several turns in that time. Each season the market requires fewer big cattle, and making them involves chance-taking which the average feeder cannot afford."

In spite of the fact that prime beef cattle have been advanced to an unusually large premium over the prices paid for merely good grade cattle, most stock feeders are persisting in marketing warmed-up and short-fed cattle, taking the view that it is a dangerous policy to put much high-priced corn into cattle. Of late larger numbers of stockers and feeders have been shipped from Chicago to the surrounding country, but this movement continues to be; and the long continued marines on a much smaller scale than it kiting of immature beefs is bound to result in corresponding curtailed marketings of fat cattle later on and in higher prices. Prime heavy steers have sold higher recently, and the whole market has seen a very high range of prices, even canners and cutters being unusually high sellers.

CROP AND MARKET NOTES:

Michigan.

Hillsdale Co., Jan. 8.—The weather has been favorable for wheat and clover. Plenty of hay and stalks are in the hands of farmers. Owing to the high price of corn, many light hogs have been sold, and young pigs have gone down in price, many farmers not wishing to keep them till spring. Considerable numbers of western lambs are being fed in some townships of the county, with prospects of good profits. The ice harvest was commenced the first week of the new year, with the ice about nine inches thick. Wheat \$1.80; rye \$1.25; oats 50c; yorkers 10c; hogs, dressed 13c; beef cattle \$5@8; calves \$10.50; chickens 15c; eggs 37c; good dairy butter 30c; butter-fat 50c; clover seed \$9.50; beans \$5.50; potatoes \$2 per bushel.

Arenac Co., Jan. 8.—Farmers are getting out wood supply for next summer. There is very little feeding being done. Farm products are nearly all marketed except beans. Not much snow here. Potatoes \$1.75; beans \$6; corn \$1; wheat \$1.71; milk \$2.02½; butter-fat 37c.

Gratiot Co., Dec. 29.—Wheat and rye went under the snow a week before Christmas looking good. Roads are excellent. Most farmers are well supplied with coarse feeds. More than the usual amount of young cattle are being fed. The attractive prices of milk and butter has a tendency to increase the number of cows kept. Milk \$2.05 per cwt; wheat \$1.70; beans at \$5.50; oats 50c; corn 45c; hogs \$8.75; pork \$10@12; potatoes \$1.50; eggs 36c.

Emmet Co., Dec. 30.—Moderate weather prevails here. Fields are well protected with snow which is now a foot or more in depth. The usual quantity of wood and logs is being marketed. Stove wood \$2.50@3 per cord, maple logs \$15@16 per M. Horse market is weak, with prices low. There is a good demand for fresh milch cows.

Ohio.

Medina Co., Jan. 6.—The ground is bare. Farmers are cutting wood and a few indulge in trapping. Less feeding is being done than usual. Corn fodder will not last through the season, but hay and other feeds are plentiful. Much wheat has been marketed the past week, and there is considerable hay and grain yet to be sold. Hogs \$10.25; potatoes \$2; wheat \$1.76; milk 22c per gal; butter 40c; eggs 45c.

Fall Pasture.—The condition of fall pasture as compared with an average per cent is 83 in the state and central counties, 85 in the southern counties, 89 in the northern counties and 93 in the upper peninsula.

THIS IS THE FIRST 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 4, 1917.
Cattle.

Receipts 2110. There was a large run of live stock at the local yards this week and a large amount of Wednesday's receipts arrived too late to be sold.

The new car situation which will not allow railroads to use anything but their own equipment is a great setback to the live stock industry. Stock for New York and eastern points ready for shipment Wednesday could not be loaded and no double deck cars of the initial road could be furnished, and was still on hand at this writing.

In the cattle division the quality was much better than usual a large number being good enough to bring from \$8@8.50. On Wednesday prices averaged full steady with last week, but on Thursday they took a slump after a few early sales and were dull and 10@15c lower on all grades. Canners were very dull on account of the canner buyers being unable to get their purchases out. The close was dull. Best heavy steers \$8.50; best handy weight butcher steers \$7.50@8; mixed steers and heifers \$7@7.50; handy light butchers \$6@6.75; light butchers \$5@6; best cows \$6.50@7; butcher cows \$5.50@6.25; common cows \$5@5.25; canners \$4@4.50; best heavy bulls \$6.50@7; bologna bulls \$5.50@6; stock bulls \$4.50@5.25; feeders \$6.50@7; stockers \$5@6.50; milkers and springers \$4@80.

Haley & M. sold Golden 10 cows av 842 at \$5.15; to Mason B. Co. 1 bull wgh 1590 at \$6.25; to Applebaum 3 butchers av 717 at \$6.35, 1 cow wgh 970 at \$5; to Newton B. Co. 3 do av 917 at \$5, 1 do wgh 900 at \$4.75, 1 do wgh 1200 at \$6, 1 do wgh 980 at \$5.50; to Sullivan P. Co. 14 steers av 800 at \$6.60; to Brighton D. M. Co. 2 cows av 1000 at \$6; to Breitenbeck 7 butchers av 811 at \$6.65, 24 do av 787 at \$6.75, 5 do av 656 at \$5.35; to Jackson 4 stockers av 560 at \$5.75; to Golden 2 steers av 710 at \$5.60, 14 butchers av 585 at \$5.60; to Bernfeldt 5 do av 684 at \$5.90, 3 cows av 1087 at \$5.60, 4 do av 837 at \$5.25, 6 butchers av 471 at \$5.60; to Mason B. Co. 1 bull wgh 1350 at \$6.50, 1 do wgh 1420 at \$6.25; to Brighton D. M. Co. 5 cows av 1076 at \$5.90; to Thompson 3 steers av 987 at \$7.40, 1 bull wgh 1080 at \$6, 1 steer wgh 850 at \$6.75; to Bresnahan 3 cows av 990 at \$4.80; to Rattkowsky 8 butchers av 735 at \$5.25; to Sullivan P. Co. 3 cows av 993 at \$4.90; to Denton 2 feeders av 940 at \$6.50.

Veal Calves.

Receipts 892. The veal calf trade was active and generally 25@50c higher than last week on anything good. Common were dull and there was a large number of the receipts of the common order. Best grades \$13@14; mediums \$10@12; heavy \$6@8.

Sandel, S. B. & G. sold Sullivan P. Co. 2 av 130 at \$13, 4 av 155 at \$13; to Parker, W. & Co. 9 av 160 at \$14; to Ratner 2 av 180 at \$11, 1 wgh 130 at \$13.50; to Nagle P. Co. 16 av 140 at \$13.70; to Burnstine 6 av 135 at \$13.75; to Sullivan P. Co. 1 wgh 170 at \$7.50, 1 wgh 130 at \$13.50, 2 av 120 at \$12.50.

Haley & M. sold Sullivan P. Co. 2 av 120 at \$11, 15 av 150 at \$14; to Mich. B. Co. 9 av 145 at \$12.50.

Sheep and Lambs.

Receipts 6775. The sheep and lamb trade was active and lambs were 25c lower than at the same period a week ago and sheep held steady. The close was steady at the advance, selling as follows: Best lambs \$13.50; fair do. \$12@13; light to common lambs \$9.50@11; yearlings \$11@11.50; fair to good sheep \$8@8.75; culls and common \$5@6.

Erwin, S. & J. sold Parker, W. & Co. 3 sheep av 125 at \$8.50; to Barlage 29 lambs av 70 at \$13, 6 do av 55 at \$11.50; to Nagle P. Co. 84 do av 75 at \$13.40, 45 do av 85 at \$13.25, 3 sheep av 115 at \$8.25, 4 lambs av 70 at \$13.

Haley & M. sold Nagle P. Co. 18 lambs av 70 at \$13, 9 sheep av 108 at \$7, 5 do av 140 at \$8.50, 12 do av 135 at \$8.25, 100 lambs av 87 at \$13.50, 6 yearlings av 70 at \$11.

Sandel, S. B. & G. sold Nagle P. Co. 27 yearlings av 70 at \$11, 62 lambs av 77 at \$13.50, 17 sheep av 100 at \$7.50, 20 lambs av 48 at \$11, 6 do av 65 at \$12; to Sullivan P. Co. 94 do av 75 at \$13.25, 21 sheep av 95 at \$7.50.

Hogs.

Receipts 8048. In the hog division prices averaged about 5c higher than on Wednesday, pigs selling at \$9.25@9.50 and mixed grades at \$10.10@10.45.

LIVE STOCK NEWS.

General conditions existing in the sheep and lamb market remain wholly favorable for sellers, this being due, of course, to the great shortage in marketings at a time of large demand from killers, who are unable to keep up their holdings of choice carcasses to anything like fair proportions. Choice lambs lead off in the upward movement, just as they have done all the time, and some prime Colorado lambs, the first of the season to be offered on the Chicago market, sold around the highest figures. Prime little yearlings on the lamb order, as well as choice wethers, are having a full share in the advances in prices; as are feeding lambs and breeding eyes. Later on the markets will receive large supplies of Colorado fed lambs.

A short time ago Perry Mathis, of Illinois, marketed in Chicago a carload of cattle that had been out just ninety days and averaged 3 1/4 lbs. per day gain from Chicago to Chicago weights. They cost \$7.75 per 100 lbs. when purchased at the start as feeders and were marketed for \$10.50, bringing \$1,150 more than they cost.

Hogs are marketed most of the time with extreme liberality, though around the Christmas holidays the Chicago receipts fell off materially, causing a rally in prices. Of course, there are reactions after advances in prices, but hogs sell all the time at far above normal prices, with a liberal demand for the various kinds. For quite a number of weeks the demand in the Chicago market for hogs of good to choice quality to ship to eastern packing points has been unusually large, eastern districts having marketed most of their matured swine; and this outside competition has been a powerful bullish influence in making prices. The past few years saw the highest markets for hogs on record, and 1917 started off in a way that promised a continuance of high market values, although some recent extra large receipts resulted in declines in quotations. Profits derived from breeding and fattening hogs for the market were extraordinarily large last year, although the materially increased cost of corn and other feeds cut down the profits in a measure, of course. Within a short time prime hogs carrying a good deal of weight have sold as high as \$10.80 per 100 lbs., whereas a year ago the best sold for \$7. Heavy barrows on the butcher and shipping order have been very scarce, as farmers have persisted in marketing their holdings much earlier than usual in order to avoid feeding high-priced corn, and recent receipts have averaged in weight not much over 190 lbs. Fresh pork has been selling extremely well all along, while the domestic and export demand for lard and cured hog meats has continued abnormally large, in spite of the extraordinarily high ruling prices.

The year lately closed saw the highest live stock markets on record, with cattle selling particularly high, and high records recently by selling better the commoner class of cattle made relatively than fat beefs. Within a short time sales have been made of canners and cutters at \$4.50@5.50 per 100 lbs., and these figures are hard to beat, even if they compare with sales of the best steers recently at \$11@11.70. When 1916 opened cattle looked high, yet the best steers failed to go above \$9.85 in January. They had plenty of advances later, however, until December saw sales of steers at \$12.25@13.25. Last year was a great one for owners of decent cattle, and probably the most pleasantly surprised sellers were the dairymen of Illinois, Wisconsin and Minnesota, who were able to dispose of their old cows at higher prices than were paid in many years for fat beefs. Looking backward ten years, it is found that top steers sold for \$7.90, with not many selling above \$6.50. Not only are the top-notchers in cattle scarce and abnormally high, but the intermediate grades are also selling extremely well, and stockers and feeders seem to be the only cattle that can be called at all cheap. As for the inferior class of thin stockers, few buyers want them at any price, and they have been going mainly for cheap beef, demand centering on a good class of fleshy feeders, while limited buying orders are received for high-class feeders selling at the highest prices. The northern range cattle marketed last fall fell below expectations in number, as well as in quality, with sales made largely at \$7.50@9 per 100 lbs. The drought cut down the movement in feeders to feeding districts, and large numbers of warmed-up and short-fed cattle were hurried to market instead of being carried well into this year. This is going to make a big hole in the beef supply for the first half of 1917. An extremely important factor in the situation is the enormous demand for canned meats and other cheap meats for feeding the armies now fighting in the great war.

Conditions existing in the American sheep industry for more than a year past are altogether unparalleled, and in all probability we are going to witness another year of high records in prices. At any rate, recent transactions in high-class live muttons were at the highest prices ever known, with top lambs going for \$13.65 per 100 lbs. and relatively high values for prime yearlings, wethers and ewes. Surely, at such a time any sheepman who fails to make his holdings good and fat is making the very worst kind of a blunder, even if second and third-rate flocks are selling far higher than ever before, because they must be had as

substitutes for choice live muttons, which are comparatively scarce in all the markets of the country. Wool is bringing unusually high prices everywhere, and as it is expected to remain high, dealers are anxious to make early purchases, fearing a further rise. Already some of the largest western outfits have contracted their 1917 clips at from five to six cents per pound higher than prices obtained last year. Sheep pelts have been lowered some in price within a short time, as all kinds of hides had sold so high that large manufacturers of leather threatened to close down if further advances in prices were made.

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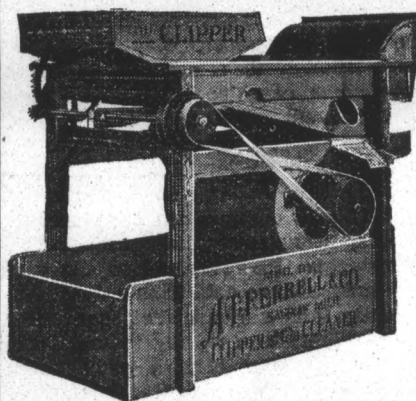
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Getting Duck Eggs In Winter

IF you keep Indian Runner ducks and they are not laying by this time, it is not their fault; it is yours. Get busy.

The Indian Runner is kept largely for egg production; yet a great many people around here never see a duck egg during the fall or winter months. Why? Simply because they don't give the ducks the right kind of care. Their poultry are never kept separate at any time; that is, they allow all kinds, (ducks, geese, chickens, etc.), big and little, to have free range; with the result that none do their best.

These people often wonder why the writer can have duck eggs as well as hen eggs, all winter. We have kept Indian Runner ducks for a number of years, and have found that it is just as easy to induce a duck to lay eggs, as it is to get eggs from a Leghorn hen. In fact, we think it is easier. A duck will respond to good care, much more quickly than will a hen. A well matured duck will usually begin laying when from five to six months old.

Provide Good Shelter.

While the feed is perhaps the most important factor, there are other things to consider. To begin with, they must be given good shelter. A duck-house need not be expensive. We have a number of low, well built houses, surrounded by yards enclosed with



Moving a Colony House on Planks or Skids.

poultry netting. Any kind of a fence that is closely built, will turn ducks. As a rule, it is not necessary to keep the old ducks yarded, except in winter or when eggs are wanted. A duck is liable to lay anywhere. They seldom make a nest.

It is not advisable to keep large numbers together. They do much better in small flocks. This is why small houses are best. However, they should be large enough to allow the ducks to have some exercise when they are kept housed. A house 15x20 feet is large enough for about 35 ducks, when they have to be kept indoors, as they sometimes do in very cold weather. A duck (like a chicken hen) that roams at will, in zero weather, seldom lays many eggs. However, a hen can usually endure more cold than a duck. Apparently it is a duck's feet that suffer most. Therefore, we try to make the houses comfortable with good floors and plenty of bedding. Never use sawdust, as the ducks are liable to eat it. Clean straw, dry leaves or litter from the barn loft are all good. We try to keep the houses as clean as possible by renewing the bedding before it is badly soiled. The roofs and siding of the houses should be as good as the floors. Otherwise, the floors will get damp. If a duck is kept in damp quarters it is liable to get rheumatism or cramps. A great many beginners imagine that because a duck is a so-called water fowl it need not have a dry floor to sit upon at night. We know by long years of experience, that dampness is almost as fatal to ducks as it is to other fowl.

Keep the Floors Dry.

If floors become damp, as they sometimes do in spite of all efforts to keep them dry, coal ashes will take up the moisture as quickly as anything we know of. Scatter it thickly upon the damp spots, let remain for half an hour or longer. Then remove ashes and sweep floors before putting in fresh litter.

We usually sift the ashes and use

the coarse part for grit. The ducks need other grit also, such as oyster shell and coarse sand. But they always eat cinders and charcoal, if they are in reach. Coarse sand should be kept in a trough or box near the feed trough. A duck wants sand along with its feed. But it should never be mixed with the feed.

A water trough should be placed where the ducks can reach it, while they are feeding.

A duck's food must not be too highly concentrated. Solid grain, without some sort of roughage, will not do. When ducks have free range they eat large quantities of grass and other green stuff. Therefore some substitute must be provided. We use sprouted oats, green frozen rye, cabbage, cut clover (scalded) chopped beets, turnips, refuse apples, etc. Silage is said to be good for ducks, but we have never used it.

Feed Plenty of Roughage.

Green rye is greatly relished. We cut it late in the fall (or rather early in the winter), when it is frozen, pile it on the ground and cover several inches deep with dry leaves. Then place some heavy branches, or something similar, over the leaves to prevent blowing away. The rye keeps perfectly as long as it is kept covered; or rather, as long as it lasts, which is

to give the young stock a better opportunity to develop on fresh soil which will contain no germs of poultry diseases, or to make them more convenient to care for during the winter. A house about eight by ten can easily be moved in the following manner: Pry up one side with a crowbar and slide a twelve-foot plank under and then do the same on the other side. Then where the planks project in front of the house nail a short two by four piece to each.

Fasten a strong hay rope securely around the house and when the team begins to pull, the house will strike against the two by four pieces on the planks and the planks slide along with the house exactly like the runners on a sled. In this manner colony houses can easily be moved around the farm without injuring them or breaking the sills as frequently may occur when houses are roughly dragged along the ground without the boards for runners.

Ingham Co.

R. G. KIRBY.

A DISEASE PREVENTIVE.

I hesitate to tell what reliance I place on permanganate of potash in the care of my 400 hens, because there are a lot of people who will think I dose my fowls.

I buy ten cents worth and put half of it in a pint bottle and fill with water, and every time I water my hens or chicks of any age I pour enough of the permanganate of potash compound in the water to color it pink. I find this remedy much more valuable to control bowel trouble than for the treatment of colds for which it is often recommended. Before I tried this method—or preventative rather, one sick hen or chick would spread infection like an endless chain letter, but since I find such cases of bowel trouble as I have to contend with, do not spread rapidly and are easily controlled. And do you ask why? Because the permanganate of potash in the water kills the germs that would otherwise multiply and spread to the rest of the hens from the one sick one.

I have been following this method for three or four years and cannot see that it has harmed my poultry in any way. They thrive and lay at all times of the year.

Permanganate of potash comes from the drug store labeled poison but when so much reduced that ten cents worth will last for a big flock, six months, it has no harmful effect.

Barry Co.

KATE TERPENNING.

FROST GATHERING IN COOP.

How can we prevent frost gathering in poultry house? Our coop is 14x100, with 18 windows and 11 muslin sashes, and has 500 pullets and a few cockerels. All is fine through the day but at night when we shut muslin sashes frost gathers on ceiling.

Hillsdale Co.

A. D. S.

It is very difficult for us to suggest the cause of the frost gathering in your poultry house, as you do not tell us the type of your coop.

Apparently you have plenty of window space and sufficient muslin sashes to give plenty of ventilation. Even when coops are properly constructed with reference to the matter of ventilation, there is very often condensation of moisture on the ceiling, consequently a gathering of frost which does no serious harm.

This is caused by the warmer air of the coop coming in contact with the colder air of the ceiling and condensing the moisture. If the coop does not feel cold and damp in the morning, I do not believe you need worry about the frost gathering on the ceiling.

You might prevent it by putting the muslin sashes nearer to the top, thus causing the escape of the warm air and in that way nearly equalizing the temperature of the inside and outside of the roof.

The type of house used may suggest a remedy along this line.

MOVING SMALL POULTRY HOUSES.

It is frequently necessary to move small poultry houses or colony houses to different parts of the farm in order

A Wasted Farm Crop

ONE crop grows on every farm in every part of the United States, and on nine out of every ten of these farms it is allowed to go to waste. I refer to the honey crop. The farmer who harvests the other crops is entitled to harvest this one also, but he neglects it. If the crop is harvested at all it is generally done by specialists in that line, and the farmer gets no recompense, except the fertilization of his fruits and vegetables, though he should be thankful for this specialist if he does not intend to harvest the crop himself. The ideal condition would be for each farm to have enough bees to gather honey enough for home consumption.

Bees Easily Cared For.

Bees are very easily managed, and the work is such that any member of the family ten years old or over can do it. An hour or two of time every ten days from March to July to examine and keep them in condition, time enough after the honey flow to remove the honey and extract or store it, and time enough in the fall to give any supers needed for a fall flow and to remove this and prepare for safe wintering, none of which are difficult operations, would be all that is needed.

Did you ever consider that bees work steadily, board themselves, will live in most any kind of a hive you prepare for them, and give you all the honey they can gather above what is needed to keep them alive? After you have provided a hive and enough supers to hold the honey they can gather there is absolutely no cost. Four or five dollars will fit you with a modern hive and supers enough to hold a good crop, say a hundred pounds of comb honey. I believe in most of the ordinary honey bearing states fifty pounds to the colony where bees are given any care is a low average estimate. One crop would pay you a hundred per cent on your investment, and your future crops would be clear gain, except for the small amount of work involved.

Making a Start.

If any boy or girl reads this and you have no bees at home, just ask father to buy a hive for you, get a book on how to take care of bees—one written for beginners—and then watch for a swarm. Sometimes it will come to you if you place your hive in a good place, like the fork of a tree, on top of a building, in the belfry of a church or schoolhouse, or anywhere that would be likely to attract bees. Put some frames with foundation in them in the hive, or better yet, a frame or two of comb built out from which honey had been extracted, if you can get them. When bees are about ready to swarm they send out scouts to seek a new home, and these scout bees will be glad to find so nice a home all ready. If you know where the swarm came from, of course, you would be under obligations to notify the owner or pay him a fair price for it, but very seldom is it possible to know this, and the swarm is rightly yours. If you find a swarm clustered in your orchard, or in the woods, and do not know to whom it belongs, it is yours for the taking. Bee trees belong to the finder—that is the bees and honey do. You have no right to cut a man's trees, though, without his consent, which can usually be easily secured.

Buying Bees.

Many who have bees will hive a swarm for you in a hive you furnish and charge a very nominal price, sometimes as low as a dollar. If you can strike an auction sale where bees are to be sold you can very often buy them for the cost of the hives alone, but be sure you get bees free from disease, and remember that anything but hives with movable frames are worth less than nothing, for the hives will be useless to you, and the transferring to good hives will be worth more than the bees. I wouldn't take an old-fashioned

box hive full of bees as a gift unless it was a mighty strong colony.

Kansas.

L. H. COBB.

LIVER TROUBLE.

Please tell me what is the matter with my chickens. Every once in a while a hen will get running off the bowels, and will just mope around and not eat anything, until at last she dies, and this morning I lost a fine Plymouth Rock rooster the same way, only that I didn't notice him being sick at all. We opened two of these birds and found their liver enlarged, and full of hard yellowish lumps, also these hard lumps on the intestines. We feed wheat, oats boiled, or corn meal mash with poultry powder and beef scraps, for breakfast, and parched corn on the cob for supper, and they have all the clean water they want, with a fine coop to scratch in these snowy days. My husband thinks the beef scraps poison them.

St. Joseph Co. Mrs. C. G. E.

Your fowls undoubtedly have liver trouble, which is brought about by the lack of exercise and the feeding of a ration too rich in albuminous matter. Undoubtedly you are feeding too heavily of the beef scrap. It may also be that the poultry powder you are feeding contains something which is a concentrated egg-producing food.

I would suggest that you feed the chickens whole grain in the litter in the morning, then if you wish to feed a wet mash, give it to them at noon. However, it is more preferable to have a dry mash on hand in the hoppers at all times. The chief trouble with feeding a mash first thing in the morning is that the fowls will appease their appetites and then be inclined to sit around for the rest of the day.

If you continue feeding the wet mash make sure that the chickens eat it all, for if any is left it might become spoiled and in that way cause digestive troubles if the hens should eat it afterward. The chickens should also receive plenty of green food and permanganate of potash should be used in the drinking water at the rate of two teaspoonfuls of a saturate solution to ten quarts of water. We believe most of your troubles will be eliminated if you will feed less highly concentrated foods and make the hens work for their feed.

POULTRY IN SMALL FLOCKS.

A frequent cause of failure in the poultry business is the fact that too many hens are kept in the same flock. Small flocks make for success, as has been proven to our satisfaction many times. Even in the winter, pens of from twelve to twenty birds are better than larger collections, while in the summer the colony plan seems to be the ideal way of caring for fowls. If we would seek the causes of these facts, we find that birds on the range, with the colonies scattered around the farm, pick up much more of their food, for they cover a larger territory. Then, also, it is food particularly to the liking of the hens and particularly adapted to keeping them in health and producing condition. It is easier to keep the small house or pen free from mites than the large building. While in the aggregate the work of caring for small flocks amounts to more than the work of caring for the same number of birds in one flock, yet we much prefer to clean a number of small houses than one large one. Diseases can be combatted more readily in the small flock and a closer watch may be kept on the health and production of the hens. If a large number are kept together and allowed to run at large about the building the soil soon becomes foul. It requires constant plowing and turning over to keep such soil in fit condition for the hens to run on. This problem does not appear in connection with the colony plan.

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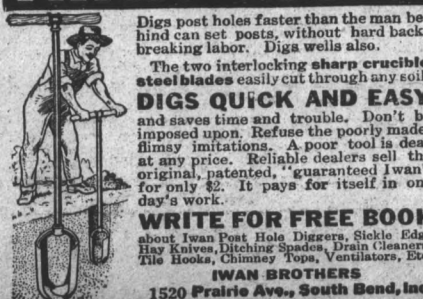
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Farmers' Clubs

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."

WHAT THE LOCAL CLUBS ARE DOING.

As usual, the reports of delegates at the recent associational meeting constituted an interesting phase of the meeting. Club members generally are interested in the methods used by other Clubs in the conduct of their meetings, for which reason we will present in this department as opportunity offers, some of the reports made by delegates at the annual meeting.

Marion Farmers' Club.

The subject of getting our people out to the Club is one that has been given considerable thought in our Club and it was assigned me a year ago to speak on "A better Club and how to get people out to the Club," what means to take, and I suggested some of the things that Mrs. Johnson has spoken of in her excellent paper. The debate in the Club, and the play, and special music—the orchestra, and my committee was impressed with the talk that at the very next meeting they had an orchestra there and a debate. They had to get one of the largest houses in the town and it was packed. They found it was necessary to go over the town and drum up the people to come in. Get up a program of sufficient interest and you will have plenty to attend.

Now I thought that a very excellent paper and only disagree with her on one point, that of the yearly program. A yearly program in these rapidly moving times is too slow. We want to discuss up-to-date subjects in our Club and we find we must make up our program not once a month but twice a month.

Ingham County Club.

Our Club has done a great deal of good with the yearly programs because each member on the program, when the meeting is held, has a paper of some kind. They usually try to do their part and have that paper ready.

I think it is an excellent idea to have a program made out at least six months ahead. One of the greatest blessings in our Club is the sending of flowers to the sick. We charge 25 cents a member and I think it certainly has given sunshine and cheer to the sick room. About six months ago a gentleman in our town lost a son. His body was brought from Detroit for burial. He was not a member of our Club and was a stranger to a great many. I sent flowers from our Club. The father drove into the yard a few days after and gave me a dollar, saying if we only knew what good it did them to have those flowers. There was not one that brought the tears to our eyes like the sunshine flowers from this Club, because he was a stranger to most of you. This year we have spent for flowers and expenses \$25. I think these things are so helpful and that farmers, of all people, ought to have all the sunshine and cheer possible brought into their homes.

Washington Center Club.

In regard to printed programs. Our Club has used them for fourteen years. I know they have never been considered a back number, not even in the State Association and I heartily agree with the paper the lady read. We are planning our work ahead and we know just who is going to be there and who is on the program and we discuss everything that can be discussed in our Club and I am sure that our people helped in making the state of Michigan go dry this year.

In our Club we had printed programs years ago and we discontinued for a couple of years but we have gone back to it. We find out it is helpful so next year we are going to have the printed programs and will make them up a year ahead.

One of the greatest privileges and helps to our Club is in sending for our coal by the carload, they have gotten it so much cheaper.

Somerset Club.

We have been using the printed programs and they are made up a year ahead. We also have found that it is a help to our young people to have a fair in the fall. We had a fair this fall and we gave some nice prizes. The young girls brought in their sewing—three pieces for each girl, and you would be surprised to see the work they had done. And we gave prizes for poultry and anything that the young people chose to take up. We think it helps to interest the young people in this work, both in the raising of vegetables and poultry.

Gratiot County.

We had a chicken-pie supper and a fair this year. I was not present at the fair. One new feature this year was getting the children of the township to attend. I think with one exception the teachers brought their pupils and they had a collection of their work from the little four-year-olds up to the eighth grade. They had drawing and sewing and all such things and it was quite an exhibit. It was the first time we had ever undertaken anything of the kind and it was voted a great success. They had light refreshments for the children—candy and things of that kind.

SERVING AT FARMERS' CLUBS.

A Minnesota Letter.

It is at this season of the year that Farmers' Clubs are most active. Everyone who has the responsibility of serving food at these meetings realizes what a task it is, and it may help some refreshment committees to know how other Clubs serve.

The Sunny Side Club has about 100 members. All the food to be served is prepared at home except the coffee. The Club owns its dishes and holds its meetings in a two-room school house. There are two tables for serving. One sixteen feet long consists of boards resting on saw horses, the other is a small square home-made table. These tables are covered first with newspapers and then with snowy linen tablecloths. Plates and folded paper napkins are piled up at the end of the long table. Also the food is arranged attractively on this table. Coffee is served from the second table. Between the tables and the wall stand rosy-cheeked girls ready to serve you in cafeteria style.

When you have made a choice of the viands spread so temptingly before you, and have received a cup of coffee you pass to a school room desk and enjoy the meal at leisure.

The Golden Valley Club holds its meetings close to a city and the refreshment committee buys the food served for luncheon. The Club owns the coffee pot and the cups used in serving coffee, and some trays. Paper plates and paper napkins are used.

The Club meetings are held in a school house. The members are seated at the desks when the committee passes through the aisle and distribute dishes and eatables.

The One - Hundred - Dollar - an-Acre Club holds its meetings in the homes of its members. The hostess in this Club furnishes the coffee and each family in the Club brings food. The Club is small and by means of the telephone arrangements for the supper are made. The serving and cleaning-up after the meal is done by the young people who stay in the back part of the house the rest of the evening, playing games or dancing while the demure matrons with fancy work in their hands, listen to the topics under discussion by the men.

M. R. W.

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is the best and most complete book on Strawberry Growing ever written. It fully explains the KELLOGG WAY of growing two big crops each year—a big profit in the Spring and a bigger profit in the Fall. Tells everything about strawberry growing from start to finish. Write for this book and learn how to supply your family with delicious strawberries the year 'round without cost and how to make \$500 to \$1200 per acre each year. The book is FREE.



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Crop production from such Fertilizers means greater outboard tonnage for roads and bigger purchasing power for Farmers. Railroads and everybody would benefit.

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Vetch Separator



The machine that will positively separate vetch from wheat, rye or oats successfully.

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Grange.

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

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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.

WORK OF THE NATIONAL GRANGE.

The last few days of the fiftieth anniversary convention of the National Grange were crowded with considerable activity and business-like work on the part of the members. Many resolutions were presented and some that appeared to be important were tabled after considerable debate. Generally summarized the projects that received approval were as follows:

Re-establishment of headquarters of the National Grange in Washington so that the farmers' fraternal body may keep close tab on legislation in Congress vitally affecting it. A committee was appointed to investigate the matter and report at the next convention in St. Louis in 1917.

Embargoes on any products of the soil would be unjust to farmers of the United States, declared a resolution adopted by the Grange. Municipal or state dairies were given unanimous indorsement. In the statements which were made on the presentation of this resolution it was announced that since the municipality or state controls the distribution of water, it should also control the distribution of milk which is believed to be fully as important as water.

Election gambling was severely condemned and a resolution adopted asking federal and state authorities to take such action as they can to stop it.

The initiative and referendum fell under the ban of the delegates when brought up in the form of a resolution endorsing it.

A federal license for commission merchants was advocated in the development of the Office of Markets of the Department of Agriculture.

The Grange announced itself as opposed to compulsory military training in the public schools in a resolution adopted unanimously. The grangers intimated that their opposition extended to the graded schools solely. They did not believe it to be of any particular benefit to the child to give it military training while it was too young to understand it.

The establishment of the Torrens title system in all states was recommended in a resolution unanimously adopted, and the Casey bill for the development of the fuel oil resources of the country, was similarly indorsed.

Comptroller of the Currency John Skelton Williams was commended for his efforts last year in providing money for the movement of the crops, especially the cotton crop of the south and the grain crop of the west.

The Borland resolution in Congress for the investigation of packing houses was approved, and a resolution adopted suggesting establishment of municipal slaughter houses.

Free seeds from the Department of Agriculture came under the ban of the Grange. A resolution was adopted condemning the distribution of seeds as "wasteful and unnecessary."

The Grange urged upon Congress the earliest possible enactment of a law prohibiting liquor traffic in the District of Columbia in connection

with a resolution re-affirming the action of previous national conventions asking for nation-wide prohibition.

A resolution was also adopted calling upon the President and Congress to raise the rate of taxation on large incomes.

GOLDEN JUBILEE OF NATIONAL GRANGE.

On November 18 the formal celebration of the semi-centennial of the organization of the National Grange, Patrons of Husbandry, was held in Washington in connection with the annual convention of the Order. The meeting of the grangers in Washington is regarded as one of the most important in the history of the organization which for the first 25 years of its existence is regarded as having brought about more reforms in the treatment of the farmer by the national and state government and big business interests of the country than any like organization in the history of the United States.

The organization had its birth in Washington fifty years ago. This was due to efforts of Oliver H. Kelley, a government clerk and agricultural expert of the then Interior Department, who was sent on a tour of inspection of the southern states in 1866. Demoralization of agricultural conditions was made the subject of an extensive report by Mr. Kelley, who became convinced that organization was necessary for protection as well as advancement of farmers by the introduction of scientific methods of cultivation.

Associating with him J. R. Thompson, William Saunders, A. B. Gresh, F. M. McDowell, I. M. Trimble, and William M. Ireland, Mr. Kelly organized the National Grange of Patrons of Husbandry. The organization was secret and women were admitted to its membership. The society grew rapidly in numbers. In nine years it had a membership of more than 1,500,000 divided into local, district, state and national Granges.

The activities of the National Grange and its constituent bodies have always been non-partisan, but it has been so intimately associated with movements for the benefit of the farmer and so many of the big reforms have originated with it that the Grange has been accused of excessive political activity on several occasions. The movement which resulted in the creation of the Department of Agriculture, with a cabinet officer at its head, was originated and pushed to success by the Grange, according to its officers. It started early in its career to curb the power of the railroads, to prevent monopolies, to prevent discrimination in railroad rates and prices. It is through its advocacy of these measures that the Interstate Commerce Commission law was passed by congress, the oleomargarine law was enacted, and the Hatch act for establishment of agricultural colleges was passed.

For the latter part of its history the Grange has been largely a social organization, although it maintains a most active interest in welfare of the farmer. The National Grange now has more than 30,000 subordinate Granges throughout the country. At the Golden Jubilee session the Misses Kelly were guests of honor.

The next session of the Order will be held in St. Louis.

GRANGES ORGANIZED AND RE-ORGANIZED.

The following is the number of Granges organized and re-organized from October 1, 1916, to December 31, 1916, both inclusive, as follows:

Organized.
Colorado 11; Illinois 1; Iowa 4; Kansas 1; Maryland 2; Massachusetts 1; Michigan 1; Missouri 1; Nebraska 3; New Hampshire 2; New York 11; North Dakota 1; Ohio 7; Oklahoma 13; Oregon 2; Pennsylvania 9; South Dakota 2; Washington 4; West Virginia 4. Total 97.

Re-organized.
Maine 1; Ohio 1; Wisconsin 2. Total 4.



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For Sale Clay Loam Farming Lands in Houghton County, Mich. easy terms, good roads, good markets. Employment furnished settlers during winter months. Worcester Lumber Co. Ltd., Land Dep't. Chassell, Michigan

101 Acres Excellent sandy loam, level, 2 markets, 3 miles; new 8 room house, basement barn; fruit, close to neighbors. Bargain. Gleason, Farm Man, Greenville, Mich.

RELIABLE information furnished to the homeseeker and investor pertaining to farm lands and the wonderful undeveloped mineral resources of Eastern Oklahoma. Eastern Oklahoma Boosters Association, Muskogee, Okla.

160 ACRES for sale or rent, one mile west of Depot, Milan, Mich. No waste land. Level clay loam, well drained. Price reasonable. Address, Frank Campbell, Box 25, Homer, Michigan

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

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Little Folks, Salem, Mass. (m).	1 00 1 25
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These clubbing prices not guaranteed for any length of time.

The Michigan Farmer is figured in these clubs for three years. If wanted for one year only, deduct 50c; if for five years add 50c.

Veterinary.

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

Bruised Knee and Fore Leg.—I have a young mare that has swollen knee and fore leg is some stocked. She has a nasty habit of pawing and I have thought she bumped her leg against manger, or bruised knee on floor. The bunch in knee is quite hard. C. A. E., Dorr, Mich.—Give her ½ dr. potassium iodide at a dose in feed or drinking water twice a day, and apply one part iodine and nine parts fresh lard to bunch on knee three times a week. This ointment should be well rubbed in.

Indigestion—Looseness of Bowels.—We have a seven-year-old mare that is fed five quarts of oats daily and all the straw she will eat. Her bowel movements are irregular and occasionally she acts as if in some pain. We have been feeding her some stock food and gave her a tablespoonful of raw linseed oil with it. H. B., Kent City, Mich.—You should increase her food supply and change her feed, then she would thrive and do well. Mix together equal parts of cooking soda, ginger, gentian and charcoal and give her a tablespoonful at a dose in ground feed two or three times a day.

Heavy Coat—Clipping Horses.—I have a seven-year-old horse which has the heaviest coat of hair I ever saw on a horse, he sweats all the time; would it be safe to clip him? His coat is very rough and stringy, urine is a yellowish color. He is fed oats, corn and mixed hay. In the morning I find him soaking wet. H. H., Kewadin, Mich.—The writer has owned such a horse as yours and found it necessary to clip him two or three or four times a year, and by doing so the animal kept in good flesh, but seemed to perspire so much when the heavy coat was on, as to weaken and make him thin. Mix together one part ground nux vomica, two parts ground ginger and three parts ground gentian, give him a tablespoonful at a dose in feed three times a day and a teaspoonful of acetate of potash at a dose twice a day until his kidneys act free and he ceases to perspire so much; however, it may be necessary to give this horse some kidney medicine, occasionally, and the last mentioned drug is about as harmless, effective "and not an expensive remedy," as you can give.

Lice on Cattle.—I wish you would tell me how to kill lice on cattle and horses, as we have tried several kinds of dips and lice powder which seemed to have very little effect. So far as I can tell, the cattle lice seem to get on the horses. J. W. B., Levering, Mich.—As you perhaps know, cattle lice reproduce by means of eggs or nits which they fasten to the hair. The blue lice are usually found on the neck and shoulders and the red lice on nearly every part of the body. Nearly all the coal tar preparations, if applied strong enough, will kill cattle lice, so will an infusion of tobacco. Beaumont oil emulsion which is a petroleum obtained from Texas wells always gives good results. Kerosene oil applied properly and not allowed to remain on too long before washing it off, will also kill lice. But, remember, killing a few lice on your cattle don't drive them out of your stable and grooming tools.

Capricious Appetite—Feeding Question.—All my sows and fall pigs seem to prefer to root and eat particles of food or something else they find in filth, in preference to eating clean grain. I have fed some salt, ashes, charcoal and copperas. My hogs are not thriving as well as they should. I am feeding steers weighing 950 pounds which I expect to keep until spring. I feed them corn in bundle night and morning and hay at noon. How much corn per day should each steer have? This is my first experience in feeding and everybody I have consulted has given me different advice. F. C., Saline, Mich.—Mix together one part of powdered sulphate iron, two parts air-slaked lime, two parts ginger and five parts ground gentian and give each hog that weighs 100 pounds or more a teaspoonful in feed night and morning. Your hogs should have a change of feed and if you have any roots, feed them some. Also I advise you to feed some tankage and perhaps some ground bope. Now, regarding the feeding of steers for profit, I believe it is good practice to avoid surfeiting feeding stock; however, the appetite should be thoroughly satisfied and the feeder or caretaker should be the best judge as to quantity. There is a great difference in animals, some of them requiring considerably more food daily than others.

THE MICHIGAN SHORTHORN BREEDERS' ASSOCIATION

Invite you to attend their

SECOND ANNUAL SALE OF

Shorthorn Cattle

Which will be held at

East Lansing on Friday, January 19th.

At 1 P. M.

Consisting of twenty-seven females and twenty good husky young bulls.

Catalogues ready January 1st.

Auctioneers:

Capt. T. E. Robson, Andy Adams
W. W. KNAPP, Sale Manager

We Have a Few Choice Holstein Bull Calves

Sired by Long Beach DeKol Korndyke. His sire Friend Hengerold DeKol Butter Boy. Dam a daughter of Pontiac Aggie Korndyke. She has a 1200 lb. record, 11-31 lb. sisters, 3-1200 lb. sisters. Her dam, a daughter of Friend Hengerold DeKol Butter Boy has 1000 lb. year record. Has 1-30 lb. sisters, 3 sisters above 1200 in year. LONG BEACH FAR 4, AUGUSTA, (Kalamazoo, Co.) MICH.

BREEDERS' DIRECTORY.

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

We Offer a Few Special Bargains In S. C. White Leghorn cockerels, Rambouillet rams, Hampshire pigs (either sex) and Holstein bulls. A good chance for a small investment to reap the benefit of a large expenditure of capital and years of expert breeding.

Flanders Farm, Orchard Lake, Mich.
CATTLE.

Aberdeen Angus Bulls For Sale

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, Wildwood Farm, for the record price of the Breed in Michigan, \$1200. U. L. Clark, Hunters Creek, Mich. Sidney Smith, Mgr.

ABERDEEN-ANGUS

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, Hackney and Saddle Horses. WOODCOTE STOCK FARM, IONIA, MICH.

Aberdeen Angus

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, CLIO, MICHIGAN.

AYRSHIRES—One of the foremost dairy breeds. Calves for sale. White Leghorn cockerels; Duroc Jersey swine. Michigan School for the Deaf, Flint, Michigan.

MILO D. CAMPBELL CHAS. J. ANGEVINE

BEACH FARM GUERNSEYS

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.

CAMPBELL & ANGEVINE,
Coldwater, Michigan.

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 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.

Reg. Guernsey Bulls two gr. sons of May Rose (the \$4600 bull) one 12 mo. old dam May Rose breeding one 6 mo. old, others of serviceable age. Satisfaction guaranteed. Alfred Anderson, Holton, Michigan.

GUERNSEYS: Brad heifers, mature cows, bull calves from a long line of Adv. Reg. ancestors with large record. G. A. WIGENT, Watervliet, Michigan

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.

Cluny Stock Farm

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.

R. Bruce McPherson, Howell, Michigan

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. 6¼ fat daughter of Pontiac Aggie Korndyke who has more 30 lb. daughters than any other living bull. If you do write for pedigree.

EDWIN S. LEWIS, Marshall, Mich.

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 From \$125.00 to \$200.00. Send for list or look them over.

Bigelow's Holstein Farms, BREEDSVILLE, - - MICHIGAN

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.

"TOPNOTCH" Holsteins

By careful retention, for many years, of largest producing females, and use of superior sires, a breeding herds of wonderful quality has been established. We are selling young bulls of this "TOPNOTCH" 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, Sebewaing, Mich.

Holstein Calves, 10 heifers, and 2 bulls 15-16ths pure, 8 weeks old, beautifully marked, \$20.00 each, crated for shipment anywhere. Edgewood Farm, Whitewater, Wis.

At A Bargain: Three fine Registered Holstein heifers, 1 no 2 yr. old in calf, one yearling, one six months. By 24 lb. butter bull, out of excellent A. R. O. Cows. H. M. FERRY, (Rougemont Farms), 418 W. Canfield Ave, Detroit

Holstein Bulls

1 to 9 months old. Dam's A. R. O. Our herd sire is Johanna McKinley Segis 3d. 7 nearest Dams average 27.26 BLISSVELDT FARMS, Jenison, Mich.

OAK LEAF FARM

Herd Sire

Ypsiland Sir Pletertje De Kol

I have several young bulls for sale, good individuals and the kind that is a credit to head any herd at farmers' prices. E. H. Gearhart & Son, Marcellus, Mich., R. No. 4.

Registered Holsteins. Young bull ready for service. 30 lb. breeding. Satisfaction guaranteed. W. B. Jones and J. F. Lutz, Cohoctah, Mich.

A 26 LB. JR. 4-YR.-OLD

A 20 lb. Sr. 2-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.

PEACELAND STOCK FARM, Three Rivers, Mich. Chas. Peters, Herdsman, C. L. Brody, Owner, Port Huron Mich

REG. HOLSTEINS: Herd headed by Albina Bonte Butter Boy No. 33124. Dam's record at 6 yrs. butter 28.53 lbs. milk 619.4. Yearly record at 2½ yrs. butter 802 lbs. milk 18522 lbs. W. B. READER, Howell, Mich

Reg. Holstein Bulls ready for service from 20 lb. four yr. old dams. \$75 each. Dewey C. Pierson, Hadley, Mich. gan.

3 Registered Holstein Heifer calves 8 mo. old nicely marked. \$125 each, \$300 for the 3. J. M. WILLIAMS, North Adams, Mich.

FOUR Heifers and one Bull calf high grade Holsteins nicely marked, \$20 each Express paid or \$95 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



Dairymen! —The Truth

You may be prejudiced against the Jersey because you don't know her. Look her up. She's the Money Cow.

Get This Book—a history of the breed and full of very interesting tests and facts. It proves conclusively that for pure dairy type, economy of production, richness of milk, long life and adaptability to feeds and climates—all these combined—she stands way above them all. This book "About Jersey Cattle" is free. Get your copy now. You'll find it mighty good reading.

The American Jersey Cattle Club
346 West 23rd Street, New York City

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

Maple Lane R. of M. JERSEY HERD offers for sale, tuberculin tested bulls, bull calves and heifer calves carrying the blood of the greatest producers of the breed. IRVIN FOX, Allegan, Mich.

Maple Hill Farm Registered Jersey Cattle for Sale Both sexes. The kind that pay at the pail. J. B. Worthington, R. No. 7, Lansing, Michigan

Jersey Bulls for sale, ready for service. Out of good producing dams. Prices right. R. B. FOWLER, Hartford, Mich.

The Wildwood Farm Jersey Cattle, Majesty Blood. We have Bulls for sale from Register of Merit cows of good type. Write your wants. Alvin Balden, Capac, Michigan.

JERSEYS FOR SALE Young bulls ready for service from R. of M. ancestors. Meadowland Farm, Waterman & Waterman, Packard Road, Ann Arbor, Mich.

Long View Farm Reg. Jersey Cattle Herd sire Ox-Fox. R. of M. record of dam 788 lbs. butter in one year. Moderate prices. C. S. Bassett, Kalamazoo, Mich.

FOR SALE REGISTERED JERSEY BULLS Ready for service. Write your wants. SMITH & PARKER, R. D. No. 4, Howell, Michigan

Hillside Farm Jerseys For sale, seven mos. old bull calf, fine, large, individual whose combined butter production of four nearest dams is 2578 lbs. butter. C. & O. Deake, Ypsilanti, Mich.

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

Bidwell Shorthorns

"For Beef and Milk"

This heifer at 6 months has bone, size and quality—our own breeding. The blood of Scotch bulls, Imp. Shentstone Albino and Imp. Villager Registered stock always for sale.

BIDWELL STOCK FARM, Box B, Tecumseh, Michigan.

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

DAIRY BRED Shorthorns of best Bates strains, young bull 8 months old for sale, price \$150. J. B. HUMMELL, MA SON, MICHIGAN.

Milking Shorthorns. Bulls Ready for Service. DAVIDSON & HALL, TECUMSEH, MICHIGAN.

Shorthorns—Dairy or beef bred. Breeding stock all ages for sale at farmers prices. C. W. Crum-Say, Ont. Mich. Shorthorn Breeders' Assn. McBride, Mich.

MAPLE Grove Shorthorns for sale. Herd bull King George 381646 a son of Roan Sultan 99155, also calves of both sex. David Murphy, Cass City, M. ch. R. No. 1.

Two Shorthorn Bulls for sale, 9 and 10 months old. Price right. For particulars address J. E. Tanswell, Mason, Michigan.

SHORTHORNS FOR SALE
8 Bulls, also females. W. B. McQuillan, Howell, Mich.

Shorthorns For Sale. Young bulls \$100. Bred cows, and heifers \$150 for quick sale. Write W. J. BELL, ROSE CITY, MICHIGAN.

FOR Sale—Reg. Short Horn Bulls by Maxwalton F. Monarch 2nd, a son of Avondale, from 11 to 13 mos. old. John Schmidt, Reed City, R. No. 5, Michigan.

50 Herefords BOTH SEXES ALL AGES
EARL C. McCARTY, Bad Axe, Michigan

Red Polled. For sale, two registered bull calves. For description & prices, write to WILL COTTELE, West Branch, Michigan, R. F. D. 1.

Cattle For Sale
2 Loads feeders and two loads yearling steers. Also can show you number 1, 2 and 3 years old from 600 to 1200 lbs. Isaac Shanstun, Fairfield, Iowa, R-8.

GRADE bull of good breeding by a direct descendant of the King of the Pontiac's. His dam gave 25 06 but-terfat 4 years. Ollus Berkompas, Box 55, Rudyard, Mich.

HOGS.

Durocs and Victorias
Heavy bone, lengthy Spring Boars and Gilts from prize winners sired by one of the best Sons of the Great Defender & other noted strains. M. T. STORY, Lowell, Mich.

Swigartdale Farm Berkshires

Home of the greatest show herd in the State. Stock of all ages and both sex for sale, including some of the winners at the State Fair, write us for particulars and let us tell you about them and our

HOLSTEIN BULLS

some of them old enough for service, sired by "Maplecrest Korndyke Hengerveld" (the Bull with the best yearly record backing of any sire in the world) and "G. & B. Segis Ulrica Pledge 108790," all from A. R. O. Dams with good records and the best of breeding, one very fine Grandson of the

FIFTY THOUSAND DOLLAR BULL
out of a 27.39-lb. dam, all stock guaranteed to be just as represented and a credit of six months will be given to responsible parties.

SWIGARTDALE FARM,
Petersburg, Mich.

FOR SALE

Young Berkshire boars, registered, ready for service. Dam is a great granddaughter of the World's Champion Premier Longfellow 68600. J. T. Grimason, R. 3, Clare, Mich.

The Very Finest Berkshire Pigs Cheap
C. S. BARTLETT Prop., Pontiac, Michigan

Berkshires, Boars, serviceable age, best blood lines. Registered. ELMHURST STOCK FARM, Almont, Mich.

Berkshires: Mature sows, yearling and spring gilts bred for spring farrowing at 12c per pound. Shipped on approval. B. B. Reavey, Akron, Mich.

Duroc Jersey

We still have 7 choice boars for sale. Sired by our Michigan Masterpiece No. 2885. Sent for pedigree. You will be more than pleased. Prices Reasonable. THE JENNING'S FARMS, R. F. D. 1, Bailey, Mich.

FOR SALE

1) 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.

DUROC SOWS

40 head good growth young sows and gilts bred for early Spring farrow to two of the best big type young boars in the state. Free livery for visitors. NEWTON BARNHART, ST. JOHNS, MICH.

J. W. KEENEY, Erie, Mich. Gilts bred for April farrow. Bred by Duroc Swine. D. M. & T. local from Monroe or Toledo, Keeney Stop.

Two June 1915; 12 April 1916
Duroc Jersey Boars Write for description. I guarantee satisfaction. J. H. Banghart, East Lansing, Mich.

For Sale, Duroc Jerseys, choice breeding spring pigs either sex. Prices right. John McNicoll, Station A, R. 4, Bay City, Mich.

Duroc Jerseys Big Type Boars with breeding and individuality that is hard to beat, bred from prize winning stock, prices reasonable, satisfaction guaranteed. F. J. DRODT, R. 1, Monroe, Michigan

Duroc Jerseys 30 bred gilts for sale priced to sell. **Hastings, Mich.**
Carey U. Edmonds.

BOARS are all sold. Durocs, a few April gilts, will be bred for Apr. farrow, weight about 175. Price \$25 while they last. H. G. Keester, Cassopolis, Michigan.

Duroc Boars, A fine lot of spring boars bred right. W. C. TAYLOR, Milan, Michigan.

Duroc Jersey Spring boars with the best of breeding and individuality; also a few choice spring gilts. E. D. Heydenberk, Wayland, Mich.

Duroc Jerseys A nice bunch of gilts, bred or open, some good serviceable boars. Also fall pigs. Wm. W. Kenney, Grass Lake, Michigan.

Duroc Jerseys Choice fall pigs either sex. \$15, \$18, \$20. Reg. & Del. anywhere in State. Fine Stock. J. R. HICKS, St. Johns, Mich.

DUROC Sows, Spring gilts, Aug. Boar Pigs, Sept. Pigs either sex, Percheron Stud Colt six months old. E. J. Aldrich, Tekonsha, Mich.

Duroc Sows 25 beauties bred to grand big boars at Auction Feb. 12th. Some splendid fall boars. Orlis L. Dobson, Quincy, Michigan.

O. I. C. SWINE: 20 gilts due to farrow 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, Dor, Mich.

CHESTER WHITES Gilts bred to farrow in Feb. or March. Fall pigs. Write for particulars. F. W. ALEXANDER, Vassar, Mich.

Parhams' Pedigree Stock Farm offers: Reg. C. W. Boars, Bred Gilts, Fall Pigs, Reg. A. R. O. Holstein Cows, Male Calves. Show Bull ready for service, price \$25. R. B. Parham, Bronson, Mich.

O. I. C's. 4 last fall boars big growthy ones, also last spring pigs. Farm 1/2 mile West of depot. **Nashville, Michigan**
Otto B. Schulze.

THIRD ANNUAL SALE MICHIGAN HORSE BREEDERS' ASSOCIATION

East Lansing, Mich.

JANUARY 19, 1917

Live Stock Pavilion 10 A. M.

30 Head Registered Draft Horses,
mostly Percheron.

22 Head Females 8 Stallions

These Horses are sound and right. Have been accepted only after inspection. The consignment is made up of mares in foal, weanling colts, and stallions old enough for service.

Catalogues ready January 1st.

R. S. HUDSON, Secretary-Treasurer
East Lansing, Michigan.


Duroc Jersey Boars

Special Offering of High Class Fall Boar Pigs. Breeding and Individuality good enough for breeders who appreciate the best.

Also some good farmer's boars. This is the best lot of fall pigs we have ever had to offer. A cordial invitation is extended to visit the farm and inspect the stock. If you wish one of the best young Jersey bulls in Michigan we have him for sale. For further particulars, address,

Brookwater Farm, Swine Dept., Ann Arbor, Mich.

Raise Chester Whites
Like This
the original big producers



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

O. I. C. Stock all Sold
JULIAN P. CLAXTON, Swartz Creek, Mich.

CHOICE BRED GILTS Bred to Big
Price \$6000, sired by Wildwood
Price \$110 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 either sex, sired by Crandells Wonder, Grand Champion at Ohio State Fair, Schoolmaster the champion of champions and highest price ear of the breed and others. Get a sow bred to Gallaway Edd Grand Champion Mo. State fair, we are booking 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. Serviceable Boar's, Gilts bred for March and April farrow. Prices reasonable. H. W. MANN, Dansville, 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 akin. Will ship C. O. D. Newman's Stock Farm, Marlette, Mich., R. 1.

O. I. C. Choice Spring gilts not bred and spring boars. Out of Prize winning stock. Write for low prices. A. V. HATT, Grass Lake, Mich.

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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.

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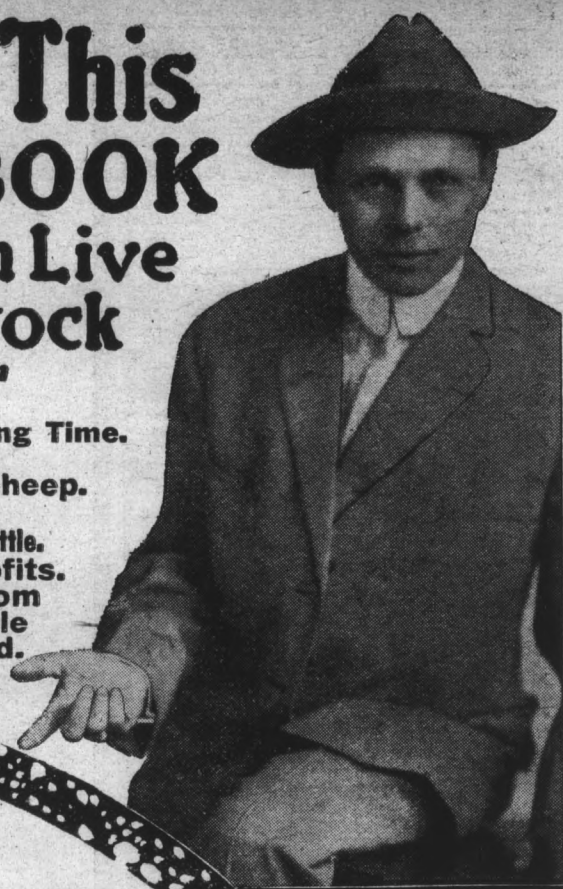
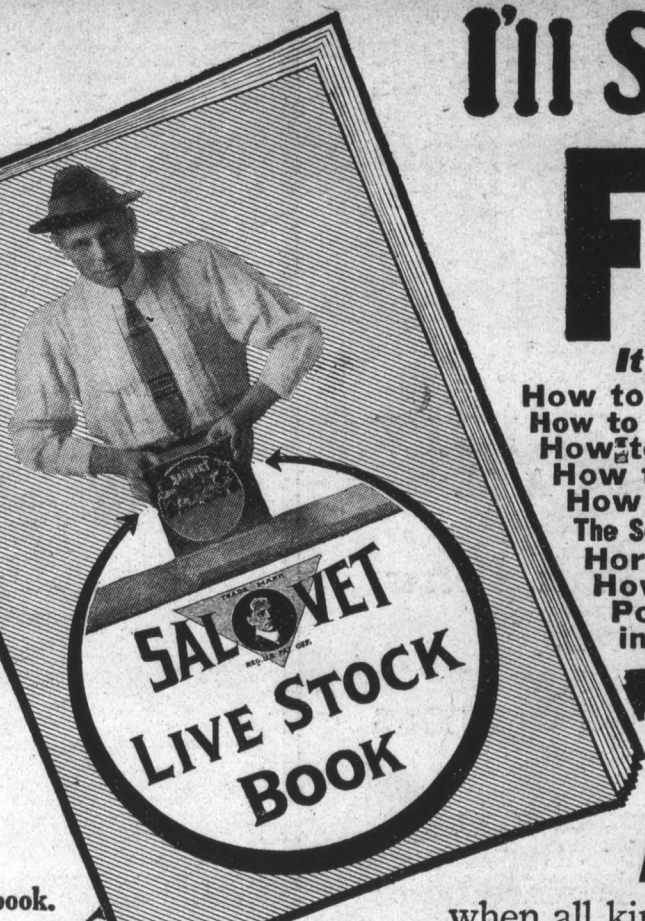
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