

MICHIGAN FARMER

AND
LIVE STOCK
PUBLISHED WEEKLY.

JOURNAL
ESTABLISHED 1843.

VOL. CLVI, No. 2
Whole Number 4130

DETROIT, MICH., SATURDAY, JANUARY 8, 1921

ONE YEAR \$1.00
FIVE YEARS \$3.00

The Farmer and the Public

Congressman Lever Outlines Relationship of Organized Agriculture and Other Industries

AGRICULTURE is the greatest of all professions, involving the labor of forty-nine per cent of our people, and \$25,000,000,000 of capital inter-related with all other business. The problem of transportation, railroad, water and oceanic, is a problem of agriculture, as well as of commerce. Banking, national and international, is of the utmost concern to the man back on the farm. Whether the longshoreman of New York harbor, or the miners of West Virginia, or the railway engineers of the Pennsylvania Railroad shall strike or not strike, are matters of direct concern to the Iowa hog producer.

Whether hog cholera, cattle tuberculosis, boll weevils, corn borers, or gypsy, or brown-tail moth shall go unchecked, are matters of vital concern to the "dandy" of Broadway, who imagines his mercerized cotton shirt is genuine silk.

The sooner the country awakens to the fact that this is a business that concerns everyone, in every profession, the sooner will we find ourselves in position intelligently and rationally to approach a solution of agricultural problems.

Business and professional men have not, in the past, given thought to the problems of this great class of our population. On the other hand, agriculture itself has been, in a measure, responsible for this condition of mind. Farm organizations heretofore have in more or less degree been secretive and have undertaken to solve their problems through grips, secret passwords and secret signs. These have not solved our problems and perhaps never will.

The banker, who does not realize the true relationship of the prosperity of his bank to the prosperity of agriculture, is not a banker, but a pawnbroker, and no true banker is unwilling to lead his business experience in solving the business problems of agriculture.

The American farmer, per capita, is the best producer in the world. As a salesman and financier he is an abject failure. This is not unnatural. Most of us cannot do more than one thing well.

This suggests selling organizations in the

hands of strong business and well-trained men, to place upon the markets of the world the products of the farm upon the most favorable terms. This means domestic organizations for the domestic trade and export corporations for the foreign trade.

Anyone who has followed a bushel of wheat from the planting of the seed until it reaches the hands of the ultimate consumer, is impressed with the fact that the one outstanding, big problem of agriculture is not increased production, but is one of increased efficiency in the marketing of things produced. We are an exporting nation, so long as we continue to be such, the problem of production is not pressing and, too, produc-



tion will take care of itself if a system of marketing is devised, which assures a reasonable profit upon the investment to the farmer.

Profitable agriculture, through efficient marketing, means constant and sufficient production for domestic needs and for export purposes. Folks leave the country for the town because they believe that the town furnished more in the way of actual profit, in money and comfort. We do not leave graveyards and traditions for fun, but for profit.

But, any study of a solution of the problem of marketing brings you to the real difficulty of the farmer's situation, viz., a lack of money or credit, with which to do it.

It takes twelve months to prepare for,

seed, cultivate and market an ordinary agricultural product. The present lack of system of marketing, or more accurately, the lack of a system for financing marketing, forces seventy-five per cent of agricultural products upon the market in four months, with the resultant autumnal dip in farm prices. An orderly system of marketing would carry the distribution period over twelve months. This cannot be accomplished under the present credit machinery. Do not forget that the reserve act is essentially for commerce and industry and must deal in quick-maturing paper, while the present farm loan act offers for sale paper with a maturity of thirty-four years, or longer. What

we want, and must have, is a piece of credit machinery peculiarly adapted to the handling of paper with a maturity which synchronizes with the period of growth and distribution.

The task is not impossible. By the application of the principles of business already operating successfully the thing can be worked out. The plan proposed involves the standardization of staple agricultural products of a warehouseable character into grades and classes, the building up under federal and state regulation and inspection of a system of bonded warehouses and elevators for such products, the issuance of uniform elevator or warehouse receipts for a given product, the pooling, regionally, of these warehouse

receipts in the hands of a government appointee, and the issuance against these pooled warehouse receipts of a certificate, debenture or bond and the selling of the same to the investing public at such rates of interest as such collateral will command.

What is a government bond? It is the printed evidence of the power of congress to tax the assets of all the people to redeem the bond. What is a farm loan bond? It is the evidence of the fact that a farm loan registrar—a government appointee—under bond, holds in trust farm loan mortgages sufficient in value to redeem this bond at its maturity. What is a railroad bond? An evidence of indebtedness issued against the pooled assets of the company. If the government undertook to (Continued on page 28).

The Michigan Farmer

Published Weekly Established 1843 Copyright 1921

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One Year, 52 issues \$1.00
Two Years, 104 issues \$1.50
Three Years, 156 issues \$2.00
Five Years, 260 issues \$3.00
All sent postpaid
Canadian subscription 50c a year extra for postage

RATES OF ADVERTISING
55 cents per line agate type measurement, or \$7.70 per inch (14 agate lines per inch) per insertion. No advertisement inserted for less than \$1.65 each insertion. No objectionable advertisements inserted at any time.

Member Standard Farm Papers Association and Audit Bureau of Circulation.

Entered as Second Class Matter at the Post Office at Detroit, Michigan, Under the Act of March 3, 1879

VOLUME CLVI. NUMBER TWO

DETROIT, JANUARY 8, 1921

CURRENT COMMENT

This Year's Seeding Problems

ONE of the problems confronting farmers in many parts of the state is that of seeding more land to clover and grass crops. As a result of our efforts to maintain maximum food production for the past few years we now find that our meadow and pasture lands have been woefully neglected. It is going to take time and skillful management to restore some of these lands to their former state of productivity. Fortunately clover and grass seeds are lower in price and more plentiful than they have been in several years, and prices of general farm crops have reached a level where it would seem that this spring would be a favorable time for us to set about the problem of getting our meadow and pasture lands back to their former productive condition.

On farms where one is reasonably sure of securing a good stand of red clover or alfalfa the problem is comparatively easy to solve, but on farms where some of the land is rather low and heavy, or on uplands where the soil is slightly acid, many farmers will find alsike clover an insurance against failure from excess moisture or lack of lime. When red clover seed is high in price alsike can be substituted on many soils. The seed is often cheaper, and being smaller than that of red clover, less is used to the acre.

This year, at any rate, farmers can well afford to make a careful study of their soil and the condition of their clover and grass crops, and plan their seeding methods so that they will be reasonably sure of getting good stands of some kind of clovers and grasses. Even with alsike clover higher in price than red clover many farmers, who have little trouble in securing good stands of the latter, prefer to use two quarts of alsike per acre in their red clover and timothy mixtures. Alsike makes the very best quality of hay; better than red clover, where each is grown without the other, or the admixture of other clovers or grasses, though where red clover thrives best it will give a heavier yield. Where the best hay for stock feeding is required alsike shows up to best advantage as part of a mixture including red clover and timothy. Likewise where the best pasture is required alsike makes a valuable addition to the pasture seed mixture, and it often gives good results in spots too wet for other clovers and grasses to make good stands.

One of the great advantages of alsike clover as hay is that it is finer stemmed than is red clover, for this reason stock clean it up better. Where breeds in their immediate neighbor-

hoods. It is a hopeful tendency. Many mixture alsike adds to the weight of the crop in addition to improving the quality. Chemical analysis of alsike compared with that of red clover, shows the former higher in protein and carbohydrates and containing 1.36 fat to the 1.81 fat in the red clover.

The rates of seeding alsike in mixtures with red clover and timothy, either or both, vary in different sections, from a mixture of one quart of alsike to five of red clover and five of timothy to five quarts of alsike to one of red clover and five of timothy. However, where hay for feeding to all classes of stock on the farm is required, and where the land has a few low spots, one can play safe by allowing about equal quantities of red clover and alsike to about twice the amount of timothy. Too often it would seem the alsike is left out entirely or appears in too small proportion in our clover and grass seed mixtures.

Keep Up the Social Meetings

THE social phase of farmers' organizations has ever been an important influence in farm communities. This social influence of the Grange has been one of the important factors of its activities. The Farmers' Club as developed in this state, has been almost wholly a social organization. The Gleaner organizations have satisfied a similar social need within the ranks of their membership.

The better acquaintance and mutual understanding developed among the people of the communities in which these organizations have been most active in our state have added much to the enjoyment of their members. The educational benefit resulting from the programs which have been carried out at their meetings has also been a potent influence in the development of a better citizenship and a lasting benefit to the community and state.

While the recent development of farmers' organizations has been almost wholly along business lines, as is the case with the farm bureau, it is a matter for sincere congratulation that general interest in the older organizations in which the social factor has been a strong or predominating element has not waned among their membership. The recent meetings of the State Grange and the State Association of Farmers' Clubs have demonstrated that fact. These older organizations have filled an important social need in the lives of their members. They have also been of direct or indirect economic benefit to their members which is out of all proportion to the cost of membership in them. The further development of these useful organizations should not be hampered by the development of another purely business type of farmers' organizations. Their social advantages should be fully appreciated and enhanced and their economic benefits should be promoted. The membership of these organizations should keep up their interest and stimulate the interest of the younger people of the communities in them. They have done a great work in our state and can continue to fill a vital need in the agricultural life of the community and the state which the purely economic type of organization cannot accomplish.

The Neighborhood Customer

BREEDERS of registered live stock who neglect to place as many of their good animals as possible among the farmers of their own community, are overlooking the most promising field for present and future trade. The time for such a policy is past, and there is a growing inclination on the part of breeders to give due consideration to local patronage—to building up their favorite reason stock clean it up better. Where breeds in their immediate neighbor-

hoods. It is a hopeful tendency. Many mixture alsike adds to the weight of the crop in addition to improving the quality. Chemical analysis of alsike compared with that of red clover, shows the former higher in protein and carbohydrates and containing 1.36 fat to the 1.81 fat in the red clover.

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STATE FARM BUREAU NEWS.

THE State Farm Bureau is distributing this week a notice to every County Farm Bureau to send a representative of the dairy industry to a meeting on January 10 when a committee will be elected to proceed with the organization of the new dairy department authorized by the executive committee at its last meeting.

The traffic department is sending out a notice this week to the effect that shippers should not be charged freight on the weight of the lining and false floors of cars except on the return shipment. It cites rules from the Perishable Protective Tariff substantiating its statement.

In sending its New Year's greeting to farm bureau members the purchasing department states that \$20,000 is a conservative estimate on the amount of money saved to members since November 1 through its cooperative purchasing.

The Elevator Exchange, started October 20, has handled 301 cars of grain. It now has forty member elevators signed up.

Forty-two counties are now members of the seed department. Business has almost overwhelmed the department. They have had to be furnished with large areas of office space. A new scarifier machine has just been installed and a second cleaning machine of the largest and most modern type has been ordered while the necessary carpenter work in the building is being done preparatory for installation.

At the recent meeting of the Michigan State Horticulture Society held in Grand Rapids, a committee was appointed to confer with the State Farm Bureau in regard to cooperating in the purchasing of insecticides and fungicides for the exchanges and associations of the state. That committee recommended that the farm bureau be empowered to act as purchasing agent for the various associations in conjunction with a committee of two from the cooperative fruit exchanges and one from the cooperative potato growers of the state. The committee also asked exchanges to furnish the farm bureau a list of their requirements in insecticides and fungicides on or before January 10. The State Farm Bureau has informed the associations of this arrangement and is already receiving the collected orders, both from fruit growers' associations and County Farm Bureaus.

News of the Week

Wednesday, December 29.

RUMORS indicate that the armies of Soviet Russia are being made ready for a campaign along the western frontier.—Free interchange of traffic between railroads of the United States and Mexico will be resumed on January 1.—A suspension of the blockade of Fiume by Italian troops is ordered while envoys consider terms of peace.—Uncle Joe Cannon, representative from Illinois, establishes a new record in the United States Congress for length of service, which approaches the end of his forty-fourth year in the house.

Thursday, December 30.

AN agreement between Fiume and Italy is practically completed.—Germany is asking for permission to retain heavy guns on the eastern frontier to defend herself against Bolsheviks of Russia.—Japan is anxious over contracts between Russian Soviet government and American interests.—Shoe dealers and manufacturers announce that shoe prices have been reduced one-third.—A movement calculated by its promoters to place British organized labor in support of the Irish self-determination claims begins with a special conference at London.—State authorities in California refuse to honor papers of a Japanese land corporation which were submitted for entry.

Friday, December 31.

DURING recent reorganization of the Russian government, Trotsky is reported to have lost control of the army.—Great Britain will delay entering into an alliance with Japan until the Harding administration comes into power in the United States.—President Wilson vetoes railroad bill, thus breaking up interlocking corporations with common carriers.—The population of France has been reduced four million since the outbreak of the war.

Saturday, January 1.

ALEXANDER J. GROESBECK is sworn in as governor of Michigan.—Berlin reports that the German army has been reduced to 96,000 men.—On account of his illness, President Wilson is obliged to dispense with the usual diplomatic courtesies on New Year's Day.—Negotiations between German and American business men for reviving the potash trade are being continued.—The Central American countries, through diplomatic agents, are inviting United States financial concerns to establish branch banks in those countries.

Sunday, January 2.

SPEAKING before prominent citizens of Uruguay, Secretary of State Colby urges closer harmony between the United States and South American nations.—Six men are instantly killed near Cleveland when a train hits an auto in which the men are riding.—A joint program of control of the Pacific under the United States and Canada is sanctioned by Canada and other British dominions.—Bethmann Holweg, former German imperial chancellor, dies on his estate near Berlin.

Monday, January 3.

THE disarmament of D'Annunzio's forces in Fiume starts.—The Bolivian national assembly elects Fernand Alonzo president of the republic.—Fourteen persons were killed, three hundred injured, and ten thousand made homeless by an earthquake which nearly obliterated the city of Elbassan, Albania.—The United States naval seaplane NC-5 flies 702 miles in nine hours and fifteen minutes without stopping, thereby establishing a new American record.

Tuesday, January 4.

THE United States Senate overrides President Wilson's veto of the resolution to revive the war finance corporation, by a vote of 53-5.—From the wreck of the Spanish steamer Santa Isabel on the coast of Spain, 155 dead have been taken.—The capitol building of West Virginia at Charleston is destroyed by fire.—It is rumored that Roumania is making preparations to oppose the western advance of the Bolshevik troops of Russia.—The United States Supreme Court holds in a decision just handed down, that labor unions or their members are accountable under anti-trust laws where they depart from their normal and legitimate objects and engage in actual combination or conspiracy in restraint of trade.—Germany replies to French disarmament note that it is impossible to live up to the letter of the convention entered into at Spa and gives proof that this cannot be done.

Hog Growing on Michigan Farms

POSSIBILITIES for breeding and feeding hogs differ on different farms here in Michigan. In some localities, with special farming conditions, it would be unwise to encourage pork production. The potato grower or small fruit grower would undoubtedly find it unprofitable to feed more than two or three hogs. Dairy farmers who sell milk to the city trade or condensary, seldom find it profitable to feed many hogs. Farmers who dislike hogs, even though they may raise a surplus of feeds, should not invest in breeding stock. One who cannot become sufficiently interested in the undertaking to give his hogs good care and raise suitable feed crops to meet their growing requirements should stay out of the business entirely.

On most farms where appropriate feed can be grown any farmer who has more than fifty acres of land can make some profit by keeping one or two good brood sows and growing enough hogs for home consumption and feeding a small bunch to sell every year. If the land will produce good crops of corn, oats, barley, alfalfa, clover, rape and natural grasses it will pay to feed a few hogs. In localities where the corn crop frequently fails to mature sufficiently to furnish sound ears, oats and barley will help wonderfully in keeping down the cost of finishing the pigs for market. Profit with hogs on a small farm, or on any sized farm for that matter, depends upon feeding only as many animals as the farm will carry without going out and buying expensive grain feeds.

Men who have succeeded in making satisfactory profits producing hogs by the carload may smile at this conservative advice. But those who have small farms, and have never been up against declining markets and buying high-priced grain feeds, will find it more profitable to keep fewer hogs and make more economical use of their waste feeds and green forage crops.

"Not enough hogs to make it worth while," some of our successful hog feeders may say. But farmers here in Michigan will find it more profitable to play the game safe and feed a few cattle and sheep and grow one or two cash crops. A specialized hog business in a climate where corn is not sure to mature a fair crop of sound ears is going to run up against a tough snag. And nothing will discourage the average farmer more than to purchase high-priced grain feeds for animals that cannot return any profit from them. Not that hogs cannot pay a profit on purchased grain feeds under favorable conditions, but the fact is that during the years of partial crop failure the hogs usually become unthrifty before the fattening period; and feeding high-priced purchased grain feeds to unthrifty hogs is always discouraging to a farmer.

Success with hogs depends on feed-

ing a type of animal capable of making the most pork from a given quantity of feed. The leading breeds of swine have been bred with this idea in mind until the farmer can find the desired type and still feed the breed that appeals to his personal whims, so far as color and general characteristics are concerned. It has been thoroughly demonstrated that the small, very compact hog is not the most profitable medium for converting farm feeds into pork. Feeders know that these small, fat pigs seldom top the market, but that, in most instances, a type showing good length, with proportionate depth of side and with loin of satisfactory

With the number of breeders of pure-bred swine in Michigan who are producing animals of the large, profitable type, it is not difficult for one to find young sows that measure up to the above requirements. Such hogs are capable of utilizing a larger proportion of cheap feeds along with the more expensive grain feeds than those of the smaller, more "chuffy" type. They will not mature so early, but they will make more rapid growth and return a larger margin of profit.

Sows of the large, growthy type will voluntarily take more exercise, which makes for the development of strong lungs, muscles and digestive organs.

One of the most important factors in brood sow management is that of bringing them up to good flesh condition before the breeding season and furnishing them with an abundance of blood, bone and muscle-building feeds after they are safe with pig. Liberal rations of suitable feedstuffs are needed to develop the unborn pigs and maintain the body vigor of the sow.

Properly used in combination with suitable protein feeds corn is one of the best feeds for pregnant sows. At present prices, corn and oats, equal parts by bulk, ground, supplemented with one pound of tankage for each ten pounds of grain mixture, will prove a safe and economical ration. When clover or alfalfa hay is available it may be fed to a limited extent, but hay can never be made to fill satisfactorily the place of more concentrated protein feeds in the ration.

It is always important to have the sows in good flesh condition at farrowing time, and it is equally important to feed them enough bulky and succulent feeds to prevent constipation. Roots fed in small quantities will prevent constipation and promote the health and vitality of both sow and pigs. Avoid decayed and frozen roots or tubers, and feed small quantities daily, as too heavy feeding has a tendency to upset the sow's digestion and cause weak or dead pigs at birth.

Cutting Down Feed Costs.

Another big factor in the management of the sows and pigs is that of planning the methods of feeding so that one may make the best possible use of cheap feeds and forage crops during the first few weeks of the pig's life. If the litters come early in March they will be large enough to make profitable use of the first early grazing. This will help out during the weaning period, and lessen their demands on the sow for nourishment. Successful breeders of purebred swine as well as commercial hog growers are coming to recognize the wisdom of having some kind of pasture crops ready for the sows and pigs as soon as weather conditions are favorable to turn them out in the spring.

Pigs at eight or ten weeks of age are just at the most critical period of their lives. As a rule they will make profitable market hogs only when they are weaned without checking their growth. With some kind of green forage crops and self-feeders where they can eat corn, wheat middlings and tankage they will go through the weaning period and scarcely miss the milk they are getting from the sow when she is removed. Pigs that have plenty of forage and supplemental feeds will

Status of the Hog Grower

BREEDERS and feeders of hogs are experiencing the results of a falling off in export trade due primarily to the depreciation of foreign currency. This has put American meats beyond the reach of European consumers. To further aggravate the situation, home consumption of pork products has been curtailed by enforced conservation. Domestic consumers have acquired the habit of eating other meats, and using cheap vegetable fats as substitutes for lard.

Whether or not the future demand from European countries is going to relieve the situation is a question that depends upon their capacity to develop a purchasing power sufficient to take our surplus for several years, but such purchasing power must be based on credit that can only be arranged through American financial institutions. The packer cannot put our pork products on foreign markets until he can get real money for them.

Getting back to a normal basis within the next few months is not to be expected. We are sure to experience wide fluctuations until foreign exchange becomes stabilized and home consumption increases. The hog grower, in common with producers of other commodities, must accept the risks and uncertainties inseparable from production. Many hog growers believe that the government should fix a definite price which would put the business on an assured basis of profit. But such a movement would surely result in an over-production, and thus defeat the object sought.

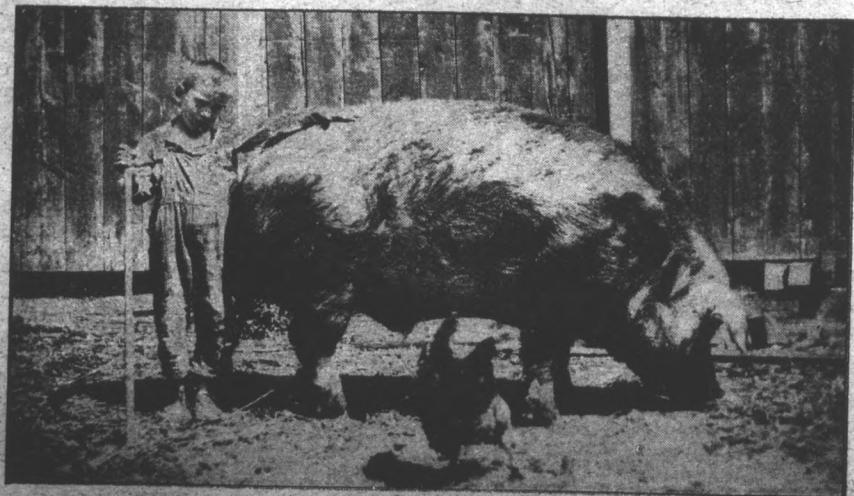
Eventually, pork production is going to adjust itself to the new prices and conditions. In the meantime the hog grower will make no mistake if he conducts his business along conservative lines, improves his breeding stock and perfects economies in feeding and herd management. Doubtless many hog growers are discouraged and will cut down production during the coming year, but the industry is sure to continue to be one of the prosperous branches of American agriculture. More hogs of less weight which will furnish light loin, breakfast bacon and small hams which our trade will take at a premium, will increase consumption and prevent a surplus of rough meats being placed on our markets at bargain prices.

breadth, is the kind that bring home the "high dime" on the market. Hogs of this type can be fitted for market on cheaper rations than those that carry a larger proportion of fat to lean meat. Incidentally, they produce less fat, and at present prices of various fat substitutes the feeder of hogs cannot compete successfully with manufacturers of vegetable fats. This is a factor that hog feeders of the future must consider if they are to make satisfactory profits from their business.

Such sows bred at nine or ten months of age will attain a weight of three hundred to four hundred pounds, and be in good condition at the time they farrow their first litter of pigs. They are the only type that may safely be bred to farrow their first litters at so early an age without retarding their future development.

Management of Brood Sows.

Unless one can purchase suitable brood cows from some breeder who has a reputation for growing them



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go through the period without a check. With such a variety of green feeds it is a comparatively easy matter to provide suitable grazing for hogs throughout the growing season. In the majority of cases a partial system of grazing and growing soil-improving crops will prove more desirable than trying to force the hogs to clean up the crops. Hogs will not make satisfactory gains on any kind of forage unless it is tender and succulent. It is always better to have a succession of suitable crops, unless one has an abundance of alfalfa on land where its growth is an assured success.

Finishing for Market.

In these days of scarcity of farm labor a considerable saving may be made by allowing the pigs to harvest a portion of the corn crop. If they have been well-grown during the spring and summer months they will be in good condition to turn into the corn fields as soon as the crop is fit for feeding. Experienced feeders recommend hav-

On most Michigan farms soil and climatic conditions are favorable for growing rye, oats, alfalfa, clover, peas, rape and various kinds of grasses.

ing a field of alfalfa or rape adjoining the corn field. Either of these feeds when grazed along with the corn balances up the ration and produces more pounds of gain than when the corn is fed alone.

The "hogging-down" scheme is so profitable that many farmers arrange their feeding season so as to extend the length of time during which the hogs can harvest the corn crop. By planting a few acres of early-maturing corn they find it possible to put the pigs at work two or three weeks before the main crop is ready. This early corn usually yields less than the late crop, but the extra pork per bushel more than makes good the difference in the yield. By discussing the methods practiced by successful hog growers and watching operations of farms where the hogs are used for harvesting the crop almost any farmer can work out a system that will meet the conditions on his own farm.

Modifies Federal Warehouse Act To Farmers' Needs

By E. E. Reynolds

THE United States warehouse act is the best law that has been enacted for the farmers, the warehousemen and the bankers, in a long time, and its beneficial results are obtained without injuring anyone, said H. K. Holman, investigator in warehousing in the Department of Agriculture, in an interview. At this time when the attention of the people is directed to better marketing and financing problems of the farmer, it is the belief of Mr. Holman that much publicity should be given to the act and its provisions.

The federal warehouse act became effective in 1916 and was amended to meet the market requirements and extend its usefulness in 1919. During the war little progress was made in developing the system provided for by the warehouse act, beyond the building up of machinery to enforce it and prepare regulations and forms to be used.

In 1918 the cotton section began operations, and a field office was established at Atlanta. Today there are 221 cotton warehouses in the south operating under the act. The grain section got into action a year ago. There are now fifty-nine bonded grain warehouses scattered from the Atlantic to the Pacific coast. The wool section, which began operations last July, has issued five licenses, four to a large Chicago concern that has approximately one-eleventh of the entire wool clip of the country stored in its warehouses. The tobacco section will begin operations in January. In addition to these warehouses operating under the act, there are about five hundred applications on file awaiting action. The work is greatly hindered by lack of funds to engage the necessary help. All is being done that is possible with the means provided.

THE United States warehouse act provides for the licensing of warehouses under bond in which are stored such agricultural products as cotton, wool, grains, tobacco and flaxseed. In securing a license each warehouseman agrees to comply with and abide by all the provisions of the act. The issuing of licenses is done under the authority of the secretary of agriculture and the enforcement of the law comes under this department.

Each warehouseman is compelled when applying for a license to give sufficient bond to the United States to secure faithful performance of his obligations as a warehouseman, and the bond shall contain such terms as are prescribed by the secretary of agriculture. Any person injured by the

breach of any obligation under the act shall be entitled to sue on the bond in his own name in any court.

Every warehouseman conducting a licensed warehouse obliges himself to receive for storage therein, so far as its capacity permits, any agricultural product of the kind customarily stored therein which may be tendered to him in a suitable condition for warehousing, without making any discrimination between persons desiring to avail themselves of warehouse facilities. These products are to be inspected and graded by a person duly licensed to grade. The warehouseman is obligated to keep the products of each depositor so far as to permit the identification and delivery of the product deposited, but if authorized by agreement or by custom he may mingle such products with other products of the same kind and grade.

For all products stored for interstate or foreign commerce, in a licensed warehouse, receipts are issued by the warehouseman, but no receipts can be issued for any agricultural product unless actually stored in the warehouse at the time of its issuance. The receipt shows the amount, kind and grade of the product deposited, the grade and weight being determined by a licensed inspector and weigher. The secretary of agriculture is authorized to establish standards for agricultural products by which their quality or value may be determined.

Mr. Holman says there are 60,000 warehouses, elevators and mills in this country that are eligible to come under the warehouse act. The less than 30,000 banks are the custodians of the people's representative wealth; the licensed warehouses become the custodians of the real wealth of the nation.

IT has been found by investigations extending over a period of twenty years that in normal times seventy-five per cent of the farm crops are marketed during the first five months after harvest, and that the prices of these products range highest during the other seven months. It is the purpose of the warehouse act to provide a safe storage for farm products in the producer's hands until they can be marketed in an orderly manner throughout the year, thereby enabling the producer to secure the benefits of the higher prices during the seven months preceding the harvest.

The licensed warehouse is not going to hurt any honest warehouseman, but is a safeguard for the producer, and

provides the bankers good collateral in the warehouse receipts. George Livingston, chief of the Bureau of Markets, says: "The warehouse act was primarily designed to aid producers and warehousemen in financing the orderly marketing of agricultural products, but in the actual application of the act it develops that bankers are no less benefited since they are provided with more reliable paper as security for the loans which they make on the security of stored agricultural products. The strengthening of credits is always of paramount importance to the financial world and no banker should overlook the opportunity to aid in bringing this about whenever possible."

Mr. Holman says that bankers in the farming districts who are in touch with the producers and in sympathy with their movement for better marketing facilities, are strong for the warehouse act. The banks are allowed to loan up to ten per cent of their capital and surplus to one individual or association. By using bonded warehouse receipts as security it is possible for the bank lawfully to increase its credit to one individual by one hundred and fifty per cent. Under the federal reserve act a bank can lend

(Continued on page 53).

THE FARMER AND THE PUBLIC.

(Continued from first page)

issue a bond against me as a taxpayer, with my little farm as an asset, it would fail dismally in selling such a bond. But the moment it issued a bond against the assets of a hundred and five million people, it has a marketable paper. What we seek to do is to pool warehouse receipts, representing tens of millions of bushels of wheat, or corn, or oats, or barley, or pounds of wool or cotton, into the hands of trustee and to issue against them short-term certificates, to be offered for sale to the investing public. Through the sale of these the investing public will furnish the farmer the credit medium necessary to permit him to market his crops as the immediate demands of the world calls for them.

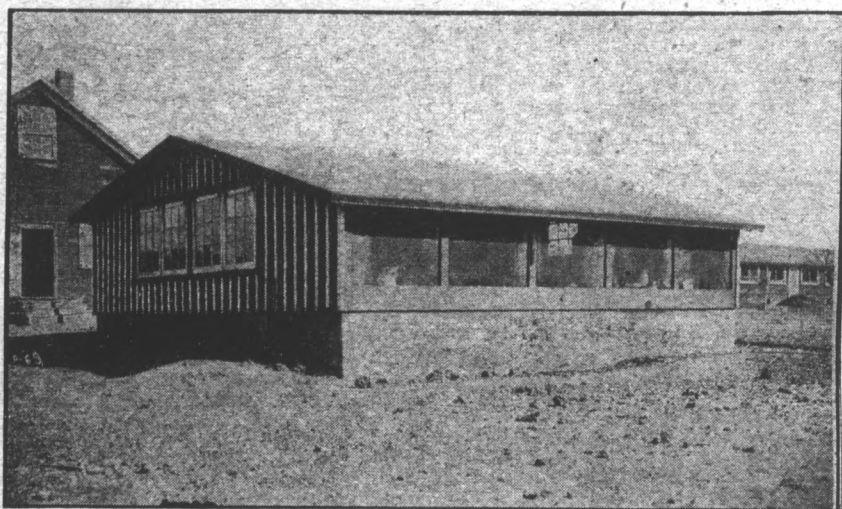
Do not forget that rural conditions must be made as pleasant as city conditions and that the profits of agriculture must be made measurably as large upon the investment as are to be found returnable to city investments, if we are to build up that ideal country life—happy and contented, conservative, in its thinking, always patriotic, and the ultimate and final bulwark of republican institutions in this country.

Poultry Houses and Yards

THE question of where to locate the sunshine will reach every portion the poultry houses and yards is of the floor at some time during the one that should be given careful day. In order to accomplish this to the consideration before one begins the best advantage, it is necessary to have expenditure of perfectly good money. considerable frontage toward the south One piece of advice which will apply or southeast. During the cold, winter to all cases alike is this: Never locate the houses and yards on a damp, poorly drained plot of ground, on which shade trees, grass and clover crops do not thrive, unless it presents good opportunities for drainage and improvement.

Other conditions being favorable, locate the houses and yards where they will be convenient to the house and other buildings, so that the care of the poultry may be made a part of the regular chores of the farm. If one is going to get the most out of the business the work must be systematized so that it will fit in with the regular routine of the farm and interfere as little as possible with other branches of the farming. And above all other things never undertake the development of a profitable farm flock before making provisions for housing the birds comfortably, growing a large portion of the food supply and simplifying the work of feeding and caring for the flock.

Expensive buildings and equipment is to be kept in good condition as re-



A building of this type will provide ideal conditions for the farm flock. It will make it possible to feed and care for the laying hens with a minimum of disagreeable labor. The plans and specifications have been approved by the Michigan Agricultural College and will be furnished free of charge. Write to C. H. Burgess, Professor of Poultry Husbandry, East Lansing, Michigan, for information and plans for a building of sufficient size to house your flock comfortably.

are not essential to profitable egg and meat production. Waste of money on buildings and equipment which are far too costly for the uses to which they can be put is one of the most frequent causes of failure. A flock of from two hundred to four hundred layers will not require an expensive house, and plans can be made to build adequate brooding coops and summer colony houses at a moderate cost. The work may be done from time to time and cheap material used to good advantage.

In a northern climate, the long, or continuous type of laying house, divided off into connecting pens will prove more satisfactory for the farm flock than the smaller colony houses. With such a house for the layers it is always well to have one smaller house in which diseased and ailing birds may be isolated. As contagious diseases are the bugbears of poultry keeping, every effort should be made to prevent them from spreading among the flock of layers.

THE chief essentials are warmth, dryness, light, cheapness and durability. In order to assure proper lighting and a more even distribution of sunshine it is often necessary to deviate from the form that insures the greatest warmth at the least cost. In all laying houses in a cold climate some provision should be made so that

gards cleanliness and ventilation. For the farm flock where less attention is likely to be given to these details more floor space is preferable. It is somewhat more difficult to give any definite rules as regards air-space or cubical contents of the building. Six or eight cubic feet of air-space per pound of live weight of the flock is recommended by some of the poultry experts, but for the farm flock, where as a rule, less attention is devoted to scientific ventilation more cubic air space should be provided. If the houses and dropping boards are kept free from filth and dampness, less air-space will give equally as satisfactory results. Concrete floors are the most economical and easily constructed for permanent laying houses. As a rule the floor should be slightly higher than the level of the ground outside in order to secure proper drainage. Litter should be provided to keep the fowls from coming in direct contact with the concrete when the weather is cold. A concrete floor properly constructed is a most effective protection against rats and mice and has become very popular, especially for farm flocks where there is always an abundance of suitable litter material available for the floors. These floors are most durable and afford no hiding places for lice and vermin—a most important feature, especially on the farm where less time

(Continued on page 48).

If Petroleum Were Wiped Out Today

IF petroleum were wiped out today, factories would close their doors, agricultural machinery could no longer be made or operated, food could be raised only by primitive methods, and the transportation of food would be confined to horse power and water, for railroads could no longer run their trains, and before any adjustment could be made our great urban population would literally be starved to death.

The prosperity of all industrial nations is based upon petroleum.

The peak from which floats the flag that symbolizes the prosperity of the United States arises from a basic foundation of crude oil.

The underlying foundation of this prosperity is lubricating oil, for without this essential product of petroleum, the machinery of the world would stop and the world's reserve of lubricating oils, though vast in volume, would last but a few weeks at our present rate of consumption.

The next essential factor is kerosene and gasoline, for without the first, one half of the population of the world would be without light at night, and without the second, all types of internal combustion engines would be useless, and the automobile, tractor, truck, marine and aviation engine would be mere curiosities.

If lubricating oil, kerosene, and gasoline were available, but the hundreds of by-products made from the residue of petroleum were wiped out, many industries would be closed and unemployment would be general, for in nearly every industry one or more of these by-products are necessary in the manufacturing processes.

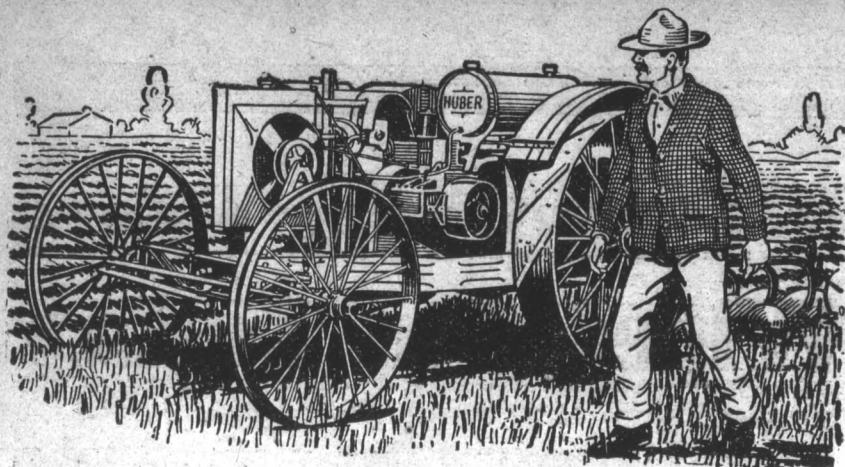
Thus is visualized by an extreme presentation—purely imaginative—of what might happen if petroleum, or any of its major derivatives, were wiped out over night. Also it shows the importance of the work the Standard Oil Company (Indiana) is doing in helping supply one of the basic, economic needs of the nation, and emphasizes the importance of the service the Company renders in promoting the comfort, health, and happiness of the individual citizen.

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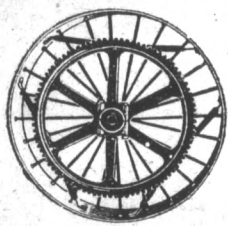
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MAKES YOUR WORK GO THREE TIMES AS FAR!

ONE of the big problems of the farmer is to get his work done in something like the hours that the city man works, so he can hold his sons on the farm and keep the men he hires.

THE HUBER LIGHT FOUR cuts the labor of plowing and preparing the seed bed, and of harvesting to one-third of what it used to be and that means more leisure. It means bigger crops because the work can be done on the few choice days when the ground is just right. The LIGHT FOUR uses heavier tools and does the work more thoroughly. It is self-steering in the furrow.



The Huber Drive Wheel
Note how power is transmitted direct from the bull gear to the rim of the drive wheel of the Huber Light Four. The spokes carry weight only. They transmit no power. That means long life and perfect service. The wheels are especially high and wide of face for work on soft or uneven ground. This is only one of the many points of Huber Superiority.

But those tractor advantages are real advantages only when you can count on them with the same certainty that you used to count on the work of your horses. Thousands of power farmers have known the HUBER for years as the tractor "that always keeps going." Every part of the HUBER is as strong as every other part. And they all have been tested and tried by 20 years of tractor building experience. Every tractor is backed by a Nation-wide system of service branches.

THE HUBER LIGHT FOUR does all belt work on the farms efficiently and quickly, even to driving a light thrasher. Write for booklet—"The Foundation of Tractor Dependability."

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HUBER
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Draws three
bottoms
Turns an acre
an hour

"THE TRACTOR DEPENDABLE"



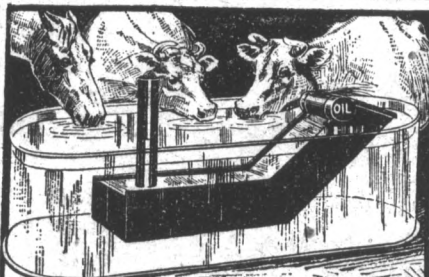
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Legislative Program of the Farm Bureau

NOT the least important among the proposed activities of the Michigan State Farm Bureau, in the opinion of many of its members, is its legislative program. With the assembling of the legislature in regular session this week, interest among farm bureau members in the proposed legislative activities of the bureau will be intensified. Every farm bureau member will be interested in the initial legislative program of the legislative committee, as set forth in a questionnaire recently sent out to the officers of every County Farm Bureau in the state, with the request that same be returned with an expression of approval or disapproval of each of the individual items in the program. Early returns indicate the practically unanimous approval of the entire program as set forth in the questionnaire, which follows in full:

(According to the by-laws of the Michigan State Farm Bureau, the executive committee as a whole is the legislative committee of the organization. A. M. Berridge of the committee has been designated as the particular member in supervision of legislative work. J. P. Powers has been made the active legislative agent. The following is an outlined preliminary program of work. All matters contained have been carefully investigated. On an appended sheet are some reasons why the items in this program have been specified. Before actively engaging in this work, this proposed program is submitted to all the elected officers of the County Farm Bureaus. You are asked to designate your approval or disapproval of each item in this proposed program by marking "yes" or "no" in front of each item. This questionnaire should be returned to the legislative department at this office within the week, as the time between now and the convening of the legislature is short. This office is able to furnish further information on any of the subjects mentioned. Returns will be tabulated December 31).

1st—That this department primarily is to reflect the desires of the County Farm Bureau; that it will, unless pressure of time forces it to exercise its own best judgment, submit controversial subjects to a referendum of County Farm Bureau officers, together with an analysis of the subject; further, that it will weekly submit to every county a report of activities of the legislature in detail so far as is practical and indicate the sort of representation the individual farm bureau members are receiving in the senate and house of representatives.

2d—That it will strive for greater economy in state government, investigating the various measures involving state funds that may be introduced, and favor or oppose through personal efforts and publicity.

3d—That it will urge consolidation of all state boards, commissions and bureaus of the state doing related work, with elimination of duplication of any efforts of any boards, commissions or bureaus.

4th—That it will seek enactment of sane and equitable taxation, with protection for forested and reforested lands by taxation of them on a basis of their bare-land value, with the timber and products being taxed only at time they may be marketed.

5th—That it will endeavor to have provided improved methods of obtaining more accurate statistical knowledge of agriculture in Michigan through an annual rural survey to be made by township supervisors at the time of annual assessments of property.

6th—That it will advocate retention of the state constabulary with the force increased from 163 to 200 men, on the same salary basis as at present, and the assignment to this force of the police duties that are now assigned to special wardens, deputies in the department of food and drugs, and Public Domain Commission.

7th—That it will earnestly urge the placing of an agricultural representative on all public boards and commissions that may be created, believing that the rural part of the state, representing as it does more than half of the wealth of the state, should have a voice in all public affairs.

8th—That it will advocate creation of a bureau of markets with adequate

funds to enable it to serve the people of the state properly in cooperation with the United States Department of Agriculture in inspection and certification of all farm products that may be marketed or warehoused, as a subordinate division of a state department of lands and agriculture, including the following state agencies, all of which are doing an agricultural or related work, and further any that may be created:

The Public Domain Commission, with game, fish, fire commission.

The agricultural section of the statistical division of the secretary of state's office, with transfer also of vital statistics from secretary of state to Department of Health.

The Food and Dairy division of the Food and Drug Department with the further transfer of the drug section to the Department of Health, and the liquor enforcement duty of this department to the state constabulary.

The Orchards and Nurseries Inspection bureau.

The Seed Inspection Agency.

The Fertilizer and Feeds Inspection bureau.

State Geological survey, with dissolution of the board of geological survey, and a coalition of this work with the survey activities which have been carried on by the Public Domain Commission.

The Agricultural Fair Commission.

The State Board of Parks.

The Mackinac Park Commission.

The State Board of Veterinarians.

The Board of Swamp Land Commissioners.

The Board of Fish Commissioners.

9th—That it will urge state aid for northern counties annually facing grasshopper plague and an agency for correlation of the combative efforts of these counties, as the territory infested annually is enlarging and menacing greater agricultural production.

10th—That it will advocate the submission by act of the legislature to the people of the state of an amendment to the state constitution, providing for optional county commission form of government.

11th—That it will seek adequate appropriation for enforcement of the seed inspection law that is now among the state statutes but virtually inoperative, and because of lack of enforcement constitutes a menace to agriculture in Michigan.

12th—That it will favor adequate appropriation to enable the Michigan Agricultural College to maintain a place among the progressive and worth while agricultural colleges of the country.

13th—That it will relinquish claim of the Michigan State Farm Bureau to any state aid, such as was given the past two years and voice appreciation in behalf of the farmers of the state for the assistance lent in the building of their organization.

As supplementary to this program as set forth in the questionnaire, the committee is making exhaustive investigations covering these and other subjects. Among these investigations those relating to the matter of taxation and rural credits are most important. The committee recognizes the critical tax situation, and the necessity of the more equitable distribution of the ever-increasing burden of taxation and will make a thorough investigation regarding the best method of accomplishing this result and relieving the farms of an unjust proportion of this burden before advocating specific tax reforms. Likewise the question of rural credits will be made the subject of exhaustive inquiry, particularly as to what has been accomplished in other states, when a constructive program will be formulated.

The methods proposed in the furthering of this program will be of as much interest to farm bureau members as the program itself. Present plans are for a campaign of publicity with no lobbying on the part of the committee. The work will be divided into two phases, viz., initiatory work for the development of the program, and police (Continued on page 53).

BUILDING UP SANDY LAND.

I have a sandy loam field on my farm in Kalamazoo county that is in a depleted condition. Would like to sow something to grow in season of 1921 for plowing down next season. What is best to sow, and how much per acre, and at what time? E. H. G.

Sweet clover is one of the best crops for the building up of soils that are low in organic matter and available plant food. For best results, however, the soil must not be acid, since the growth secured on an acid soil is usually very slight. An application of two tons of ground limestone per acre, or from three to five cubic yards of marl usually gives large increases in growth on acid soils.

Sweet clover should be sown in the early spring on a well firmed seed bed, using from twelve to fifteen pounds of scarified seed per acre. If unscarified seed is used from sixteen to eighteen pounds will be necessary, since the seed coats of many sweet clover seeds are quite impervious to moisture and will not germinate readily.

If the crop is to be plowed under this should be done about blossoming time, since the plants are quite full of moisture at this time and will decay readily. Sweet clover is quite valuable in this respect since the decay starts in much sooner after being plowed under than in the case of many other farm crops. C. R. M.

DESTROYING QUACK GRASS.

Last year I wrote, asking how to kill quack grass. I did nearly as you advised, but have not killed it all out. In part of it I put corn, in order to work it. Will it do to put it to corn again? What is best and cheapest commercial fertilizer I can use for corn, and which is best for potatoes? My ground is quite heavy clay. Do you think soft coal ashes any good for heavy clay soil? Are they worth hauling? E. E. D.

One must be thorough if they wish to completely eradicate quack grass. There is no question about that. This plant multiplies by underground root stock, and if any live root stalks are left in the soil, they will grow. But if one is thorough and does not allow any part to grow above ground for one entire season, it can be completely eradicated. Of course, you can put this land to corn again and it will be a good idea if you give it thorough cultivation and will go through with a hand hoe and destroy all plants that the cultivator leaves. In this way you can become master of the situation.

Fertilizer for Corn.

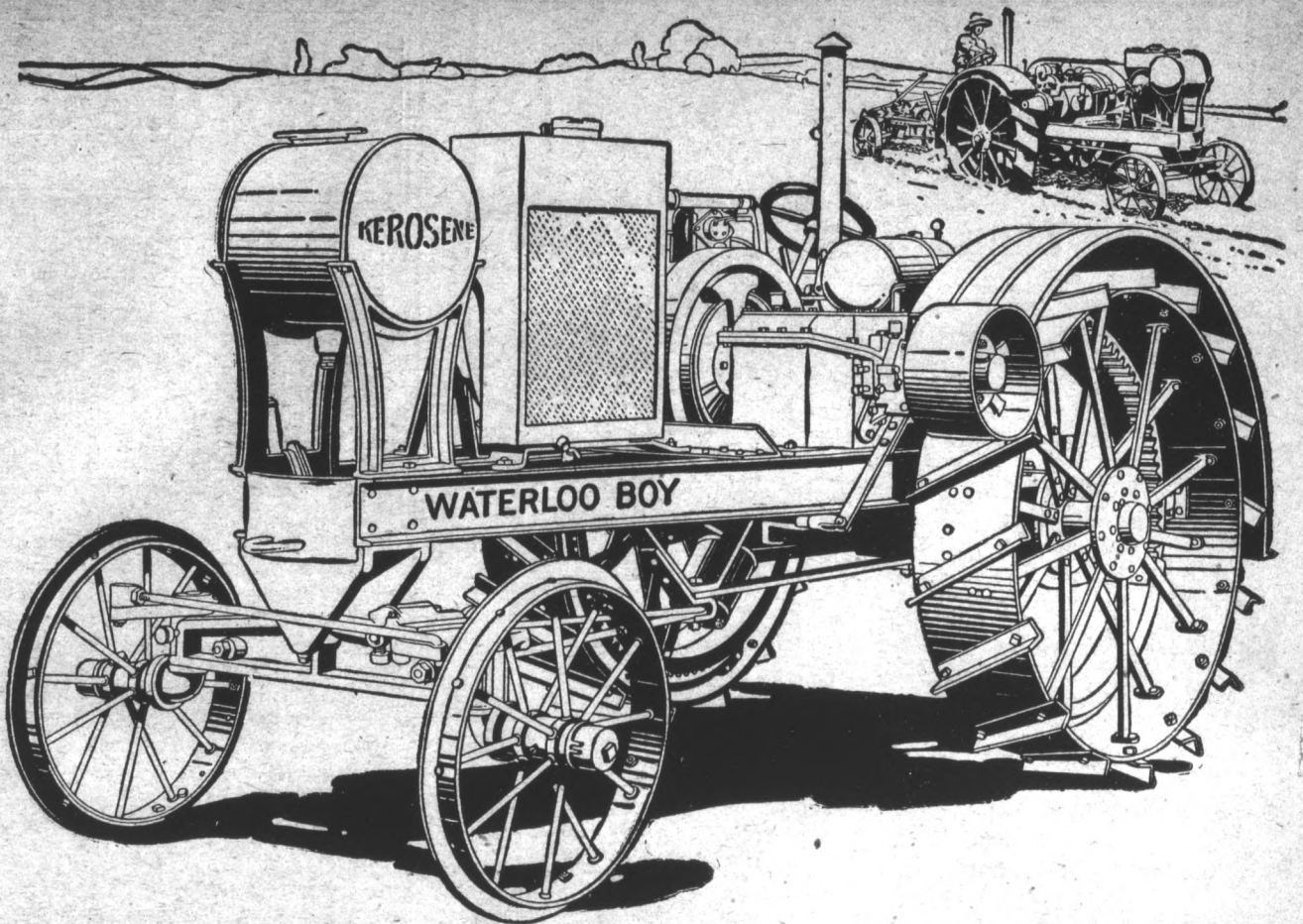
A fertilizer containing nitrogen and phosphorus usually produces the best results with corn. On some land you need potash but not much of the soil in Michigan needs very much potash. In fact, land that grows quack grass luxuriantly is usually pretty well supplied with nitrogen and it may be necessary only to supply phosphorus in the form of acid phosphate.

Corn is a plant that is a gross feeder and many times heavy applications of fertilizer are used with splendid results, if you only use one hundred or one hundred and fifty pounds per acre apply in the hill when you are planting the corn. If you have sufficient faith to use five hundred pounds to the acre, I would sow on three hundred and fifty or four hundred pounds broadcast before the corn is planted and then one hundred or one hundred and fifty pounds in the hill.

I am of the opinion that acid phosphate alone will be a profitable investment. C. C. L.

DAIRY RECORD BOOKS.

An account book prepared by the Farm Management Department of the Michigan Agricultural College, East Lansing, contains blanks for keeping accounts on dairy cattle. The book is being sold to farmers at the cost of printing.



9 Acres a Day for 42 Days

IN the big things and the little things that make for tractor efficiency, you can count on the Waterloo Boy. When the owner of a Waterloo Boy starts out in the morning he knows his tractor will do his work the way he wants it done, finishing the day as strong as when it started. And he knows his tractor will keep on doing the same thing, day after day, week after week, always responsive in meeting the requirements of economical work.

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A farmer living near St. Thomas, N. Dakota, owns four Waterloo Boys. His name is Ray Huffman. Last fall his Waterloo Boys plowed 1,520 acres in forty-two days—nine acres per day for each tractor. And he was

plowing seven inches deep. That meant dependable service, the kind that counts most.

Mr. Huffman's four Waterloo Boys burned 2,470 gallons of kerosene in plowing his 1,520 acres, or an average of only 1.6 gallons per acre—a remarkable showing, but not unusual for a Waterloo Boy. This is the sort of economical power that appeals to farmers who want their work done well at small cost.

Ask your John Deere dealer to drive out a Waterloo Boy. Watch how it handles your own drawbar and belt work on your farm, under your conditions. Drive it yourself. Then you will know why Waterloo Boy owners are satisfied with their power investment. Write to John Deere, Moline, Ill., for a booklet, describing the Waterloo Boy. Also ask for Better Farm Implements, a 114-page book giving description, care and operation of the full line of John Deere tools. It's free. Ask for package WB-422.

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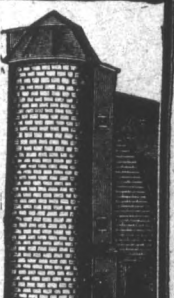
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THE GREAT UNITED LINE FARM MACHINES

NOTICE

to members of the Michigan Mutual Windstorm Insurance Company, home office Hastings, Michigan, you are hereby notified that the amendment of Article 3 of the Charter of the above company as adopted by the Board of Directors Sept. 8, will be voted on by the membership at the annual meeting to be held on Jan. 19, 1921. MICHIGAN MUTUAL WINDSTORM INS. CO. M. F. Andrus, Sec.-Treas.

Our Service Department

HOUSE FOR TWO HUNDRED HENS.

Please give me the best idea on building a chicken coop large enough to accommodate about two hundred hens. Does one made of cement blocks give good results? Can you give me a close estimate on cost of material on the coop you recommend?

Oakland Co.

L. B.

For a flock of two hundred hens I would recommend a house of the shed-roof type, forty feet wide and twenty feet deep. This will give a floor area of eight hundred square feet and allow four square feet per bird. The house can be divided with a partition through the center, making two pens, each twenty by twenty feet. Then if half the flock are old hens for breeding stock and half are pullets for winter eggs, it will be possible to adopt slightly different feeding methods in the two sections of the house. A door between the two sections can be left open at any time all the birds are allowed to run together.

A height of eight feet in front and four feet in the rear will give sufficient pitch to the roof and it will not be too high and thus hard to keep the birds warm. Such a house can be built of cheap material if it is later covered on all sides with roofing paper. Attractive houses have been made by using red paper. This is held on with small strips of wood and the strips are painted white. It makes a house more pleasing in appearance than those that are covered with black roofing paper.

Houses of cement blocks give good results but the fact that they are not as generally used as houses built of lumber is evidence to me that they are not considered quite as good by most practical poultrymen. A farmer with a few tools can build a good shed-roof house of lumber without employing skilled labor. A poultryman with experience in cement work might make a very fine cement block house. But if the labor is scarce in the district and also expensive, it might make the cement block house much more costly than the house of lumber.

We cannot give a close estimate on the cost of such a house for two hundred hens. Lumber has taken a drop. Next spring a building boom might cause lumber to take a sudden rise. The quality of the lumber and the disposition of the dealer might have something to do with the cost of the poultry house. It pays a poultryman to figure out just what he wants and then visit the lumber dealers in the section and find out just what they will sell the material for at that time. Before the war it was fairly easy to estimate the cost of various poultry houses and the cost per hen, etc. Now conditions are more unsettled and we cannot give a close estimate that would be of much value to you because of the great difference in labor costs and the rapid changing values of material.

R. G. K.

TOMATOES FAILED TO SET FRUIT.

Last summer the blossoms of my tomatoes dropped off immediately after blooming, and from my Ponderosa plants I had only two or three full-sized tomatoes. I am wondering if it is due to lack of insects to pollinize the blossoms?

Wayne Co.

A. J. C.

Two factors may be responsible for the condition you describe. Such failure of the blossoms to set may have arisen from heavy attacks of the leaf spot fungus. This attack would have to be very severe and early. Exami-

nation of the leaves would have shown if the leaf spot had been associated with this condition. When leaf spot is present the lower leaves dry up and the upper leaves are peppered with black spots about one-eighth of an inch across.

Another cause of the condition you describe is dry weather at blossoming time. If the air is too dry the pollen grains do not germinate readily and fail to fertilize the seeds.

Leaf spot can be avoided by using clean plants in fields or portions of the garden where tomatoes have not been grown the preceding year. It is also possible to control the disease by spraying. The humidity of the air at blossoming time can be increased by heavy watering or by use of some system of overhead watering. One market gardener paid for his entire equipment in one year by the heavy crop which was set as a result of his maintaining high air humidity. His neighbors had no early tomatoes and he reaped abundant harvest.—G. H. C.

BRIDGE GRAFTING.

Would you tell me what I should do with apple trees that were gnawed by mice last winter? The trees are about seven years old. They have been gnawed all around to a height of six to twelve inches. I have about five hundred trees.

J. D.

Bridge-grafting will often save trees that have been girdled by mice. It is best to do it in the early spring, but may be tried with good results even after the buds begin to swell.

Pieces of round wood are sharpened at each end. Then openings are made in the bark both above and below the girdled place, with a half-inch chisel. The shoots are then bent outward, the bending making enough pressure to force the points of the shoots into the chisel cuts and hold securely. The shoots can then be given additional strength with grafting wax. The shoots will grow with the tree and heal over the wound in a few years. These connections help the tree to live until nature can help in healing over the wound. About four or five bridge grafts are used on small trees and more if the trees are very valuable and there is time for the work.

HENS WITH TUBERCULOSIS.

My hens have been dying off. Would lose one every few days, until I have lost twenty-five. I do not believe it can be cholera. Upon examination I find the liver full of white hard spots, and the liver is very soft. What is the disease and what can I do?

Jackson Co.

J. J.

The symptoms mentioned indicate tuberculosis in the flock and if twenty-five hens have died with the trouble it means that the disease is widespread in the flock. The birds cannot be made profitable with such a disease causing steady losses. It cannot be cured and it may spread rapidly. It will be best to have a veterinarian inspect the flock and decide which are fit for food. Then all of the hens can be killed and as much money realized on them as possible. After a thorough disinfection of the house and adjacent grounds it will pay to keep no poultry for a while and then obtain new stock from a healthy vigorous flock.—R. K.

ICE PLOWS WM. H. PRAY, Mfg. LaGRANGEVILLE, N. Y.

Mention The Michigan Farmer When Writing Advertisers

Michigan Fox Farms

WILL Michigan in the future turn to silver fox farming as an industry peculiarly adapted to the waste sand lands of the state?

With a view to placing the business on a scientific basis similar to that of agriculture and possibly encouraging fur production on a large scale, officials of the bureau of biological survey at Washington are cooperating with the Michigan Agricultural College in making investigations.

Prof. A. C. Conger, of the department of zoology, and Prof. W. L. Chandler, entomology, have completed a tentative survey of the fox farms about Muskegon. So far no definite steps have been taken to extend governmental support, but the preliminary investigations have revealed some interesting facts in connection with the industry.

The scope of fox production has so increased about Muskegon in the last year or two that Michigan now leads the entire union in this respect. More than \$2,000,000 now is said to be invested in farms within a radius of fifty miles of Muskegon. Because the price of a breeding pair remains at around \$2,000, growers have not yet begun to kill their animals for the sake of the pelts, instead either increasing their own herds or disposing of them to new producers.

Of the one hundred and two members of the National Silver Fox Breeders' Association of America, a large majority are Michigan men and women. Leaders of the association have requested the government to establish an experimental fur farm in Michigan similar to that already in existence at Keeseville, New York. Whether the government's aid will take this or some other form is not known.

With the sandy stretches along Lake Michigan presenting good drainage conditions, and with the slaughter houses of Milwaukee and Chicago within easy reach to provide cheap food, the western part of the state is especially well adapted for this business, according to the bureau of biological survey. For several years there has been a shortage in the fur supply of the world, and therefore it is considered to the interest of the nation as a whole to stimulate fur production as much as possible. To this end, the United States Department of Agriculture is looking for ways and means to develop waste sand and swamp areas.

HENSHAW.

INSURING BETTER STOCK.

The Bureau of Animal Industry calls attention to the fact that of the 695,364 cows officially tested for tuberculosis during the last fiscal year, 28,616 reacted, and were removed from the herds tested. The number of herds accredited as free from the disease was three times as large as at the end of the year as at the corresponding time a year ago.

The "better sires, better stock" campaign promoted by the Bureau of Animal Industry, is being pushed vigorously all over the country. It is the aim of the movement to get rid of inferior sires. The state extension forces and farm bureaus are cooperating with the bureau in this work. The bureau now has on file 3,200 names of live stock owners who have signed an agreement to keep pure-bred sires for all kinds of stock they raise and to follow breeding methods leading to further improvement. These men own collectively 40,000 head of live stock. Virginia, Pennsylvania and Nebraska are especially active in live stock improvement. The movement has also extended to Porto Rico and the island of Guam. Two associations in Rhode Island are working to rid the entire state of scrub animals.



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For FIELD TRADE MARK For GARDEN

Isbell's Gardens Pay—for the same reason that pure-bred cattle produce thoroughbred off-spring. Every ounce of Isbell Seed is tested. Isbell Seeds are produced in the North where earliness, hardiness and sterling qualities are bred into them. Isbell's 1921 book on seeds and gardening tells what and how to plant and what to expect from the crop. It's one of the most authoritative catalogs in America. Ask for your copy. Mail coupon.

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HAYES

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Apple & Peach Trees 25c each postpaid. Write for 1921 wholesale catalog of fruit trees, vines and plants. **ALLEN'S NURSERIES,** Geneva, Ohio.

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Strawberry Plants 26 varieties, \$3.75 per 1000. History and illustrated book gives all details about most vigorous true-to-nature, productive stock now grown. Book free. **MAYERS PLANT NURSERY** Merrill, Michigan

Marketing Woodlot Crops

Object of Department Recently Established by
State Farm Bureau

BUSINESS and education will be the field of the Forestry Department of the Michigan State Farm Bureau. It is too late this year to develop the business side on an extensive scale, but Mr. Sanford announces that it will be the first work of the department to arrange for selling fence posts for members, particularly those of the upper peninsula where they say they have one thousand carloads, and the marketing of maple syrup. Numerous requests have come from farmers handling both these products for some kind of help.

The department expects to found its work upon systematic marketing which will allow a farmer to maintain indefinitely a large part of his timber standings, rather than furnish an agency which shall be concerned only in the finding of a market which might result in extensive cuttings, which would be extremely detrimental to the state. It has frequently been necessary for the farmer to cut more of his timber during one year than he feels he should dispose of because he has to market a volume of wood to get a price. This department expects to provide for the pooling of logs, posts, grape and vine stakes, pulp wood, re-tort wood and fuel, whereby each farmer can cut a small amount each year, the wood assembled at a central loading point and shipped together.

Smaller wood lot industries will receive attention by making the market for maple syrup more profitable. The tendency throughout the state to lumber the maple sugar bushes will be overcome. There seems to be no reason why the maple syrup and sugar production in Michigan should not be considerably more extensive. The nut marketing industry will receive attention in time, and collection of tree seeds for reforestation will be advocated.

Owners of woodlots have been at a disadvantage in judging the value of their own standings because they had to rely on the judgment of cruisers sent out by the company that bought the timber. Many a fine lot of logs has been sold for a song that should have brought a good profit to the owner. The forestry department expects to offer a cruising service. If any man wants the actual value of his forest

holdings to be estimated he can get the work done at a reasonable fee and by an unprejudiced expert. An additional service is expected to be rendered in this connection, for not only will the cruiser estimate the value of the timber but he will also offer advice as to the systematic cutting and marketing of the standings.

The Michigan State Farm Bureau is the first of the State Farm Bureaus to undertake this work. In the College of Forestry at Syracuse, New York, there is maintained an exchange for the marketing of forestry products.

This consists, however, only of the maintenance of a list of producers and purchasers to which both classes have access. Cooperation in the handling of timber has been a difficult problem but after considerable study on the subject, officials of the State Farm Bureau believe that they can work out a program of more economic market, more consistent cutting, and will have much to do with placing the industry on a permanent basis in Michigan. Professor Sanford has been closely connected with forestry work in Michigan for twenty years. In the last ten years the woodlot industry has been diminishing. In the southern half of the lower peninsula there are, roughly, 56,000 acres of forest land; in the northern half of the southern peninsula there are about 180,000 acres. The upper peninsula is estimated to contain 3,000,000 acres of forest, counting thick, thin and virgin. The State Farm Bureau program is expected to maintain the industry for a definite time. In the upper peninsula there is opportunity to bring in industry along several lines, one of them being the close utilization of white birch for spools. On the whole, the establishment of this department is expected to be of benefit not only to the farmers who own the timber but, also to the industry as a whole. When the producer can make a profit the manufacturer can expect a continued supply of raw material. This is true in any industry. In forestry it is a slow problem because the growth of the crop is slow, but the department expects to carry on an educational campaign parallel with all its business, and educate, not theoretically, but prove that it pays to systematize wood lot marketing.

Blackcap Raspberries

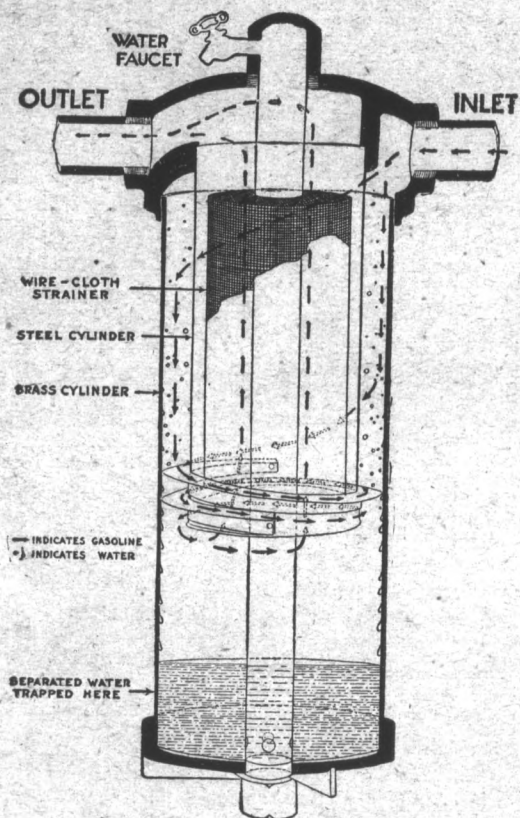
By Sylvanus Van Aken

IN my experience the blackcap will thrive best on a rather rich clay loam that is naturally well drained. Unless the soil is already sufficiently rich, stable manure, if available, should be applied broadcast at the rate of ten to twenty tons to the acre, and turned under, plowing deeply. If stable manure is not available complete fertilizer containing 4.5 per cent nitrogen, 7.7 per cent phosphoric acid (available), and six per cent potash, applied broadcast after plowing, and worked into the soil with cultivator or disk harrow, will give equally as good results. Good preparation of the soil must not be overlooked. Clods should be broken up and the ground put in the best possible mechanical condition before planting.

The distance at which blackcaps are usually set in commercial plantations is three feet apart in rows, which are in seven or eight feet apart. The most economical way of planting raspberries is to lay off the rows with a turning plow, three or four inches deep. The

(Continued on page 49).

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When Writing to Advertisers Please Mention
The Michigan Farmer

Upper Peninsula News

By L. A. Chase

PLANS are formulated whereby Delta county farmers will market their milk cooperatively. It is proposed to establish a milk-distributing plant in Escanaba, the largest city of the county, and sell direct to distributors or consumers at market prices, while the excess will be utilized in a cooperative creamery and cheese factory. To finance the venture, stock at ten dollars per share, will be sold to farmers on the basis of one share to each cow milked. It is pointed out that farmers have been receiving only about two dollars per hundred pounds for their milk sold to the cheese-factories of the county and this, it is stated, has discouraged the dairy industry of Delta county. The new plan contemplates a smaller spread between producer and consumer, with advantage to both. When I saw Agent Patison in Escanaba, last October, he was full of the new scheme and his latest news-letter confirms his intention to go forward with the project. It will be separately incorporated but will operate through the locals of the farm bureau, it is proposed. The scheme should not be regarded, I take it, as an accomplished fact, but it looks well at this writing.

Delta county farmers have shipped potatoes through or to the Cadillac Exchange, this fall, to the extent of fifty carloads, operating through the farm bureau or directly. A big potato warehouse is planned for Perkins by the local marketing association, and a representative has been sent to the lower peninsula to investigate warehouses there.

The Delta County Farm Bureau is organized on a community basis rather than a township basis, which seems very good, and each such local is incorporated separately. The bureau up to the middle of December, had purchased for its members twelve carloads of feed. It has perfected a selling arrangement with the Cadillac Potato Exchange. At present local secretaries are taking orders for grass-seed and fertilizer to be purchased through the State Farm Bureau.

County Agents Kirshman, of Menominee county, Michigan, and Sibole, of Marionette county, Wisconsin, are said to be back of a project to establish an inter-state hay, grain and potato show to be held in Menominee and Marionette in January of each year alternately. Counties in the southwestern portion of the upper peninsula and the northeastern portion of Wisconsin would be concerned in this inter-state fair, which is said to have some good backing.

Literature on Cloverland.

The Upper Peninsula Development Bureau is preparing a new agricultural booklet relating to the northern peninsula of the state, which will be published in a month or two. L. M. Geismar, county agricultural agent of Houghton county, has prepared the text. Mr. Geismar has considerable capacity for work of this kind, and without doubt there will be a very large demand for this publication. The bureau's present stock of descriptive literature is pretty well exhausted. In the new booklet, Mr. Geismar begins by pointing out the large size of the upper peninsula—10,682,240 acres—larger than the four states of Connecticut, Delaware, Massachusetts and Rhode Island; and, although he does not say so, the upper peninsula has a greater length than the southern peninsula of Michigan. Then Mr. Geismar proceeds to explain the propriety of the term, "Cloverland," as applied to the country adjacent to Lake Superior. This is due not only to the large yields obtained from artificially sown

clover, but, as he says, "Wherever the soils in the upper peninsula are at all adapted for agriculture, clover will be found as a volunteer crop, first upon abandoned logging roads, along rights-of-way of railroads and public highways, then spreading and continuing to flourish whether between stumps of cut-over lands, upon the raw soils of railroad cuts and embankments, often encroaching upon swamps too wet for tame grasses." He points out that the rich soils over the limestone on the southern slope of the peninsula are of the same formation as that which belongs to the famous blue-grass region of Kentucky. Mr. Geismar locates the area of good soils with much exactitude and estimates them to comprise nearly seventy per cent of the area of the peninsula, or over seven million acres. Comparing the yield of principal farm crops for the United States and Michigan, and the upper peninsula of Michigan, as shown by the Yearbook of the United States Department of Agriculture, Mr. Geismar elicits the fact that during the five-year period, the upper peninsula averaged a wheat production of 20.04 bushels, while the yield for the state was eighteen, and for the United States fourteen bushels.

Of oats the excess production per acre is given as three bushels when compared with the national average; the excess for barley is two bushels; rye about the same for both; while for potatoes the excess is nineteen bushels, the upper peninsula yield averaging one hundred and eleven bushels. Mr. Geismar brings out the striking fact that the proximity of Lake Superior gives its shore-line a later first-killing frost in the fall than places six hundred miles to the southward in Virginia, Kentucky and Kansas, and does not fail to draw the conclusion that this shore line is a fine prospective fruit country—a conclusion natural to the location of the very successful northern orchards near Marquette. He also points out that the average yield of farm crops frequently runs higher in the upper peninsula than in the more southerly latitudes indicated. He quotes approvingly a bulletin of the United States Department of Agriculture to the effect that the more protracted sunlight of this northern latitude gives a higher sugar content to sugar beets, and, while he does not say so here, Mr. Geismar is known to hold the view that this section is favorable to the growth of sugar beet seed, since it is possible to leave the beets in the ground during the winter without danger of freezing in order to secure their second season's growth for seed production. The hardness of the sugar beets grown in northern latitudes is also emphasized. Nor does Mr. Geismar overlook the importance of twilight and its excess in these northern latitudes in promoting plant growth and sugar content. The booklet will be useful to those who desire authentic information regarding this not very well-known and understood section of Michigan.

Clearing Roads in Winter.

The Daily Mining Gazette, of Houghton, of December 23, reports on the activities of "Old Ironsides," Keweenaw county's tractor, employed in keeping the main roads of the county open during the winter. The tractor left Altheim with a three days' supply of fuel and passed over its beat of fifty-five miles, taking in Phoenix, Eagle River and Eagle Harbor. The tractor's efficiency as compared with horse-power adjunct to road-maintenance in this road commission it is an indispensable adjunct to road-maintenance in this land of deep winter snows. This is the yields obtained from artificially sown

(Continued on page 47).

NEW YORK POTATO GROWERS
DISCUSS MARKETING.

THE New York State Potato Growers' Association has been holding a series of meetings at Rochester, Syracuse, Malone, Belmont and Hudson Falls to determine on measures to be recommended for final decision at the annual meeting of the association to be held at Ithaca in February.

One of the main things to be determined is whether a central marketing organization shall be established. A committee consisting of President E. E. Hulst, of Marathon, E. V. Hardenburg, of Ithaca, secretary, and L. R. Simons, representative of the marketing committee of the State Farm Bureau, recently studied methods followed by Michigan growers along this line. The reports are being given at the meetings.

At the Rochester meeting, one of the first held, comprising the growers of the western counties of the state, the sentiment of the growers was expressed as against the formation at present of a state marketing program for table stock. It was felt that the growers throughout the state were not yet ready to undertake such a venture.

It was the opinion of representative growers present from seven counties that the present marketing plan for certified potato seed by local clubs should be extended and improved, with the object eventually of having all clubs federated into a state association. A resolution to this effect was adopted and will be presented at a state-wide committee meeting some time later and to which the growers instructed the farm bureau managers in the respective counties each to appoint one delegate.

In the discussion on the question whether this state should have centralized bodies to handle both the certified seed and the table stock it was pointed out that conditions in New York state are much different than those of Michigan, where the growers' organizations are strong. It was said that the Michigan growers produced only one or two varieties on a large scale while in this state there is a great diversity. In Michigan also, the growers of the upper peninsula and the extreme southern corner of the state have very long-haul shipments and it is necessary to organize to protect themselves on rail rates.

The seven counties represented at the Rochester meeting were: Monroe, Tioga, Allegheny, Wyoming, Genesee, Ontario and Erie. President Hulst, of the State Potato Growers' Association, presided. Among the big state growers present were: Daniel Dean, of Nichols; F. C. Gibbs and H. R. Hodnett, of Fillmore; L. H. Robinson, of Castile; J. L. Salisbury, George Richmond, and Avery Brothers, of Phelps; Orson A. Robson, of Hall; Thomas McKeary, of Manilla; P. A. Perkins, of Pittsford, and R. Appleton & Sons, of Canandaigua.

The number of growers in the state association has grown from fourteen in 1914 to over three hundred in 1920, according to Secretary Hardenburg, about two hundred of whom have their fields certified. A. H. PULVER.

ORCHARD GRASS.

Could you give me some of the advantages and disadvantages of orchard grass?

Monroe Co.

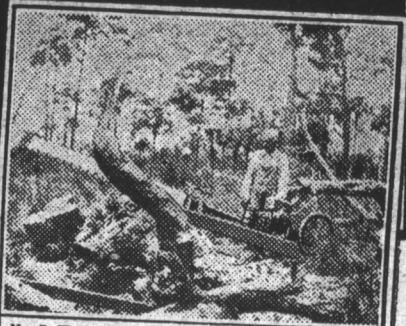
K. S.

Orchard grass does best on well-drained rich loam soils. It will not succeed on poor sandy land. While it will grow on soils too sour for, and will withstand drought better than timothy, orchard grass is apt to be injured by severe northern winters. The important advantage of this plant is that it thrives in a partial shade, making it suitable for orchard and woodland pastures.

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100 cords in 4 days

and Makes Big Money
With the OTTAWA Log Saw!

Mr. G. W. Smith of Vero, Florida, whose photo is shown above is 73 years old. In a letter he says: "I cut 100 cords of pine wood in 4 days with my OTTAWA. I can make good money by having this outfit. I feel very proud of what I am doing for myself."



Mr. G. W. Smith, 73 years old, of Vero, Fla., writes: "I can truthfully say the Ottawa Log Saw is all you claim for it and even more. I cut 100 cords of pine wood in 4 days with my Ottawa."



Mr. R. T. Sims, of Carthage, Texas, and his Ottawa Log Saw. Mr. Sims writes: "My Ottawa is a wonder."



Mr. Arthur Martin, Three Oaks, Mich., cutting up a tough sycamore with his Ottawa.



Mr. Chris Christenson, Oaage City, Kan., writes: "The Ottawa Log Saw is a great labor-saver."

YOU can make even bigger profits with the new improved OTTAWA Log Saw. With it one man cuts 35 to 50 cords a day. Saw your winter's fuel quick, and then make money cutting wood to sell. When not sawing, engine runs belt machinery. The greatest work-saver and money-maker ever invented.

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lever controlled, lets you start and stop saw blade instantly while engine runs on. No dangerous swishing of saw blade in the air. Easily moved from log to log and cut to cut along the log. Be sure to send your name and address for free information. Use the coupon attached.

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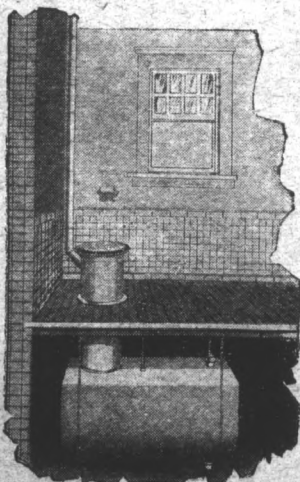
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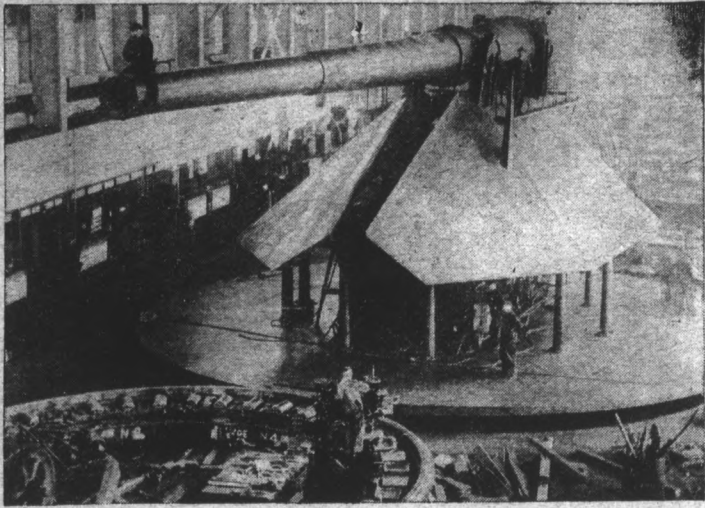
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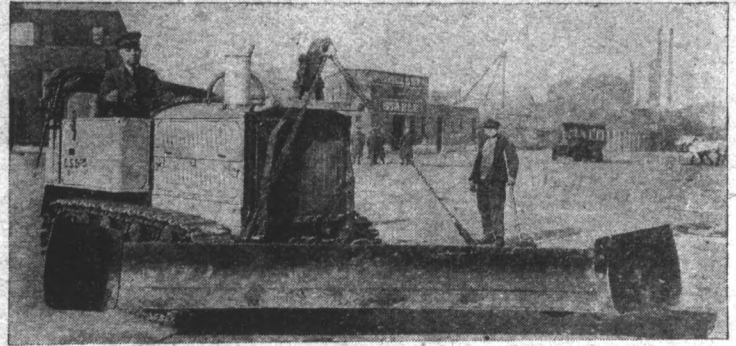
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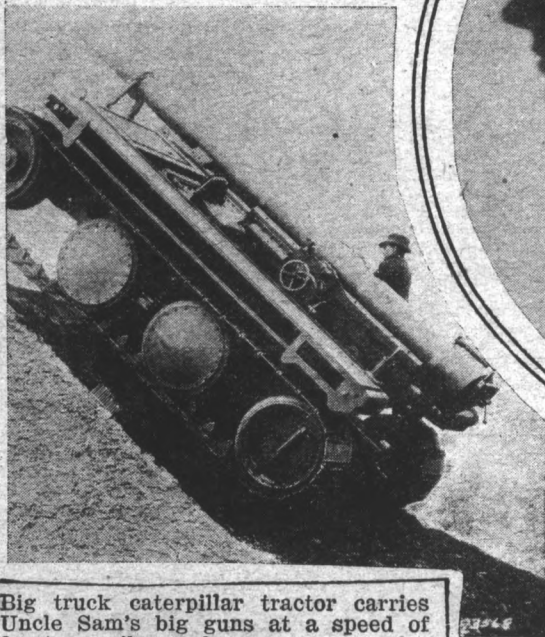
WORLD EVENTS IN PICTURES



This new 16-inch disappearing gun, just finished, weighs 150 tons and can hurl a shell weighing 1,700 lbs. a distance of thirty-five miles. The bomb-proof shelter, a new feature, is designed to divert bombs hitting it.



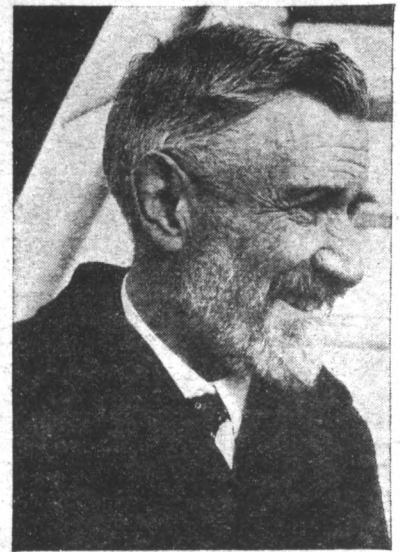
The city of New York purchases large tractors to use for cleaning streets of snow, which has come to be a big problem for the metropolis.



Big truck caterpillar tractor carries Uncle Sam's big guns at a speed of fourteen miles an hour.



Girl chosen by famous artist as America's most beautiful woman.



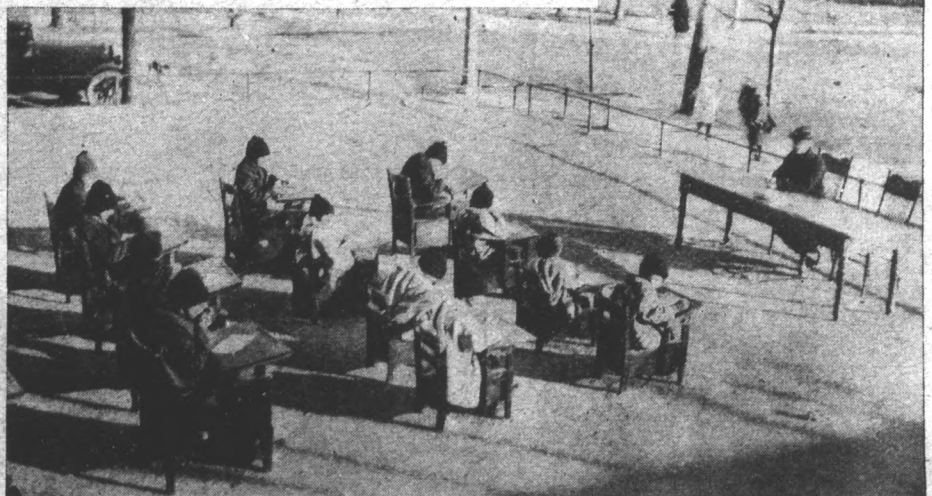
Sir Horace Plunkett, noted Irish leader, in this country for rest and not to make speeches, he states.



Champion woman billiard player who has defeated many of the world's best players, leaves for South America and Europe to compete for the world's championship title.



Wife and daughter of Marconi, inventor of wireless telegraphy. Mrs. Marconi is of an aristocratic Irish family.



Milwaukee holds out-of-door school for children stricken with tuberculosis, the primary purpose being to nurse them back to health.

THE VOICE OF THE PACK

By EDISON MARSHALL

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He yawned again, and his fangs looked white and abnormally large in the moonlight. His great, green eyes were still clouded and languorous from sleep. Then he began to steal up the ridge towards his hunting grounds. Dry as the thickets were, still he seemed to traverse them with almost absolute silence. It was a curious thing that he walked straight in the face of the soft wind that came down from the snow fields, and yet there wasn't a weathercock to be seen anywhere. And neither had the chipmunk seen him wet a paw and hold it up, after the approved fashion of holding up a finger. He had a better way of knowing—a chill at the end of his whiskers.

In fact, the other forest creatures did not see him at all. He took very great precautions that they shouldn't. Whisperfoot was not a long-distance runner, and his whole success depended on a surprise attack, either by stalking or from ambush. In this he is different from his fellow cowards, the wolves. Whisperfoot catches his meat fresh, before terror has time to steal out of the heart and poison it; and thus, he tells his cubs, he is a higher creature than the wolves. He kept to the deepest shadow, sometimes the long, strange profile of a pine, sometimes just the thickets of buckbrush.

And by now, he no longer cared to yawn. He was wide awake. The sleep had gone out of his eyes and left them swimming in a curious, blue-green fire. And the hunting madness was getting to him; that wild, exultant fever that comes fresh to all the hunting creatures as soon as the night comes down.

The little, breathless night sounds in the brush around him seemed to madden him. They made a song to him, a strange, wild melody that even such frontiersmen as Dan and Lennox could not experience. A thousand smells brushed down to him on the wind, more potent than any wine or lust. He began to tremble all over with rapture and excitement. But unlike Cranston's trembling, no wildness ear was keen enough to hear the leaves rustling beneath him.

His excitement did not affect his hunting skill at all. In fact, he couldn't succeed without it. A human hunter with the same excitement and fever, would have been rendered impotent long since. His aim would be shattered, he would make false steps to frighten the game, and not even Urson, the porcupine, would really have cause to fear him. The reason is rather

simple. Man has lived a civilized existence for so long that many of the traits that make him a successful hunter have to be laboriously re-learned. As soon as he becomes excited, he forgets his training. The hunting cunning of a cougar, however, is inborn, and like a great pianist, he can usually do better when he is warmed up to his work.

Men would cross many seas for a few minutes of such wild, nerve-tingling rapture as Whisperfoot knew as he crept into his hunting grounds. Ever he went more cautiously, his tawny body lowering. And just as he reached the ridge top he heard his first game.

It was just a rustle in the thickets at one side. Whisperfoot stopped dead still, then slowly lowered his body. The only motion left was the sinuous whipping of his tail. But he couldn't identify his game yet. He peered with fiery eyes into the darkness. He was almost in leaping range already.

But at once he knew that the creature that grunted and stirred in the brush was not a deer. A deer would have detected his presence long since, as the animal was at one side of him, instead of in front, and would have caught his scent. Then, the wind blowing straighter, he recognized the creature. It was old Urson, the porcupine.

For very good reasons, Whisperfoot never attacked Urson except in moments of utmost need. It was extremely doubtful that he spared him for the same reason that he was spared by the wisest mountaineers—that he was game to be taken when starving and when no other could be procured. It was rather that he was very awkward to kill and considerably worse to eat.

It is better to dine on nightshade, says a forest law, than to eat porcupine; for the former innocent-looking little berry is almost as fast a death as a rifle bullet, and the flesh of the latter animal will torture with a hundred red-hot fires in the vitals before its eater is driven to its eternal lair. But it isn't that the porcupine's flesh is poison. It is just that an incautious bite on its armored body will fill the throat and mouth with spines, needle points that work ever deeper until they result in death. And so it is quite a tribute to Whisperfoot's intelligence that he had killed and devoured no less than a dozen porcupines and still lived to tell the tale.

He simply knew how to handle them. He knew an upward scoop with the end of his claws that would tip the

creature over; and then he would pounce on the unprotected abdomen. But it was considerable trouble, and he had to be careful of the spines all the time he was eating—a particular annoyance to one who habitually and savagely bolts his food. So he made a careful detour about Urson and continued on his way. He heard the latter squealing and rattling his quills behind him.

CHAPTER IV.

SHORTLY after nine o'clock, Whisperfoot encountered his first herd of deer. But they caught his scent and scattered before he could get up to them. He met woof, grunting through the underbrush, and again he punctiliously, but with wretched spirit, left the trail. A fight with Woof the bear was one of the most unpleasant experiences that could be imagined. He had a pair of strong arms of which one embrace of a cougar's body meant death in one long shriek of pain. Of course they didn't fight often. They had entirely opposite interests. The bear was a berry-eater and a honey-grubber, and the cougar cared too much for his own life and beauty to tackle Woof in a hunting way.

A fawn leaped from the thicket in front of him, startled by his sound in the thicket. The truth was, Whisperfoot had made a wholly unjustified misstep on a dry twig, just at the crucial moment. Perhaps it was the fault of Woof, whose presence had driven Whisperfoot from the trail, and perhaps because old age and stiffness was coming upon him. But neither of these facts appeased his anger. He could scarcely suppress a snarl of fury and disappointment.

He continued along the ridge, still stealing, still alert, but his anger increasing with every moment. The fact that he had to leave the trail again to permit still another animal to pass, and a particularly insignificant one too, didn't make him feel any better. This animal had a number of curious stripes along his back, and usually did nothing more desperate than steal eggs and eat bird fledglings. Whisperfoot could have crushed him with one bite, but this was one thing that the great cat, as long as he lived, would never try to do. He got out of the way politely when Stripe-back was still a quarter of a mile away; which was quite a compliment to the little animal's ability to introduce himself. Stripe-back was familiarly known as a skunk.

Shortly after ten, the mountain lion had a remarkably fine chance at a

buck. The direction of the wind, the trees, the thickets and the light were all in his favor. It was old Blacktail, wallowing in the salt lick; and Whisperfoot's heart bounded when he detected him. No human hunter could have laid his plans with greater care. He had to cut up the side of the ridge, mindful of the wind. Then there was a long dense thicket in which he might approach within fifty feet of the lick, still with the wind in his face. Just beside the lick was another deep thicket, from which he could make his leap.

Blacktail was wholly unsuspecting. No creature in the Oregon woods was more beautiful than he. He had a noble spread of antlers, limbs that were wings, and a body that was grace itself. He was a timid creature, but he did not even dream of the tawny Danger that this instant was creeping through the thickets upon him.

Whisperfoot drew near, with infinite caution. He made a perfect stalk clear to the end of the buckbrush. Thirty feet more—thirty feet of particularly difficult stalking—and he would be in leaping range. If he could only cross this last distance in silence, the game was his.

His body lowered. The tail lashed back and forth, and now it had begun to have a slight vertical motion that frontiersmen have learned to watch for. He placed every paw with consummate grace, and few sets of human nerves have sufficient control over leg muscles to move with such astounding, exacting patience. He scarcely seemed to move at all.

The distance slowly shortened. He was almost to the last thicket, from which he might spring. His wild blood was leaping in his veins.

But when scarcely ten feet remained to stalk, a sudden sound pricked through the darkness. It came from afar, but it was no less terrible. It was really two sounds, so close together that they sounded as one. Neither Blacktail nor Whisperfoot had any delusions about them. They recognized them at once, in strange ways under the skin that no man may describe, as the far-off reports of a rifle. Just today Blacktail had seen his doe fall bleeding when this same sound, only louder, spoke from a covert from which Bert Cranston had poached her—and he left the lick in one bound.

Terrified though he was by the rifle shot, still Whisperfoot sprang. But the distance was too far. His outstretched paw hummed down four feet behind Blacktail's flank. Then forgetting ev-

AL ACRES—Percy Gets Results.

—By Frank R. Leet



everything but his anger and disappointment, the great cougar opened his mouth and howled.

Howling, the forest people know, never helped one living thing. Of course this means such howls as Whisperfoot uttered now, not that deliberate long singsong by which certain of the beasts of prey will sometimes throw a herd of game into a panic and cause them to run into an ambush. All Whisperfoot's howl of anger achieved was to frighten all the deer out of his territory and render it extremely unlikely that he would have another chance at them that night. Even Dan and Lennox, too far distant to hear the shots, heard the howl very plainly, and both of them rejoiced that he had missed.

The long night was almost done when Whisperfoot even got sight of further game. Once a flock of grouse exploded with a roar of wings from a thicket; but they had been awakened by the first whisper of dawn in the wind, and he really had no chance at them. Soon after this, the moon set.

The larger creatures of the forest are almost as helpless in absolute darkness as human beings. It is very well to talk of seeing in the dark, but from the nature of things, even vertical pupils may only respond to light. No owl or bat can see in absolute darkness. Although the stars still burned, and possibly a fine filament of light had spread out from the east, the descending moon left the forest much too dark for Whisperfoot to hunt with any advantage. It became increasingly likely that he would have to retire to his lair without any meal whatever.

But still he remained, hoping against hope. After a futile fifteen minutes of watching a trail, he heard a doe feeding on a hillside. Its footfall was not so heavy as the sturdy tramp of a buck, and besides, the bucks would be higher on the ridges this time of morning. He began a cautious advance toward it.

For the first fifty yards the hunt was in his favor. He came up wind, and the brush made a perfect cover. But the doe unfortunately was standing a full twenty yards farther, in an open glade. For a long moment the tawny creature stood motionless, hoping that the prey would wander toward him. But even in this darkness, he could tell that she was making a half-circle that would miss him by forty yards, a course that would eventually take her down wind in almost the direction that Whisperfoot had come.

Under ordinary circumstances Whisperfoot would not have made an attack. A cougar can run swiftly, but a deer is light itself. The big cat would have preferred to linger, a motionless thing in the thickets, hoping some other member of the deer herd to which the doe must have belonged would come into his ambush. But the hunt was late, and Whisperfoot was very, very angry. Too many times this night he had missed his kill. Besides, the herd was certainly somewhere down wind, and for certain very important reasons a cougar might as well hunt elephants as try to stalk down wind. The breeze carries his scent more surely than a servant carries a visiting card. In desperation, he leaped from the thicket and charged the deer.

In spite of the preponderant odds against him, the charge was almost a success. He went fully half the distance between them before the deer perceived him. Then she leaped. There seemed to be no interlude of time between the instant that she beheld the dim, tawny figure in the air and that in which her long legs pushed out in a spring. But she didn't leap straight ahead. She knew enough of the cougars to know that the great cat would certainly aim for her head and neck in the same way that a duck-hunter leads a fast-flying duck—hoping

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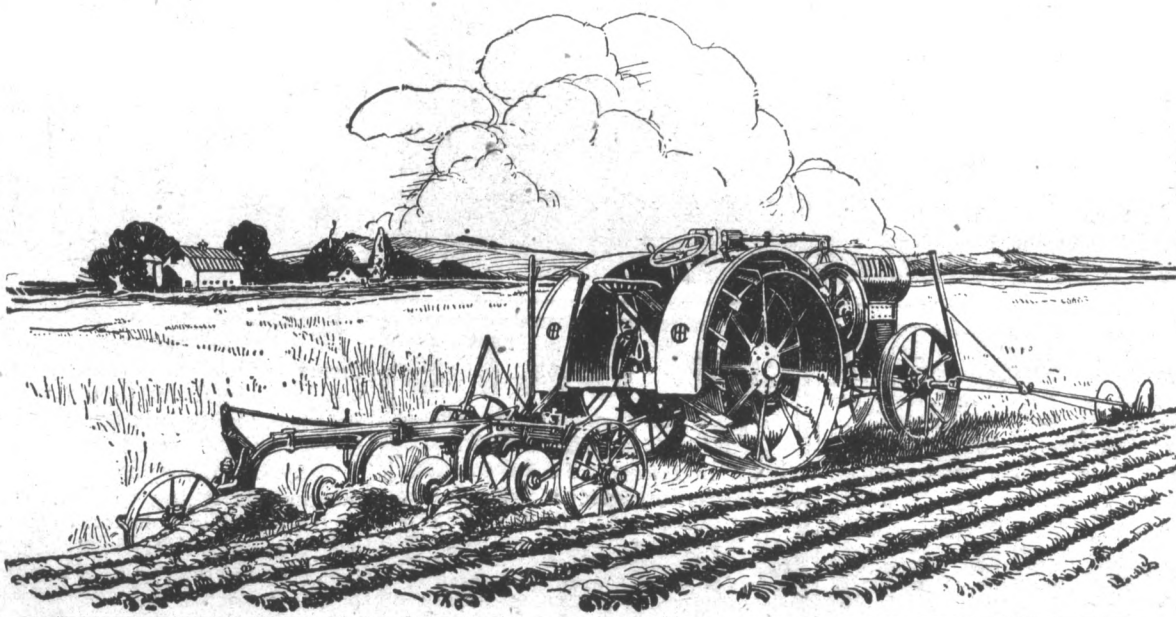
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THE VOICE OF THE PACK

By EDISON MARSHALL

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He yawned again, and his fangs er simple. Man has lived a civilized existence for so long that many of the traits that make him a successful hunter have to be laboriously re-learned from sleep. Then he began to steal up the ridge towards his hunting grounds. Dry as the thickets were, still he seemed to traverse them with almost absolute silence. It was a curious thing that he walked straight in the face of the soft wind that came down from the snow fields, and yet there wasn't a weathercock to be seen anywhere. And neither had the chipmunk seen him wet a paw and hold it up, after the approved fashion of holding up a finger. He had a better way of knowing—a chill at the end of his whiskers.

In fact, the other forest creatures did not see him at all. He took very great precautions that they shouldn't. Whisperfoot was not a long-distance runner, and his whole success depended on a surprise attack, either by stalking or from ambush. In this he is different from his fellow cowards, the wolves. Whisperfoot catches his meat fresh, before terror has time to steal out of the heart and poison it; and thus, he tells his cubs, he is a higher creature than the wolves. He kept to the deepest shadow, sometimes the long, strange profile of a pine, sometimes just the thickets of buckbrush.

And by now, he no longer cared to yawn. He was wide awake. The sleep had gone out of his eyes and left them swimming in a curious, blue-green fire. And the hunting madness was getting to him; that wild, exultant fever that comes fresh to all the hunting creatures as soon as the night comes down.

The little, breathless night sounds in the brush around him seemed to madden him. They made a song to him, a strange, wild melody that even such frontiersmen as Dan and Lennox could not experience. A thousand smells brushed down to him on the wind, more potent than any wine or lust. He began to tremble all over with rapture and excitement. But unlike Cranston's trembling, no wilderness ear was keen enough to hear the leaves rustling beneath him.

His excitement did not affect his hunting skill at all. In fact, he couldn't succeed without it. A human hunter with the same excitement and fever, would have been rendered impotent long since. His aim would be shattered, he would make false steps to frighten the game, and not even Urson, the porcupine, would really have cause to fear him. The reason is rather

simple. Man has lived a civilized existence for so long that many of the traits that make him a successful hunter have to be laboriously re-learned from sleep. Then he began to steal up the ridge towards his hunting grounds. Dry as the thickets were, still he seemed to traverse them with almost absolute silence. It was a curious thing that he walked straight in the face of the soft wind that came down from the snow fields, and yet there wasn't a weathercock to be seen anywhere. And neither had the chipmunk seen him wet a paw and hold it up, after the approved fashion of holding up a finger. He had a better way of knowing—a chill at the end of his whiskers.

Men would cross many seas for a few minutes of such wild, nerve-tingle rapture as Whisperfoot knew as he crept into his hunting grounds. Ever he went more cautiously, his tawny body lowering. And just as he reached the ridge top he heard his first game.

It was just a rustle in the thickets at one side. Whisperfoot stopped dead still, then slowly lowered his body. The only motion left was the sinuous whipping of his tail. But he couldn't identify his game yet. He peered with fiery eyes into the darkness. He was almost in leaping range already.

But at once he knew that the creature that grunted and stirred in the brush was not a deer. A deer would have detected his presence long since, as the animal was at one side of him, instead of in front, and would have caught his scent. Then, the wind blowing straighter, he recognized the creature. It was old Urson, the porcupine.

For very good reasons, Whisperfoot never attacked Urson except in moments of utmost need. It was extremely doubtful that he spared him for the same reason that he was spared by the wisest mountaineers—that he was game to be taken when starving and when no other could be procured. It was rather that he was very awkward to kill and considerably worse to eat.

It is better to dine on nightshade, says a forest law, than to eat porcupine; for the former innocent-looking little berry is almost as fast a death as a rifle bullet, and the flesh of the latter animal will torture with a hundred red-hot fires in the vitals before its eater is driven to its eternal lair. But it isn't that the porcupine's flesh is poison. It is just that an incautious bite on its armored body will fill the throat and mouth with spines, needle points that work ever deeper until they result in death. And so it is quite a tribute to Whisperfoot's intelligence that he had killed and devoured no less than a dozen porcupines and still lived to tell the tale.

He simply knew how to handle them. He knew an upward scoop with the end of his claws that would tip the

creature over; and then he would pounce on the unprotected abdomen. But it was considerable trouble, and he had to be careful of the spines all the time he was eating—a particular annoyance to one who habitually and savagely bolts his food. So he made a careful detour about Urson and continued on his way. He heard the latter squealing and rattling his quills behind him.

CHAPTER IV.

SHORTLY after nine o'clock, Whisperfoot encountered his first herd of deer. But they caught his scent and scattered before he could get up to them. He met wool, grunting through the underbrush, and again he punctiliously, but with wretched spirit, left the trail. A fight with Woolf the bear was one of the most unpleasant experiences that could be imagined. He had a pair of strong arms of which one embrace of a cougar's body meant death in one long shriek of pain. Of course they didn't fight often. They had entirely opposite interests. The bear was a berry-eater and a honey-grubber, and the cougar cared too much for his own life and beauty to tackle Woolf in a hunting way.

A fawn leaped from the thicket in front of him, startled by his sound in the thicket. The truth was, Whisperfoot had made a wholly unjustified misstep on a dry twig, just at the crucial moment. Perhaps it was the fault of Woolf, whose presence had driven Whisperfoot from the trail, and perhaps because old age and stiffness was coming upon him. But neither of these facts appeased his anger. He could scarcely suppress a snarl of fury and disappointment.

He continued along the ridge, still stealing, still alert, but his anger increasing with every moment. The fact that he had to leave the trail again to permit still another animal to pass, and a particularly insignificant one too, didn't make him feel any better. This animal had a number of curious stripes along his back, and usually did nothing more desperate than steal eggs and eat bird fledglings. Whisperfoot could have crushed him with one bite, but this was one thing that the great cat, as long as he lived, would never try to do. He got out of the way politely when Stripe-back was still a quarter of a mile away; which was quite a compliment to the little animal's ability to introduce himself. Stripe-back was familiarly known as a skunk.

Shortly after ten, the mountain lion paw hummed down four feet behind had a remarkably fine chance at a

buck. The direction of the wind, the trees, the thickets and the light were all in his favor. It was old Blacktail, wallowing in the salt lick; and Whisperfoot's heart bounded when he detected him. No human hunter could have laid his plans with greater care. He had to cut up the side of the ridge, mindful of the wind. Then there was a long dense thicket in which he might approach within fifty feet of the lick, still with the wind in his face. Just beside the lick was another deep thicket, from which he could make his leap.

Blacktail was wholly unsuspecting. No creature in the Oregon woods was more beautiful than he. He had a noble spread of antlers, limbs that were wings, and a body that was grace itself. He was a timid creature, but he did not even dream of the tawny Danger that this instant was creeping through the thickets upon him.

Whisperfoot drew near, with infinite caution. He made a perfect stalk clear to the end of the buckbrush. Thirty feet more—thirty feet of particularly difficult stalking—and he would be in leaping range. If he could only cross this last distance in silence, the game was his.

His body lowered. The tail lashed back and forth, and now it had begun to have a slight vertical motion that frontiersmen have learned to watch for. He placed every paw with consummate grace, and few sets of human nerves have sufficient control over leg muscles to move with such astounding, exacting patience. He scarcely seemed to move at all.

The distance slowly shortened. He was almost to the last thicket, from which he might spring. His wild blood was leaping in his veins.

But when scarcely ten feet remained to stalk, a sudden sound pricked through the darkness. It came from afar, but it was no less terrible. It was really two sounds, so close together that they sounded as one. Neither Blacktail nor Whisperfoot had any delusions about them. They recognized them at once, in strange ways under the skin that no man may describe, as the far-off reports of a rifle. Just to day Blacktail had seen his doe fall bleeding when this same sound; only louder, spoke from a covert from which he left the lick in one bound.

Terrified though he was by the rifle shot, still Whisperfoot sprang. But the distance was too far. His outstretched paw hummed down four feet behind had a remarkably fine chance at a Blacktail's flank. Then forgetting ev-

AL ACRES—Percy Gets Results.

—By Frank R. Leet



everything but his anger and disappointment, the great cougar opened his mouth and howled.

Howling, the forest people know, never helped one living thing. Of course this means such howls as Whisperfoot uttered now, not that deliberate long singsong by which certain of the beasts of prey will sometimes throw a herd of game into a panic and cause them to run into an ambush. All Whisperfoot's howl of anger achieved was to frighten all the deer out of his territory and render it extremely unlikely that he would have another chance at them that night. Even Dan and Lennox, too far distant to hear the shots, heard the howl very plainly, and both of them rejoiced that he had missed.

The long night was almost done when Whisperfoot even got sight of further game. Once a flock of grouse exploded with a roar of wings from a thicket; but they had been awakened by the first whisper of dawn in the wind, and he really had no chance at them. Soon after this, the moon set.

The larger creatures of the forest are almost as helpless in absolute darkness as human beings. It is very well to talk of seeing in the dark, but from the nature of things, even vertical pupils may only respond to light. No owl or bat can see in absolute darkness. Although the stars still burned, and possibly a fine filament of light had spread out from the east, the descending moon left the forest much too dark for Whisperfoot to hunt with any advantage. It became increasingly likely that he would have to retire to his lair without any meal whatever.

But still he remained, hoping against hope. After a futile fifteen minutes of watching a trail, he heard a doe feeding on a hillside. Its footfall was not so heavy as the sturdy tramp of a buck, and besides, the bucks would be higher on the ridges this time of morning. He began a cautious advance toward it.

For the first fifty yards the hunt was in his favor. He came up wind, and the brush made a perfect cover. But the doe unfortunately was standing a full twenty yards farther, in an open glade. For a long moment the tawny creature stood motionless, hoping that the prey would wander toward him. But even in this darkness, he could tell that she was making a half-circle that would miss him by forty yards, a course that would eventually take her down wind in almost the direction that Whisperfoot had come.

Under ordinary circumstances Whisperfoot would not have made an attack. A cougar can run swiftly, but a deer is light itself. The big cat would have preferred to linger, a motionless thing in the thickets, hoping some other member of the deer herd to which the doe must have belonged would come into his ambush. But the hunt was late, and Whisperfoot was very, very angry. Too many times this night he had missed his kill. Besides, the herd was certainly somewhere down wind, and for certain very important reasons a cougar might as well hunt elephants as try to stalk down wind. The breeze carries his scent more surely than a servant carries a visiting card. In desperation, he leaped from the thicket and charged the deer.

In spite of the preponderant odds against him, the charge was almost a success. He went fully half the distance between them before the deer perceived him. Then she leaped. There seemed to be no interlude of time between the instant that she beheld the dim, tawny figure in the air and that in which her long legs pushed out in a spring. But she didn't leap straight ahead. She knew enough of the cougars to know that the great cat would certainly aim for her head and neck in the same way that a duck-hunter leads a fast-flying duck—hoping

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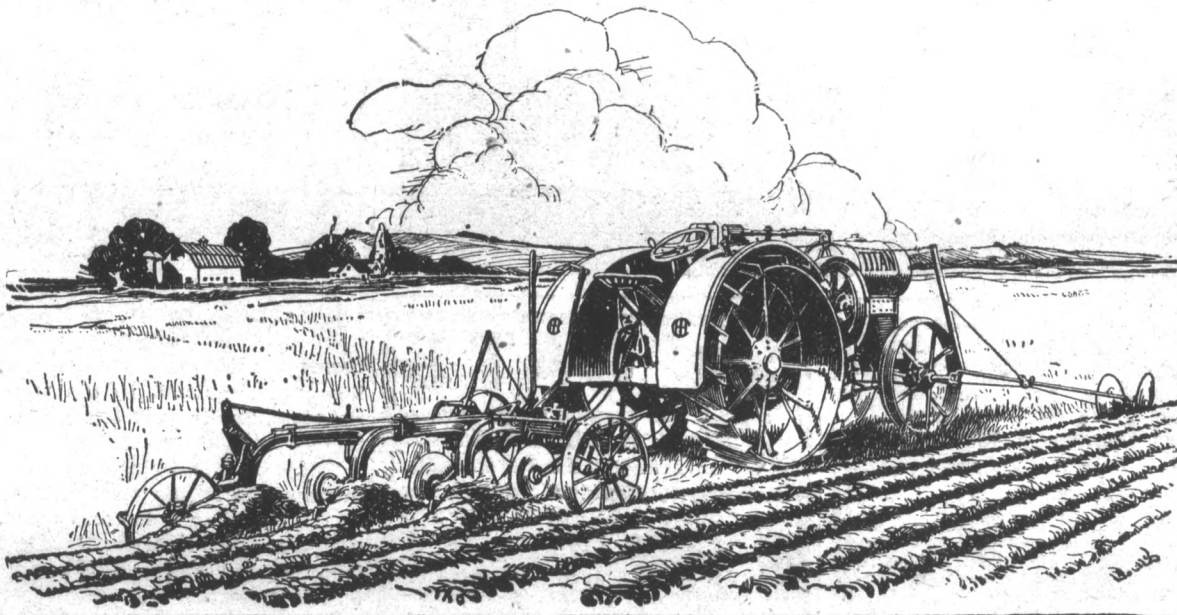
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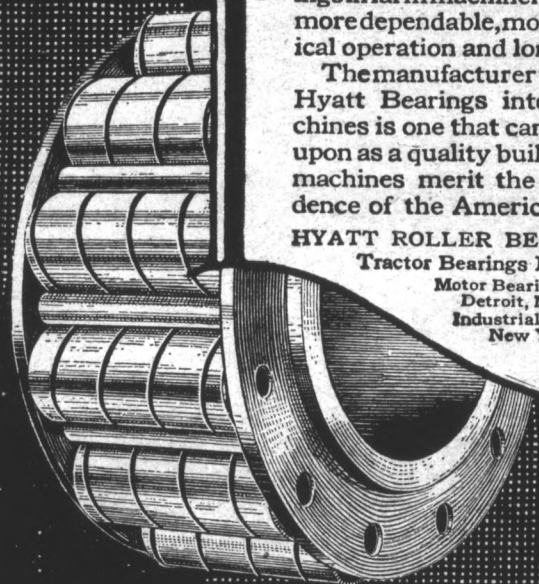
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to intercept her leap. Even as her feet left the ground she seemed to whirl in the air, and the deadly talons whipped down in vain. Then, cutting back in front, she raced down wind.

It is usually the most unmitigated folly for a cougar to chase a deer against which he has missed his stroke; and it is also quite fatal to his dignity. And whoever doubts for a minute that the larger creatures have no dignity, and that it is not very dear to them, simply knows nothing about the ways of animals. They cling to it to the death. And nothing is quite so amusing to old Woof, the bear—who, after all, has the best sense of humor in the forest—as the sight of a tawny, majestic mountain lion, rabid and foaming at the mouth, in an effort to chase a deer that he can't possibly catch. But tonight it was too dark for Woof to see. Besides, one disappointment after another had crumbled, as the rains crumble leaves, the last vestige of Whisperfoot's self-control. Snarling, he bounded after the doe.

She was lost to sight at once in the darkness, but for fully thirty yards he raced in her pursuit. And it is true that deep down in his own well of instincts—those mysterious waters that the events of life can hardly trouble—he really didn't expect to overtake her. If he had stopped to think, it would have been one of the really great surprises of his life to hear the sudden, unmistakable stir and movement of a large, living creature not fifteen feet distant in the thicket.

He didn't stop to think at all. He didn't puzzle on the extreme unlikelihood of a doe halting in her flight from a cougar. It is doubtful whether, in the thickets, he had any perceptions of the creature other than its movements. He was running down wind, so it is

certain that he didn't smell it. If he saw it at all, it was just as a shadow, sufficiently large to be that of a deer. It was moving, crawling as Woof sometimes crawled, seemingly to get out of his path. And Whisperfoot leaped straight at it.

It was a perfect shot. He landed high on its shoulders. His head lashed down, and the white teeth closed. All the long life of his race he had known that pungent essence that flowed forth. His senses perceived it, a message shot along his nerves to his brain. And then he opened his mouth in a high, far-carrying squeal of utter, abject terror.

He sprang a full fifteen feet back into the thickets; then crouched. The hair stood still at his shoulders, his claws were bared; he was prepared to fight to the death. He didn't understand. He only knew the worst single terror of his life. It was not a doe that he had attacked in the darkness. It was not Urson, the porcupine, or even Woof. It was that imperial master of all things, man himself. Unknowingly, he had attacked Landy Hildreth, lying wounded from Cranston's bullet beside the trail. Word of the arson ring would never reach the settlements, after all.

And as for Whisperfoot—the terror that choked his heart with blood began to wear off in a little while. The man lay so still in the thickets. Besides, there was a strange, wild smell in the air. Whisperfoot's stroke had gone home so true there had not even been a fight. The darkness began to lift around him, and a strange exultation, a rapture unknown before in all his hunting, began to creep into his wild blood. Then, as a shadow steals, he went creeping back to his dead.

(Continued next week).

Queen of the South Talks

Our Weekly Serman—By N. A. McCune

THE queen of the south will rise at the judgment with the men of this generation and condemn them; for she came from the ends of the earth to listen to the wisdom of Solomon, and here is One greater than Solomon."

There is something that grips the imagination in the visit of the Queen of the South to Solomon's court. Monarchs greater than she, lived and flourished in the long ago, who are now lost in time and dust, but the valiant Queen of Sheba lives on, in the pages of Scripture. She was on pilgrimage of hero-worship. She had heard of the wonderful king to the north, of his wisdom, his great and prosperous kingdom. She was not content with the stories of travellers. She must see for herself. Christ said that such an eager spirit as hers will stand in the judgment day and condemn the indifferent, indolent mass of mankind who care not enough for the realities of life to strive for them. The judgment will bring all men of all ages together. Time will not count, nor miles, nor the color of a man's skin. The man who lived in the first century will stand beside one who lived in the twentieth century. Paul will stand near Wesley, Nero will be in sight of George V. And men will be judged by the motives they had, and the eagerness with which they seized on the light that shone in their day.

The journey of the five Nez Perce Indians across the continent to get a copy of the white man's Bible is one of the most beautiful acts to be found in American history. There is a simplicity and a nobility about this deed of the red man that takes hold of the heart. They had heard that the white man had a book that told of God, of the happy life, and the great world beyond. Think of Paton's work in the

New Hebrides Islands. One night Mr. Paton hid himself in a palm tree, while, twenty feet below, the cannibals were roasting a human victim. The victim took the place of the missionary, who was to have provided the repast, if he had not escaped. Years later Mr. Paton gives us a Sunday morning scene on the same island. It is five o'clock. The mists are still rising off the tropic lowlands, when the bell in the little church steeple rings out. In a few minutes several hundred natives gather in the church and for an hour they make themselves happy with Christian song and prayer. Then breakfast. Again at eight they come, for the Lord's Supper and for Bible study. In the afternoon there is a tour around the island to visit other villages. At night another service of song, while the southern sun sinks out of sight behind the glimmering sea. We need not wonder that Christ spoke so plainly. It is but reasonable that such intense souls as the five Nez Perce Indians, or the transformed natives of the New Hebrides should rise at the judgment against the derelict and the perverse, who will not so much as consider the appeal of Him who is the Way, the Truth, the Life.

IN all times and places, the searching spirit has a magnetism and a beauty that few things equal. Epicurus was a slave, yet he would not be bound by his fetters, but sought the highest and noblest truth, until many of his sayings are proverbs. Count Tolstoy tells of one of the Russian emperors, Alexander I, who, by living a peasant's life, sought to find the way to life. The emperor gave up his throne, and by putting on another man's clothes, he took the fearful cudgeling that a soldier was to receive, for

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deserter who survived the lashes, was sent to Siberia. To Siberia, Alexander—no longer Alexander—went. And there he lived for many years, learned farming, helped the exiles, taught the children, cured the sick. But one day a former servant recognized Alexander, and with wild joy fled out of the room to tell everyone. The whole village rushed to the cottage where the former ruler lived, but he had vanished. After that, it was said that a tall and stately old man wandered for a long time over Siberia and at last met his death in the Ural Mountains. Tolstoy says, "What a great moment that end must have been! What a noble liberation of the soul!"

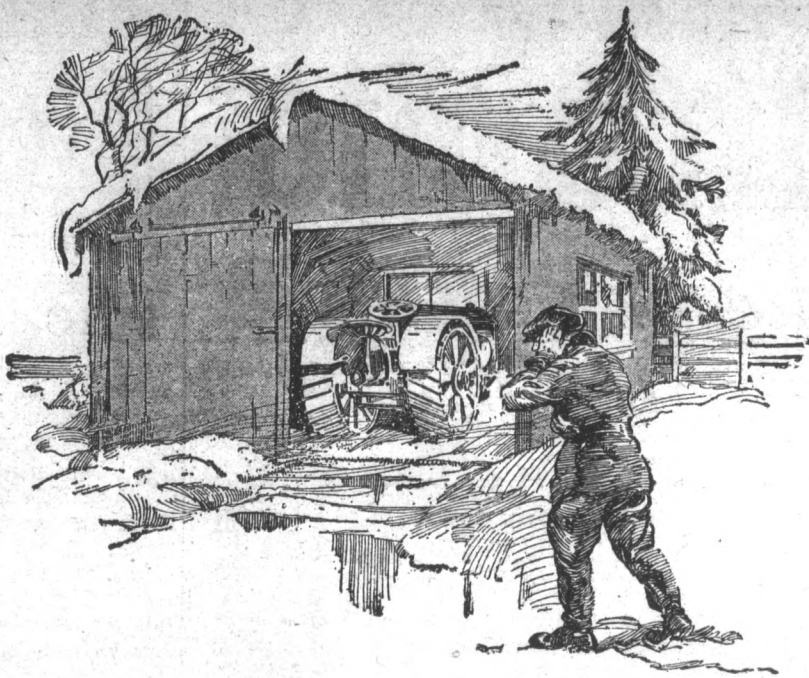
But how is Christ greater than Solomon? How is He greater than all the wise and mighty of the passing ages? First, because He is sinless. He never repents. He never shows by word, deed, intimation, that he has the slightest consciousness of sin. He has nothing to regret. Of what human can such a thing be said? The noblest souls are often those who repent the most. But it is not so with Christ. He has nothing to repent of. Next, look at the pretensions of Christ. He said, "I and the Father are one," "No one cometh unto the Father but me." "I am the way, the truth and the life." "Before Abraham was, I am." "I have power to lay down my life, and I have power to take it again." What man can you imagine uttering statements like those? Such claims made by a man would be preposterous, blasphemous, ludicrous in their insane egotism. But they come perfectly naturally from the lips of Christ. And the fact that men went out and gave their lives for the proposition that they knew Christ had risen from the dead, was another link in the evidence that Christ was more than mortal. "A greater than Solomon is here," because he had qualities as far beyond the power of Solomon, as the fixed stars are from the earth.

MANY readers of the Michigan Farmer have seen the following happen: A saw mill is set up in a forest. Almost over night a village springs up around the mill. There are boarding houses for the men, and rough cottages. A spur of the railroad is laid, to take care of the logs and lumber. The big circular saws eat up the trees as children eat up candy, and cry for more. The sidetracks are full of loaded cars, the weekly pay-roll is heavy, the jail is full of drunks every Saturday night, and prosperity is said to be high. Then something happens. The timber is almost gone. The saws and the teams have done their work too well. Gone the oaks that have stood for a hundred years. Gone the graceful maples. Gone the whispering hemlocks. Only stunted birches are left here and there, in clumps, with an occasional cedar swamp. The night shift is taken off. The men begin leaving town. Then the ten-hour shift is reduced to eight. Then the mill shuts down forever. Unless some other industry comes in, that village is left high and dry on the shores of commercial deadness. So fares it with the man who finds one youthful vision after another fading away, and who has nothing real and lasting on which to fix his hopes.

Sunshine Hollow Items

By Rube Rubicon

Earnest Tooley has been allowed to select the menu for his birthday party. Here's the menu: Oyster soup, olives, head lettuce salad, porterhouse steak with mushrooms, hashed brown potatoes, hot biscuits, apricot pie a la mode, chocolate soda, ben bons, salted pecans. Mrs. Tooley says that Earnest will be thirteen years old and weighs 187 pounds now. So she has called off the birthday party on account of the H. C. L.



"I Wonder How She'll Start"

IT'S bitter cold. The snow crunches crisp at every step. Everything seems frozen into one solid piece—especially the tractor, which has been idle for hours—or even days.

"Turning her over" may be next to impossible, unless you are using the proper grade of oil.

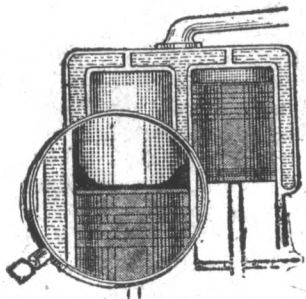
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The Santa Fe operates five trains a day from Chicago and Kansas City to California. Two of them—the California Limited and the San Francisco Limited—are solid Pullman trains with dining cars all the way.

The Navajo, Scout, and Missionary carry standard and tourist sleepers and chair cars; meals in dining cars east of Kansas City and at station dining rooms west. Meal service for all trains by Fred Harvey. The California Limited and the Missionary have through sleepers by way of Grand Canyon of Arizona.

The Santa Fe tourist sleepers are comfortable and you save about half the berth rate. Station meals also are economical—a "square meal" for a dollar.

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The State Board's booklet about these lands and plans for financing improvements, Santa Fe illustrated folders descriptive of San Joaquin Valley and the trip there, mailed on request.



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Woman's Interests

The New Leader of Home Demonstration Agents

THE Michigan Agricultural College has engaged Mrs. Louise Campbell, of Iowa, as leader of the home demonstration agents. Those Michigan women who attended the 1919 Farmers' Week, will remember Mrs. Campbell as the unusually entertaining, interesting and "peppy" speaker who took her hearers through the rounds of house-keeping in such a "Let's-all-pitch-in" way she made even spring house-cleaning sound like some sort of joy-fest.

Mrs. Campbell has been assistant leader in Iowa for nine years, working with Miss Neale S. Knowles, who is well known in Michigan. She is a graduate of the North Dakota Agricultural College, has taught domestic science, traveled with Miss Anna Barrows, of Columbia, to secure her extension training; took special training under Prof. E. S. Keane, of North Dakota, in household engineering and physics, and has done special work along social lines with A. G. Arvold, of Little Country Theater fame.

Academically Mrs. Campbell is well qualified for her position. But best of all, she has lived, and lived the life of the women with whom she has come to work. Born and raised on the prairies of North Dakota, she knows all about the hardships of pioneering, of crop failures, of being one hundred miles from the doctor when the stork arrives; of having the line break on a muddy wash day; the bread turn sour on bake day, and the threshers arrive the day she's all set to entertain the "Ladies' Aid." The problems of the farm women have been hers; so she knows them, not because she's read about them in a Mary Wilkin's Freeman story, but because she's gone through them.

With the aid of the home demonstration agents, of whom there are twelve, and the three specialists, Mrs. Campbell hopes to bring the Michigan Agricultural College into the lives of all farm women who need it. The college is for everyone in the state, the woman on a mortgaged farm in a thinly settled section, as well as the more prosperous one on a market garden farm just out of a big city. A letter or a post card sent to Mrs. Campbell, at East Lansing, with a request for advice or help on any home-making problem, is all you need to bring to you all the experience and skill of a corps of trained workers.

The extension workers are planning a comprehensive program for the new year. Through the home agents and specialists they hope to bring into the homes a more extended knowledge of scientific feeding, proper dress for working women, business women, and high school girls, and to bring to girls especially a thorough knowledge of the value of a dollar.

"We want to make better homes and a better community," Mrs. Campbell says. "Too many women are sending people to the hospital by way of a badly planned dietary. We want them to know it is better to spend money for food than for doctors. We want girls to learn the superior value of sensible, well-made, efficient clothes to cheap, flimsy 'finery.' And most of all, we want real mothers. You can say

what you will about college training and higher education, but when all's said and done, a sensible, well-balanced, progressive mother does more to make the future of her children stand for success than any other one thing. Let us have mothers with vision, courage and common sense and community problems will take care of themselves."

Miss Edna V. Smith, who has been acting head of the home demonstration agents, will continue her work as specialist in household management; Miss Coral R. Havens is specialist in



Mrs. Louise Campbell.

food and nutrition, and Miss Helen Arms in clothing and millinery.

Plans are already under way for the women's conference, February 14, at the college. Miss Alma Binzell, of Iowa, will give talks on Child Training, and it is hoped to have Miss Florence E. Ward, of Washington, who is in charge of all home extension work, and Miss Agnes Ellen Harris, also of Washington. A conference of the home agents will precede the regular week.

Mrs. Campbell is to speak in Allegan, January 11, before the Allegan County Farm Bureau. She has already spoken in Dearborn, Pontiac, and before the Indiana Farm Bureau.

USES FOR OLD STOCKINGS.

THE other day a young housekeeper asked me what I do with old stocking legs, when the feet are worn out and the legs still good.

I assured her that, even now, when stockings are no longer as firmly woven as of old, they still have many uses.

New feet can be bought with double heels and toes and sewed to the old legs and one has a practically new pair of stockings. The old feet are cut off carefully and the new ones sewed on with a neat seam, which cannot hurt the ankle. Care should be taken to avoid the poor thin feet which are sometimes offered in the stores, for they are not worth the labor. Neither are feet made from old stocking legs. Old legs mended with new strong feet, are not the prettiest or most fashionable of stockings, but they wear a long time and with high shoes they do very well about home, and save the price of expensive stockings.

Another excellent use for old stock-

ing legs is to draw them over the arms as sleeve protectors. White stocking legs are particularly nice to use this way, because one can see as soon as they become soiled and wash them. They should have a thin rubber run into the wrist and also the arm end to keep them in place.

Again, a pair of old white stocking legs, or even black ones, can be made into a pair of drawers for a child. The hems should be ripped out and each leg should be cut down a short and equal length at one side and then be sewed neatly together in the shape of a pair of drawers. The crotch should be strengthened with a square piece for a gusset. Slit down at each side, sew on the bands and make the button-holes. The legs may be finished at the bottom with a hem or with a hem and rubber drawstring, as one prefers. Such a pair of drawers give both wear and warmth.

Or, one may take four good black stocking legs, ripe out the hems, and split down through the narrowed sides. Then sew all together neatly with the wide ends running the same way. Finish the narrow ends with a placket and a band as the top of a woman's petticoat. To the lower part one may sew a silk or sateen ruffle of a width to make the petticoat long enough. The result will be a skirt which may be depended on for good service.

Old black stocking legs make very good dusters. Two legs should be split down the sides and then joined with a wide and a narrow end running the same way. White stocking legs, treated in the same way, make excellent dish and wiping cloths.

At last, when the old legs have worn out two or three pairs of feet, they are still capable of being cut into carpet rags, woven and sewed together for rugs. Or they may be woven in regular rag rug fashion. One can mix in pretty colors with the black to make them attractive. Blue is especially pretty thus mixed in with the black. A rug of this kind is very useful and good looking for a bedroom or bathroom.—CHARLOTTE BURD.

AN IMPROVISED DOUBLE BOILER.

AFTER some experimenting, I have found a satisfactory substitute for a double boiler to cook our cereal. I took a three-quart enameled basin, an old porcelain-lined kettle of about the same diameter, but with little or no flare, and a pie tin of the same diameter. To use, I fill the kettle two-thirds full of water and set to heat, then turn the required amount of water into the basin and heat. When boiling, I add salt and the cereal, stirring until it boils up, then set the basin into the kettle, covering with the inverted pie tin with some sort of weight on top. The kettle bail lifts the edge of the basin, giving the necessary vent for steam. No further attention is required for an hour, when if the water has been kept boiling, the cereal will be ready to serve, though it may be cooked longer.

When steaming corn bread, pudding, apple dumpling, etc., I use the same basin, but a large iron pot instead of the small kettle. I fill the pot half full of water, place a grater or similar article in the bottom, set in the basin, cover it with the inverted pie tin, then cover the pot with an inverted pan the same diameter as the pot, with weight on top.—G. K. L.

EFFECTIVE HAND LOTION.

Mrs. W. N., Carson City.—There is no better lotion for some hands than plain olive oil. Perhaps your skin can not stand glycerine. Some can not, and if this is the case it may explain why lotions fail to heal your hands. Use a recommended skin soap, and rub olive oil in well after putting your hands in water.



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Our Boys' and Girls' Page

How to Make a Bench

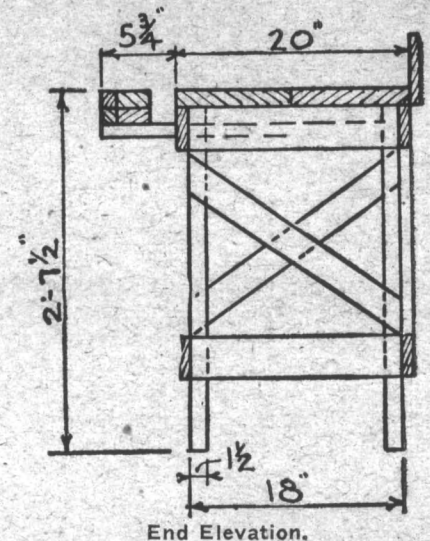
By H. M. Ward

ONE of the things you need if you are to make things with tools, is a workbench. Some people will tell you that an honest to goodness workbench, with a vice and everything, will cost several dollars, even if you make it yourself. They are mistaken. You can buy the material and make a full-sized manual training bench at a cost of five dollars. The lumber can be purchased from any lumber yard and cut as shown by the illustrations.

Four pieces of lumber are required to make this bench. One piece is two by twelve inches; and twelve feet long. Another is two by four inches by sixteen feet long. The third piece is two by four inches, and fourteen feet long. The fourth piece is one by six inches, by twelve feet long. This makes a total of forty-seven board feet of lumber. Yellow pine or hemlock can be used for making this bench, and it should not cost more than \$4.25. If cypress is used the cost will be somewhat more, perhaps about five dollars.

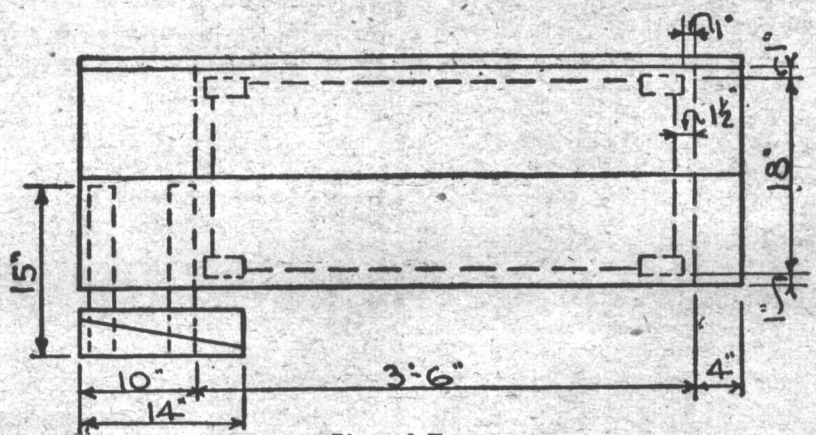
From the two by twelve-inch plank cut two pieces four feet eight inches long for the vice parts, and one piece eighteen inches long to be fastened to the under side of the bench. The pieces to be cut from the two by four material are: Four pieces two feet six inches long for the legs, four pieces one foot six inches long for the end rails, and four pieces three feet six inches long for the side rails. From the inch board take a four-foot eight-

to leave as small a crack as possible. Either nails or screws can be used to fasten the parts together. Screws will be a little better than nails. Whatever is used on the top of the bench and vice, should be sunk below the surface, and the holes plugged with wood. This is done so that cutting tools will not be dulled by striking the metal. If nails are used, about one pound of eight-penny and one pound of



End Elevation.

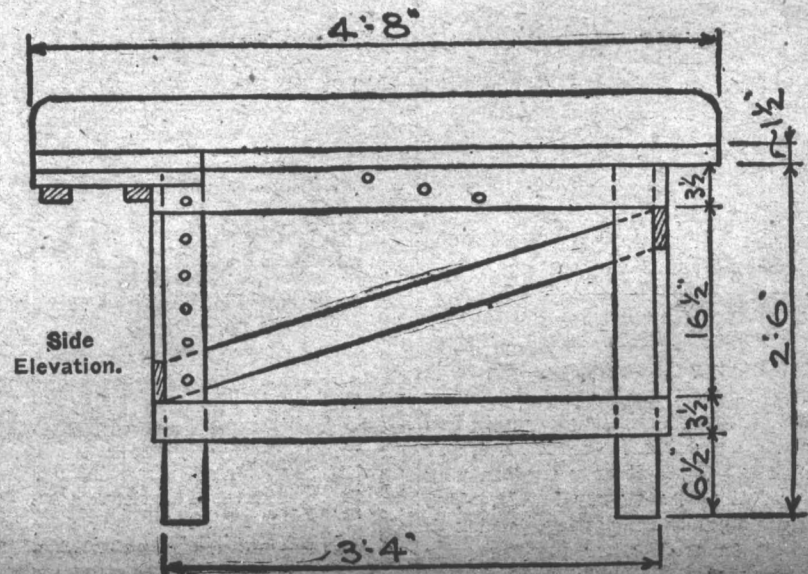
inch piece for a top back-board. The six-penny will be required. One gross of No. 10, two and a quarter-inch flat head wood screws will be needed if screws are used. When using screws, always drill first with a gimlet bit so as to prevent splitting of the wood.



Plan of Top.

remainder of this board should be ripped into three-inch strips for braces and vice cleats. The bit should be a little smaller than the screw.

The side and end rails are to be made by fastening the outer wedge-shaped piece to the strips that extend under one end of the bench. The inner wedge is movable so that it can be should be fitted closely together so as forced up against the work to be held.



This vice is satisfactory for most of the work that is required of a vice on a manual training or farm bench. A light tap with a hammer sits it snugly against the work and a light tap from the other end releases it.

It is convenient to have a vice on the end of the bench, as well as one on the side. It costs little to add this to the plans given. This extra vice may be added later, if you do not wish to make it when the bench is being put together.

SKI-RACING ON.

THREE Gogebic county high schools will compete in the annual inter-high school ski race during January. Ski racing is a favorite pastime among certain elements in our population, and the ski itself is a popular mode of getting about with these same people in the season of deep snow. The ski is constructed from a long narrow board, well-selected and carefully fashioned, with grooves nicely cut on the under, or sliding side of the ski and with the forward end upturned and terminating in a point. A good ski is regarded as a work of art, and its use is also a work of art as pursued by our Scandinavian and Finnish inhabitants.—C.

SEEN FROM A CAR WINDOW.

ON a recent trip through Michigan, Illinois, Missouri and Iowa, I saw enough waste wood to supply the farmers for a year, yet the papers were howling over a coal shortage and nearly every farm chimney was belching coal smoke.

I saw hundreds of mowers, hay rakes, plows and reapers standing in the fields just where the farmer had unhitched, though it was late fall. I saw hundreds of farm yards littered with old trash, discarded buggies, broken machinery, rotting trees, mud sagging gates and toppling fences. Here and there a dreary, one-room schoolhouse stood in its bare and muddy yard while children played the old games of pum-pump pull away and happy miller.

Once in a great while a neat, well-kept farm yard appeared as an oasis in the aesthetic desert. When I got home I stood out in the road and looked my own place over, then I got busy.

L. B. R.

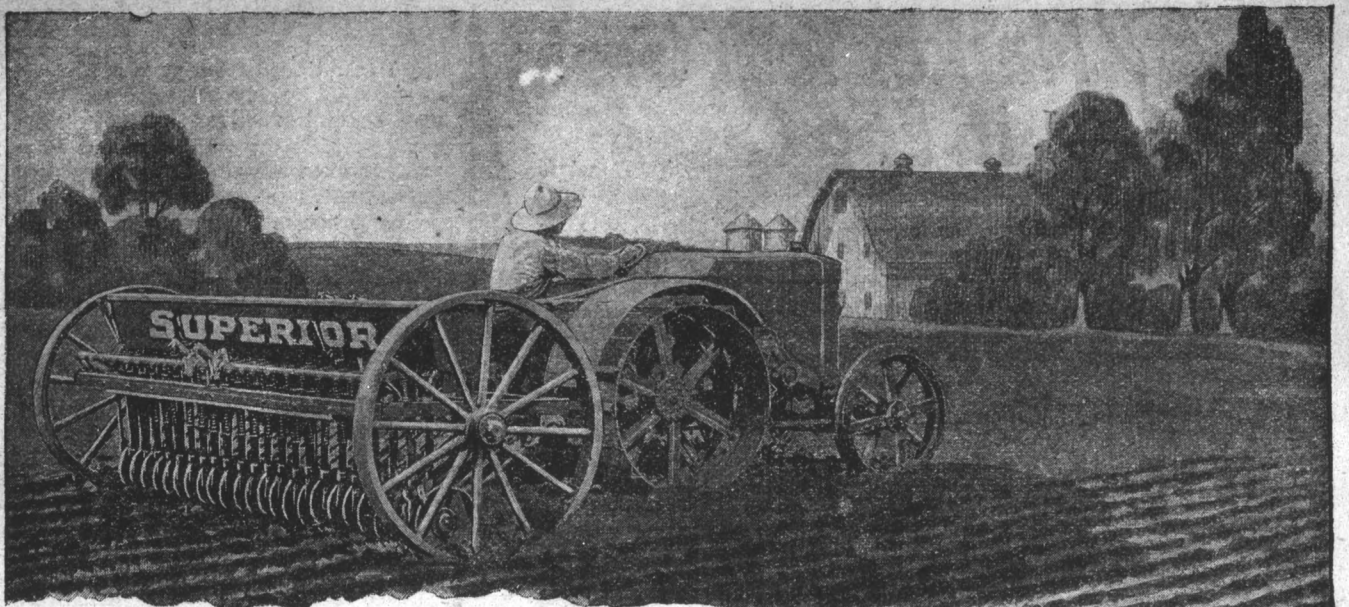
UPPER PENINSULA NEWS.

(Continued from page 36).

most northerly road system in Michigan, but it is also one of the best constructed and best maintained, and it is also one of the most attractive drives in the state. The Keweenaw commission will begin clearing operations on the new Gay-Lake Linden highway after the holidays. This will open up some very fine farming country. The Iron Mountain city council has moved to ask the road commission to take over certain city streets as part of the county road system.

Menominee county, according to the Herald-Leader of that city, is well set up because of its leading position in the upper peninsula in point of farms—2,106.

The Calumet News announces that the Houghton County Farm Bureau is preparing to introduce into Houghton county a new type of potato, which is to be marketed under the designation, "The Houghton County Russet." The color and smoothness of the skin recommends it as a marketable variety, and it is said to be very resistant to disease. Each of the eighteen locals of the county are to receive a bushel of the new potato, next spring. The yield of these potatoes will then be used for seed. The only condition attaching to the donation of seed, next season, it is stated, is that each local shall exhibit a peck of the new potato at the county fair to familiarize farmers with the variety.



Superior The Even-Seeding Grain Drill

BUYING a Superior Grain Drill is the best long-life implement investment you can make. For over fifty years the work of the Superior has been the recognized standard of good seeding. Superior Drills seed evenly—all the time. They plant every seed at an even depth and at an even space. Every furrow opener makes a perfect, roomy trench and then properly covers the seed.

For Team or Any Tractor

THE Superior is built for good work and long, hard service. Simple in construction—and extra strong where strength is needed. It is extremely light of draft—easy on team both on hillsides and in heavy soils. It is the drill you need on your farm.

SUPERIOR Tractor Drills have an adjustable hitch for use with any tractor, and a special power lift that enables the operator to raise or lower the discs without leaving the tractor seat. Your dealer will be glad to show and explain all special features.

The American Seeding-Machine Company, Incorporated
Springfield Ohio

Most Complete Line of Grain Drills in the World



PENFIELD
The new starched collar model
SLIDEWELL
COLLARS

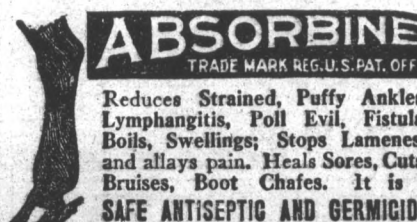
Save Your Tie, Time and Temper
Hall, Hartwell & Co., Makers, Troy, N. Y.

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Trees That Please
Send for our 1921 Catalog containing complete information about the wonderful variety of sturdy fruit trees we offer. Every tree a perfect specimen and guaranteed to satisfy. 33 years reputation for square dealing. Kelly Bros., 1100 Main St., Danville, N. Y.



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WE pay the Market's Highest Mark. Are absolutely reliable—established 1853—capital, \$1,100,000. Write at once for FREE Price List and Booklet, "Successful Trapping." Postal will do.
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Reduces Strained, Puffy Ankles, Lymphangitis, Poll Evil, Fistula, Boils, Swellings; Stops Lameness and allays pain. Heals Sores, Cuts, Bruises, Boot Chafes. It is a **SAFE ANTISEPTIC AND GERMICIDE**

Does not blister or remove the hair and horse can be worked. Pleasant to use. \$2.50 a bottle, delivered. Describe your case for special instructions and Book 5 R free. **ABSORBINE, JR.**, antiseptic liniment for mankind, reduces Strains, Painful, Knotted, Swollen Veins. Concentrated—only a few drops required at an application. Price \$1.25 per bottle at dealers or delivered.
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This medicated salt is a wonderful tonic, conditioner and worm expeller for cattle, horses hogs and sheep.

100 pound kegs	\$7.00
40 " pails	3.50
15 " pails	1.75

Above are our delivered prices. Send no money—you can pay when delivered. Satisfaction guaranteed.

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Virginia Farms

You can become happy and independent farming in Virginia. You can grow profitably grains, corn, fruits, alfalfa and all grasses, beef and dairy cattle. Virginia boasts the finest apple growing section in the world. Prices very reasonable, but advancing. We welcome you. Write now for illustrated hand book and maps.

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160-Acre Michigan Farm Completely Equipped \$6000

Easy terms; retiring owner includes: horses, 13 cattle, sow, 6 shoats, vehicles, implements, machinery, harnesses, 100 bu. potatoes, quantity corn, 20 cords stove wood, vegetables, etc.; on main road; 75 acres productive tillage, balance large pasture; wood; 60 apples; cottage house; good barn. Priced quick sale. Details page 73 Strout's Illustrated Catalog 1200 Bargains. FREE. **STROUT FARM AGENCY**, 814 BO FORD BLDG., Detroit, Mich.

For Sale Two very desirable quarter-sections of land, in Jefferson County, Idaho, on the railroad, one mile from the station of Rigby, with 400 inches of water in the Butte and Market Lake Canal. For particulars, address
F. C. SCHRAEDER, Denver, Colorado

Will Exchange 250 acre stock farm; 100 acres cleared, good level land, new house large basement barn, on gravel road, 5 miles to City. Price \$18,000. Want smaller farm.
WM. AXE, Bay City, Mich.

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Grain prices are low—egg prices are high. The great item of cost in egg production is feed—so the more *cheap grain* you turn into *high-priced eggs*, the bigger your profits.

You have the feed and the hens. Now work this profitable combination to the limit. Give you, birds a varied ration—feed it freely—get eggs NOW—beat the grain market—cash in on the high-level egg market. And you'll be doubly sure of a big egg "harvest" by mixing

Pratts Poultry Regulator

with the feed. This great poultry tonic and conditioner quickly puts hens in laying condition and offsets the strain of heavy laying so they keep on shelling out the eggs. It supplies many needed things lacking in the winter feed—keeps the egg-making machinery working steadily and effectively. It enables you to "market your grain in egg cases," to your great advantage.

Expert poultrymen who make a specialty of this hen business and study it carefully find Pratts Poultry Regulator a big help. That's why they're spending their money for it. You'll find every dollar paid for Pratts Poultry Regulator giving big returns in increased egg production.

"Your Money Back if YOU Are Not Satisfied"

Your local dealer can supply you with the genuine Pratts. Refuse substitutes.

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Makers of Pratts Animal Regulator, Cow Tonic, Hog Tonic, Buttermilk Baby, Chick Food, Stock and Poultry Remedies.

pratts

P-40



Poultry Pays Well With BUCKEYE Equipment

SUCCESS with the farm flock depends on turning every hatchable egg into a good, strong chick and raising the largest number of these chicks to quick maturity at the least expense.

Buckeye Poultry Raising Equipment is preferred by 600,000 users and 15,000 dealers because it has proved itself really economical and efficient. Wherever poultry raisers gather, its supremacy is acknowledged.

You take no chances whatever with the Buckeye. The incubators, from the 65-egg machine to the 10,368-egg Mammoth, are guaranteed to hatch every hatchable egg, and "Buckeye" chicks are famous for size and vigor.

Buckeye Colony Brooders have solved the problem and revolutionized the chicken business. They make three chicks grow where one grew before, at a fourth the labor and a third the expense. Sold on a money-back guarantee. Burn coal or kerosene. Self-regulating, sanitary and economical.

Buckeye equipment is endorsed by agricultural colleges, experiment stations, and county agents everywhere.

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The Buckeye Incubator Co.

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Keep Your Hens a Laying

Trust your hatching to time-tested and tested

"SUCCESSFUL"

Incubators and Brooders

Used by the big money-makers who stay in business year after year. Poultry Lessons Free. Booklet, "How to Raise 48 Out of 50 Chicks," 20 cents. Catalog Free. Write today.

DES MOINES INCUBATOR CO., 338 Second Street, Des Moines, Iowa



150 EGG CHICK Both for \$19.75
Incubator & Brooder both made of California Redwood. Incubator covered with asbestos and galvanized iron; triple walls, copper tank, egg tester, thermometer, 20 days' trial—money back if not O.K. Write for FREE catalog. Ironclad Incubator Co., Box 85 Racine, Wis.

Poultry Book Latest and best yet: 144 hatching, rearing, feeding and disease information. Describes busy Poultry Farm handling 63 pure-bred varieties and BABY CHICKS. Tells how to choose fowls, eggs, incubators, sprouters. Mailed for 10 cents. Berry's Poultry Farm, Box 136 Clarinda, Iowa

64 BREEDS Most Profitable chickens, ducks, turkeys and geese. Choice pure-bred, hardy northern raised. Fowls, eggs, incubators at low prices. America's great poultry farm. 28th year. Send 6¢ for large valuable book and catalog. R.F. NEUBERT Co., Box 814 Mankato, Minn.

\$15.95 Buys 140-Egg Champion Belle City Incubator

Hot-Water, Copper Tank, Double Walls Fibre Board, Self-Regulated. \$9.95 buys 140-Chick Hot-Water Brooder. Or both for only

\$23.95 Freight Prepaid East of Rockies and allowed on Express. Guaranteed. Order now. Share in my \$1,000 in Prizes, or write for Free Book, "Hatching Facts." It tells everything. Jim Rohan, Pres. Belle City Incubator Co., Box 14 Racine, Wis.

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140-Egg Size—Guaranteed—has double walls, copper tank, full-size nursery, automatic regulation thermometer held so that chicks cannot break it when hatching. Detroit Brooders, 1 foot. Double walled, hot water heated. Write for special low price on both machines.

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130 Egg Incubator and Brooder Both for \$18.25
If Ordered Together, Freight Paid East of Rockies. Hot water copper tanks, double walls, dead air space, double glass doors, all set up complete, or 180 Egg Incubator and Brooder \$23.50 FREE Catalogue describing them. Send for it TODAY or order direct. Wisconsin Incubator Co., Box 82 Racine, Wis.

Poultry Houses and Yards

(Continued from page 29).

is spent in looking after the flock. A good concrete floor may be laid on the earth if it is dry and firm, but it is safer to excavate and fill with crushed stone, which should be thoroughly pounded before applying the concrete mixture.

IN a northern climate, the windows should not be large, and not more than one to every eight feet in length for a house fourteen feet wide. These should be placed on the south side and at proper distance from the floor to allow the most sunshine possible to fall upon the floor during the winter days. It is always preferable to have a window placed so that it will come in the center of each pen. One square foot of window space for each fifteen square feet of floor space will be adequate for the laying-house.

In order to secure the most sunshine on the floor the windows should be placed so that the greatest length is vertical. Then if the bottom of the window is from eighteen inches to twenty-four inches from the floor, the sunshine will reach practically every part of the floor at some time during the day. While it is difficult to get too much light and sunshine too many windows radiate too much heat. If warm houses are desired too much glass must be avoided.

During the summer, spring and fall months the open windows will give sufficient ventilation, but during the winter some means of changing the air in the building must be provided without letting the cold air fall directly on the fowls. The great trouble with most systems of ventilation is the fact that they give too much fresh air during the cold weather and permit the house to become damp and stuffy during warmer spells. Any system of ventilation adapted to the farm poultry house must be simple and easily controlled. As a rule, ventilators are not needed in extremely cold weather, but during the rainy, thawing weather some ventilation is needed to prevent dampness from gathering. It is necessary to use judgment in regulating any system of ventilation to meet the requirements of the flock.

The open air or muslin frame that fits into the window opening is in vogue on many poultry farms, and deserves popularity. When it is closed for the night it takes care of the ventilation. It has been used with success in the coldest climates, and the hens have seemed to thrive better than when confined in warm, stuffy houses, but in a cold climate they cannot be used with success to replace the ordinary windows in laying houses. While cold, pure air is invigorating for breeding stock, a low temperature is not desirable for heavy layers.

In putting up perches and dropping boards it is well to plan the height of the perches so that there will be ample space under the dropping boards for the birds to walk about and to facilitate work in removing litter from the floor. Three and one-half feet is a good height for the perches. Poles, or a two-inch by three-inch scantling with the corners rounded, may be used. Underneath the perches a smooth platform should be placed to catch the droppings. This not only makes it possible to keep the floors dry and clean, but the droppings are valuable as a fertilizer and should not be mixed with the litter. It is desirable to have convenient walks so that the birds can reach the perches without any great effort.

CLEAN, easy, accessible nests located in a place more or less dark, but where they can be easily cleaned without being removed are one of the essentials of producing clean eggs.

Since floor space is a big item in determining the cost of building a poultry house it is always best to have the nests attached to the side walls so that the fowls may utilize the floor under them. It is important to arrange nests so that they may be easily disinfected, for foul nests are a favorite breeding place for mites and summer lice. Fine hay, clean straw or marsh grass may be used in the nests; the main problem being to keep the material clean so that the moist, newly-laid eggs do not become soiled.

Dust boxes will aid in keeping the fowls reasonably free from body lice during the winter months. Fine road dust has no superior for this purpose, although dry loam soil may be used when dust is not available. If space will permit it is best to have a special room for the dust boxes and arranged so that the sunshine can reach it for several hours during the day. Dust boxes save a lot of disagreeable work in applying insect powder through the fowl's feathers and serve as good purpose as insecticides in keeping down body lice.

Modern drinking fountains have done a great deal to simplify the problem of supplying the flock with clean and pure water. Scratching over the litter is sure to cause more or less dust to fall into the drinking dishes, and as fowls are fed ground feeds once a day or in hoppers, and carry some of this food to the drinking fountains, they are likely to become contaminated if not properly protected. Under favorable conditions these patent drinking fountains will partially eliminate such dangers and prove of considerable value in preventing the spread of disease among the flock.

THE location of the poultry yards, area of range and other factors depend so much upon the lay of the land, size of fruit plantations and size of the flock that it is difficult to give advice that would apply to individual cases. As a general proposition it is better to confine the flock within suitable enclosures than to have them running about the farm and buildings at all seasons. The poultry-keeper who has control of conditions has a great advantage because it is possible for him to regulate conditions so that the flock can receive proper care without giving up his home grounds and planting his garden at the far end of his farm. Even in growing ordinary field crops it is often necessary to keep the flock confined at times to prevent them damaging newly planted crops.

Many farmers have practically and economically solved the yarding problem by fencing off the home grounds and giving the flock free range of the orchard and fields. This method is advantageous from many points of view. It prevents the hens from muzzing up the lawn, scratching up the kitchen garden and roosting in the barns, besides they range over a wider area and there is less tendency for the soil about the house and buildings to become a breeding place for diseases. The cost of constructing and maintaining poultry fences is no small item, and the plan to be preferred is the one that will furnish the most range with the least amount of fencing. A good fine-mesh woven wire fence will not only prevent the poultry from becoming a nuisance about the home grounds but it will serve the same purpose in turning other kinds of farm stock. In this way the fencing problem will be solved at a minimum cost, and the fowls will have the advantage of an unrestricted range in the orchard and fields.

Drafts and over-crowding are common causes of roup among poultry.

Now is a good time to prune the orchard.

BLACKCAP RASPBERRY.

(Continued from page 34).

will induce the development of numerous lateral or side branches, and also cause a more sturdy growth of the cane, which will fortify it to a greater or lesser extent against strong winds, and prevent much damage by blowing over during heavy storms. These lateral or side branches form the bearing wood for the succeeding year, hence it is desirable that the greatest possible number of side branches be secured to insure a large crop of berries. The second pruning, which is of quite as much importance, may be done the following spring, and consists in cutting out all the old wood that bore fruit the previous year, and cutting back the side branches of the new canes to ten or eleven inches in length. All the old canes and ends cut from the laterals of the present season's fruiting canes should be raked off; piled in a heap and burned. I would prefer to cut out old dead canes as soon as fruitage is over if there are any signs of disease. Nor should they never be allowed to lie in a pile to rot, as they harbor insects and their eggs, also spores of fungus diseases that are injurious to the berries, and should therefore be promptly burned. I have used the word blackcap, as all purple cane sorts, as well as the true blackcap, are most generally spoken of as blackcaps. Both are cultivated in the same manner.

OUR STRAWBERRY BED FOR 1920.

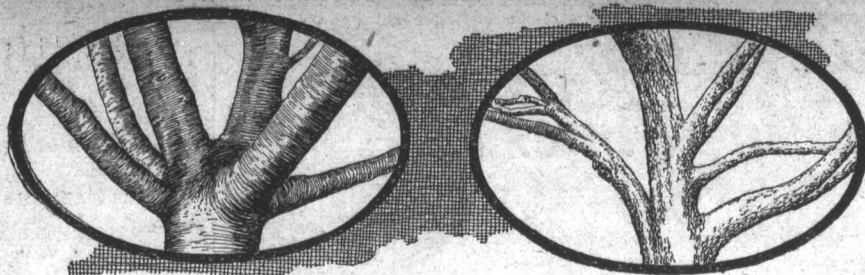
OUR strawberry bed of the past season's growth received far less cultivation and care than it has been our custom to give; this was not so much because it was so planned, as it was because prevailing weather conditions and the labor problem worked to that end. Midsummer was remarkable for its scant precipitation and light showers. Now after one has stirred the surface soil of the berry field several times in succession after those aggravating dust spotters, an inclination develops to delay the stirring up on the supposition that another sprinkle may follow in a day or two. It was in this manner that I was caught napping; nor does it take long for a midsummer sun and wind to extract the moisture contained in the surface soil, leaving it dry and hard. Well, to make the story short, the longer I delayed the less benefit it seemed likely the subsequent cultivation would give, and there being urgent need of our labor elsewhere continued neglect of the berry bed resulted. Not that the small berry bed required much time; neglect was mostly due to failure to get at it. It was thus matters stood when late summer and early fall rains began; and then, as showers were so frequent as to maintain ample soil moisture without the aid of the earth mulch, and no weeds appearing, no further cultivation was given. No cultivation was given after August 15, I think, while in previous seasons it has been our practice to continue cultivation through September.

M. N. EDGERTON.

SIMPLE SEED CORN TEST.

IN spite of the hundreds of pages of advice and directions for testing seed corn, and in spite of the simplicity of the rag baby and the ruled cloth, many farmers just will not go to the trouble of testing their seed corn. Now here is a simple little trick which is quite reliable and very easy.

Just hold the ear in your hand, place your thumb nail on top of a kernel and press down quite hard. If the kernel is pressed down into the cob throw that ear to the hogs. Try two or more kernels. If the kernel does not press down into the cob, that is a good seed ear, providing it has the requisite qualities of shape and uniformity.—L. B. R.



The Complete Dormant Spray

—revives run-down fruit trees

HUNDREDS of times—perhaps thousands—growers have been ready to pull out whole blocks of trees, because all hope of reviving them seemed lost. Then, as a last resort, Scalecide has been given its chance! And Scalecide has made good—not only because it eradicates insects, eggs and larvae of insects, and diseases that winter on the trunk and branches of the trees, but because Scalecide has stimulating and invigorating properties as well as being a contact insecticide. And, remember, Scalecide has often saved trees after lime-sulfur has failed.

The stimulating and invigorating effect of Scalecide is shown by increased terminal growth; larger, darker foliage on bearing trees;

Scalecide Requires Less Labor

One barrel of Scalecide, which makes 800 gallons of spray, will cover, until they drip, as many trees as three and a half barrels of lime-sulfur, which make 1600 gallons of spray. And of course you can apply 800 gallons of Scalecide with much less labor than 1600 gallons of lime-sulfur.

Scalecide Is Pleasant To Use

Scalecide is soothing, healing and antiseptic to skin of man or beast, whereas lime-sulfur is caustic and disagreeable. Scalecide does not injure even the eyes. It does not corrode the spray pump nor clog the nozzles, and being an oil, it makes the pump run easier and last longer.

Avoid Disappointment—Order Scalecide Now

If there is a dealer in your section, ask him to reserve enough Scalecide for you. If there is no agent near you, write for our booklet, prices and guarantee, and give us the name of your dealer. Use the coupon below. Address Dept. 13.

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Manufacturing Chemists

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THE COMPLETE DORMANT SPRAY

"Makes a Tree Outgrow Its Troubles"

(Coupon)

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Gentlemen: Please send me prices, copy of Guarantee and free booklet on Scalecide, "Figuring the Cost of Spraying." I have..... (number)

bearing trees;.....young trees. I have been using.....barrels of..... (kind of dormant spray)

My dealer is:..... (number)..... (Name)..... (P.O.)..... (State)..... 13.

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Kalamazoo Stove Co., Mfrs.
Kalamazoo, Mich.

A Kalamazoo Direct to You

POULTRY

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OF SUPERIOR QUALITY

Post Paid. **SAVE MONEY**, by sending for our catalog, \$15.00 per hundred up. 500,000 chicks for 1921 and the quality will be of the best. Bred for Egg Production and the Show Room. Catalogue Free.
THE E. V. & E. M. PIERCE CO. Owners and Operators of **THE SUPERIOR CHICK HATCHERY**, Lock Box 197, Prairie Depot, Ohio

**DAY OLD CHICKS**

and hatching eggs from select heavy producing stock. Delivery guaranteed. Wh. Leghorns, Bar. Rocks, W. Wyans, S.C. Reds, B. Orp. Cat. free. **GOSHEN POULTRY FARMS, R-19 Goshen, Ind.**

DAY OLD CHICKS

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It will pay you in selecting Chicks for the coming season to consider the quality of our

Pure Breed Practical Poultry
We will send you our new spring Catalog, which explains this breeding. Also the catalog tells how to brood your Chicks successfully; it describes our

High Class Egg Leghorns And All Standard Breeds

Both Chicks and Hatching Eggs from all breeds guaranteed, and delivered post paid.

Pullets—Also 25 White Rock Pullets. We will send you description and price.

Yearling Hens—A few White Wyandottes, Anconas, and White Leghorns; the last of the season.

Cockerels—Barred and White Rocks; Brown Leghorns.

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Desk 1,

Chicks Baby Chicks

Single Comb White Leghorns a Specialty

We are not running a hatchery but have the largest most up-to-date poultry plant in Michigan. All the eggs that go into our incubators are produced on our own farm from our high producing winter layers.

We cull our flocks 3 times, 1st in early fall, 2nd just before winter sets in, and again before the breeding season.

The regular hatchery man can not do this as he does not own the flocks but buys the eggs.

Our supply is limited therefore place your orders early. Prices quoted on application.

Macatawa White Leghorn Co., Inc. R. 7, Holland, Mich.



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Postage PAID. 95% live arrival guaranteed. FREE feed with each order. 40 breeds chicks, 4 breeds ducklings. Select and Exhibition grades. A hatch every week all year. Book your order NOW for early spring delivery. Catalogue free, stamps appreciated. **NABOB HATCHERIES, Gambier, Ohio**



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White Leg. 15%
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Sent Prepaid by Parcel Post

Special price on 1,000 lots. Get your order in for some of these high grade chicks, hatched from selected bred-to-lay breeders, kept on free range.

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Cockerels, Pullets, April hatched, get Norman's superior strain direct. Catalogue 25c. Circular free. **NORMAN POULTRY PLANT, Chatsworth, Ill.**

BRED-TO-LAY S.O. White Leghorns from pedigreed males mated with hens selected by M. A. O. expert as extra heavy layers. Selected cockerels at a bargain. Pullets. The Ferguson Co., R. 6, Ann Arbor, Mich.

Barred Plymouth Rock cockerels large birds from a prize winning laying strain \$5.00 each. **J. A. BARNUM, Union City, Mich.**

Barred Rock Cockerels: Bradley and Thompson strains. Nicely barred, farm raised. \$3.25 or four for \$12.00. **R. E. Black, Quincy, Ohio**

CHICKS. We ship thousands each season. Send for prices and testimonials. **FREEPORT HATCHERY, Box 12, Freeport, Mich.**

BABY CHICKS R.I. Red, Barred Rocks, White Wyandottes, White Leghorns. Selected healthy chicks. Order early, have winter layers. First hatch Feb. 28th. Write for price list and circular. **DERR & ADAMS, Litchfield, Mich.**

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

BARRED Plymouth Rock cockerels for sale, some brace thirty birds from prizewinning stock \$4 and \$5. **George H. Campbell, R. 5, Box 70, Ypsilanti, Mich.**

BEST Breeds. Chickens, Ducks, Geese, Turkeys, Guinea Hares, Dogs. Stock for sale. Write your wants. Catalog free. **H. A. Souder, Box 94, Sellersville, Pa.**

Cockerels and Hens: Leghorns, Minorcas, Reds, Rocks, Orpingtons, Wyandottes, Houdans. **Tyrone Poultry Farm, Fenton, Mich.**

Additional Poultry Ads. on Page 55

Natco Dairy Barns Are Warm in Winter

NATCO barns are warm in winter, yet cool in summer. They provide year-round comfort for your cows. More comfort in the stable means more milk in the pail—more money in the bank.

The hollow spaces in a glazed Natco Hollow Tile wall provide a blanket of still air through which heat, cold or dampness will not pass.

And the cost? Perhaps a little more at first, but far less in the end than for other construction. The saving in insurance and upkeep will repay the added investment within a few years. All further savings are clear profit.

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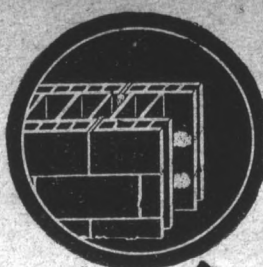
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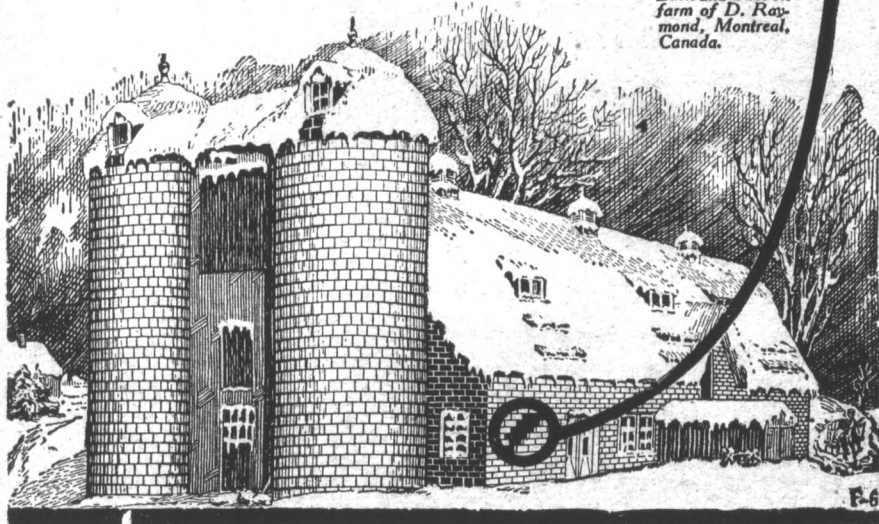
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23 Factories assure a wide and economical distribution.



Section of Natco Wall showing still air spaces.



Barn and Silos on farm of D. Raymond, Montreal, Canada.

Locating the Dairy Leaks

Cow Testing and Year-around Records Enable the Farmer to Spot the Boarder Cow—By H. M. Eliot

TEN of my cows were paying well, twenty were scarcely returning the cost of their keep, and ten more were actually eating up the profits made by the first ten. I did not know this last year. If I had, you can be sure that my herd would have numbered thirty less cows during the season."

This is the statement of a dairy farmer who had just finished a careful year's record of his herd.

"I am selling these 'boarder' cows and shall begin to rebuild my herd from the ten good ones. The records show that I can make more from these ten than I could from the entire present herd of forty. And if I can build up a full herd as good as the ten I am keeping, my profits will be immeasurably increased."

This farmer's experience should teach us two lessons. The first is that it pays to keep records on dairy cows. Farmers often say they are too busy and have not the time to weigh milk, to test it for butter-fat, and to keep feed records. But how much easier such record-keeping was to this farmer, than the work of taking care of thirty cows during another year. A little time on record-keeping; the work on thirty cows dispensed with, greater profits from a fourth as much work; and a start at refilling the dairy barn with profitable cows—the result of fifteen minutes a day for one year spent on farm book-keeping. What farmer can show as much profits for a similar amount of time spent on anything else?

The second lesson is that it is impossible to tell which are good paying and which are poor paying cows without actually weighing the milk and testing it for butter-fat.

Cows deceive farmers in three ways:

First, in nature a cow gives milk only while her calf is growing to a sufficient size to take care of itself. This is a period of four or five months. In nature, then, a cow gave milk for four or five months and then went dry for the remainder of the year. On the other hand, our high-producing cows not only give a large flow of milk when they first freshen but they keep up this good flow for ten or eleven months. This has resulted from careful breeding and selection. We have bred cows away from their natural tendency to go dry for more than half of the year. The chief difference, then, between a low-producing and a high-producing cow is the length of time they give a large flow of milk. Both give a large flow at the time of freshening, but the better one establishes her superiority by continuing to give a good flow throughout the remainder of the year. A farmer naturally remembers the large flow but not the sustained production. It is the old race between the hare and the tortoise.

The second method of deceiving the farmer is in the percentage of butter-fat. Some cows give milk with three per cent of butter-fat or less, while others give as much as six or six and one-half per cent. Assuming that one cow gives three per cent and another gives four and one-half per cent, we have half as much again of butter-fat from the one cow as from the other. This difference in amount can be told only by using the Babcock tester.

A third method by which a cow may deceive her owner is in the margin of production over the cost of keep. Now let us assume for the purpose of illustration that it takes two hundred pounds of butter-fat to pay for a cow's keep for one year. A cow, then, which gives just two hundred pounds will be

barely paying for herself, but not yielding any profit. But a cow giving two hundred and fifty pounds will be yielding fifty pounds profit, and one giving three hundred pounds will be yielding one hundred pounds of profit, or twice as much. It is, then, not the total amount a cow gives but the margin she gives above the cost of keep which determines her value. In the illustration just given the cow giving three hundred pounds of butter-fat is giving a hundred pounds net, and is, therefore, twice as profitable as the one giving two hundred and fifty pounds—and, therefore, is worth twice as much.

Cows, then, have at least three ways of deceiving farmers as to their profitability; first, by the number of months through which they keep up a large flow of milk; second, by the percentage of butter-fat in the milk; and, third, by the margin of the production over the cost of maintenance. The farmer, therefore, to know anything about what his cows are bringing him, must weigh their milk, must make butter-fat tests at least once a month, and must keep feed records.

Just a word more may be said about the time it takes to keep records. Inquiries have been made of many farmers who are keeping records, and the almost unanimous reply is that it does not take more than ten minutes a day on the average. It is often added that it is the best paying ten minutes of the day's work. While, then, the time required to keep records is small and their value is great, there are several points in regard to record keeping on dairy cows that merit further discussion.

To weigh milk conveniently, three things are required: First, a set of milk scales should be purchased and hung in a handy place in the barn. These scales are inexpensive and may be purchased at a local hardware store or through a mail order house. Second, the milk pails should be made to weigh the same. This can be done by adding sufficient solder to the bottoms of the lighter pails. And third, a milk record sheet should be put up in a handy place near the scales. Such record blanks may be had by writing to the Farm Management Division of the Agricultural College.

The Babcock test for butter-fat is a very simple test and only a little time is required in learning to make it. It has seemed to the writer that the housewife could make the Babcock tester a part of her kitchen outfit, and that she could do the work of handling the acid and other material used in testing in a much better way than can the man, as this kind of work lies within her field of experience. It is about as difficult for her to learn to handle the Babcock tester as it is to learn to make a cake from a new recipe. The husband should take the sample and turn the tester, and let her handle the acids and the utensils. It is relatively inexpensive and is a very durable piece of apparatus.

Considering the impossibility of judging a cow's production without a record of her performance, and because of the ease with which records may be kept, as compared with the labor of milking unprofitable cows, it does not seem that any dairy farmer can afford to get along without the help of year-around records.

A single trial with a pure-bred dairy bull will convince any man that like will produce like, and that the progeny will inherit the form and characteristics from the parent that possesses the strongest blood lines.

"Grown in Cloverland"



The climatic and soil conditions of Upper Wisconsin and Michigan make this one of the greatest seed producing regions of the world.

Marinette Pedigreed Seeds are all Northern grown, most of them in that great seed-growing region known as "Cloverland". They are the favored seeds for Northern planters—plump, fully developed and ripened, of strong germination, and sure to produce best crops South as well as North.

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We specialize in those farm and field seeds which reach their highest development in the Cloverland region, including—

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Our new illustrated catalog gives faithful descriptions and tells of adaptability to soils and climates. Write for copy.

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1921
MARINETTE SEED COMPANY,
Marinette, Wisconsin

Mention The Michigan Farmer When Writing to Advertisers

ALSIKE AND TIMOTHY.

How much fertilizer should I use per acre for corn, one foot apart in rows three and a half feet wide? I have a field in rye and want to plow the rye under and drill in corn. I have no stable manure and can use only fertilizer. What is the best way to seed alsike clover and timothy mixed, next spring on winter grains. Will timothy and winter vetch seeds bought now be good for next fall seeding? What is the best way to sow Hungarian grass for seed and for hay? What is a good soiling system for eight cows, as I have only limited pasture? How much corn should be drilled per acre if it is drilled with grain drill for stover only, not for grains, and how much fertilizer to use for best results.

Wayne Co.

A. T.

If the land is in fairly good condition you will help your corn very materially by using one hundred to one hundred and fifty pounds of fertilizer per acre, drilled in with the corn, but if the land needs stable manure and is lacking in fertility you can well afford to use a larger amount of fertilizer. A good way would be to set the drill to sow three hundred or three hundred and fifty pounds per acre. Let it be distributed by all the hose of the drill. This will not only distribute the fertilizer in the drill with corn, but also between the rows and is a splendid way of applying the fertilizer. You need not be afraid but what the corn will use the fertilizer between the rows.

Time to Sow Clover.

If the land is sandy or gravelly the best plan is to wait until you can harrow the land, then sow clover and timothy and then harrow wheat or rye to cover the seed, for harrowing will do the wheat or rye good and not harm it. But if your land is clay then it would be a more reliable way to sow the grass seed early before the ground is thawed out, then the freezing and thawing of the land will cover the seed.

Hungarian grass should be sown on a finely prepared seed bed along in June, or sometimes you can even sow it later. One-half bushel per acre is about the right amount. This will give a fine quality of hay, if you cut it before it gets ripe. For hay it should be cut before the seed forms. If you want to harvest seed then allow it to ripen, but the straw is not anywhere near as good a feed as to have it cut earlier and made into hay.

Soiling Crop for Cows.

About the earliest crop that can be used for soiling purposes is winter rye. You can cut some of your regular field and use this and when rye gets too mature harvest rest for grain. By this time the clover will be ready and you can work this in the same way, cut the balance of the field for hay when it gets too far along for soiling. You can sow peas and oats early in the spring and that will be ready to cut about the time your clover is gone and by that time early sweet corn will be sufficiently advanced so that it will make good feed and for the balance of the season you can have a succession of early and late corn.

Amount of Seed for Soiling Corn.

When planting corn for soiling purposes you can use from one-half to one bushel of seed. This will be so thick that corn will not grow so coarse and will be better for soiling purposes, if you have more than you need for soiling the balance can be harvested and fed in the winter.

C. C. L.

A live stock survey carried on by the Indiana Farm Bureau Federation shows that the total number of hogs in Indiana on hand October 1 had increased somewhat over the number on hand July 1 and April 1, but the brood sows had decreased nearly twenty-five per cent during the same period. The number on feed is also greater. The total number of sheep on hand had decreased materially although ewes for breeding purposes were found in a slightly larger number.



Larro-feed
Many Imitations Prove Its Superiority

How Much Milk Will it Produce?

That's what counts in buying your feed.
Not how much it costs but how much milk it produces.
How much profit it puts in the bank.

You will find that the extra milk you get from Larro pays not only the extra first cost, but makes you a nice profit besides. You can afford to pay three or four cents more to feed a cow when you get a quart or two more milk.

Remember, that no matter how much milk your cows are now giving, you are assured that with Larro they must give more—or you get your money back.

Write for the names of successful dairymen in your neighborhood who use Larro year after year for just one reason—because it makes more money for them.

The Larrowe Milling Company
504 Larrowe Bldg., Detroit, Mich.



"You Get More Milk or Your Money Back"

BREEDERS' DIRECTORY

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

Wildwood Farms

Angus

Effies Lass 238203 sold on May 6th for \$7100. She was sired by Black Monarch 3rd. We are offering for sale Editor of Wildwood 295059 a full brother in blood lines to Effies Lass also four more choice bulls which are old enough for service and sired also by the champion show and breeding bull Black Monarch 3rd.

Our herd is under State and Federal Supervision.

WILDWOOD FARMS

ORION, MICHIGAN

W. E. SCRIPPS, Prop., Sidney Smith, Supt.

For Sale

Woodcote Trojan-Ericas

We are offering ten cows bred to either
IMP. ELCRO OF HARVESTOWN, or
IMP. EDGARDO OF DALMENY
Write for our 1921 BULL SALE LIST
Woodcote Stock Farm, Lonia, Mich.

The 2nd Annual

Mich. Aberdeen Angus Breeder's Ass'n Sale will be held at M. A. C. East Lansing, on Jan. 14, 1921. This space is contributed by Geo. Hathaway & Son, Ovid, Mich. A few females and an aged bull to spare at private sale.

For Sale Having decided to sell part of my herd of pure bred, Aberdeen Angus cattle, consisting of males and females of different ages.
ANDREW P. EITEL, Vermontville, Mich.

Reg. Aberdeen Angus bulls and heifers from 6 to 18 mos. old of the very best of breeding, also Berkshire Swine, boars ready for service and pigs both sex singles, pairs or trios, will accept Liberty Bonds.
RUSSELL BROTHERS, Merrill, Mich.

Head your herd with a son of May Rose Noble of H. Jean De Luth 38133 and get type and production combined. We offer a few sons out of superior A. B. dams. Some old enough for service. Write or come and see, together with several near relatives of each. We also offer at this time a few high class A. B. cows.
PAUL LOVE, St. Austell Farm, Jackson, Mich.

Village Farms Guernseys
for sale High grade milking cows, heifers and heifer calves. Also registered bulls from 1 month to serviceable age whose dams are on test and making good records. Write or come and see the herd. Rex Griffin Herdsman, O. J. Winter, Prop. Sebawaing, Mich.

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

Guernsey Bulls of May Rose Breeding. Their dams have records 420 to 650 lbs. fat also a few cows and heifers are offered.
H. W. Wigman, Lansing, Mich.

For Sale Six registered Guernsey bulls May Rose breeding ready for service. Cheap if taken soon.
John Ebels, R. 2, Holland, Mich.

GUERNSEYS - Federal Inspected. Headed by only son of Carrie of Hillhurst, exchampion of A. A. class. 5 bulls under 10 mos., 1 a dandy whose dam in class D has given over 50 lbs. milk. No females to spare.
G. W. & H. G. RAY, 4 mi. east of Albion, Mich.

GUERNSEY BULL CALVES whose sire's dam made 19,460.20 milk, 909.05 fat. Their mother's sire's dam made 15,109.10 milk, 778.80 fat.
T. V. HICKS, Battle Creek, Mich.

Registered Guernseys
a 6 months old bull (100%) satisfaction for \$100. A nice heifer calf \$150.
J. M. WILLIAMS, North Adams, Mich.

Holsteins of Quality
for sale. Heifers from 8 to 24 months old. All registered and sold subject to tuberculin test.
E. A. HARDY, Rochester, Mich.

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

TRAVERSE CITY STATE HOSPITAL
Traverse City, Mich.

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R. M. Smith, Supt. Marinette County Asylum, Peshigo, Wisconsin, writes:

"I am thoroughly convinced that the Holstein cow is the greatest Institution cow in the world. That is one place in particular where the Holstein cow is superior. She saved this Institution, saved my reputation as to judgement."

Send for Free Booklets

The Holstein-Friesian Association of America
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Are you using a first class herd sire? You can't afford to use a poor one. We have good ones of all ages listed at reasonable prices. Let us know your needs.

The Michigan Holstein-Friesian Association

H. W. NORTON, Jr., Field Secretary,
Old State Block, Lansing, Michigan

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

CATTLE

Two Grandsons of King Of The Pontiacs Ready for Service

From 31.18 and 28.39 lb. dams

Sire—King of the Pontiacs Segis No. 169124, who is by King of the Pontiacs and from Hillsdale Segis (a 33 lb. daughter of King Segis) "Nuf Ced."

Dams—Topsy Clothilde Fobes No. 172806 made 31.18 lbs. butter and 623.8 lb. milk in 7 days.

Sunny Brook Nina Segis No. 43727 at 4 years produced 28.39 lbs. butter and 587.6 lbs. milk in 7 days and 105.94 lbs. butter and 2319.6 lbs. milk in 30 days.

These bulls are nicely marked and Good Individuals. Herd under federal supervision. Come and see them. For pedigree and information write Mr. Fred Alt, Mgr.

James B. Jones Farms,
Romeo, Mich.

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

NOTICE

The Winwood Herd

on Nov. 1st will move their Herd of Pure Blood Holsteins to their new home, 1½ miles south of Rochester, Mich. and for the next 30 days we will sell what bull calves we have cheap as we will be unable to get our buildings complete before winter. So get busy if you want a son of Flint Maplecrest Boy at your own price.

JOHN H. WINN, (Inc.)
Roscommon, Michigan

"Top Notch" Holsteins

Buy a "milk" Bull of Quality from the Breeders of the world's only cow to produce 800 lbs. milk in 7 days, having an 800 lb. daughter.

Our advertised bulls are selling fast. Here are two good ones:

No. 1. King Vale Colantha De Kol, No. 307701.
Born Oct. 11, 1919.
A "TOP NOTCH" individual, backed by fifteen dams who average 30.73 lbs. butter in 7 days. Price \$175.00 f. o. b. Howell.

No. 2. Cornucopia Wayne Segis King, No. 318409
Born Dec. 6, 1919.
His 4 nearest dams average 25.39 lbs. butter in 7 days. Dams, a 22 lb. cow with a daughter who produced 38.744 lbs. milk and 1543 lbs. butter in two consecutive years. Price \$125.00 f. o. b. Howell.

No. 1 Bull about one quarter white.
No. 2 Bull about half and half.

McPherson Farms Co. Howell, Mich.
Our herds under U. S. Supervision.

SUPERIOR

Holstein Bull Calf No. 1

Born Oct. 20th, 1920.
SIRE: Two nearest dams average 35 lb. butter, 800 lb. milk. A grandson of May Echo Sylvia the world's record cow for milk. Dam a 29 pound three year old, a sister to the world record two year old.

DAM: Beauty Walker Aggie. A heifer who has just made 20 lbs. at 36 months (record not yet reported) and not in condition to test either. Her sire is from a 33.52 lb. dam and by that great show bull Beauty Walker Pieterje Prince who has a 48 lb. daughter.

It is not often there is a chance to get such desirable blood lines combined with show type at farmer's prices. He is a beauty. Come and see him. Price \$200.

A. W. COPLAND, Birmingham, Mich.
Federal Accredited Herd

507.5 lb. milk 22.8 lb. butter aver. of 5 nearest dams of granddaughter of De Kol 2nd Butter Boy 3rd. Due in Mar. to 27 lb. bull. Price \$300. Terms. M. L. McLAULIN, Redford, Mich.

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A bull calf ready for service. Combines show type and production.

Herd sire, Model King Segis Glista, whose granddam is Glista Ernestine, the only cow of the breed that has six times made better than 30 lbs. butter.

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Offers the best selection of young bulls from 8 to 12 months we ever raised; out of dams up to 29.76 for aged cows and over 26 lbs. for 2 yr. olds. Yearly records up to 24000 lbs. milk and 1000 lbs. butter. Sired by our Senior Herd Sire, Maplecrest Application Pontiac, whose dam made 35 lbs. butter in 7 days and 1344 lbs. butter and 23421 lbs. milk in a year, or by Dutchland Konigen Sir Rag Apple, our Junior Herd sire, whose dam is a 30 lb. 10 yr. old maternal sister of Dutchland Colantha Denver who made 36 lbs. in 7 days and 1315 lbs. butter and 25431 lbs. milk in 1 year. Several carry the blood of both these sires.

They are extra well grown, straight and right. One of these at the head of your herd is bound to increase production.

Send for pedigrees and prices.

R. Bruce McPherson, Howell, Mich.

Here Is A Good One.

A yearling son of Maplecrest De Kol Hengerveld. The sire having three sisters, each with records of over 1200 pounds of butter in a year, two of them former world champions. Calf's dam sister to three each with records of over 1200 pounds by Pontiac Aggie Korndyke. This combination of breeding has produced more 1000 to 1200 pound cows than any other of the breed. If progeny counts, where can you equal it? Price \$150.00 for quick sale. Hillcrest Farm, Mgr. F. B. Lay, Kalamazoo, Mich.

Reg. Holstein-Friesian cows and heifers, priced to sell. Good individuals. Choice breeding. Some freshest soon. B. B. Reavey, Akron, Mich.

Federal Accredited Herd Bull For Sale. Old enough to sire, 7 da. milk 467.80, butter 20.85, 305 da. milk 16,115.3, butter 649. She has 2 A. R. O. daughters. His sire a 30 lb. grandson of Colantha Johanna Lad. and three heifer calves 7 mos. old not related to bull. All for \$500. Vernon Clough, Parma, Mich.

HOLSTEIN BULL

born Dec. 5, 1918. From a Federal accredited herd. Four of his 7 nearest dams have A. R. O. records above 30 lbs. Dams record 22 lbs. at 26 months, her dam 30 lbs. Sires dam three records above 30 lbs. This bull is offered for no fault and is fit to head a registered herd.

Reg. Holstein bull calf born Nov. 1920 extra quality, \$80 reg. and del. choice breeding and individuality. J. R. Hicks, St. Johns, Mich.

Registered Hereford Bull Bargains

In order to reach every farmer and breeder wanting good bulls I will offer for a limited time a few good ones at \$100 to \$125, ages 12 to 18 mos. (act quick). Farm six miles So. of Ionia, Citiz. Tel. 122-4.

Jay Harwood & Son, Ionia, Mich.

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Cows with calves at side, open or bred heifers of popular breeding for sale. Also bulls not related.

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Free—Write today
American Jersey Cattle Club, 324 N. W. 23 St.
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The Wildwood Farm

Jersey Cattle, Majesty strain, Herd on State accredited list, R. of M. testing constantly done. Bulls for sale. ALVIN BALDEN, Phone 145-5, Capac, Mich.

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

For Sale good producing stock. Herd on Government "Accredited List." Write for price and pedigree to C. A. TAGGETT, R. 2, Fairgrove, Mich.

Lillie Farmstead Jerseys Bull calves from R. of M. cows.
COLON C. LILLIE, Coopersville, Mich.

Jersey Bulls from R. of M. dams \$75 to \$150 each.
NOTTEN FARM, Grass Lake, Mich.

Jersey bulls for sale: From Marguerite's Premier a grandson of Pops 9th and R. of M. dams.
SMITH & PARKER, R. 3, Howell, Mich.

Meridale Interested Owl No. 11311 heads my herd bull calves from this great sire and out of R. of M. dams for sale. Leon E. Laws, R. 6, Allegan, Mich.

Registered Jersey Bulls for sale. Bred right and priced right. Herd under Federal and State Supervision. Raymond H. Bamer, R. 4, Saline, Mich.

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

BIDWELL STOCK FARM,
Box D, Tecumseh, Michigan

Bloomdale Shorthorns

See our cattle get our prices and breeding before buying. Both bulls and females for sale.

CARR BROS. & CO., Bad Axe, Mich.

The Maple's Shorthorns

Kirklevington Lad, by Imp. Hartford Welfare. In service, bulls for sale.

J. V. WISE, Gobleville, Mich.

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Imp. Lorne, Imp. Newton champion and Sterling Supreme in Service. We offer for quick sale: Five Scotch Bulls, best of breeding. Three whites at \$1000 each. One roan at \$500, one red at \$400. No females for sale. Public sale Chicago Oct. 28th.

C. H. PRESCOTT & SONS,
Tawas, City, Mich.

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Breeders of American Polled Shorthorn Cattle
For Sale two splendid bulls now ready for service, and two younger ones that will be ready for light service Jan. 15th. We also are offering at this time a few bred cows and heifers. Herd headed by Victor Sultan and Sultan's Gift. Prices very reasonable, write your wants. Geo. E. Burdick, Mgr., Coldwater, Mich.

Milking Shorthorns Breeding the best bulls from high producing cows.
O. M. YORK, Millington, Mich.

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Choice individuals; shipped to you c. o. d. express paid and guaranteed right or your money refunded. All stock registered in buyer's name.

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all ages sired by Callaway Edd 1918 world's grand champ. boar and C. C. Schoolmaster 1919 world's grand champion also Wonder Big Type and Giant Buster. Write your wants, all stock shipped on approval.

CRANDELL'S PRIZE HOGS, Cass City, Mich.

MEADOW Hills Shorthorns. Herd headed by Silver King, full brother of Lavender Sultan, Purdue University's great sire. For sale females of all ages, a few young bulls. Geo. D. Doster, Doster, Mich.

Milking Shorthorns of best Bates breeding, bulls 6 to 8 mo. old for sale.
E. H. KURTZ, Mason, Mich.

Milking Shorthorns. Bull calves \$100.00 each. Federal accredited herds. Davidson and Hall, Beldand and Beldand, Tecumseh, Mich.

Reg. Red Polled cattle choice young bulls from 6 to 19 mo. old for sale.
FRANK KEHLER, R. 1, Grand Ledge, Mich.

Reg. Red Polled bull calves, from 3 mos. to 1 year old, sired by Famous Charmer, 75% same blood as Charmer 1919 International Grand Champion. Our herd State and Federal tested. Westbrook Bros., Ionia, Mich.

HOGS

Large Berkshires

The largest Junior yearling sow of any breed, at the 1920 International Live Stock Exposition, was bred and exhibited by us.

W. H. EVERY,
Manchester, Mich.

Registered Berkshires, Gilts, and Sows bred for April May and June farrow. A yearling Boar and a few younger Spring pigs. Chase Stock Farm, Marlette, Mich.

Registered Berkshires for sale. Two young boars, ready for service, two young gilts, a sow, and younger ones of either sex. Let me know your wants. JOHN YOUNG, R. 2, Breckenridge, Mich.

Bred Berkshire gilts for April farrow \$50. One Shorthorn bull \$125. One Hampshire ram lamb \$35. Berkshire pigs \$10 & \$15. M. G. Mosher & Sons, Osseo, Mich.

Brookwater Duroc Jerseys

BOARS—Ready for Service

Big type, large bone and rugged with plenty of quality. This is your chance to buy high class individuals at reasonable prices.

Open Gilts
of choice breeding and right type. Panama Special, The Principal 4th, Orion Cherry King, and Great Orion families. Now is the time to buy before the demand takes all of the good ones.

Write us for Prices and Pedigrees
Mail orders a Specialty. Satisfaction guaranteed.

BROOKWATER FARM

ANN ARBOR, MICHIGAN

H. W. Mumford, Owner J. B. Andrews, Mgr.



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

DUROC JERSEY SWINE

for sale 2 yr. old herd boars, yearling boars and boar pigs, also bred sows and gilts. Write for pedigrees and prices. Come and see them.

THOS. UNDERHILL & SON, Salem, Mich.

Special Offer For December we will take orders for 1920 spring gilts bred for Mar. and Apr. farrow 1921 at \$50 each excellent breeding. Gilts to be shipped when safe in pig. Write or come and make your own selection at once.

RUSH BROS. Romeo, Mich.

Duroc sows and gilts bred to Walts King 29499 who has sired more 1st and 2nd prize pigs at the State Fair in last 2 years than any other Duroc boar. Everyone will be a money maker for the buyer. Cat. and price list.

NEWTON BARNHART, St. Johns, Mich.

DUROCS spring boars. A few gilts bred for Sept. farrow at bargain prices.

W. O. TAYLOR, Milan, Mich.

Duroc Boars ready for service. Sired by Jacks Cherry Orion King number 169259 son of the \$10,000.00 Champion Jacks Orion King 2nd all large type and heavy bone out of good sows.

THE JENNINGS FARMS, Bailey, Mich.

Duroc Jerseys Boars Boars of the large heavy bone type at reasonable prices. Write or better come and see.

F. J. DRODT, Monroe, Mich.

Write Me at once I have just what you want heavy bone registered Duroc Jersey boars ready for service.

W. H. MAYES, L. B. 505, Durand, Mich.

Duroc Jersey boars from 6 mo. to 1 yr. old. Young sows old enough to breed for spring litters all in good condition and at fair prices. Safe delivery guaranteed.

W. E. BARTLEY, Alma, Mich.

DUROC JERSEYS

Carey U. Edmonds, Hastings, Mich.

DUROC JERSEYS Boars and gilts by Mich. Pathfinder.

E. D. HEYDENBERG, Wayland, Mich.

Michigana Durocs. We can fill your wants. Several lines of breeding represented including the Sensations. Satisfaction guaranteed. O. F. Foster, Pavilion, Mich.

Raise Chester Whites

Like This
the original big producers

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

G. S. BENJAMIN, R. F. D. 10, Portland, Michigan

Big Type Chester Whites Spring boars sired by Wildwood Jr. 2nd, Hill's Big Bone, Col. Wykoff, Smith's Giant and Champion X Jr. and out of good big dams. Cholera immune and satisfaction guaranteed. Also fall pigs, either sex not related.

N. L. HILL, Jr., Mackinaw, Ill. Tazewell, Co.

Central Mich. O. I. C. Swine Breeders Ass'n.

Hogs of all ages of popular blood lines. Every sale guaranteed by association.

DR. H. W. NOBLES,
Sales Mgr. Coral, Mich.

Down With Prices On last fall and this spring's O. I. C. Boars.

WEBER BROS., Royal Oak, Mich.

O. I. C.'s choice spring pigs either sex. Booking orders for fall pigs. We register free and ship O. D.

A. J. BARKER & SON, Belmont, Mich.

O. I. C's. One last fall boar wgt. 425, two last fall gilts, bred lots of spring pigs and this fall pigs either sex, good growth stock ½ mile west of Depot. Citiz's Phone 124. Otto B. Schulze, Nashville, Mich.

O. I. C. Gilts bred for April and May farrow. Service boars and fall pigs.

F. C. BURGESS, R. 3, Mason, Mich.

O. I. C. Serviceable boars. A few extra good boars at farmers' prices.

H. W. MANN, Dansville, Mich.

O. I. C's Fall pigs by C. C. Big Callaway have size and quality and are priced right.

C. J. THOMPSON, Rockford, Mich.

O. I. C. Bred Gilts for Mar. and Apr farrow also a few choice service boars.

CLOVER LEAF STOCK FARM, Monroe, Mich.

For Sale O. I. C. Swine. Strictly Big Type with quality. Have a few good boars and gilts left of same type and blood lines, that won for us at Ohio and Michigan State Fairs. Priced very cheap. Write us before you buy.

NEWMAN'S STOCK FARM, MARLETTE, MICH.

Closing out sale of big type Poland China hogs, which represents the work of 25 years of constructive breeding. Everything goes, including our three great herd boars, "Mich. Buster", by "Giant Buster", "A Giant", "Butler's Big Bob", "Two of the best yearling prospects in Michigan great length, big bone, Come get your pick. Jno. C. Butler, Portland, Mich.

Large type Poland China's spring boars ready to ship. Everything immune from Cholera.

A. A. FELDEAMP, R. No. 2, Manchester, Mich.

L. S. P. C. a few choice boars at farmers' prices, gilts bred to Black Giant one of the best pigs out of this fall. Also a grandson of The Chansman and Harrison Big Bob. H. O. SWARTZ, Schoolcraft, Mich.

Big Bob Mastodon Spring gilts bred for March and April and some sows, bred to Big Bob his sire was champion of Iowa State Fair, his dam's sire was Grand Champion of Iowa State Fair.

C. E. GARNANT, Eaton Rapids, Mich.

L. T. P. C. 70 head of Poland Chinas at private sale. Am offering spring boars from \$40 to \$50 and gilts the same price. Summer and fall pigs \$25 each. The first check will bring you the first choice. HART FULCHER & CLINE, Address F. T. Hart, St. Louis, Mich.

BIG TYPE POLANDS Bred gilts for sale. Also a few choice fall pigs by The Chansman and his son The Chansboy. They are great. Immune and registered. Come or write.

WESLEY HILE, R. 6, Ionia, Mich.

MODIFIES WAREHOUSE ACT.

(Continued from page 28).

one customer twenty-five per cent of its entire capital and surplus when it is secured by acceptable warehouse receipts.

If the farm products storage houses throughout the country were generally operating under the warehouse act system, much of the present inability of farmers to secure extension of credit or larger credit would undoubtedly have been averted.

ONE of the greatest benefits of the warehouse act, according to Mr. Holman, is its standardization requirements. It is better than state warehouse laws, as they vary in different states, causing much confusion. North Carolina has the best state warehouse system. Its warehouses are operating under state bonds and licenses, and are relicensed under the federal law.

It is the belief of government experts who have given much study and time to the development of the bonded warehouse system that it should be given more attention and publicity by the agricultural press and the farm organizations. It is evidently a movement in the right direction, which may be the beginning of a great nationwide system of bonded warehouses for the storage of farm products, and the basis for a safe, efficient system of credits for producers.

Representatives of the American Farm Bureau Federation appeared before the senate committees on agriculture and banking in a joint hearing and presented their plans for relieving the present marketing situation and providing for the necessary financing of the producers.

President J. R. Howard, of the federation, called the senators' attention to the effects of the recent increase in railway freight rates upon the farmers. Farmers, he said, get the world market price less the transportation expenses, the price in Liverpool minus the cost of getting the wheat to Liverpool. The cost of getting a bushel of wheat from Omaha to Chicago used to be twelve cents. A margin of twenty-one to twenty-five cents a bushel is now asked for this service, the extra cost being freight charges. This makes the farmer's price ten cents a bushel less than formerly. Mr. Howard asserted that the farmers cannot stand another advance in rail rates.

The American Farm Bureau Federation representatives are giving much attention to the proposed appropriations for the Federal Department of Agriculture, and it is their belief that congress should not start practicing economy on this department, which has to do with farm production and marketing.

LEGISLATIVE PROGRAM OF THE FARM BUREAU.

(Continued from page 30).

work, so-called, which contemplate a weekly report to every County Farm Bureau relating to the activities of the legislature and the positions taken by individual members on important questions in which the members are especially interested.

This tentative program is constructive in aim, and beneficial results should be secured from it, from the standpoint of economy and efficiency in the administration of public affairs, and from the equally important standpoint of the more equitable distribution of governmental costs. In this work the committee will undoubtedly have the backing of the entire membership, who should keep in close touch with their local members of the legislature and keep them informed regarding their views on the important phases of this legislative program as it develops.

Veterinary.

CONDUCTED BY DR. W. C. FAIR.

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

Diseased Molar Teeth.—My seven-year-old mare has considerable discharge from one nostril and it has an offensive odor. Whatever it is, it has been going on for twelve months. W. L. F. Fowler, Mich.—Doubtless you will find the fourth grinder tooth diseased and causing the discharge. Have your veterinarian extract tooth and a recovery should follow.

Rheumatism.—My Jersey cow shows signs of rheumatism, has been stiff for some time, lays down most of the time, eats well, but has fallen off in milk yield. D. R. K., Rapid City, Mich.—Keep her dry and in a warm stable. Give her two drams of salicylate of soda in feed two or three times a day. Doubtless she suffers from muscular rheumatism. Hand-rubbing the affected muscles will have a good effect.

Acute Indigestion.—A valuable ram has taken sick. After feeding in corn stubble field one day, showed slightly inflated abdomen and appeared to be in considerable pain. His fore legs seemed to be partially paralyzed and were very sensitive to touch at the ankles. I gave him two ounces of epsom salts, also an enema, after three days another dose of Glauber's salt. He slowly recovered. For the past four weeks has been roughing it with ninety-eight ewes. What ailed him? E. J. M., Wayne county.—He suffered from an attack of acute indigestion. If you have another case, give a teaspoonful of aromatic spirits of ammonia in a cup of cold water every hour until bloat goes down.

Sore Shoulder.—During the early part of last spring I bought a horse that had been troubled with sore shoulders; since then he has also troubled me some. His shoulders do not seem to pain him, but they are raw. C. E. B., Rose City, Mich.—Apply equal parts calomel and boric acid to sores twice a day. Does his collar fit properly?

Punctured Leg.—A fork prong ran through leg of young mare some two months ago; wound healed, but it occasionally opens, discharges pus and proud flesh fills wound. The opening is above ankle joint. H. J. R., Holly, Mich.—Occasionally swab out wound with tincture of iodine and apply one part iodoform and five parts water.

Wart on Neck.—I have a mare with a wart on neck and would like to know how to take it off. J. U., Imlay City, Mich.—Surgical removal is the most satisfactory method of treatment, but if you will apply vinegar or castor oil three times a week it will take it off.

Horse Gets Cast in Stall.—I have a horse that rolls in stall every night; sometimes he gets fast and is unable to get up until we assist him. This is a habit of four years' standing. How can it be prevented? W. W., Melvin, Mich.—Discontinue keeping him in single stall. If kept in box stall he will cause you no trouble.

Cows Fail to Come in Heat.—I have five cows which fail to come in heat. Some of them are young, others old. A. N., Montague, Mich.—When cows fail to come in heat, they should be examined by either a veterinarian or skillful dairyman who has knowledge of disease and the causes of barrenness. Gentle massaging of the ovaries has a tendency to stimulate the organs into action. Besides, a cystic condition of the ovaries may be present; if so, the cysts should be crushed, then the animal will perhaps breed. Feeding liberally of grain, keeping the animal warm, giving each cow 30 grains of ground nux vomica and 60 grains of ground capsicum at a dose in feed two or three times a day will have some effect in bringing on heat.

Caked Udder.—I would like to know the cause of caked udder. Have a cow due to freshen in three or four weeks troubled with it. M. R., Orion, Mich.—Exposure to wet and cold, lack of bedding, uneven stable floor, one cow hooking another, colts kicking the udder, sudden increase of grain ration, lack of exercise, rough milking, drying too quickly, and constipation. These are all common exciting causes of congestion of udder, mammitis, garget (caked udder), besides many other exciting causes could be mentioned. However, if you will remove part or all of the causes I have mentioned, you will ward off many simple attacks of udder trouble in cows.



Feed your crops a "balanced ration"

Increasing the yield of a crop by the use of properly "balanced" fertilizers is as natural and practical as increasing the weight of hogs and cattle or the quantity of milk from cows by means of "balanced" feeds.

You can't get maximum results from hit-or-miss methods. Big crops are principally a matter of proper "feeding". Proper feeding is a matter of proper fertilizing. And proper fertilizing is a matter of correct knowledge of soil needs for the particular crops you want to grow. "Any fertilizer" won't do. It must furnish the right food elements in the right proportions at the right time throughout the whole growing season.

Why not put your farming on an efficiency basis? Get all the profit. Write to our Agricultural Service Bureau as to the proper fertilizers for your soils and crops. This service is free to you—as a help toward bigger yields, larger income, greater happiness. Also ask us to send you our useful booklet "How to Get the Most out of Fertilizers". No charge.

If there isn't an A A C agent near you, write for the agency yourself.

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FERTILIZERS

Lump Jaw Fleming's Actiniform, for 30 years the standard Lump Jaw remedy. \$2.60 a bottle postpaid. Money back if it fails. Send for FREE Vest Pocket Veterinary Adviser. Describes Lump Jaw and 200 other Cattle and Horse diseases. FLEMING BROTHERS, 252 Union Stock Yards, Chicago

HOGS

Big Type P. C. a few first class, 200 lb. boars left also some fall boar pigs good enough to head any herd. Come and see or write. E. R. LEONARD, R. 3, St. Louis, Mich.

L. T. P. C. Spring boars and gilts now ready to ship. Something good at a right price. W. J. HAGELSHAW, Augusta, Mich.

Big Type Poland China boars Long heavy boned spring boars. Sired by Brewbaker & Son's great heard boar Gertsdale Timm. Stock all double immuned. H. C. OVEN, Ovid, Mich.

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

Big Type Poland Chinas bargain \$75 buys a bred gilt and a 250 lb. spring boar also choice gilts bred for \$40. Guarantee Satisfaction. DORUS HOVER, Akron, Mich.

Poland China Bred sows and gilts at bargain prices, also spring boars and fall pigs, either sex. CLYDE FISHER, R. 3, St. Louis, Mich.

Big Type Poland Chinas at lowest prices, Both sex, all ages, and bred sows and gilts. G. A. BAUMGARDNER, R. 2, Middleville, Mich.

P. C. Bred sows Fall pigs singly or in pairs. Also S. O. Minor's cockers all Big Type of the best of breeding. Satisfaction guar. R. W. Mills, Saline, Mich.

Registered Hampshire gilts now ready to ship. Spring boars and fall pigs at a bargain. JOHN W. SNYDER, R. 4, St. Johns, Mich.

YORKSHIRES Boars ready for service. Yorkshires cross makes an excellent market hog. Waterman & Waterman, Packard Rd. Ann Arbor, Mich.

SHEEP.

Wool-Mutton Shropshire Rams. Good strong in-bred, priced right. A. H. FOSTER, Allegan, Mich.

Registered Shropshire Rams, and ewes all ages for sale. Well-wooled with size and quality. Priced to sell. H. F. Mouser, R. 6, Ithaca, Mich.

Registered Shropshire Ewes and rams. Jno. Grieve, R. 3, Fowlerville, Mich.

Shropshires Choice ewes, all ages, bred to imported ram. Also a few rams. W. B. McQUILLAN, R. 7, Howell, Mich.

Brook Side Farm Offers Shropshire Registered Rams. Bred to an imported Min-ton Ram. Dan Booher, Prop., R. 4, Ewart, Mich.

For Sale: Flock of thoroughbred Cheviot sheep, all registered. Five year old ram; two two year old ewes, two yearling ewes. First check for \$150.00 takes the flock. Guaranteed in perfect condition. ALBERT STOLL, Jr., R. R. 1, Box 9, Birmingham, Mich.

Want a Sheep? Let American Hampshire Sheep Association send you dandy booklet with list of breeders. Write COMFORT A. TYLER, 22 Woodland Ave., Detroit, Mich.

HORSES

Percheron Stallions and mares at reasonable prices; inspection invited. F. L. KING & SON, Charlotte, Mich.

LATEST MARKET REPORTS

GRAIN QUOTATIONS

January 4, 1921.

Wheat.

Detroit.—Cash No. 2 red \$1.98; May \$1.91; No. 2 white and No. 2 mixed \$1.95.

Chicago.—No. 2 hard \$1.85@1.86; March \$1.73½.

Corn.

Detroit.—Cash No. 3 yellow, new 78c; No. 4 yellow, new 75c.

Chicago.—No. 2 mixed 71¼c; No. 2 yellow 77c.

Oats.

Detroit.—Cash No. 2 white 50½c; No. 3 white 49c; No. 4 white 46c.

Chicago.—No. 2 white 47¼@48½c; No. 3 white 46@47½c.

Beans.

Detroit.—Immediate and prompt are steady at \$4 per cwt.

Chicago.—White beans steady. Hand-picked beans choice to fancy \$4.25@4.50; red kidney beans \$9@9.50 per cwt.

New York.—Market is dull. Choice pea, new \$5; do medium \$5.50@5.75; red kidney \$9.50.

Rye.

Detroit.—Cash No. 2 rye \$1.66.

Seeds.

Detroit.—Prime red clover \$13.85; February \$14; alsike \$17.50; timothy \$3.65.

Toledo.—Prime red clover, cash and January \$13.65; alsike \$16.75; timothy \$3.55.

Hay.

No. 1 timothy \$26@27; standard \$25@26; light mixed \$25@26; No. 2 timothy \$24@25; No. 1 clover mixed \$23@24; No. 1 clover \$22@23; rye straw \$14.50@16; wheat and oat straw \$13.50@14 per ton in carlots at Detroit.

WHEAT

During the past holiday week when business usually is very dull there has been a very brisk export demand for wheat. The milling demand which has been dull for months also showed material improvement. During the past week, expressions of a favorable outlook into the new year have been numerous, but it is too much to expect that all the clouds will disappear from the business sky at once. The official estimate on exports of wheat for the first five months of the crop year showed a total of 172,000,000 bushels wheat and flour cleared and the aggregate for the first six months will probably be around 200,000,000 bushels. Last year five months' exports were 103,000,000 bushels. Export clearances daily are now exceeding the primary receipts and a liberal reduction in the visible supply is expected before long.

CORN

The movement of new corn is expanding but at a slower rate than the huge crop and the need for money in the country would indicate. Evidently the low price is restricting sales and there are signs that bankers finding that market returns are so small compared with the outstanding obligations are not encouraging sales until prices reach a higher level. However, the demand is slow although exporters continue to buy since our market is slightly lower than that of Argentina. The result is a deadlock which indicates a continuance of prices fairly close to the present basis for the present.

OATS

Oat prices fluctuate in a narrow range, the large visible supply checking any tendency on the part of the market to advance sharply and the export demand which was constant during the war has all but disappeared. Prices are scratching the bottom and are likely to continue to do so for several weeks.

BARLEY

Barley prices have declined because of a falling off in the malting and feeding demand, and current values are more nearly in line with those for oats and corn.

RYE

There is a very brisk export demand for rye which is reflected in a firmer tone.

SEEDS

Seed markets have exhibited slightly greater strength the past week due

to expectation of an improvement in the cash demand during January. Imports of red clover seed since July 1 have been only 459,000 pounds compared with 4,097,000 pounds during the same period last year. The Bureau of markets estimates that about 25 per cent of the red clover seed crop, 35 to 40 per cent of the alsike clover seed crop, 15 per cent of the sweet clover crop and 30 per cent of the alfalfa seed crop have left the hands of growers.

FEEDS

Feed markets are quoted practically unchanged from a week ago. Bran has been relatively stronger than the other wheat feeds. Alfalfa meal continues in small demand due to the absence of feed manufacturers from the market. Latest quotations per ton (100-lb bags) in carlots are: Chicago.—Bran \$31; standard middlings \$30; flour middlings \$37; cottonseed meal, 41 per cent \$38; cottonseed meal, 36 per cent \$34; gluten feed \$45; hominy \$38; old process oil meal \$45; tankage \$65@75. Detroit.—Bran \$38; standard middlings \$36@38; flour middlings \$38@40; coarse corn meal \$34; cracked corn \$35@36; chop \$34.

HAY

Hay markets are still supplied more heavily than consuming demand requires and prices have been easy during the past week. Reductions in freight rates from Idaho points will increase the receipts still further while consuming sections will be handicapped by high freights in force from distributing markets to the east. Prices per ton in carlots were as follows: Buffalo.—No. 1 timothy \$29@30; No. 2 \$26@28; straw, oat and wheat \$11@12; rye \$12@14.

BEANS

Bean markets have advanced slightly during the past week under buying by wholesalers to replace depleted stocks. Prices are quoted at \$4@4.15 with an average of about \$4.10 on the choice hand-picked stock f. o. b. Michigan shipping points. Prices to growers are around \$3.60. In view of the small crop the prospect for an improvement in the price from this level

is much greater than the possibility of a further decline.

EGGS AND POULTRY

The egg market continues to struggle with a high price level. Although stocks on hand are light, fairly open weather favors winter production and the high price is attracting eggs from the south. There is a disposition to avoid buying beyond immediate requirements because of the prospect of much lower prices in a couple of months and there is a tendency to force storage stocks on the market. Poultry prices hold up well in view of the fact that they are out of line with other meats.

BUTTER

A light make of fresh butter, and light receipts, coupled with good consumptive buying, caused prices to recover a cent per pound and stocks to clean up on both fine grades and underbutter at each of the four big central markets. Storage butter prices, while firm have not shared this advance. Nearly a million pounds of foreign butter arrived last week. New York City imported 40,000 pounds of Danish and 55,000 pounds of Holland, while San Francisco received a big shipment of 792,000 pounds from New Zealand, some of which will soon find its way east and may be a factor in lowering prices. Prices on 92 score butter as quoted by the Bureau of Markets on December 31 are as follows: Chicago 54c; New York City 57c; Boston 55c; Philadelphia 57½c.

CHEESE

Continued quietness with light trading as is usual over the holidays featured the cheese markets. Country markets report the lightest trading of the year, and although much better buying inquiry has developed yet buyers in all markets operate cautiously and are not absorbing any cheese in excess of immediate retail requirements. Little encouragement has come from export circles. English markets especially are reported weak. The fact that cold storage holdings are 22,000,000 pounds under those of a year ago has had a buoying effect on the fresh

grades of cheese, but unless demand improves and buyers come out during the month of January, further price declines are inevitable under present conditions.

POTATOES

At the opening of the New Year trading was slow with the Northern whites quoted at \$1.40@1.60 per 100 pounds in Chicago, and Detroit paying \$2.50@2.75 per 150-lb. sack for Michigan offerings.

DETROIT CITY MARKET

Trading is slow with the wholesale prices as follows: Apples 50c@52.50; dry onions 75c@81; parsnips \$1@1.25; potatoes \$1@1.10 per bushel; turnips \$1@1.25; popcorn \$2@2.50 per bushel; eggs 90c@1.10; poultry 30@35c; dressed hogs 15@17c.

PRODUCE REVIEW FOR 1920.

THE close of the year 1920 finds prices on a lower level on nearly all commodities than a year ago, the difference in prices ranging from 10 to 75 per cent. Likewise, the market tone is generally weak, with indications of a continuation of slow trading and weakness on the more important commodities, including potatoes, onions, cabbage, and apples. While heavier crops have been an important factor in the downward market trend, there are also other factors playing important roles, but apparently there is none greater than the fact that prices in general throughout the country are moving sharply downward. This is attested to by the fact that on commodities of which there is even a shorter crop than a year ago values are lower.

This year has been an unusual one for potatoes, which soared to the unheard of price of \$9@11 per cwt. in June for both old and new stock, only to break sharply through July and August, followed by steady declines after the heavy movement of the late Northern crop started in September. Growers were at first decidedly bullish and refused to sell for less than \$2.25 per cwt., having in mind the high prices of the spring and summer and apparently did not take into proper account the government's report on the size of the crop. However, operators continued very pessimistic and refused to buy, which finally brought the farmer to a realization of conditions which he must face. The government's estimates increased from month to month through the season and on December 1, placed the yield at approximately 432,000,000 bushels against 358,000,000 bushels last year. Trading at the opening of the new year was slow at around \$1.50@1.65 per cwt. for Northern stock, against \$3.30@3.40 a year ago.

This year's apple crop was estimated by the government at about 36,000,000 barrels as compared with 26,000,000 barrels last year. Prices have been sagging all fall and winter and the market closed from 15 to 40 per cent lower than a year ago. A few varieties being scarce are bringing nearly as much as last year, but the market as a whole has been weak, with Jonathans closing at \$7@8 per barrel against \$8@9.50 a year ago, Greenings \$5.50 this year and \$9 last year. The decline on boxed stock has been less pronounced on account of the shortage of the northwestern crop. The British market is in bad shape, almost shutting off export trade, on which operators had been depending for an outlet for the surplus.

While the onion crop is larger than last year, there does not appear to be a sufficient difference in yields, even when other possible factors are taken into consideration, to warrant the difference in price. Middlewestern yellows closed this year at \$1.25 per cwt. against \$4.75@5 last year. The market was glutted for weeks during the spring and summer, with Texas and California Bermudas and the market has never fully recovered from the condition caused by this heavy influx of early stock.

The cabbage crop this year is substantially larger than a year ago. The market continued dull all fall and the kraut manufacturers bought very sparingly this year, due partially to shortage of labor and partially to the high price of barrels. Cheapness of cabbage at kraut-making time failed to interest them to any appreciable extent.

Live Stock Market Service

Markets for January 5, 1921.

DETROIT

Cattle.

Market is 50@75c lower.

Best heavy steers	8.00@9.50
Mixed steers and heifers	6.50@7.00
Best cows	5.75@6.25
Handy light butchers	5.00@5.50
Light butchers	6.00@7.00
Best cows	5.00@5.50
Butcher cows	3.00
Common cows	2.50@3.00
Canners	6.50@6.75
Choice bulls	5.00@6.00
Bologna bulls	4.00@4.50
Stock bulls	7.00@8.00
Feeders	5.00@6.50
Stockers	50@90
Milkers and springers	

Veal Calves.

Market is dull.	
Best	\$15.00@16.00
Others	6.00@11.00

Hogs.

Pigs 25c higher; mixed hogs steady.	
Mixed hogs	\$9.75@9.85
Pigs	11.00
Roughs	8.50
Stags	7.00

Sheep and Lambs.

Market steady.	
Best lambs	\$10.50@11.00
Fair lambs	8.00@9.00
Light to common	4.00@6.00
Fair to good sheep	4.00@4.50
Culls and common	1.50@2.50

CHICAGO

Hogs.

Estimated receipts today are 25,000; holdover 12,707. Market steady to 10c higher. Bulk of sales \$9.25@9.75; tops \$9.90; heavy 250 lbs up medium, good and choice \$9.20@9.45; medium 200 to 250 lbs medium, good and choice \$9.35@9.80; light 150 to 200 lbs common, medium, good and choice \$9.50@9.90; light lights 130 to 150 lbs common, medium, good and choice at \$9.50@9.90; heavy packing sows 250 lbs up smooth

at \$8.50@9; packing sows 200 lbs up rough \$8.25@8.50; pigs 130 lbs down, medium, good and choice \$9.50@10.

Cattle.

Estimated receipts today are 11,000. Steers steady; she stock steady to lower; veal calves 50c lower. Beef steers medium and heavy weight 1100 lbs up choice and prime \$11.25@12.50; do medium and good \$9.25@11.25; do common \$7.75@9.25; light weight 1100 lbs down, good and choice at \$10.25@12; do common and medium \$7.50@10.25; butcher cattle, heifers, common, medium, good and choice \$5.75@10.50; cows common, medium, good and choice at \$5.25@9; bulls, bologna and beef \$5@8; canners and cutters cows and heifers \$3.50@5.25; do canner steers \$4.25@6; veal calves light and handyweight medium, good and choice at \$11@12; feeder steers common, medium, good and choice \$6.25@9.25; stocker steers, common, medium, good and choice at \$4.25@8.25; stocker cows and heifers common, medium, good and choice at \$4.25@6.25.

Sheep and Lambs.

Estimated receipts today are 13,000. Market 25c higher. Lambs 84 lbs down medium, good, choice and prime \$10@11.75; do culls and common at \$7.50@8.50; spring lambs medium, good, and choice and prime \$8@9.50; ewes, medium, good and choice \$3.25@5; ewes, cull and common \$1.50@2.75; breeding ewes full mouths to yearlings \$3.50@5; yearling wethers medium, good and choice \$8@10.25.

BUFFALO

Market is 25@50c lower than last week on cattle, with prime shipping steers at \$11.50@13; best do \$9.50@10.50; light Michigan butchering heifers \$4.50@5.50; feeders \$6@7.50. Hogs advanced about 25c since Saturday. Heavy \$10.25@11; yorkers and pigs at \$11.25@11.75; mixed hogs \$11@11.50. Sheep and lambs are steady with top lambs at \$12.50. Calves \$19.

FARM BUREAU URGES EXTENSION OF CREDIT.

THE Farm Bureau Federation favors an extension of credit to all nations, according to Mr. Howard. It has never advocated direct loans from the United States treasury to foreign countries. The federation's plan provides for the extension of credit, by using such security as foreign countries might be able to give for the purchase of farm products, such securities to be deposited with the War Finance Corporation and sold to American investors or debentures issued upon them. The War Finance Corporation would become a clearing-house between foreign nations and the United States in the extension of foreign credit and markets.

In regard to security from Germany, Mr. Howard suggested that with the consent of the reparations commission, the American credit could be made a first lien on all the property and income of that country.

Speaking of the proposed emergency tariff, the speaker said, "We demand the same protection for the farmers that industry has." As regards the storage of farm crops, Mr. Howard said the key on which the credit system is to be worked out is the warehouse certificate plan.

WOOL

Although holiday conditions have been dominant in the wool markets during the past week the price basis appears to be growing gradually stronger. The improvement is confined to the low grades but beginning with the new year it is expected that demand for fine wools will increase. Retailers are gradually marking down their prices and clearing their shelves through post holiday sales and a larger volume of replacement orders are expected during January. The fact that so many of the mills are idle and that production has been restricted for several months has led repeatedly to predictions that scarcity might develop in the quantity of goods available. Any strength of this kind would be quickly translated into the markets for raw wool; otherwise the prospect is for a gradual increase in the volume of sales of raw wool without much change in the price basis. On December 1 wool price showed a decline of about 60 per cent from the high point reached early in 1920, but are still around 40 per cent above the level of July, 1914.

COMMITTEE OF FIFTEEN APPOINTED.

THE appointment of the Farmers' Live Stock Marketing Committee of Fifteen, along with nine alternates, which is charged with the task of investigating live stock marketing problems and perfecting a plan by which farmers can do their own live stock marketing, was announced Monday, January 3, by President James R. Howard, of the American Farm Bureau Federation, as follows:

J. M. Anderson, Equity Cooperative Exchange, St. Paul, Minn.

Harry G. Beale, Treasurer, Ohio Farm Bureau Federation, Mt. Sterling, Ohio.

W. J. Carmichael, Secretary, National Swine Growers' Association, Chicago, Ill.

W. A. Cochel, American Shorthorn Breeders' Association, Kansas City, Missouri.

C. E. Collins, representing Colorado and western interests, Kit Carson, Colorado.

E. H. Cunningham, President, Iowa Farm Bureau Federation, Ames, Iowa.

Howard M. Gore, farmer, representing eastern and southeastern interests, Clarksburg, W. Va.

C. H. Gustafson, President, the Nebraska Farmers' Union, and the Nebraska Farmers' Union Live Stock Marketing Company, Lincoln, Nebr.

S. P. Houston, President, Missouri State Live Stock Association, Malta Bend, Mo.

Senator J. B. Kendrick, Sheridan, Wyoming.

W. A. McKarrow, Minnesota Cooperative Live Stock Shipping Association, University Farm, St. Paul, Minn.

H. W. Mumford, Live Stock Department, Illinois Agricultural Association, Chicago, Ill.

J. H. Skinner, Dean, College of Agriculture, Purdue University, Lafayette, Indiana.

A. Sykes, President, Corn Belt Meat

Producers' Association, Ida Grove, Iowa.

Dr. O. O. Wolff, a senator, and recommended by Kansas interests, Ottawa, Kansas.

MICHIGAN LIVE STOCK ASSOCIATION PROGRAM.

THE thirtieth annual meeting of the Michigan Improved Live Stock Breeders' and Feeders' Association will be held at the Michigan Agricultural College at East Lansing, Wednesday and Thursday, January 12-13. At five o'clock Wednesday a joint meeting of all allied associations will be held in Room 402 of the Agricultural Building. Dean R. S. Shaw will discuss live stock problems. This will be followed by a general discussion and reports of association secretaries, after which a banquet will be tendered to members of the Michigan Improved Live Stock Breeders' and Feeders' Association by the State Board of Agriculture.

The Thursday meeting will be called to order at 9:30 a. m. in the same room. The program includes the secretary's report, appointment of various committees and an address by Herbert E. Powell, president. Other addresses will be made by H. R. Smith, of Chicago, on "The Eradication of Tuberculosis;" W. L. Houser, president of the Wisconsin Live Stock Breeders' Association, on "Pure-bred Sires," and President F. S. Kedzie, of the M. A. C., on "General Observations." After recess for lunch the meeting will be called to order at 1:30 o'clock. R. R. Graves, of Washington, will discuss "The Influence of Heredity on Production;" L. Whitney Watkins will discuss the problem of "Developing a Better Market for Michigan Live Stock." This will be followed by a report of committees and the election of officers.

The following section meetings will be held as follows:

Michigan Holstein-Friesian Association, Wednesday, January 12, 9:30 a. m., Room 402, Agricultural Building.

Michigan Sheep Breeders' and Feeders' Association, Wednesday, January 12, Room 206. Meeting called to order at 10:00 a. m.

Michigan Swine Breeders' Association, Wednesday, January 12, Room 109. Meeting called to order at 3:00 p. m.

Michigan Horse Breeders' Association, Wednesday, January 12, Room 316. Meeting called to order at 1:30 p. m.

Michigan Guernsey Cattle Club, Wednesday, January 12, 9:30 a. m., Room 111.

Michigan Jersey Cattle Club, Wednesday, January 12, Room 405. Meeting called to order at 10:00 a. m.

Michigan Hereford Breeders' Association, Wednesday, January 12, Room 110. Meeting called to order at 1:30 p. m.

Michigan Shorthorn Breeders' Association, Tuesday Evening, January 11, 7:00 p. m. Annual banquet, College Cafe, East Lansing, Wednesday, January 12, 9:30 a. m. Room 109, Agricultural Building.

Michigan Aberdeen-Angus Breeders' Association, Thursday, January 13, Room 109. Meeting called to order at 4:00 p. m., followed by a banquet at the Hotel Kerns.

Michigan Red Polled Breeders' Association, Wednesday, January 12, Room 113. Meeting called to order at 1:30 p. m.

Michigan Poland-China Breeders' Association, Wednesday, January 12, Room 207. Meeting called to order at 1:00 p. m.

Michigan Duroc-Jersey Breeders' Association, Wednesday, January 12, Room 206. Meeting called to order at 1:00 p. m.

Michigan Berkshire Breeders' Association, Wednesday, January 12, Room 103. Meeting called to order at 1:00 p. m.

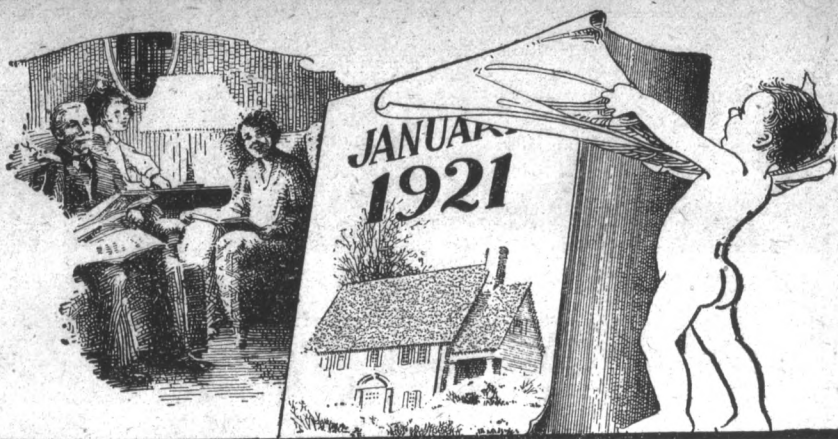
Michigan Chester-White Breeders' Association, Wednesday, January 12, Room 113. Meeting called to order at 1:00 p. m.

Michigan Oxford Sheep Breeders' Association, Wednesday, January 12, Room 113. Meeting called to order at 1:00 p. m.

COMING LIVE STOCK SALES.

Aberdeen Angus—Michigan Aberdeen Angus Breeders' Association at M. A. C., East Lansing, Michigan, January 14, 1921.

Holstein-Friesian.—January 12-13, New York Holstein Association, Rochester, New York.



Planning Time

THE beginning of the New Year is a good time to think about future betterments. Later on, when your farm duties command most of your attention, building operations are apt to be neglected, to the detriment of your property and welfare.

It is good judgment to know, well in advance of the Spring building season, just what repairing and building will be necessary to place your farm on the most efficient working basis.

It is also good judgment to include MULE-HIDE Roofing and Asphalt Shingles in your plans for better roofs.

"Not a Kick in a Million Feet"

is a record of service which MULE-HIDE has earned from its long life, durability and weather-resisting qualities.



The MULE-HIDE dealer in your locality will gladly demonstrate the superiority of MULE-HIDE Roofing and Shingles to your satisfaction. If you know of no MULE-HIDE dealer nearby, write us direct, mentioning the name of your lumber dealer.

MULE-HIDE Smooth Finish Roofing.
MULE-HIDE Slate-Kote Roofing.
MULE-HIDE Shingle-Craft Roofing.
MULE-HIDE Individual Asphalt Shingles in Standard and Double-Thick Weights.
MULE-HIDE Four-Unit Asphalt Shingles.
SEAL-SKIN and BLACK-BEAR Waterproof Building Papers.

THE LEHON COMPANY

MANUFACTURERS

44th to 45th on Oakley Ave., Chicago

EDGAR OF DALMENY

PROBABLY THE

World's Greatest Living Sire

HEADS OUR HERD

Will sell in the Aberdeen-Angus sale to be held in Lansing, Mich., January 14th, 1921, one Prize Winning Bull and two Prize Winning Heifers. Also choicely bred Blackcap Heifer. All sired by Edgar of Dalmeny.

Write for Sale Catalog

WILDWOOD FARMS

ORION, MICHIGAN

W. E. SCRIPPS, Prop.

Sidney Smith, Supt.

Mr. POULTRY FARMER:

We make a specialty of White Henner Eggs and have created a profitable market for your eggs the year around. We pay the highest premium for your Henner Whites—We remit same day shipments arrive. Ship Often—Ship by Express

GEO. R. ELDRIDGE CO.

494-18th Street, Detroit, Mich.

Remember! We guarantee you satisfaction with every shipment

HAY Ship to The Old Reliable House

Daniel McCaffrey's Sons,

623-625 Wabash Bldg., Pittsburg, Pa.

HAY Apples, Potatoes Wanted Highest prices paid. The E. L. RICHMOND CO., Detroit, Mich.

POULTRY

CHICKS

for 1921 Bred-to-Lay S. O. W. Leghorns. Hocking orders now for early hatches. \$10.50 per 50, \$20 per 100, \$35 per 500. Safe delivery postage paid. SUNNYBROOK POULTRY FARMS, Hillsdale, Mich.

CHICKS Pure-bred S. O. White and Brown Leghorns, from heavy laying strains. Parcels-post brings them up to your door. Safe arrival guaranteed. \$15.25 per 100 post-paid. Catalogue free. Royal Hatchery, R. 2, Zeeland, Mich.

Fowler's Buff Rocks Cockerels, hens and pullets. Write for prices. R. B. FOWLER, Hartford, Mich.

CHICKS! Standard bred White Leghorns and Brown Leghorns. Bred to lay, large white eggs. 50 chicks \$7.50; 100, \$15.00 and 500, \$72.50. Safe arrival guaranteed. Parcel post brings them to your door. Catalog free. Wolverine Hatchery, R. 2, Zeeland, Mich.

For Sale Barred Rock Cockerels. Ringlet strain. Large type, nicely barred \$3.50 each or 3 for \$10. EARL MURPHY, Britton, Mich. Macon Phone.

For Buff Orpington Cockerels and Pullets Mrs. M. B. NOBLE, Saline, Mich.

For Sale R. C. and S. C. Rhode Island Red Cockerels, dark red, good stock. G. W. VAN VOSSEN, Hillsdale, Mich.

JOHN'S Big Beautiful Barred Rocks are hen hatched quick growers, good layers, sold on approval \$4 to \$8. Circulars photos. John Northon, Clare, Mich.

Pure Bred Light Brahma cockerels. Write for prices and description. Mrs. E. B. WILLITS, R. 1, Reading, Mich.

Rhode Island Whites If you have ever said there is no money in raising poultry try the R. I. White, stock for sale, order ahead. H. H. JUMP, R. 5, Jackson, Mich.

S.C.R.I. Reds Carver and Whittaker's strain Cocks and Cockerels. Price from \$3 to \$5 each. Alfred Deichmann, Pigeon, Mich.

WHITTAKER'S R. I. REDS

Michigan's Color and Egg Strain. Both Combs. Cockerels, Chicks and Eggs. Write for free catalog. INTERLAKES FARM, Box 39, Lawrence, Mich.

White Wyandottes 15 pullets at \$2.50 each. 1 pen \$15.00. Cockerels from flock with 297 egg average \$5.00 and \$8.00 each. Eggs for hatching \$2.00 per 15. FRANK DeLONG, R. 3, Three Rivers, Mich.

White Holland Turkeys White African Guinea 80 acres of them. Reference O. H. Burgess, Prof., Poultry Mich. Agri. College. Farm for sale. Alden Whitcomb, Byron Center, Mich.

White Chinese Geese,

White Pekin Ducks, R. O. Br. Leghorns. Order early. Mrs. CLAUDIA BETTS, Hillsdale, Mich.

TURKEYS

Michigan's best Giant Bronze breeding stock. Very large, excellent color, health and vigor guaranteed. N. EVALYN RAMSDELL, Ionia, Mich.

Good Reading

OFFER No. 103.

The Michigan Farmer, one year...\$1.00
American Boy, one year..... 2.50

Total value 3.50

Both for \$3.00.



Price Readjustments and Agriculture

Farmers today are sharing the national burden

IT is inevitable that present and future price readjustments should be felt by farmers as well as by all other industries. Yet men familiar with rural conditions know that decreases in income will bring many farmers dangerously close to failure. Means must be found to increase the farmer's earning power.

Greater production is one means to greater earnings. The ever-growing use of machinery shows that this fact is receiving careful thought. However, much can yet be done to lower operating costs. Particularly where machinery is used, operating costs very often eat heavily into profits.

In this connection, lubrication is the most important and often the most neglected factor. The way in which you lubricate your machinery is an important factor on whether it will have a long or short life; whether your repair bills will be large or small; whether your fuel expense will be high or low; and most important of all, whether your work will be interrupted by frequent breakdowns.

Prominent engineers agree that over 50% of all repairs on tractors, trucks and auto-

mobiles are due to incorrect lubrication. Thousands of public and private tests made by the government, agricultural colleges and manufacturers have shown that incorrect lubrication is often directly responsible for excessive fuel consumption, breakdowns and loss of power.

The Vacuum Oil Company has for years been recognized the world over as an authority on scientific lubrication. Gargoyle Mobiloils, when used as specified in our Chart of Recommendations, have in many tests, shown a saving of oil of from 50% to 70%, and a fuel economy from 17% to 25%. Gargoyle Mobiloils enable you to get more power from your engine.

The Chart of Recommendations (shown in part on this page) specifies exactly what grade of Gargoyle Mobiloils will give you best results from your automobile, truck or tractor.

Gargoyle Mobiloils are put up in 1- and 5-gallon sealed cans, in 15-, 30- and 55-gallon steel drums, and in wood half-barrels and barrels.

Write for "Correct Lubrication," a booklet containing complete automobile and tractor charts and other valuable data.



Mobiloils

A grade for each type of motor

In buying Gargoyle Mobiloils from your dealer, it is safest to purchase in original packages. Look for the red Gargoyle on the container.

VACUUM OIL COMPANY, New York, U. S. A.

Specialists in the manufacture of high-grade lubricants for every class of machinery. Obtainable everywhere in the world.

DOMESTIC
BRANCHES:

New York
Boston

Philadelphia
Pittsburgh

Detroit
Chicago

Minneapolis
Indianapolis

Kansas City, Kan.
Des Moines

Chart of Recommendations for TRACTORS

(Abbreviated Edition)

How to Read the Chart

THE correct grades of Gargoyle Mobiloils for tractor engine lubrication are specified in the Chart below.

A means Gargoyle Mobiloil "A"
B means Gargoyle Mobiloil "B"
BB means Gargoyle Mobiloil "BB"
Arc means Gargoyle Mobiloil Arctic

These recommendations cover all models of tractors unless otherwise specified.

Where different grades of Gargoyle Mobiloils are recommended for summer and winter use, the winter recommendations should be followed during the entire period when freezing temperatures may be experienced.

This Chart is compiled by the Vacuum Oil Company's Board of Automotive Engineers, and constitutes a scientific guide to Correct Tractor Lubrication.

If your tractor is not listed in this partial chart, consult the Chart of Recommendations at your dealer's, or send for booklet, "Correct Lubrication for Tractors," which lists the Correct Grades for all Tractors.

Model Year	1920	1919	1918	1917	1916
NAMES OF TRACTORS	Summer	Winter	Summer	Winter	Summer
Alfa-Chalmers General Purpose	A	A	A	A	A
" " All Other Models	BB	BB	BB	BB	BB
All Work	B	B	B	B	B
Appleton	BB	BB	BB	BB	BB
Aultman-Taylor (18-36)	BB	BB	BB	BB	BB
" " (22-45)	BB	BB	BB	BB	BB
" " (15-50) (Waukegan Eng.)	BB	BB	BB	BB	BB
" " All Other Models	BB	BB	BB	BB	BB
Avory (5-10)	B	B	B	B	B
" " Motor Cultivator & Planter	A	A	A	A	A
" " All Other Models	B	B	B	B	B
Bates Steel Mule	B	B	B	B	B
Beane-Track-Pull	B	B	B	B	B
Big Boy	B	B	B	B	B
Buckeye (Findlay, Ohio)	B	B	B	B	B
Case (8-18)	BB	BB	BB	BB	BB
" " (10-20)	BB	BB	BB	BB	BB
" " (12-25 & 20-40)	BB	BB	BB	BB	BB
" " (15-27)	BB	BB	BB	BB	BB
" " All Other Models	BB	BB	BB	BB	BB
Cletrac	BB	BB	BB	BB	BB
Cleveland	B	B	B	B	B
Coleman	B	B	B	B	B
Common Sense	BB	BB	BB	BB	BB
C. O. D.	BB	BB	BB	BB	BB
Craig	BB	BB	BB	BB	BB
Cleaving Grip	B	B	B	B	B
E. B. (8-16)	B	B	B	B	B
" " (Reeves)	B	B	B	B	B
" " All Other Models	B	B	B	B	B
Fleur City (20-35)	B	B	B	B	B
" " All Other Models	B	B	B	B	B
Fordson	BB	BB	BB	BB	BB
Gay Pull (14-28, 10-20)	B	B	B	B	B
" " (12-20, 16-30)	B	B	B	B	B
" " (20-40)	B	B	B	B	B
" " All Other Models	B	B	B	B	B
Grain Belt	BB	BB	BB	BB	BB
Happy Farmer	B	B	B	B	B
Hart Farm	B	B	B	B	B
Heider	BB	BB	BB	BB	BB
Holston	B	B	B	B	B
Holts Caterpillar (Model 18)	BB	BB	BB	BB	BB
" " (Model 45)	BB	BB	BB	BB	BB
" " All Other Models	BB	BB	BB	BB	BB
Huber	BB	BB	BB	BB	BB
Illinois	B	B	B	B	B
Indiana	B	B	B	B	B
K. C. Prairie Dog	BB	BB	BB	BB	BB
La Crosse	B	B	B	B	B
Liberty	B	B	B	B	B
Lightfoot	B	B	B	B	B
Ninneapolis	B	B	B	B	B
Nigol (8-16)	B	B	B	B	B
" " All Other Models	BB	BB	BB	BB	BB
Moline Universal	BB	BB	BB	BB	BB
Nearch	BB	BB	BB	BB	BB
National	B	B	B	B	B
Neverslip (20-12)	B	B	B	B	B
" " (20-18, 10-6)	B	B	B	B	B
" " All Other Models	B	B	B	B	B
New Age	BB	BB	BB	BB	BB
Nixon	BB	BB	BB	BB	BB
Oil Pull (14-28, 10-20)	B	B	B	B	B
" " (12-20, 16-30)	B	B	B	B	B
" " (20-40)	B	B	B	B	B
" " All Other Models	B	B	B	B	B
Parrett	B	B	B	B	B
Panec	B	B	B	B	B
Royer	B	B	B	B	B
Rumby (8-16)	B	B	B	B	B
" " (12-24)	B	B	B	B	B
Ruthell (Grant)	B	B	B	B	B
" " All Other Models	BB	BB	BB	BB	BB
Sandusky	BB	BB	BB	BB	BB
Square Turn (15-30)	B	B	B	B	B
" " (18-35)	B	B	B	B	B
Titan	B	B	B	B	B
To-Go	B	B	B	B	B
Townsend	B	B	B	B	B
Trundlar	B	B	B	B	B
Turner Simplicity	BB	BB	BB	BB	BB
Twin City (Model 15)	BB	BB	BB	BB	BB
" " (Model 16)	BB	BB	BB	BB	BB
" " (Model 12-20)	BB	BB	BB	BB	BB
" " (Model 20-35)	BB	BB	BB	BB	BB
" " All Other Models	B	B	B	B	B
Valley	B	B	B	B	B
Wallis	BB	BB	BB	BB	BB
Waterloo Boy	A	A	A	A	A
Whitney	BB	BB	BB	BB	BB
Winconsin	BB	BB	BB	BB	BB