

MICHIGAN FARMER

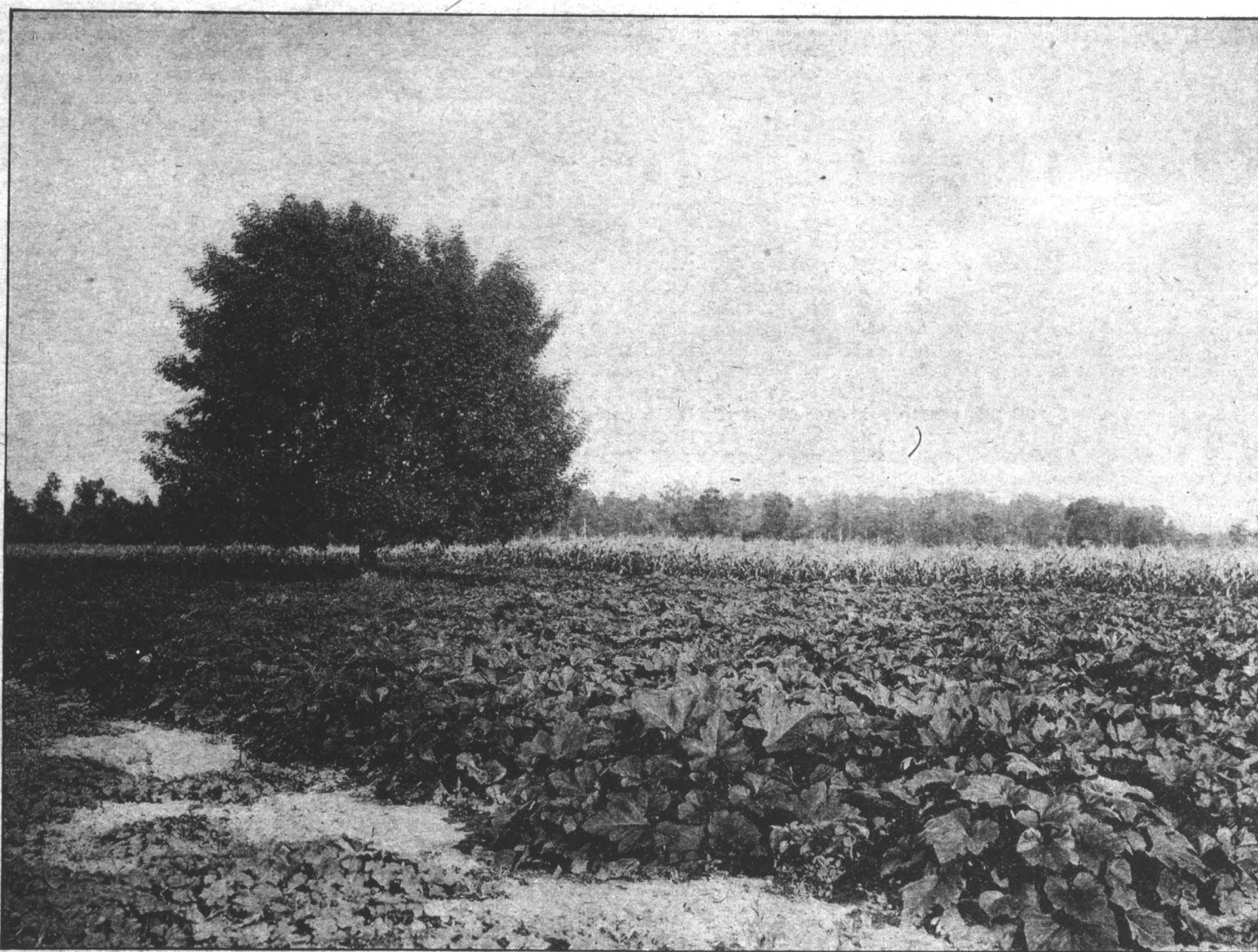
AND
LIVE STOCK
PUBLISHED WEEKLY.

JOURNAL
ESTABLISHED 1843.

VOL. CLV. No. 19
Whole Number 4122

DETROIT, MICH., SATURDAY, NOVEMBER 6, 1920

ONE YEAR \$1.00
FIVE YEARS \$3.00



Cooperation and the Individual

IT IS VERY natural that the first appeal of cooperation should be to bring an economical and just mode of business into operation and such has been the history of cooperative effort. But once the business of farming is placed upon an equitable plane with other industries, then it is reasonable to suppose that the cooperative movement will be extended beyond the market place and the halls of business education and become a powerful ally in bringing about a constructive environment for the members, one that will provide for their social needs as well as for their business demands.

But the criticism is made that cooperation tends to discourage individual effort, that organization will do many things for members that they naturally would do for themselves. Experience abroad seems to teach otherwise. There cooperation has rather worked to give to the individual greater self-respect first through improving his economic outlook and then by making it possible to enjoy those finer things of life which came with an improved environment. In other words, democracy in business and social enterprises appears to have the same uplifting effect upon the individual that democracy has had in politics.

The Michigan Farmer

Published Weekly Established 1843 Copyright 1920

The Lawrence Publishing Co.

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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

50 cents per line agate type measurement, or \$7.00 per inch (14 agate lines per inch) per insertion. No advertisement inserted for less than \$1.50 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 CLV. NUMBER NINETEEN

DETROIT, NOVEMBER 6, 1920

CURRENT COMMENT

Deflation and the Farmer

WE are now hearing and reading a great deal about the period of readjustment which is upon us. In reality it is merely a period of deflation during which money values will increase and commodity values will decline. If this process could be so graduated as to affect all classes alike its accomplishment would result in no great hardship to any, but the regulation of the process is exceedingly difficult, hence the possibility of an unequal distribution of the burdens of deflation or price readjustment as between money and commodity values.

In such a readjustment, the burden of readjustment naturally first falls upon those who have a surplus of commodities. It is an established economic law that when commodity prices are rising the market in that line is a "sellers' market." In other words, the owner of such commodities feels that he is warranted in asking a high price for his goods in proportion to their cost, since their replacement value has risen. On the other hand, the consumer who needs the goods feels that he has no remedy in delaying his purchase, since the price is likely to advance still further to his greater disadvantage. But when commodity values are falling the market immediately becomes a "buyers' market." The owner of goods of any kind is confronted with the problem of unloading his high priced wares. He will naturally make a strenuous effort to unload at a profit, but prospective purchasers feel that they have nothing to lose and everything to gain. The result is a general slowing up of business, including production, with a lessened demand and a lower market for raw material and labor and a consequent reaction on values of foodstuffs.

This process of deflation, or the readjustment of commodity and money values cannot be accomplished without loss to those who have commodities on hand which were purchased or produced at high cost under post war conditions, whether the owner of such goods be manufacturer, jobber, merchant or farmer. But, quite naturally, every holder of high cost goods will minimize his loss as much as possible, just by holding up the price so far as practicable, and second by replacing his holdings as cheaply as possible. The manufacturer limits production until he has worked off his high priced products at a minimum of loss, and bears the market on raw material and labor to the best of his ability when sales of the former slow up and a more general condition of unemployment

obtains. The jobber and the merchant buy sparingly and for immediate needs only for the same reason. Both classes naturally strive to maintain the same scale of profits which they have found possible to collect under the conditions of inflation which have obtained during recent years. That they will ultimately find themselves unable to accomplish this end does not help the present situation, which is aggravated by this condition, and in which the present burden of deflation falls heaviest on the farmers who have products for sale which were produced at the peak of production costs, and on the consumer who finds himself jobless, with relatively small reduction in retail costs, of foodstuffs as compared with wholesale market values.

The burden of financing his business is particularly heavy on the farmer at this season of the year. It is his normal period for the payment of fixed charges, such as taxes, interest, labor, etc., and his living expenses must be financed for several unproductive months. He needs, in a majority of cases to cash in on his crops to meet these demands. But for best results his products should be sold only as needed for consumption, since they cannot be forced on distribution in great volume under present conditions except at a price so low as to make it an apparently safe speculation for the dealer who is skeptical regarding future resale values. It is the part of wisdom for the original holders of foodstuffs to market their holdings gradually, in proportion to the length of the normal marketing season. Such a general tendency on the part of farmers would go far toward stabilizing the readjustment or deflation process.

Fortunately for the possible accomplishment of this result the credit situation has materially improved in recent weeks and farmers who are disposed to use their credit to aid in the process of gradual distribution of their products will find it more possible than was the case at the peak of inflation a few weeks ago.

In the judgment of close students of business economics the business outlook is comparatively bright. It is the general belief in business circles that a period of general business prosperity rather than of depression is the outlook in the United States, and that the check in business activities due to the process of deflation will be beneficial in the correction of business extravagances without proving a permanent check on business prosperity. This general confidence should be maintained by agriculture, which is today in a better position than has been the case in any similar previous period in our history.

Moisture Control Problems

ONE of the great handicaps in the business of farming is the uncertainty of remuneration for labor invested in the growing of crops. This element of uncertainty is two-fold, in that unfavorable climatic conditions may limit the yield secured to a degree which will make the investment in growing it unprofitable, or unfavorable market conditions may limit the price received for the product to produce the same result. Obviously the wise thing for every farmer to do is to eliminate these chances so far as possible. This may, and is being done to a very profitable extent by many individual farmers in the first case, and by the united efforts of the farmers engaged in many special industries in the latter case. The marketing problem is one for united action, and substantial progress is being made along this line. But the production problem, in which there is a large waste in labor invested each year is one which must be largely

solved by the individual, and it is a problem of great economic importance. Probably the greatest single factor in this problem of economic production is moisture control. Nature has given us only a small percentage of soil of such physical consistency as to provide in a natural way for the prompt removal of excess moisture, and at the same time conserve a maximum supply of needed moisture in periods of scanty rainfall. The great bulk of our soil area is either too wet for best results at planting time or too dry during the growing season for maximum yields at harvest time, hence a large seasonal waste of labor which it would be most desirable to avoid.

A reduction in this wastage can be most certainly accomplished in the case of the wet lands, from which the excess water can be removed by tile drainage, and an optimum degree of moisture conservation secured by the resulting betterment in their physical condition. True, tile drainage is an expensive operation, but the results will warrant the investment, whenever tile drainage is needed, as it is needed on a large area of our very best lands. Tile drainage will in very many cases be a practical insurance against this serious wastage of labor invested in crop growing operations, thereby increasing the profits as well as the satisfaction in the business. Every owner of land needing tile drainage will find it a profitable venture to borrow the money to make this improvement, if it is impractical to do this on a scale which will make it possible to drain the whole or any large part of the area needing drainage at once, it will be profitable to lay out a comprehensive plan for the adequate drainage of the whole farm and improve a small area each year until the plan is completed. No farmer-owner, and particularly no going farmer, should be deterred from making a great effort to accomplish this improvement where needed. It is an economic factor of great importance in determining his future economic success, and should not be overlooked or neglected.

Fitting Boys To Do Things

THE farmer who at times has not felt a desire to study the other man's methods of keeping his boys interested in the everyday affairs of the farm must be a peculiarly constituted individual. A wide-awake man who has the interests of his boys at heart will constantly be asking himself if he has adopted the best procedure. A member of our staff who has visited some of the leading farmers of the state during the past few months sums up the situation thusly: "When our farmers appraise the value of their boys by the same standard as they do their colts, calves and pigs and study the kind of treatment that is best suited for their development we will have a new generation of farmers with a higher degree of efficiency and a much greater earning power."

It is time right now to begin to study that boy and find out what sort of training is needed to develop his good qualities. You expect the colts, calves and pigs from your best sires to develop into profitable animals if you give them proper treatment. As much depends on your boy's sire and line of treatment accorded as is the case with the young animals on the farm. His value on the farm depends largely on fitting him for doing things. All young animals are restless and the success of developing them along useful lines depends on keeping them contented. Many of our successful live stock breeders have found it possible farm. His value on the farm depends the present labor shortage because they have appraised their boys at something like their true value, and gave them sufficient interest in the

herds and flocks to keep them interested in the affairs of the farm. Other men have been forced to hold dispersion sales because the boys found more congenial surroundings and greater income in big cities.

Boys are especially eager to do or try to do the things that good farmers do. The spirit to excel is present in every normal country boy. That is one of the ambitions that fathers must encourage if they hold the boy's interest in farming. The ownership of pure-bred animals afford them abundant opportunity to try and do things better than the other fellow, and impresses upon them a larger responsibility than the handling of scrubs. Boys have an imaginative instead of a factful estimate of the difference between a \$40 and a \$100 brood sow for example. In the majority of instances grade or scrub animals are not valued so highly as pure-breds that sell for higher prices. For this reason they become interested in blood lines and consequently give the animals more thoughtful care. At so critical a time in the boy's period of development no father can afford to break down their morale by denying them an interest in the business of the farm, and nothing will do more toward making impressive, enthusiastic workers of them than getting them started with pure-bred stock.

Fathers who doubt the ability of the their boys to make good with pure-bred live stock could profit largely by studying the records made by some of our Michigan boys at this year's fairs and live stock exhibitions. Three Michigan boys, representatives of their state by virtue of their records at Detroit and Grand Rapids fairs this fall, were placed tenth in the National Boys' Club Live Stock Judging Contest at Atlanta, Georgia, last week. The contest was nationwide, the best junior judges from the leading live stock states all over the country taking part. Carl Johnson, of Ironwood; Don Sheppard, of Charlotte; and Porter Dent, of Vicksburg, were the members of the Michigan team. All of them won their places by virtue of actual victories in competition. Other Michigan boys have been winning honors this fall. Early in October a team finished seventh in the National Dairy Show club boys judging events at Chicago. Here Michigan boys scored second highest points in judging Holsteins, competing against teams from fourteen other states. The fathers of these boys have given them an opportunity to handle pure-bred stock and they have made good.

News of the Week

Wednesday, October 27.

BITUMINOUS coal dealers have pledged themselves to aid the government in eliminating unreasonable rates and unwise practices.—Denmark is seeking a market in this country for their surplus butter.—An advance of wheat prices is largely credited to farmers withholding offerings.—Credit men indorse the federal reserve bank system.—Japan puts six ships in South American trade.—National retail grocers in session at Columbus forecast a decline in grocery prices. Packers submit a new plan for the disposal of the packers' interests in the stock yards.

Thursday, October 28.

A STATE of siege in Moscow against the soviet government is reported.—The government of England passes an emergency bill giving concessions to the labor party.—Plans are being formulated by financiers for the development of Liberia.—With the high cost of living still soaring, France is facing a serious situation as winter approaches.—The council of the league of nations approves the plan for a permanent court of international justice.—The Canadian minister of agriculture is endeavoring to learn why Canada's \$6 apples are selling in England at \$18.

Friday, October 29.

IT is the belief of leaders that the British coal strike is about to end in that terms have been agreed upon.—(Continued on page 587).

Crop Exhibits and Exhibitions

Or How We May Improve Agriculture Through Local Fairs

By H. C. Rather, Extension Specialist in Farm Crops, M. A. C.

MICHIGAN has taken the leadership in the movement for better seeds and her fairs and grain shows furnish striking examples of the high quality of the products from her farms.

The grain show, particularly the one held in connection with a community fair, a grange or a farm bureau gathering affords an ideal place where those who make their living from farming may meet, show the best products the community has yielded and discuss the influences which, during the season, have made for success or failure.

The community fair as it is being conducted in Michigan, by catering to the practical farmer rather than the professional exhibitor, usually avoids the mistakes made by so many county and larger fairs. Large cash premiums are not the rule, nor are they desirable. It is the object, rather, to stimulate community interest in those crops most suited to that particular locality. Freak exhibits are avoided and emphasis placed on those crops and varieties common to the neighborhood and by which local farmers actually make their living.

Because of the very nature of these fairs large cash premiums would mean financial failure. It has been found that people prize more highly the honor of winning and the certificate, the ribbon, or the small trophy that goes with it, than they do any small cash premiums that could be afforded. Various utility prizes are very much worth while and among those offered on different premium lists are:

Garden tools for the best garden exhibit; sack of flour for the best peck of wheat; book on crop production for the best peck of oats any variety.

Small cash awards usually are given with the ribbons where nothing else is offered. A feature used in many Canadian seed shows is that of offering the price received for the grain along with the first premium. These samples are then sold to the highest bidder. This is done only when the judges deem the first award worthy for such sale.

Practically none of these local shows charge an entrance fee to the exhibit or. That practice never was of any great value as a source of revenue and a good live organization will find no great difficulty in financing the exhibition in some other manner.

The place for holding these exhibits is seldom elaborate. The Grange, Gleaner, or town hall, an empty store building or a special tent is all that is necessary. These fairs are very different from the larger commercial fairs and, properly conducted, they can do much for community development as well as the furtherance of crop production.

In the farm crops division classes are provided for sheaf and seed sample of the grain and forage crops common to the community. Ten ear samples of adapted varieties of corn, one peck each of the grains, and a quart of the seed of alfalfa, the grasses or the clovers are the usual amounts shown. It lies with the superintendent of this division to make the show successful. He must personally solicit entries. The organization at Alpena in 1919 sent out trucks and made a farm to farm canvass for desirable exhibits and had a splendid show that year.

The selection of sheaf samples must, of course, be made early. Cutting just before they are mature and curing them by hanging them from the butts in a dark airy room gives the grain sheaves the best color and appearance for show purposes. They are then stripped of leaves, tied in bundles three or four inches in diameter just

should be used for a secondary decorative effect only, for it must be borne in mind that the value of the exhibit lies in showing the points of some good crop and not in displaying an elaborate mass of junk.

Small signs and labels may also be used effectively as supporting material. The great mistake with signs is in making them too prominent. Spectators will not stop to read a big chart going into elaborate detail. But a small placard, not over ten by eighteen inches can lend much to the educational value of the display without lessening its attractiveness.

Grains and seeds should be selected with an eye to quality and not merely for size or possibly some freak character. Here is to be represented the type which if planted would give the highest yield and the best quality of that crop. This proper relationship was brought out very well in the com-

This live community deserves special mention for the high quality of its corn show. Because of its characteristic excellence under conditions in this locality the Murdock variety has practically become the standard for the community.

And herein lies a great value of the community grain show. Farmers visiting over exhibit tables see the high quality of leading varieties, learn of their ability to yield under the local conditions, and the tendency is for each to choose that leading variety for his next year's seed. It brings community standardization and its inherent benefits. All of the wheat shown at Three Oaks was Red Rock because for the strong soil of the community it has demonstrated its ability to give large yields of superior quality. Nearly all the rye being shown in Michigan today is Rosen. More or less impure, it is true, but nevertheless showing the plump berry and uniform high quality of Rosen. And so with other grains and corn the tendency is to standardize on the variety of superior quality and yielding ability. And nowhere can these characters better be brought to the attention of the community at large than at the community fair or grain show.

Other important features in crop production are brought to light at these local gatherings. As an instance, farmers, in talking over the fifty-four-bushel per acre yield of Red Rock near Three Oaks, found that the grower did not seed his wheat till late in the fly-free seeding period for that locality, thereby avoiding all ravages of the Hessian fly which had been later than usual in the fall of 1919, and caused great losses, especially in Southwestern Michigan. Seed treatment, eradication of weeds, insect control, newly adapted varieties, lime, special light land crops, these are some of the many topics discussed among the Michigan patrons of crop exhibitions.

The season for community fairs is just beginning. Throughout all fall and winter these one or two-day shows will be the meeting places for farmers. Here they may trade experiences, fix ideals and plan for the further development of their farms and their communities. Farmers' Week at M. A. C. and the grain show held at that time by the Michigan Crop Improvement Association forms a fitting climax to the one or two-day community shows. Here is gathered the best the local and county fairs have shown, and here just before spring work begins, Michigan farmers receive the inspiration of their own superior accomplishment and those of their neighbors, an important stimulus to the development of economical crop production.

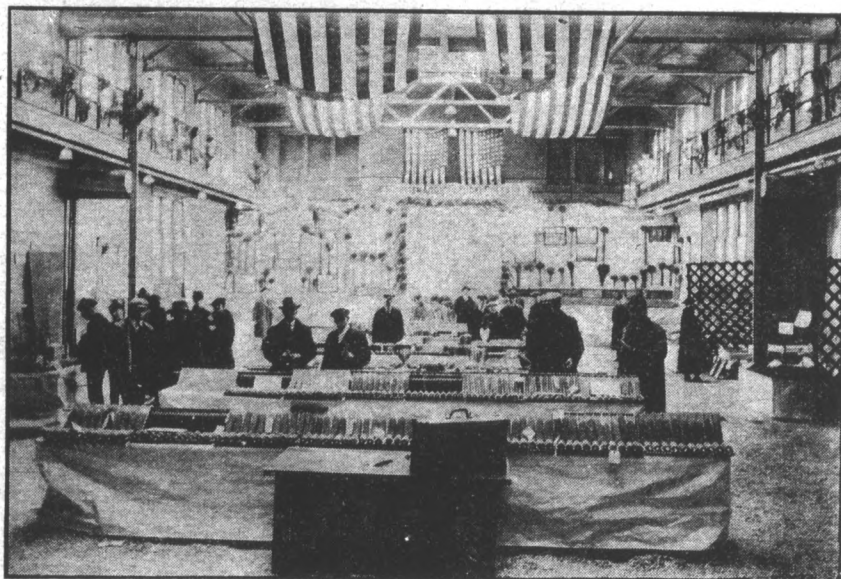


Exhibit of Pedigreed Grains at the M. A. C.

below the heads and bound with blue or other appropriately colored ribbon. The grasses, clovers and alfalfa should be taken at a time when they are in best condition for forage purposes. Excessive handling is to be avoided and if they are sprinkled with water the night before the sheaves are made they will better retain their leaves and show their value as hay and forage crops.

Many attractive devices may be worked out with this material. A rope covered thickly with oat heads, fastened on by winding with fine threads, was used by one exhibitor this year. Some of the exhibitors at Grand Rapids used a similar device in making letters for the name of the county or club they represented. Long timothy covered with oat heads or June grass was also used. Devices of this nature

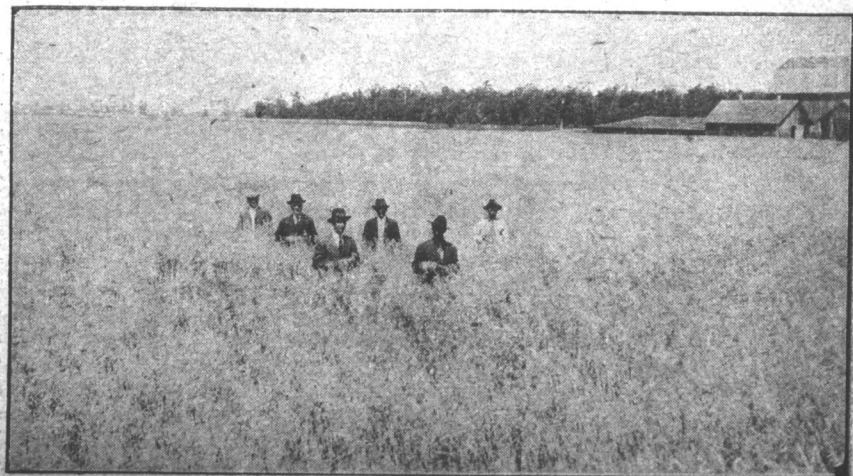
community fair at Three Oaks. All of the winter wheat shown weighed from sixty-one and a half to sixty-three pounds per bushel, and the prize winner, an excellent peck of Red Rock, came from a ten-acre field which yielded five hundred and forty bushels.

The Saginaw Fair lent much to the attractiveness of their exhibit by providing trays for ten ear samples of corn and uniform peck containers for the grain samples.

Much community interest was shown at the Unity Grange Fair in Branch county in the close competition between different granges for the best display at the fair. Each club set up their own tent and arranged in it an attractive exhibit of farm and orchard products, canned goods, fancy and handiwork brought in by the members of the different organizations.



Pedigreed Red Rock Wheat on Farm of P. P. Pope, Isabella County.



Worthy Oats, Grown by William Dowling, Tuscola County.



The Late Wm. K. Munson and His Famous Grape, the "King."

RECENTLY the Circuit Rider examined the stimulating, life-giving nodules on the roots of some of the cooperative plants grown from seed and inoculating bacteria furnished by the Kent County Farm Bureau. This sounds like stringing out cause and effect after the manner of a professor from East Lansing discussing the growing of alfalfa, and it really amounts to the same thing.

An impoverished soil and run-down countryside is not going to develop nodules of cumulative good-will and cooperation on a firm economic and moral foundation, any more than it is going to produce luxuriant crops of alfalfa, without careful preparation of the soil and the use of fertilizer, lime, good seed and inoculating bacteria. This is what County Agent Carr is up against. He knows that Michigan's most important crop, this year, is co-operation, and that is why he is planning expansions and extensions of cooperative work to stimulate interest and drive home the inspiration for better farming and better business methods. He has some mighty important projects under way, and is carefully preparing the ground, sowing cleaned seed and using the right kind of inoculating bacteria to stimulate growth and the development of root nodules.

ONE of Carr's pet projects is the Grand Rapids Growers' Association. This is an organization of vegetable and fruit growers within a radius of a few miles of Grand Rapids. Under its new organization program it joined hands with the Kent County Farm Bureau and made provision for broadening the scope of its activities so that it could handle the products of the many small farms where vegetables and fruit are the main source of income. Since its organization, in November, 1919, it has handled a business of approximately \$900,000. It is now affiliated with the Michigan State Farm Bureau, and is being used by that organization as the western Michigan distributing branch so that carload lots of produce and farm supplies may be gathered together and distributed to the farmers of that part of the state; thus affecting a big saving in transportation charges. None of the business handled for the State Farm Bureau is represented in the figures given for the year's business. The officers are: R. Yonker, president; W. S. Hannah, vice-president; Rudolph Zant, treasurer; Henry Cheney, manager.

The Grand Rapids Growers' Exchange is one of the best cooperative organizations in the state. Some of our other organizations may show a greater volume of business, but it is doubtful if any of them have done so much toward solving a complicated marketing problem. The grain elevator,

the potato exchange and the live stock shipping association is dealing with uniform staple products—grain, potatoes and live stock in mass. The fruit and vegetable growers in this section have a dozen or more special products and to sell their stuff the association must be able to handle all of these crops on a fluctuating market. Providing storage facilities is out of the question. Their proposition is to find good markets and put the stuff on them in the best condition possible.

For years the gardeners and fruit growers in this territory depended upon Grand Rapids as a market for their produce. A glut one day and high prices the next resulted in tremendous losses and waste of produce. The average gardener and fruit grower did not raise enough to make up carload shipments to other big markets. He was at the mercy of buyers on the home market. Now the whole situation is changed. The produce is assembled at the association warehouse at Grand Rapids where it is graded and repacked and shipped in carload lots to other markets. Manager Cheney is always in touch with the best markets in the country, and by the time the produce is ready for shipment he has it sold to dealers in other cities. This kind of marketing don't make a boom, but it does make up the dimes that make up the dollars. Besides it stabilizes the home market and is encouraging the farmers near Grand Rapids to grow more small stuff and haul it to the city. County Agent Carr has made many new friends for the County Farm Bureau through his efforts to improve the marketing conditions for the vegetable and fruit growers in this district. To handle staple products and to buy farm supplies in large lots and sell to farmers is an easy matter, and we have been doing it for years. But to take a dozen or more kinds of small vegetables and fruit of a dozen or more different degree of goodness and badness and dump them into the big channels of trade and not lose them in the process is no small undertaking.

ANOTHER efficient cooperative organization is the Grand Rapids Dairy Company, which is owned entirely by farmers who are vitally interested in community affairs and have their investments in farms within a few miles of the city. It is the cooperation of these six hundred or more farmers which is giving the city of Grand Rapids milk of a high and dependable quality. It is strictly a cooperative concern, the stockholders of which have a personal and financial interest in the business and quality of its products.

This organization has had an uphill fight during the past three years, but since G. E. Jones assumed the manage-

ment it has made steady progress until today it is handling more than forty per cent of the milk sold in Grand Rapids, and is on a solid financial basis. Since August 1, 1919, it has paid the producer twenty-nine cents a gallon for all milk distributed in the city. The twenty per cent surplus is handled on a different basis. This year's increased business has taken care of the surplus to better advantage, thus tending to increase the net earnings of the business.

The plant is one of the most modern in any city in the country the size of Grand Rapids. All of the equipment is up-to-date and kept in the best possible sanitary condition, and care is constantly exercised to see that the milk delivered to the trade is of the highest quality. The milk producers of this territory are to be congratulated for putting their milk on the market in

amounted to more than \$1,000,000. The officers are: Lewis P. Ohler, president; Garret Zuidela, vice-president; Cyrus Heinsberger, secretary-treasurer; G. E. Jones, manager.

Our first visit among the cooperative organizations outside of Grand Rapids was at Caledonia. Here the Farmers' Elevator did a business of \$622,000 during the past year. The present membership is something over three hundred and new members are coming in rapidly. A branch elevator has been established at Dutton, and many farmers in that section have joined. The concern has been in business about eighteen months. The officers are: Jess W. Pickett, president; Melvin R. Shisler, secretary; E. P. Hutchinson, manager. Mr. Hutchinson is recognized as a capable manager and is rapidly building up the business, both in purchases and sales. The organization is now affiliated with the State Farm Bureau.

The Caledonia Live Stock Shipping Association did a business of more than \$200,000 last year. The officers are: Louis Kachele, president; Sid Geib, secretary; George W. Pickett, manager.

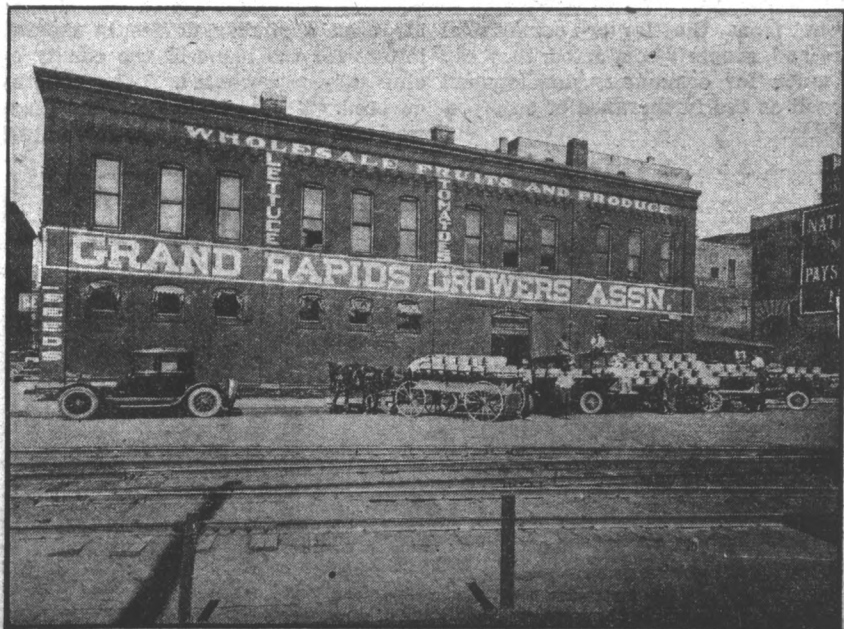
The Caledonia Cooperative Creamery Association has three hundred and fourteen members and did a business of \$144,000 last year. The officers are: Fred Ruchs, president; M. R. Shisler, treasurer; John Luneke, manager.



Roswell G. Carr, County Agent.

such prime condition, and the fact that the people of the city of Grand Rapids appreciate their efforts is evidenced by the steady growth in the volume of business handled each month. Healthy cows, strict attention to sanitary measures and prompt delivery, backed up by the most hearty cooperation, is sure to win out in the end. Other cities would find it profitable to study the Grand Rapids methods. Milk producers in other states would be able to gather valuable information from the work that has been done by this pioneer concern. This year's business

AT Alto the situation is somewhat muddled and many farmers are beginning to wonder how they are going to reorganize their elevator company so that they may take advantage of what the State Farm Bureau is going to do for its members. In discussing the situation Mr. Carr said: "It is unfortunate that one year ago the Alto elevator was not made into a cooperative company instead of remaining a straight stock company when it was reorganized. So far as the elevator is concerned it may be operating in the interest of the farmer who puts his business through it, but the law distinctly forbids the combining of stock companies into a bigger organization. This prevents the Alto elevator from gaining membership in the State Farm Bureau Elevator Exchange. Furthermore, there is no provision for dividends other than those on the stock, which makes it impossible to divide any profits or savings except with those who hold stock and then, of



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course, in the proportion to the stock held regardless of the amount of business done with the company. From the standpoint of a farmers' organization, hoping to directly benefit the man who grows the stuff, there are no advantages in a straight stock company over a properly organized cooperative association, and there are distinct disadvantages due to the fact that they cannot combine with others. A central exchange selling all of the produce of a number of associations can afford to hire the best salesman they can find and they can also, by pooling their buying powers, take advantage of the ability of an efficient purchasing agent. And no one can doubt the savings from volume buying.

"The Alto situation is, however, not difficult of solution. There are several ways, as were explained at the elevator meetings. The company could simply lease their building and equipment to a cooperative association charging sufficient rent to cover interest on the money invested, taxes and depreciation. And the new organization could join the State Farm Bureau Elevator Exchange and get the benefits from that organization. Or the stock owned by men who are not farmers could be sold to farmers and the company reorganized into a cooperative stock company and the change made share for share, and then they could join the exchange.

"This all depends, of course, on the attitude of the present stockholders. If they want to continue as they are the farm bureau members could form another association in Alto and do as much business as they cared to, taking advantage of the farm bureau's combined buying and selling power. This, however, would be dividing the business up and would make it more difficult for both organizations. Furthermore, there are a lot of the present shareholders who are farm bureau members and should get farm bureau services which they cannot do and be loyal to their present stock company. The right way to do seems so plain to us that we cannot help but feel that the whole matter will eventually be worked out satisfactorily."

The Alto Live Stock Shipping Association is a flourishing organization and last year did a business of more than \$200,000. Allen Behler is manager.

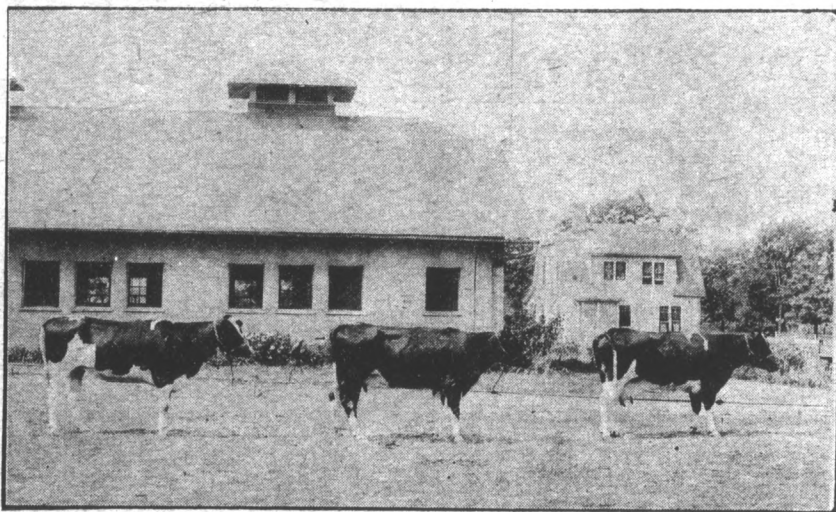
Another live cooperative concern is the Alto Cooperative Creamery. It has four hundred members. Earl Colby is

president and manager. Last year's volume of business exceeded \$200,000, and the average price paid for butterfat was sixty-seven cents per pound.

At Rockford the Live Stock Shipping Association did a business of over \$100,000. It has one hundred and seventy-five members. Rube Brownard is president and Jacob H. Alles, secretary and manager.

The Rockford Elevator Association is a new organization of seventy-five members. The officers are: Wilbert Moffett, president; J. H. Alles, secretary. No manager has been secured.

At Cedar Springs a new Cooperative Marketing Association with one hundred members has been organized for business. The officers are: Lee Stout, president; Vern Beach, secretary; Harold Andrews, manager. The Cedar Springs Cooperative Creamery did a business of \$200,000 last year. The officers are: Dennis Verburg, president; E. S. Turner, treasurer; F. S. Andrews, secretary and manager.



The Type of Holsteins Produced by Dudley E. Waters.

At Lowell the Farm Bureau Local Association has been organized with John Krum, president, and E. V. Story, secretary. It now has seventy-five members and more are coming in rapidly.

The Lowell Live Stock Shipping Association did a \$125,000 business last year. W. J. McCarthy is president and C. H. Runciman, manager. The present membership is one hundred and sixty.

The Sparta Live Stock Shipping As-

sociation did a business of \$50,000 the past year. G. E. Jacobs is president; J. Betts, vice-president; George Martin, secretary and manager. It has ninety members.

At McCords the Live Stock Shipping Association did a business of more than \$125,000 last year. W. V. Burras is president and G. T. Seeley, manager.

The Sand Lake Cooperative Elevator Association did a \$100,000 volume of



Members of a Junior Boys' Pig Club, and Registered Chester Whites.

back. Potato growing fits in nicely with dairy farming on the lighter soils, but is conducted quite extensively in nearly every township. Organization work is going on throughout the county and more than two thousand one hundred members have joined the County Farm Bureau.

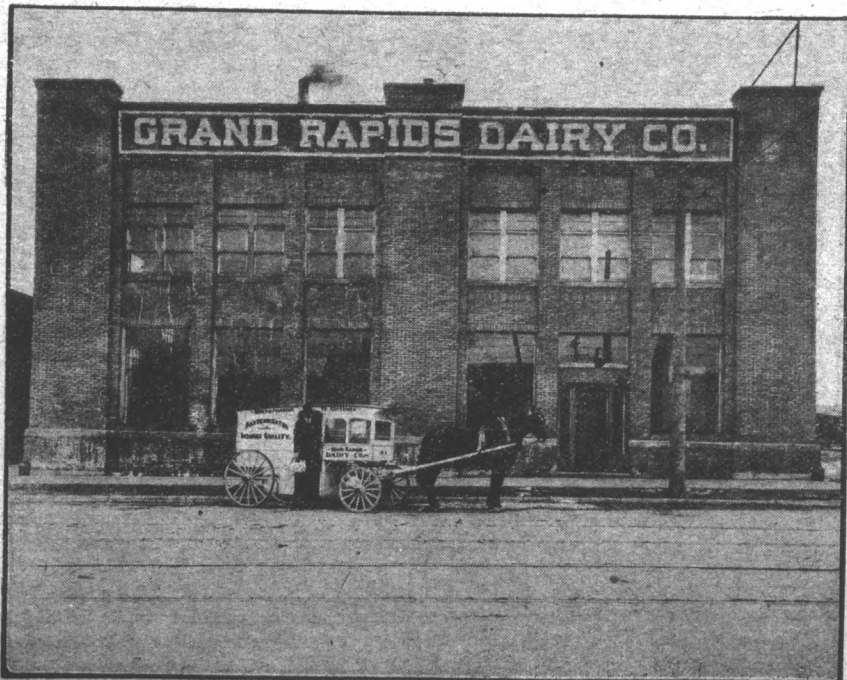
ROSSELL G. CARR, County Agricultural Agent of Kent County is a native of Livingston county. Mr. Carr's early life was spent on a farm. After going through the usual experiences of a normal farm boy he finished high school and graduated from the Michigan Agricultural College in 1908. For two years he taught school in Hillsdale county. Then came a year in the far west and a year as manager of a certified milk plant. For several years he was director of the Upper Peninsula Experiment Station at Chatham. Then he served as county agent in Ontonagon county. In January, 1919, he succeeded H. J. Smith as county agent in Kent county.

Few men are better equipped with knowledge, experience and temperament for handling the agricultural affairs of a county than Roswell G. Carr. His success along these lines in a county where conditions were none too rosy for this kind of work two years ago has given him a certain prestige that is enjoyed by few agricultural leaders in Michigan. Carr believes in solving production and marketing problems before taking up new lines of rural work. Cooperation has been his leading project during the past few months.

William H. Oliver, president of the board of directors, owns and operates a splendid one hundred and ninety-acre farm in Alpine township. Mr. Oliver conducts a general farming business with dairying as a leader. Last year his yield of wheat on a five-acre field of Red Rock variety exceeded fifty bushels an acre. One of the outstanding crops on his farm this year is a field of Pickett's Yellow Dent corn. Mr. Oliver uses a tractor and finds it a great conservator of horse flesh, although the cost per acre of plowing and fitting is about the same as when horses are used. Potatoes are another crop which receives considerable attention on the Oliver farm. Mr. Oliver has served as president of the County Farm Bureau for several years and is regarded as one of the leaders of agricultural thought in his county.

Jesse W. Pickett, vice-president, has been active in improving seed grain. One of his achievements is the development of Pickett's Yellow Dent corn, a variety that has become very popular throughout the state. For a number of years he has been recognized as an authority in breeding better seed grain for Michigan farms. Always a leader in farm bureau work he is sure to do his part toward making the Kent County Farm Bureau a progressive organization.

J. W. McCready, director, is a breed-



One of the Twenty Retail Wagons of the Grand Rapids Dairy Company.

er of registered Jersey cattle and a practical dairyman. He has a herd of about thirty head of Jerseys from some of the most popular families of the breed. He has always been interested in cow-testing association work, but is not conducting the work this year for the reason that the work is not recognized by the state authorities. A leader in all kinds of community work he can be depended upon to keep the live stock phases of the work alive. Mr. McCready's farm is situated in Sparta township.

J. P. Munson, director, is one of the leading fruit growers near the city of Grand Rapids. Mr. Munson has fifty-five acres of fruit of which thirty-five acres are in bearing vineyard. Apples, berries, currants, pears and plums make up the balance of the fruit plantations. The average yield of grapes on the Munson farm is about eighty tons. A large portion of the fruit crop is marketed at Grand Rapids, but the bulk of the grapes and apples are shipped to the larger city markets. For many years Mr. Munson has been active in horticultural affairs, and has a thorough understanding of the needs of the fruit growers of his county.

Rudolph Zant, director, is one of the leading vegetable growers in the vicinity of Grand Rapids. He has a large greenhouse and also grows vegetables out of doors. He is prominent in cooperative work and secretary of the Grand Rapids Growers' Association. He is an aggressive leader and one of the men who is making the Kent County Farm Bureau a live business organization. Mr. Zant has made a success of his own business and knows what

the market gardeners are up against when it comes to marketing their products. His farm is in Walker township.

Charles Montgomery, director, is one of the most extensive plum growers in Michigan. On his farm near Kent City he grows other fruit, but plums and peaches are his leaders. He is a leader in the Grange and has been an active leader in other cooperative work. He has taken a prominent part in putting over the farm bureau drive in the county and has been active in getting his local township lined up for cooperative marketing.

Miles Bowman, director, is a breeder of Shorthorn cattle and president of the Shorthorn Breeders' Association. Always active in cooperative work he

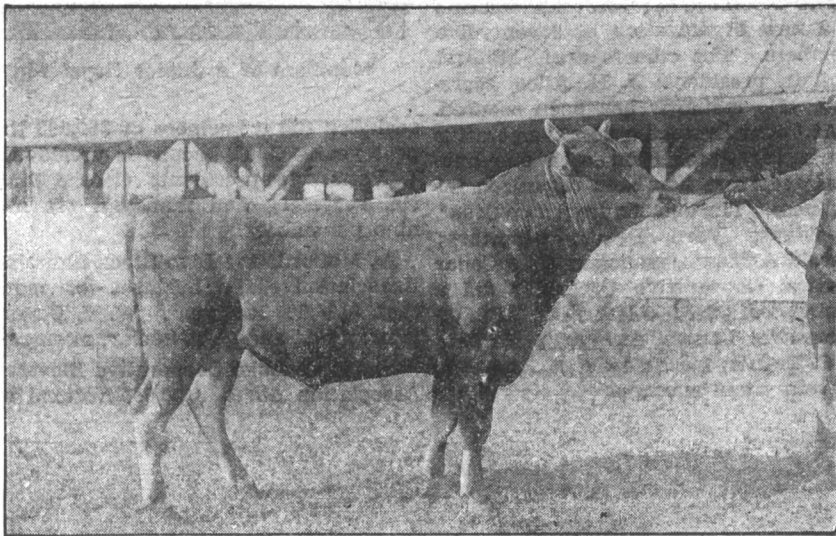
is a director of the new cooperative elevator at Rockford. He owns and operates a large stock farm and his cattle are bred along Scotch and Scotch-topped lines. He is active in promoting the use of better stock and better seed in the county. His farm is situated near Rockford.

W. V. Burras is a general farmer and grows some fruit. He is active in cooperative organization work and is president of the McCords Elevator Association. He has always been ready to support any movement to aid the farmer in marketing his products and put farming on a more business-like basis. He has a fine farm in Lowell township and is regarded by all who know him as a capable leader.

M. R. Shisler, director, owns and operates a fine dairy farm and breeds Jersey cattle. Mr. Shisler has been an active member of the County Farm Bureau ever since its inception. For years he has been president of his local Farmers' Club. He is director in the local cooperative association and treasurer of the Caledonia creamery. A live wire and is now on the board of control of the Michigan State Farm Bureau Elevator Exchange. He has made a success of farming and can be depended upon to represent the farmers of Caledonia township ably on the board of directors of the County Farm Bureau, and the county elevators ably on the state board of control.

J. H. Alles, director, owns and operates a farm in Cannon township and practices general farming. Mr. Alles is manager of the Rockford Live Stock Shipping Association and has made good in building up a business that was in bad condition when he took over the work. He is secretary of the new Rockford Elevator Association, and is one of the directors of the Michigan Live Stock Exchange. He is an enthusiastic cooperative worker and a real live wire with a vision of the possibilities for cooperative marketing and purchasing of farm supplies.

F. W. Peterson, director, owns and operates a good farm in Courtland township where he practices general farming and breeds Shorthorn cattle. Mr. Peterson has had legislative experience and is particularly well qualified to represent the County Farm Bureau as delegate at the meetings at Lansing. He is familiar with government work (Continued on page 582).



Majesty's Gamboge Ladd II, Eardley Brothers' Jersey Herd Sire.

Injecting Carriers with Service Germs

Or How the Traffic Department is Assisting the Other Departments of the State Farm Bureau

THE traffic department of the Michigan State Farm Bureau divides its energy along two lines. One of these is direct service to the membership: that is, farmers, fruit men, growers' associations, live stock shippers, etc. The other is service to the other departments of the State Farm Bureau which includes the seed department and purchasing department.

This first service is a new thing in the business world. Corporations have been able to secure the assistance of experts in solving their traffic problems, but individuals have never been so fortunate. The second line of work is very similar to the function of a traffic department in any large corporation. Because of the existence of such departments large corporations have seemed to exercise what individuals would call a "pull" with the railroads, when it usually was not pull at all, but knowledge, that got results. The departments of the State Farm Bureau have the advantage of the same kind of knowledge.

The public in general, and possibly farmers in particular, have known very little about the work of a corporation traffic department. They have little idea now of what such a department does in the State Farm Bureau. To show how well this agency fits in with the rest of the work of the State Farm Bureau the heads of the departments have been asked to tell how the traffic department helps out their work. The manager of the marketing department says: "We need a traffic department for routing, filing claims, securing equipment, getting rate information, a thousand and one details relative to transportation that only a man specially versed in traffic regulations can give us. When we make a purchase of any commodity we inform the traffic

department; if the factory can't get cars to ship our order our traffic commissioner sees that they get cars. If farmers of any locality want to know the cost of an article set down on their own team track in their own town the traffic department can give that information. The traffic men are in constant touch with the supply of equipment and can tell whether it is necessary to place an order a long time ahead or not. The department is in touch with the constant changes in freight classifications. It takes a specialist to keep even with freight rate information. If a cooperative association has to have arsenic for grasshopper poisoning by a certain date, or fertilizer for a certain time when it can best be applied the traffic department can help materially in getting orders delivered at those particular times."

The traffic department is considered by the seed department one of the most important branches of the State Farm Bureau. The seed men have had occasion many times during the past season to call for help and the service rendered touches every phase of their work. One of the members of the seed department says of the traffic department:

"Practically every shipment of seed of any size has been traced through by the traffic department and satisfactorily delivered. In one instance a shipment of seed had to be delivered on a certain date for planting to insure the acceptance by the consignee. The traffic department was notified of this emergency and in the period of four or five days got delivery so that the transaction was satisfactorily closed.

"Frequently the question has arisen as to the cost of making shipments of seed to some distant point. It has been possible by consulting our traffic men to get the exact rate and thereby govern delivery prices. This service will

be required more as the business increases.

"The matter of routing shipments to insure as prompt delivery as possible is another assistance that the traffic department has been able to give. By following their instructions shipments can be sent over lines so that they will not get into the congested freight areas such as Chicago, Toledo, Buffalo and other shipping centers, where they might be indefinitely side-tracked. To be of any value seeds must arrive at destination by seeding dates. If the arrival is late there is nothing left but to sell on the open market at the regular market price. Difference between seed prices and the open market price often represents the profit to the grower in payment for his efforts in producing the high-class seeds. The matter of prompt delivery is of prime importance.

"Quite a portion of the business of the seed department is in less than carlot shipments. The matter of tagging LCL shipments is an important matter and all tags used must conform to shipping regulations established by railroads. The traffic department has been called upon to pass upon the tags used on such shipments.

"All claims for over-charges on freight or loss in shipment are referred to the traffic department. Knowing the methods, as well as the individuals, concerned in these collections the traffic department can make better settlements and get quicker collections than would be possible for anyone not familiar with the work. In one instance the traffic department collected an overcharge of about forty dollars on one carload of seed."

What the elevator exchange department thinks of the traffic department is told in the following words by the sales manager:

"One of the most essential depart-

ments for any store, or large grain merchandising corporation is the traffic. Times like the present are the worst ever known on account of the railroads being turned back to private ownership. There are times during winter months when traffic is so blocked that an ordinary office clerk is unable to get results. If traffic troubles are taken up by a man experienced in that line the results are shown to be very satisfactory on account of his familiarity with the general routine of railroad business.

"Railroad freight claim agents can only pay a certain percentage of all claims against their corporations if they are going to make their work a success. It is frequently true that good, honest, and legitimate claims are returned because the man making those claims had not the proper amount of evidence and the claim agent did not consider them. To combat such situations as these a traffic department shows one of its greatest merits."

LAMB MARKET IMPROVES.

AS the western run is nearly completed and the native supply has been cut down, the market should be on a permanently better basis than during the last few weeks. Normally fat lambs make a rather sharp advance from November to February, and there is no reason to doubt its occurrence this year, but the wool market and foreign lamb importations will reduce the size of any such advance. Feeding lambs demand was stronger and with greater scarcity prices advanced at most markets along with fat stock. The breeding ewe season is nearly over and few are available.

Every Grower Receives the Same Price

How Crops Are Pooled in the Cooperative Marketing Associations of California

By Herman Steen

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EVERY cooperative marketing organization in California has for one of its fundamental features the plan of pooling the crops it handles. Under the pooling system, each kind and quality of product is kept separate, and the returns from the sale of the crop are divided among those who produced it. In other words, every farmer receives the same price as every other farmer for an equal quality of product.

For example, the California Prune and Apricot Growers, Inc., will handle around 250,000 pounds of prunes of the 1920 crop. These are divided into grades by sizes—those running from twenty to thirty to the pound are one grade, the thirty to forty's another grade, and so on up to the ninety-one-hundred size, in which grade the smallest prunes fall.

Farmers Get a Receipt.

When the farmers bring in their prunes, the fruit is graded and sorted into sizes. Second-class fruit is kept separate from the first-class, and the various sizes are all packed separately. Each farmer's fruit is lost in the shuffle; all that Farmer Jones has is a receipt giving him credit for so many pounds of twenty-thirty's, so many of thirty-forty's, and so on.

Let us consider the twenty-thirty size alone. Suppose there are five million pounds of them in all. The association agrees upon a price of twenty-five cents per pound on this size, which is a luxury grade of prunes, and much higher than any other grade. One million pounds sell at twenty-five cents per pound. The demand is unusually strong, so the association raises the price to twenty-eight cents per pound and sells another one million pounds at that price. The heavy demand continues, so the price goes to thirty cents, and one million pounds are disposed of at that price. Business slows up, perhaps, so the price of twenty-thirty's falls to twenty-seven cents, at which price the fourth one million pounds goes on the market. The remaining one million pounds does not find a ready sale, and is finally disposed of at twenty-two cents late in the season.

The association book-keeper counts up his cash, and finds that the five million pounds brought in a gross total of \$1,320,000. Perhaps one wholesaler in Detroit went broke and left the association holding the sack to the tune of \$20,000. That is subtracted. The average cost of selling prunes this year, including agents, advertising, overhead and everything, is two per cent, let us say. So two per cent is deducted from the \$1,300,000, and the rest is ready to be paid to the growers. It leaves \$1,274,000 to be divided. That figures out exactly 25.48 cents per pound for all the five million pounds of prunes in the twenty-thirty pool this year.

Advancing Money to Growers.

Now, actually, the growers were paid an advance of fifteen cents per pound on all twenty-thirty prunes in September, when they delivered the crop to the association. The association borrowed the \$750,000 necessary to pay cents per pound. On August 1, they received forty-eight cents per one hundred pounds each.

October at twenty-five cents. The association immediately receives \$250,000. That much of the loan is repaid. In November the second one million pounds is sold at twenty-eight cents, and \$280,000 comes into the treasury. Another slice of the note is taken up. In December the thirty-cent sale is made and \$300,000 comes in. The rest of the note is taken up, and \$80,000 is left in the treasury. There is not enough to divide at this time, and anyway there is interest to pay and general expenses to meet. The \$80,000 is retained for the time being, though it belongs to the growers and will eventually be paid to them.

Dividing the Pool.

In January the one million pounds are sold at twenty-seven cents, making the total amount in the treasury of the twenty-thirty pool \$350,000, less the expense of selling. The directors on February 1, decide to pay five cents a pound on this pool, and the growers are soon in possession of checks. Then the last one million pounds are sold, bringing in \$220,000 more. A few collections are slow, and the exact amount of the expense cannot be calculated until the end of the season, so it is necessary to keep a little on the safe side. A further payment of five cents is made on April 1, the growers by

into the packing-house and were packed with thousands of pounds more prunes of the twenty-thirty size. They soon lost their identity and nobody could tell any of them from the others in that bin, because they were all of the same grade. Supposing, however, that the prunes Jones grew (they are no longer his, because the association obtained title to them when they were delivered), sold for thirty cents per pound finally, while the ones Smith grew, brought only twenty-two cents per pound. Each man, however, is paid the same, as it was not Smith's fault that his prunes brought only twenty-two cents, and it was not to Jones' credit that his brought thirty.

Our readers will understand, of course, that the actual handling of the pool is considerably more complicated than this sample shows. But this story illustrates clearly the general method of operating the pool. In practice, the fluctuation in prices would be much less—it is probable that it would not vary one cent per pound during the whole year.

Used by Every Association.

The pooling plan is used in every cooperative marketing association in California. The method of operation varies considerably in different associations. The prune and apricot, dried

have only one for the year. Nearly all of them operate a "Frost Pool," which includes all fruit that has been frosted.

Pooling is Necessary.

Managers and officers of the cooperative associations in California were united in saying that the pool is a necessary part of the machinery of their organizations. "Producers should never be competing against each other in the sale of their crops," said one leading cooperator. "Every man should receive for his No. 1 product the same price per pound as every other man in the association. The pool idea is absolutely fair, it is just, and it keeps one man from having an advantage over any other man within the marketing association."

The pooling idea has been used to some extent by farmers' marketing agencies in this part of the country. The most conspicuous example is the wool pools of the Central States, which this year include twenty million pounds or more of wool. This wool is all graded and sold by grade, every man will finally receive the same price per pound for one grade of wool.

Used by Milk Producers.

Several of the cooperative milk marketing agencies use the pooling plan. For example, the Twin City Milk Producers' Association of Minnesota, usually sells the bulk of its milk to distributing companies in Minneapolis and St. Paul, and makes the rest up into cheese. The milk made into cheese may yield one dollar per hundred pounds less than that sold as whole milk, but the proceeds from the sale of milk are divided equally among all milk producers. It makes no difference to a member of that association whether his milk goes into cheese or into quart bottles for city delivery. He gets the same price either way.

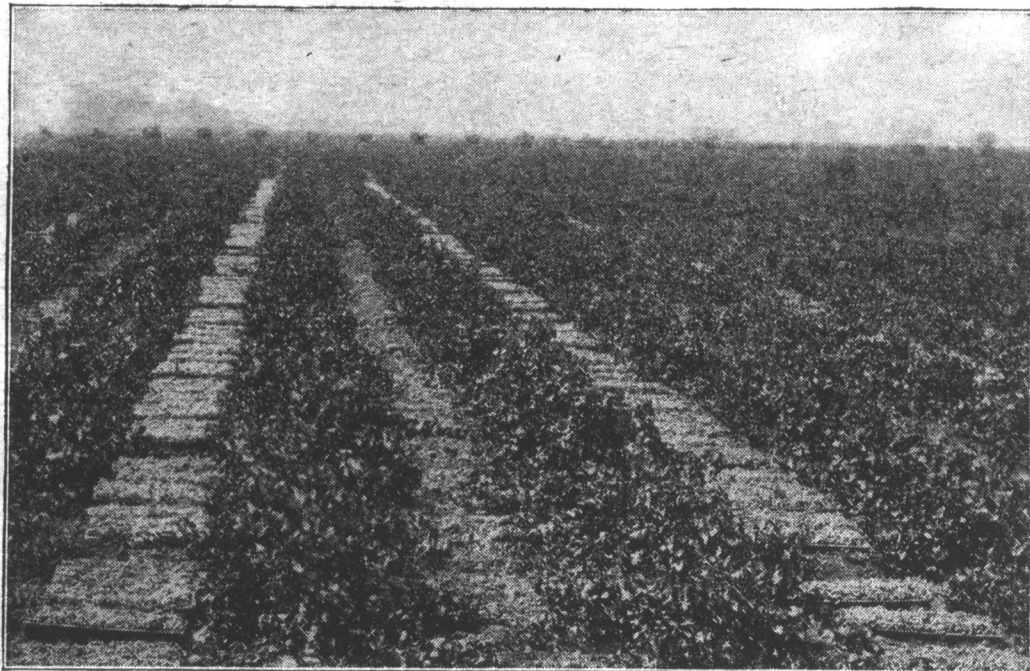
The Michigan Potato Growers' Exchange is another marketing association which employs the pooling plan. A daily pool has been devised so that the returns on all potatoes of a given grade sold on one day are averaged up, and each grower receives the same price per bushel.

The pooling system is not as complicated as it sounds.

As far as I could learn, it is one of the easiest parts of the cooperative system in California to operate, and instead of being a source of trouble, it seems to be one of the best safeguards against trouble.

WILL STUDY GAME BIRDS.

THE raising of game birds and fur-bearing animals has become of such importance commercially, that a course is now being given at Cornell University to prepare the men needed to fill the applications continually received for men so trained. The course is of twelve weeks duration, beginning on November 10. Lectures and laboratories are given by the instructing staff of the college which has a well-equipped game farm of one hundred and sixty acres upon which over fifteen hundred birds are reared yearly. Facilities are such that every student in the course will have a flock, and incubators and rearing equipment assigned for his practice.



Raisin-Drying Scene in San Joaquin Valley.

that time receiving a total of twenty-five cents per pound.

It takes time to wind up the business of the year, so it is August 1, before the twenty-thirty pool is ready to be finally closed, the books show that a final payment of forty-eight cents per one hundred pounds can be made, so the directors authorize the payment and closing of the pool. The money received for twenty-thirty prunes has all been paid to the growers, less only the expense of selling the crop.

How It Works.

Farmer Jones had five thousand pounds of twenty-thirty prunes, while Farmer Smith had ten thousand pounds. These prunes were delivered along in the fall, each man being paid fifteen cents per pound at the time of delivery. On February 1, both Jones and Smith received five cents a pound. On April 1, they received another five cents per pound. On August 1, they receive forty-eight cents per one hundred pounds each.

Now Jones' and Smith's prunes went

peach, almond and raisin associations, as well as several others, employ the year-around pool. That is, there is only one general pool for each crop, and that pool is kept open until all of that crop is sold.

The egg-selling associations at Los Angeles and San Francisco, however, have a new pool each week. For example, the eggs of the week of October 17-23 are sold together and the proceeds divided. The eggs received by the association the week of October 24-30 makes up another pool, and so on.

The citrus growers have several kinds of pools, these varying to suit the local associations, which comprise the California Fruit Growers' Exchange. One local has one pool, which closes November 30. All oranges delivered between the beginning of the season and November 30 are in the early pool. This is sold separately from the pool which begins December 1, and includes all the rest of the season's crops. Some orange associations form a new pool every month, others

Bankers Wrestle with Farm Problems

And Other Interesting Items from Washington—By E. E. Reynolds

AT their annual meeting in Washington, the members of the American Bankers' Association devoted much attention to the problems in which the farmers and bankers are mutually interested. In answer to a plea for larger salaries for department of agriculture employees, in which it was stated that more than eight thousand members of the department's regular staff resigned last year in order to accept other employment at better pay, a movement was started by the bankers for the purpose of aiding the department to secure from congress favorable action in regard to salary increases.

Joseph Hirsch, chairman of the agricultural commission of the American Bankers' Association, urged the banks to aid the farmers in financing cooperative warehousing and selling organizations. "Many of us, I know, have been fearful of entering the field of marketing," Mr. Hirsch said, "because we have been afraid that in doing this we would come into conflict with our customers, the middlemen, who are buying the farmers' products. But it is high time for the bankers of the country to realize that unless farmers can produce and sell their crops with some reasonable assurance of a fair profit there will be an increasing tide of men drifting from the farms into the cities.

"The greatest use of the facilities of the Federal Farm Land Bank system should continue to be studied and encouraged by bankers, for the proper use of these facilities will not only greatly assist in the development of our country but will release funds now employed by rural banks which may well be used for some of the purposes set forth above. In the campaign to decrease farm tenancy by encouraging the sale of farm lands to worthy tenant farmers and in the effort to make permanent home owners out of tenant farmers an opportunity for real service is offered country bankers."

Preliminary steps were taken at the convention to organize a \$12,000,000 crop export financing corporation to meet the present situation. The corporation will be formed under the Edge act and start operations with a paid-in capital and surplus of \$6,000,000. The corporation will primarily handle the cotton crop, but contemplates financing other farm commodities. The plans provide for stock subscriptions on the basis of one dollar a bale on cotton produced and the payment down of half of the amount, or \$6,000,000 of the incorporated capital. Under the Edge act such corporations are permitted to handle trade acceptances or purchasers' agreements to the extent of ten times the paid-in capital, which would enable the corporation to deal in such commercial obligations to upwards of \$60,000,000. This is interesting to northern readers to the extent of furnishing a suggestion for the working out of a similar plan adapted to their own conditions and needs.

Secretary of the Treasury Houston made another declaration on the price deflation movement, in which he said: "Scarcely had the tendency toward a reduction of the cost of living manifested itself when counter forces began to operate. Resistance on the part of the producer was immediately manifested. Every producer is willing for the products of every other producer to fall, but protests the decline of his own. The first impulse of many who are searching for a way out is to turn to the government, and especially to the treasury. This attitude is unwhole-

some and menacing and it is of the highest importance that individuals and committees return to a normal degree of self-help and self-reliance. Producers whose products cannot be satisfactorily marketed and whose prices are falling, are demanding that the treasury intervene. They ask either that it deposit money in certain sections or that the activity of the war finance corporation be resumed. Neither of these things is feasible. It is unreasonable to expect that this government can control a world-wide movement of prices."

THE American Association of Joint Stock Land banks held its annual convention in Washington, while the American Bankers' Association was in session here. It may be interesting to note that the farm mortgage bankers held their meeting at Kansas City in September, the tone of the two meetings being widely different. The farm mortgage bankers discussed ways and means for putting the farm loan act out of business, overlooking the needs of agriculture, while the Joint Stock Land Banks Association discussed methods of supplying the farmers money at low rates and on convenient terms.

At the annual dinner of the association, State Senator Allen, of Iowa, spoke of the absurdity of this great rich nation living from hand to mouth, from year to year. He believed the nation should keep a year's food supply on hand at all times. His remedy for present conditions provided for the farmers establishing warehouses of sufficient capacity to store an entire year's crop of grain, so that it would not be necessary to dump it all onto the market at one time, but so it would be marketed in an orderly way. Mr. Allen did not propose that the government build these warehouses, but did propose that the farmers themselves organize cooperative associations and build them. And Mr. Allen said it was a service which the joint stock land banks should perform to help the farmers in their cooperative movements and make it possible for them to get the money with which to build warehouses. He has already started such a movement in his own county in Iowa.

The keynote of the meeting was to be found in placards which hung on the wall and read: "The Farm Loan Act has come to stay." "The long-term authorized loan has come to stay." "The Farm Loan bond as a standard form of liquid security has come to stay." "The Joint Stock Land Bank has come to stay." "The Federal Land Bank has come to stay." At the meeting there were such men as Judge Charles E. Lobdell, farm loan commissioner; W. H. Joyce, secretary of the farm loan board; John Lee Coulter, dean of West Virginia Agricultural College, and the Washington representatives of the farmers' organizations.

The Joint Stock Land Banks meeting was one of considerable importance to the farmers. Though it represented only one branch of the farm loan system, it voiced the general hopefulness of all the banks, both joint stock and federal land banks operating under the farm loan act.

Only a few days before the meeting opened the farm loan case had been reargued in the supreme court, and it was the general feeling of all who heard the argument that the court will uphold the constitutionality of the act. Almost half a billion dollars, the exact amount being \$435,830,000, have been borrowed by farmers of banks operat-

ing under the farm loan act. These farmers were able to get all of this money without paying a single dollar in commissions. Nearly all of this amount was lent at rates of interest of five and five and a half per cent, and none of it was lent for more than six per cent. If the supreme court upholds the constitutionality of the act farmers will again have access to these banks and will be able to get long term loans at low rates of interest and without commissions. Of the amount loaned under the act, \$80,000,000 was supplied to farmers by joint stock land banks and \$355,000,000 by federal land banks.

The chief difference between the joint stock land banks and federal land banks is found in the plan of borrowing. The farmer may borrow direct of a joint stock land bank while he joins a cooperative farm loan association to borrow money from a federal land bank.

Speaking of the farm loan act, in a paper read before the meeting, Frank G. Odell, of Kansas, said that "the men and interests opposing the operations of this beneficent law are doing nothing more than trying to recover a profitable business for their own personal gain. If they care at all for the business well-being of the farmer and of the nation, it is secondary to their own personal business well-being. They will continue to try to befuddle the minds of congressmen and senators; they will continue to mislead the press; they will do any conceivable thing which will play their game if they can only get control again of the business which congress in its wisdom took away from them. The farmer himself is not well informed as to the gravity of the situation with reference to the attacks on the federal farm loan system. He needs to be informed by the friends of the system and not by its self-interested enemies."

THE next meeting of the farmers' marketing committee of seventeen will be held at Hotel La Salle, Chicago, November 4-5-6. At this meeting Herbert Hoover will speak on "Central Co-operative Grain Marketing on a National Scale;" Julius Barnes will speak on the methods of the United States Grain Corporation; Victor Murdock will discuss the legal aspects of centralized cooperative grain marketing; L. F. Gates will answer the question, "How do board of trade operations benefit the grain grower?" and Norman Lambert will tell of the organization plan and marketing methods of California Fruit Growers' Exchange. Thus all phases of the subject of marketing will be covered, practical organization, financing, legal and methods as worked out successfully in California; also present methods of marketing through the board of trade and the only great central grain selling agency we have ever had, the United States Grain Corporation. Accredited representatives of the farm press will be privileged to attend this meeting in addition to the committee of seventeen.

C. A. Burton, chairman of the commission for Austrian relief, has presented a statement to the American Farm Bureau Federation, showing that the textile industries formed the most important industries of prewar Austria. It is estimated that there are at present 1,500,000 spindles and 40,000 mill looms in the territory comprising Austria and Czecho-Slovakia, for the manufacture of wool yarn and woollen cloth. In addition the home spinning and home weaving industry is quite

extensive. In 1912 pre-war Austria produced 8,500,000 pounds of raw wool. During the same year it imported 184,000,000 pounds of wool and wool yarns for the use of its factories. During 1919, owing to the lack of raw wool and wool yarn, the woollen mills of Austria and Czecho-Slovakia operated at only twelve per cent of their pre-war capacity. Germany's total consumption of wool is 464,000,000 pounds annually. There is no material surplus of fine wools and plenty of demand for coarse wools in Austria and Germany. The general inference is that if some means may be provided to enable these people to buy that the market for coarse wools would be improved.

A SURVEY of the world's cereal supply just issued by the Federal Department of Agriculture seems to indicate that it is largely a question of the consuming power of Europe as to whether our supply of wheat will be sufficient for the people's needs. If Europe could use the pre-war supply there would be a big deficit in wheat and rye, according to the government reports. On the other hand, if she only used as much as last year there will probably be enough and a small surplus providing the southern hemisphere's crops are normal. The world's grain supply is on the balance line. Any setback south of the equator would make a serious shortage. If the situation in Europe improves there would be a heavy demand which would develop a real shortage. Basing their predictions on the small reserves, those who have studied the situation think the price of wheat is going to be higher.

A sharp controversy which bids fair to develop a legal action has arisen between Dr. William C. Fowler, health officer of the District of Columbia and a large milk distributing company in New York state, because of the refusal of Dr. Fowler to grant permits to the New York company to ship milk into Washington. The district health officer has not only rejected the applications of the concern because they do not furnish a guarantee that the milk comes from tuberculin tested cows; but he has warned the New York concern that it would violate the district laws if it shipped milk into Washington. The Maryland and Virginia Milk Producers' Association is backing the health officer in this milk fight. The Dairymen's League is not taking part in the matter.

TO CORRECT MICHIGAN'S BOUNDARY.

The state commission provided by the last legislature to investigate Michigan's claims to certain territory now in the possession of Wisconsin, but claimed by Michigan under act of congress which admitted Michigan to the Union and under the first state constitution, has been in session at Ironwood and taken some testimony and made some observations. The difficulty arose from an error in the original United States boundary survey, resulting in Wisconsin's securing from three hundred and sixty to four hundred acres of land, including the notorious "Hurley," that of right belong to Michigan. It is necessary, among other things, to determine what was the main channel of the Montreal river, which was to serve as the international boundary on the northwest. Ownership of certain islands in the Menominee river on the southwestern boundary of the peninsula is also involved.

Muck as a Fertilizer "SNAG-PROOF"

By Ezra Levin, Muck Specialist, M. A. C.

IT is not very difficult to create interest in unsound doctrines. A bit of enthusiasm and the juggling of ideas and words is all that is required. The idea of the use of muck as a fertilizer was not discovered or manufactured by me. It is an established, sound doctrine.

Peat and muck are accumulated deposits of plant remains which have been "pickled." Muck is a decomposed form of peat. We may visualize a muck swamp as a big straw stack with trees and bushes and leaves mixed through it. These trees and shrubs have fallen into the vat and have been preserved with the remains of the other plants. These remains are largely organic matter and nitrogen, with other substances washed in from the surrounding upland and the subsoil. The muck farmer is literally farming on top of a straw stack or on the top of nature's silo.

As these plant remains collect and go through this "pickling" process poisonous substances are formed. After drainage and exposure to the air, these poisonous elements disappear. It must also be remembered that we have different kinds of deposits, the marsh grass muck, huckleberry soft water muck, the cedar swamp muck, hardwood muck, and the moss bogs, so that we would expect different results not only in forming these areas, but in their use as fertilizer.

Analyses of the different types of muck and peat in this state show that they all contain a large quantity of nitrogen. I mean that the average would be close to two per cent; that is more than twice the amount of nitrogen that is found in the average straw. These are facts which must be kept in mind while considering the use of muck as a fertilizer.

But, some authorities have said that in most muck and peat, this nitrogen is to a large extent unavailable. However, we must not make the mistake that the nitrogen will not be made available later. It would be better to say that in the condition that muck or peat is taken from the swamp, in most cases the nitrogen is unavailable at that particular time, but Dr. Kedzie and numerous farmers in Michigan have shown that nitrogen in the muck or peat may be made available after it is taken out of the swamp and before it is applied in the field by composting. It may be said that the nitrogen in straw is not available, every farmer knows that straw is worth more in the manure pile after it has been decomposed than it is worth spread alone. Every farmer knows that old straw is more valuable as a fertilizer than new straw. It would be reasonable to say that one should use muck and peat as

he would straw. For example, if a soil is heavy clay and one got results with straw alone, he will also get results with muck alone. If he has a light soil and straw does not show the results that this same straw would after it is used as a bedding, then apply muck freely in the barnyard to inoculate it with the right sort of bacteria before it goes to the field. Muck and peat are valuable as absorbents for liquids and gases, much more valuable than straw. In the barnyard a large part of the ammonia and urine may be saved by the liberal use of muck and peat. The use of muck as a fertilizer is past the experimental stage. It is being used and has been used for years.

Every orchardist knows how seriously he needs organic matter and nitrogen. Here is a simple way in which to get these materials if there is access to a muck deposit. The muck has at least the manurial value of straw for what it lacks in mineral value it makes up in nitrogen value. In not a single instance where composted muck has been used did it fail to get satisfactory results.

Here are the facts summarized:

Muck or peat can be used for a bedding or an absorbent to a better advantage than straw.

If you have been buying straw, the use of dried muck or peat will save you the high cost of straw. If you raise grain, sell your straw and use peat or muck.

A fertilizer factory in the east makes fertilizer by allowing muck to decompose after it is inoculated with the proper germs.

Raw muck or peat is clean. Muck or peat is better for horses' feet than straw.

Muck or peat is from two to seven times better as an absorbent of liquid than straw and will save all the valuable potash voided by your animals more efficiently than straw.

Muck or peat absorbs the valuable ammonia gas of the manure heap two to seven times better than straw.

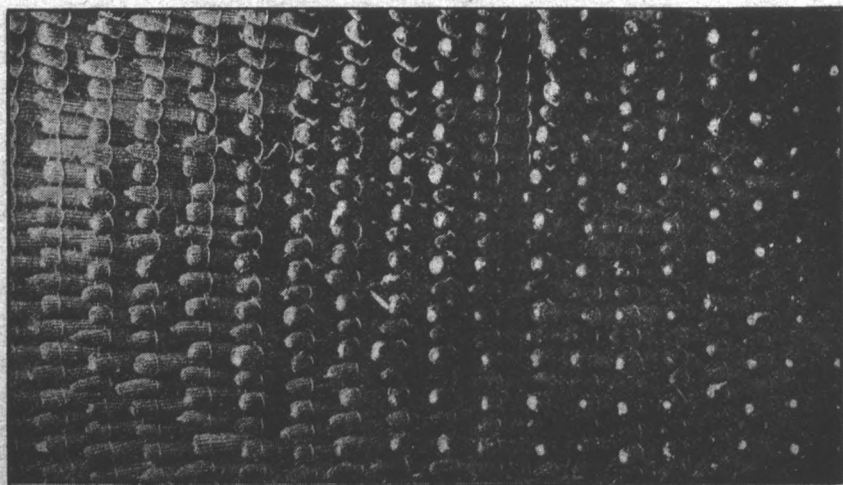
Muck or peat contains as much nitrogen as barnyard manure, if it is made available in the manure pile.

Peat or muck is largely organic matter.

Pile muck up closely under cover so that it will dry out, then use it freely in the stables.

It is quicker and cheaper to add organic matter by the use of muck and peat than by plowing under green crops. Sell the green crops and use muck or peat.

I would draw a ton of dry muck just as far as a ton of straw for the same price.



An Inexpensive and Convenient Method of Storing Seed Corn Used by C. M. Putnam, of Gratiot County.

Rubber Footwear



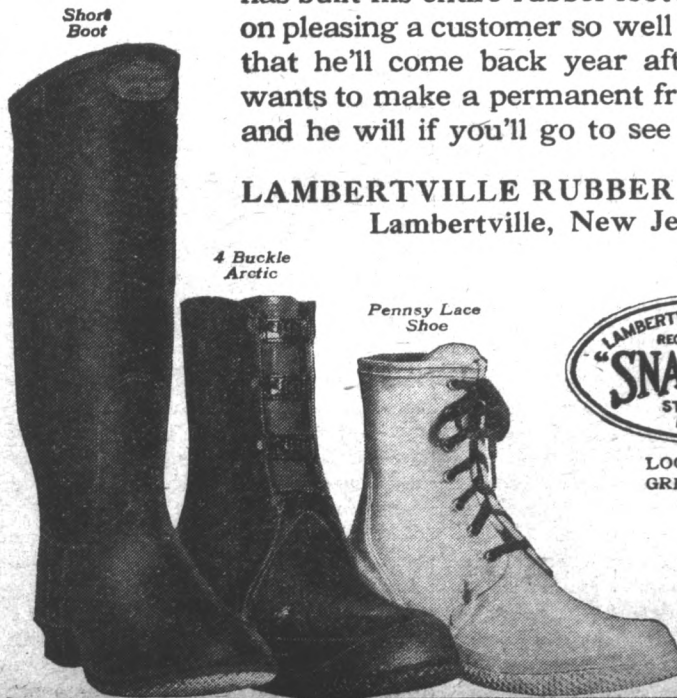
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Michigan Agricultural News

STATE FARM BUREAU NEWS.

THE State Farm Bureau announces that it intends to place an additional employe in the traffic department to handle the adjustment of claims of cooperative organizations against railroads and to audit freight bills. Adjustments will be made at cost. If a claim does not bring a refund to the member he is not charged for the service. In any case the member cannot lose. The auditing of freight bills has proved of benefit to a great number of individuals and associations already. For this service no charge is made.

The first carload of wheat, sold through the elevator exchange department came from the Farmers' Cooperative Elevator at Fowler. On October 23 the Fowler manager telephoned the exchange sales-manager that he had a car of wheat to sell. The salesman said he could get \$2.05 for it. The elevator gave orders to sell. Before the day was over the exchange had secured \$2.11 for it. The first week's business bears out predictions that the exchange would be in a position to secure five to eight cents more than some grain jobbers.

The elevator exchange mails to all its elevator members every day a report of the condition of the market. This report is made up a few minutes after the markets close and is placed immediately in the mail. It contains the current cash quotations on wheat, rye, oats, corn, barley and beans. One more elevator has joined the exchange, making a total of twenty-five. The new member is the Grand Blanc Cooperative Elevator of Genesee county.

Official membership of the State Farm Bureau is now 93,171. If certain recent gains known to have been made in several counties were added to this the actual membership today would be 94,000.

A membership campaign in Alger county commenced Monday, November 1. This is probably the last of the counties in the upper peninsula to be given a formal solicitation. Gogebic and Iron counties were completed last week. In Gogebic one solicitor reported three hundred and ten signed out of three hundred and forty-nine solicited; the total is not announced yet. Iron county membership will amount to about four hundred. In two townships every farmer solicited joined the State Farm Bureau.

Ingham county attained a membership of one thousand five hundred this week. Muskegon county has also completed its campaign with a membership of something like seven hundred. During next week Gratiot and Osceola counties are expected to be canvassed.

M. A. C. NEWS LETTER.

A GREATER number of second-year short-course students than ever before returned to M. A. C. last week with the opening of the sixteen weeks' course in general agriculture, the first of the special winter series designed especially for men and women who are actually engaged in farming or who expect to become farm managers, herdsmen or farm foremen. Total enrollment was close to one hundred and fifty, and of these about sixty were second-year men.

Instruction is outlined so as to give a broad training and excellent education in modern agricultural practice. The course of study in the first year gives a thorough knowledge of fundamentals, while scientific application is stressed in the second year.

Students entering for the first time this fall are enrolled in classes teach-

ing types of live stock, animal feeding, farm management and farm finance. In addition they are required to take two hours of physical training each week. In the winter the course includes study of breeds, rural organization, farm marketing, farm dairying, horticulture and shop work.

Animal breeding, plant diseases, stock judging, management of farm buildings, forestry and agricultural physics, and farm law make up the curriculum for the second year.

Student activities outside of the class room will be conducted for the short-course men on an even larger scale than last winter. Organized under the direction of the student council of the college, the special classes will take part in athletics, music and debating, with a representative basketball team, orchestra and debating team. A trip to the International Live Stock Show at Chicago is a part of the live stock work of those who can attend.

Ashley M. Berridge, one of the directors of the Michigan State Farm Bureau, has returned to East Lansing to direct the work of the winter short-courses and is now engaged in making arrangements for those which will open later. The next course offered is one of two weeks in cow-testing and dairy barn management, from November 29 to December 10. With the beginning of the new year will open simultaneously eight weeks' courses in dairy manufacturing, dairy production, horticulture, farm mechanics, and general agriculture. On January 5, four-weeks' courses in poultry husbandry and advanced poultry methods will commence. A two-weeks' course in gardening will open on January 17. The first truck and tractor course will begin January 31 and continue until February 25, to be followed by another four weeks of instruction covering the same ground.

It is also announced that Farmers' Week will be held at M. A. C. from January 31 to February 4. Besides the extensive exhibits, speakers of national reputation will be secured and a number of state farm organizations will hold their annual meetings in connection.

An addition to the special winter curriculum offered in the past is the course in dairy production, to be given during January and February. This course is especially designed for the man engaged in specialized milk production and will take up the feeding and judging of dairy cattle, animal breeding, testing and records, dairy barn management, marketing and disease control.

F. W. HENSHAW.

GETTING RESULTS FROM DYNAMITE.

I WAS recently investigating a drainage enterprise near Twining, Mich., and was rather surprised at the efficiency with which the stumps were being blasted from the right-of-way with comparatively small charges of dynamite; the soil was sandy and rather light and it seemed unreasonable that large stumps could be blown out with four and five sticks of powder. Mr. G. H. Hollister was doing the blasting and I inquired as to his method which is so good that I decided at once to pass it along to others; I will endeavor to describe it just as it worked there.

Mr. Hollister had a piece of quarter-inch boiler plate cut twelve by twenty inches which he used as a blasting base; he used a half of a post-hole digger to make the hole under the stump, which he made as far below the crown of the stump as conditions would per-

mit; he made the bottom of the hole as smooth as possible and placed the blasting base flat down in the hole thus prepared and placed his dynamite on top of the plate; he tied his powder in a bundle with a cord around the sticks; next he filled the hole with earth, and stones if he could find them, and set off the fuse.

The result was that the force of the explosion is expended almost entirely upward instead of downward, first as dynamite usually does; the boiler plate prevents a hole being blown out below the stump and this increases the efficiency of the charge by at least one-third.

If the soil is very soft the base will be concaved by the force of the explosion and after a few shots the base becomes badly warped, then Mr. Hollister turns it other-side-up; thus his blasting base stays on the job for a long time.

Another advantage in the use of this blasting base is that hollow stumps can be blasted away as easily as solid ones, being careful to get the charge well down below the stump. These were large white pine stumps that were being blown; but the idea, with modifications, could doubtless be used in many other places.

G. F. DELAMATER.

SUCCESSFUL GUERNSEY SALE.

At the Guernsey sale held by E. J. Himmelberger, of Lansing, Mich., October 27, forty-five head sold for \$16,870. Included in the sale were three young bulls and several young calves. The outstanding feature of the sale was fourteen daughters of Golden Nassau of Pencoyd which brought the satisfactory price, averaging \$438. This is a very good average considering the fact that they were all under two years of age. Among the largest buyers were E. R. Frissell, of Minnesota, F. G. Reiter, of Pennsylvania, and F. E. Robson, of Michigan, who purchased the "top" in the sale, a three-year-old Duchess of Capitol View at \$610.

FAIRS WELL ATTENDED.

FAIR-TIME in Cloverland has come and gone. The people seem quite as interested in these agricultural exhibitions here as in the southern peninsula. Since the war, boys' and girls' club work has formed an important part of the fair exhibits, and Manitique reports ninety prize winners in this department. Even Keweenaw county—the most northerly county in the state—where there are said to be less than fifty farmers, has had its fair this year, held at Mohawk, and reports an enthusiastic time. Perhaps the most interesting fair is that annually held in Houghton county at Houghton. To avoid weather trouble, it is all held indoors in the immense Amphidrome, which is used for all sorts of big events, but no event attracts the crowds that the September fair attracts—sixteen thousand people this year. The agricultural exhibit is mostly arranged around the gallery and in its range and quality is a surprise to those unfamiliar with Houghton county. Notable among the exhibits is always that from the Otter Lake Finnish settlement, once one of the most backward sections of Michigan, but since the establishment of the Otter Lake Agricultural School, usually a prize-taker at the fair. It took the garment prize this year, and the corn prize, and County Agricultural Agent L. M. Geismar assures me that this corn would have taken the prize anywhere, and Mr. Geismar is a good judge.

Activities in Cloverland

By L. A. Chase

THE canvass for members of the Michigan State Farm Bureau seems to have been thorough in Delta county, and is reported to have brought into the fold persons possessing only a very few agricultural acres. There are better than one thousand members. Since the work of organizing the county as a whole has been completed, the process of establishing locals has gone forward until some fifteen have been created. Each local has its president, secretary and board of directors. The secretary is the business agent of the local, collecting orders for supplies, etc. The secretary is put under bond and those who place orders with him give their note in pledge of good faith. Some eight carloads of flour and feed have been ordered for the county members through County Agricultural Agent D. P. Pattison. The county bureau may also interest itself in the problem of marketing milk.

I recently took a turn about the Ford River and Bark River section of Delta county and found a very well developed farming region, with good buildings and other evidences of a progressive agriculture. Fall plowing is well along favored by the exceptionally late season. The farmers are settled in communities of Swedes, French and Finns, and I learned of a prosperous settlement of Belgians ante-dating the war. These Belgians are said to have introduced a variety of field-pea of very excellent quality. The "Garden" area of the county is said to be over-supplied with marketable field-peas—marketable if shipping conditions were more favorable.

Along the lower Sturgeon River, which enters Portage Lake, Houghton county, near Chassell, is, or was, a large swamp. Some years ago extensive drainage operations were undertaken on this swamp with a view to recovering a large area for agricultural purposes. The soil thus uncovered proved ill-adapted for agriculture and the problem of what to do with the old Sturgeon swamp remained unsolved. An abortive attempt to establish a fertilizer plant here during the war, has now given place to new operations in the same direction.

Libraries for Rural Readers.

Menominee county has undertaken some very unusual library work of great importance to its rural population. By a cooperative arrangement between the Spies Public Library of Menominee, and the county, the city library also furnishes books throughout the county. Last year the county board of supervisors agreed to maintain half the expense of the Spies Public Library, provided its share did not exceed \$5,000. County work was started in February and there are now thirty branch libraries located in stores, in most cases, but in one instance in an ice cream parlor, a school, a residence and a cheese factory. Thither books are sent from the Menominee library in containers which also are adaptable as book-cases, there being seventy-five to one hundred and twenty books per box. Since the inauguration of this work more than eleven thousand volumes have thus circulated outside the city. The books include adult and juvenile reading, with fiction and non-fiction about evenly balanced. This information, derived from Miss Helena Le Fevre, librarian of the Spies Public Library, seems to indicate, as Miss Le Fevre believes, that there is a very important field for the county library.

Roads in Cloverland.

If Gogebic's road project for the coming year is adhered to, the state, coun-

ty, cities and townships will expend upwards of \$600,000 for this purpose. The program includes completion of the highway from Ironwood to Lake Superior, already well under way, additional work on the "Cloverland Trail," and work on the road from Wakefield, via Tula to Ontonagon. Keeweenaw county, much smaller in resources, plans for an expenditure of \$60,000 on its highways, including work on the famous and scenic "Cliff Road," and its extension to Copper Harbor and the county's share of the new road from Lake Linden to Gay, which is to open up what is said to be an excellent agricultural district. Houghton county is to do the southern end of this highway, as well as another road—that from Chassell to Painesdale, which will be a considerable time-saver when compared with the present route by way of Houghton. The secretary of the Michigan Good Roads Association reports that seventy-eight per cent of the Cloverland Trail is now completed, but he argues for a tunnel-way under the Straits of Mackinaw to facilitate communication between the two peninsulas.

The annual meeting of the various county boards of supervisors, recently held, have had other matters to attend to. County officials have received additions to their salaries in many instances, Delta county having put several of them up to \$3,600, the Escanaba papers report, and other counties having approximated this. Menominee county has separated the office of county clerk and register of deeds. Alger county is reported to have rid itself of the office of county sealer of weights and measures on the ground that the state was amply caring for this work—an allegation which cannot be correct since the state food and drug department is not sufficiently supplied with deputies to fully cover the state unaided. Dickinson county has made provision for community service, while Marquette county has discontinued, after the new year, its support of community service work among the townships. The three cities of this county have independently provided for their own requirements under this head. Chippewa county has been called on to appropriate some \$10,000 for the Dunbar Agricultural School, one of two county agricultural schools maintained in the upper peninsula—Menominee county having the other one. The Dunbar Agricultural Schools has expended from all sources—state, county and otherwise—\$126,000 in the past nine years, it was reported.

Agricultural Agent L. R. Walker, of Marquette county, reports the presence now of sixty pure-bred sires as adjuncts to the dairy herds of the county. During the year fourteen Guernsey, nine Holstein and one Jersey sire have been acquired. Farms where such sires are owned are so marked by a sign indicating the fact to passersby. Mr. Walker reports also that nearly every farmer has grown from one to five acres of sunflower ensilage, which seems to be becoming popular all over the upper peninsula. The county agent has persuaded some farmers to weigh and test their milk to differentiate the real producer from the boarder, and a number of pure-bred milch cows have been added to the dairy herds of this county. Mr. Walker also alludes to the grasshopper pest, at one time serious in the county, which was met by the importation of 4,316 pounds of poison. Arsenical poison is a bi-product of copper smelting, so that upper peninsula farmers have a cheap and convenient source of supply in its own copper country smelters.

The Gasoline Situation in 1910 and Now

IN 1910 there were approximately 400 thousand cars in the United States.

To operate these cars there was available a gasoline production of 750 million gallons, or, approximately 1875 gallons per car.

In 1919 there were more than 7 million cars and trucks operating in the United States.

To supply these engines there was available, according to Bureau of Mines Report, 3 billion, 957 million gallons of gasoline, or approximately, 565 gallons per car.

In neither case has consideration been given to the demand of tractors, stationary gas engines, or the gasoline required by the arts and industries. Nor have we considered the large volume of this product shipped abroad annually.

The above figures are presented so that you may visualize one of the problems the petroleum industry has been called upon to solve in the past decade.

In 1910 the Standard Oil Company (Indiana) marketed about 20 percent of the gasoline output in the United States, or approximately 150 million gallons. In 1919 this Company sold about 640 million gallons of gasoline, or about 17 percent of the total for that year.

It has been the task of the 7 men who manage the affairs of the Standard Oil Company (Indiana) for the 5124 stockholders, not one of whom owns as much as 10 percent of the total, to expand the organization not only to keep pace with, but to keep ahead of the extraordinary and persistent demand for gasoline.

How well they have succeeded is illustrated clearly by the fact that in the 10-year period above mentioned, the Standard Oil Company (Indiana) has taken a leading part in increasing gasoline production 440 percent, while crude oil production increased only 94 percent.

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Nut Growers Meet at Washington

Interesting Program Characterizes This Annual Session—By Elmer E. Reynolds

IF the extent of nut culture in the northeastern states were measured by the enthusiasm displayed by the members of the Northern Nut Growers' Association at their tenth annual convention, recently held in Washington, it would be a very extensive industry. The conclusions, however, after hearing the reports and addresses at this meeting, were that nut growing is just emerging from the experimental stage into a commercial proposition of marvelous possibilities in the states east of the Mississippi river and north of the Mason and Dixon's line; that its promoters are real "live wire" men who are developing the culture of nuts on a practical, yet scientific basis. The organization is promoting especially the improvement of nut varieties, experimental work to ascertain the adaptability of species and variety to soil and climatic conditions, the planting of nut trees along the highways and for ornamental purposes, and commercial nut growing.

In his address, the president, Hon. William S. Linton, of Saginaw, Michigan, said, "the particular line of efforts in which this organization is enlisted is worthy of at least some time and thought upon the part of all persons interested in promoting the welfare of the community, state or county in which they live. Those who will do their share, and there are thousands of them if the subject can be properly presented, can add largely to the food supply of the nation, and provide real delicacies for every table in the homes of the poor as well as in the mansions of the rich. It would be but a few years before we would have in size and quality the aristocrats of the nut family, in walnuts, hickory nuts, butternuts, even beech nuts, the same as in fruits we have the Bartlett pear, the Northern Spy apple, the Navel orange, the Crawford peach, and the Brighton grape. Work of inestimable value is being done by our membership in propagating improved varieties that will be rich and lasting in results. We cannot, however, afford to halt for this development of species as our own time is too short, but we can cause to be planted millions of seedlings out of which will come many choice varieties of the future."

Mr. Linton referred to the work of the American Forestry Association in promoting the cause of the nut growers, and said the establishing and naming of historic trees throughout the land can well be made a feature of their plans. He spoke of a resident of Ingham county, Michigan, who has evolved a plan of raising historic trees on the school grounds of his county by planting walnuts from trees that grew from nuts gathered some years ago on the grounds of Washington's home, Mount Vernon. Mr. Linton would have these Mount Vernon walnuts distributed to school children for planting throughout the Union. "This very act of patriotism," he said, "will cause thousands of boys and girls to have fixed in their minds for youth or age the value of planting the useful trees that will in later years produce food of the very best character for the human race." Commenting on the part his own state is taking in promoting a better rural life, Mr. Linton mentioned the fact that five speakers on the nut growers' program were Michigan men.

IN a "popular and educational talk on nut growing in America," C. A. Reed, nut culturist of the United States Department of Agriculture, said this country is importing annually \$42,

000,000 worth of nuts, and producing around \$26,000,000 worth of nuts. He said the black walnut has a greater range than any other nut; but the pecan, Persian walnut and filberts were being planted extensively. The Persian walnut is the most important on the Pacific Coast, yielding from eight hundred to one thousand pounds per acre in California. The Persian walnut is not of commercial importance in the east, but is at home on the eastern shore of Maryland, in southern Pennsylvania, western New York and Connecticut. The pecan orchard industry has made its largest development in south Georgia. The growing of filberts is carried on extensively in the northwest, and several varieties have been imported or developed. The first native black walnut to be named was the Thomas. The parent Stabler black walnut is in Maryland, near Washington. The Ohio shows a remarkable tendency to bear at an early age. Several butternut varieties have been brought out by W. G. Bixby, of New York state, and are being propagated. One of our most decorative trees is the native beech, and it is fine for roadside planting, not having some of the disadvantages of the black walnut. The Japanese walnut has been in this country seventy-five years. It has a flavor of the butternut, and the tree is very attractive. In Michigan the hickory and black walnut are being planted along the highways to a large extent.

The people of the northwest, Mr.

Reed says, are combining poultry raising with nut culture. Filberts fill in well with poultry. He suggests that this same practice should be followed in the east with equally good results.

AFTER referring to the importance of nut culture, Dr. William A. Taylor, chief of the Bureau of Plant Industry, United States Department of Agriculture, said that "since the scourging of our chestnut forests by the Asiatic chestnut blight has practically eliminated that nut from consideration for orchard planting in the infected territory until resistant varieties yielding good crops of nuts of acceptable quality are obtained, we can hardly say with assurance that we have any nut of proved adaptability in sight which is worthy of planting on an extensive scale for its crop alone on productive agricultural land in the northern states. Along the southern fringe of the north, as in Delaware, Maryland, southern Ohio, Indiana, Illinois and Missouri, exception in favor of hardy varieties of pecans should be noted, but in the light of present knowledge orchard planting of the commercially important almond, Persian walnut, and pecan must be left to the Pacific Coast and the south.

While large scale operation has not been attractive, Dr. Taylor says there is need for localized planting. "Potential food reserves in the form of fruitful nut trees can be established at relative light initial investment or of continuing care and labor on al-

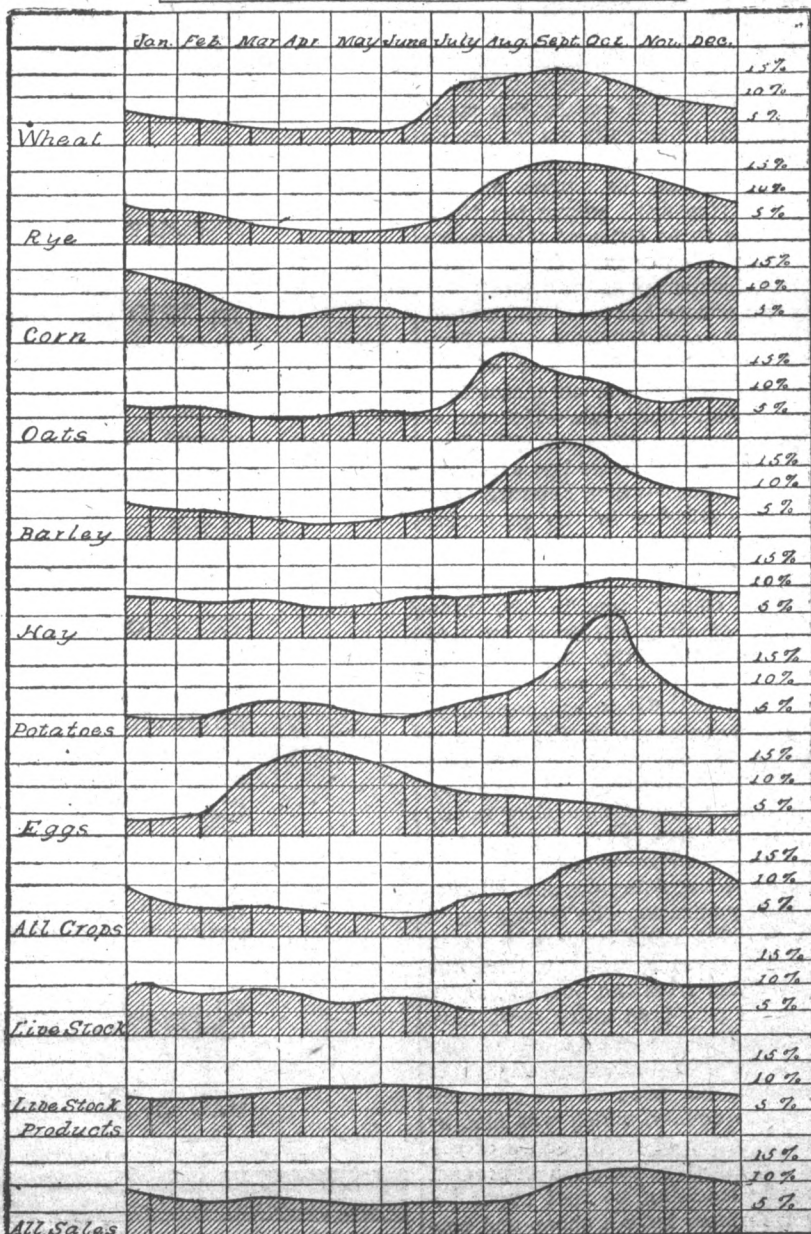
most every farm and by many a roadside in much of our farming territory. Black walnut, butternut, shag bark, shell bark, beech and other hardy, long-lived native trees can be established at low cost in large numbers for beauty, shade, and food production. Nor should the possibilities of Persian walnut, Japanese walnut, and native hazel be disregarded in favored sections. While none of these are entirely free from plant diseases or insect pests, they are, when once established, capable of maintaining themselves fairly clean and sound with little expenditure for spraying or other attention during the growing season when the peak load activities of the farm are on. Why should not their planting receive more attention and encouragement from our horticultural societies? For rough land and roadside planting they are decidedly more practical in most sections than any of our fruit trees, substantially all of which require spraying and tillage to maintain productiveness, or in fact, to avoid becoming nuisances by harboring pests to contaminate the commercial orchards of the neighborhoods. While much has been said in America in commendation of the roadside planting of fruit trees so common in Europe, most American efforts in this direction have proved disappointing because of the impracticability of giving the trees the care required. While often promising at the start they have quickly become infested with San Jose scale and other scales, borers, blights and rots which can only be prevented or controlled by systematic remedial measures, such as are rarely possible on rough lands, in fence rows and on roadsides."

If this type of nut culture is sufficiently promising to be worth while, Dr. Taylor thinks we "need to return in our study of varieties and strains of nut trees to the standards and ideals of the earlier and ruder period of American pomology when rusticity of tree, including storm endurance, freedom from troublesome disease and insect pests, as well as productiveness and desert quality were the primary consideration. This society might well devote much attention to the securing of performance records of promising individual nut trees, with a view to locating those which possess the inherent ability to bear regular crops of fair quality under the rough conditions of the average fence row or roadside of the region to which they are adapted.

"Do not understand me as in any sense discouraging the continuance of painstaking experimentation with a view to finding varieties suited to orchard planting in those scattered, favored spots where conditions make success reasonably probable. My point," says Dr. Taylor, "is rather that in our northern states by far the largest potential production of nuts is through waste land utilization and dual or triple purpose planting, such as nuts and shade and in some cases ultimate yield of highly valuable timber."

Speaking on the top-working of hickories, Dr. Robert T. Morris, who has a large farm in Connecticut, on which are growing many kinds of nuts, advocated getting scions and top-working blocks of small trees. He grafts on hickories of from one to eight inches in diameter, but the large size is not practicable. Small trees he cuts back to breast level, below the branches. He has found that one may top-work hickories almost any time of the year, but has done most of his grafting in spring and as late in summer as September.

WHEN FARMERS SELL THEIR CROPS.



Here Are Visualized the Six-year Average Percentages of Ten Farm Products Sold off the Farms During Each of the Twelve Months.

Michigan at the Grain Show

Favorable Soils and Climates Coupled with an Aggressive Crop Improvement Association Should Favor U.

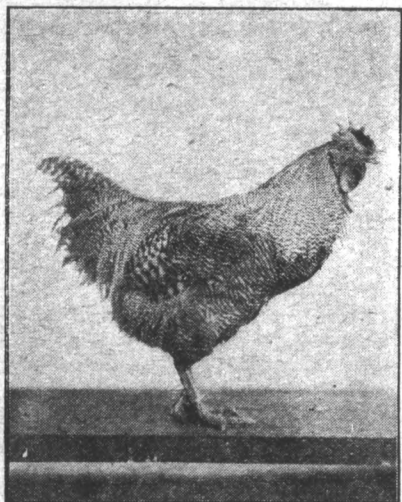
THE International Grain and Hay Show to be held at Chicago from November 29 to December 6, the same time as the International Live Stock Exposition, gives Michigan another opportunity to show and maintain her position as the leading state in the Union for the production of guaranteed seeds.

M. A. C. and the Michigan Crop Improvement Association find a powerful ally in the State Farm Bureau in keeping Michigan's leadership as a seed state. This was demonstrated at a recent meeting of state representatives to consider plans for the grain and hay show. J. W. Nicolson, manager of the seed department of the State Farm Bureau, represented Michigan farmers on this committee. He was able to bring about regulations in regard to the show which are decidedly advan-

bona fide orders and then send them to us. We have the double problem, first, of influencing the organization of seed departments and cooperative buying agencies in other states and, second, of interesting the individual buyers in our product until such a time as they are ready to buy cooperatively. One way to create that interest is through the International Hay and Grain Show at Chicago. If Michigan has a large and excellent exhibit the seed buyers of other states cannot help but be impressed by our product.

"When we attended the meeting of the committee composed of representatives of several states on September 14, the management of the show proposed a tentative set of premiums. Some of Michigan's best products were not offered much premium money so the Farm Bureau proposed several changes all of which were readily accepted by the management and which will afford Michigan farmers a far better chance to exhibit and win premiums on their products. The committee added classes for white winter wheat and white spring wheat. The former is almost exclusively produced in Michigan and New York. Rye, one of Michigan's largest products, was listed for only fifteen premiums but was raised to thirty at our suggestion. This state took nine of the fifteen premiums last year and it ought to take twenty-five of the thirty premiums this year. Ten more premiums were added to six-rowed barley and provision was made that our Michigan Black Barless barley would not be discriminated against on account of its color. This state also ought to take the major premiums in the soft, red winter wheat class. Red Rock wheat, developed by M. A. C., and extensively grown in this state, has been graded by the United States Department of Agriculture as the best quality of milling wheat of several soft, red winter varieties tested in a two-year test recently completed. There are also other varieties in the state of such quality that they should place.

"Do you know that Michigan has the only state organization for selling clover seed guaranteed on all the following points: Origin, purity, germination and year-grown? This is a fact, and we have a surplus of clover to sell this year, too. Such a guarantee is very important because there is so much clover seed being imported which is not adapted to American soils and climate. Our seed ought to sell at a premium and it will, if we take all the means possible to create a market. An exhibit at the grain and hay show by many farmers will help in finding this market.

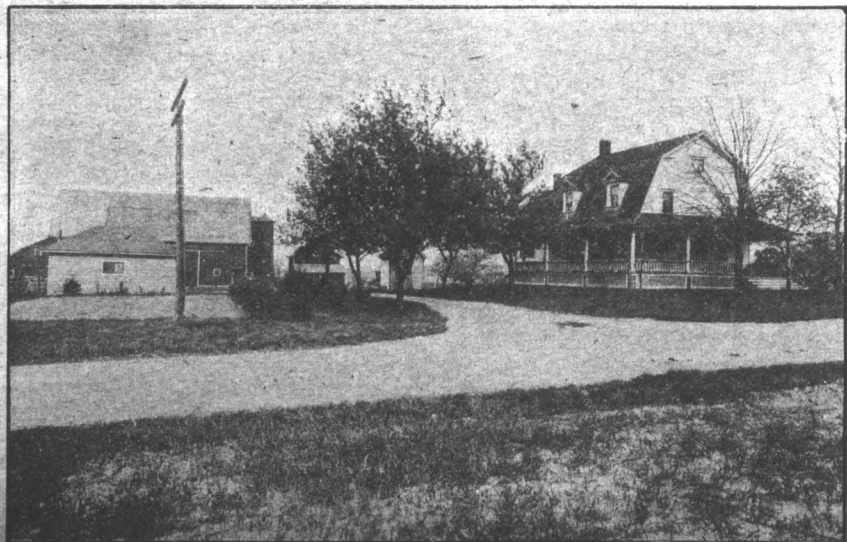


This Barred Plymouth Rock cock has been shown five times and took as many firsts. He is owned by C. H. Broxholm, of Calhoun county.

tageous to Michigan farmers. Mr. Nicolson, discussing the Hay and Grain Show as a means to further the interests of farmers of Michigan in the marketing of guaranteed seeds, says:

"Michigan is far in advance of all other states in her production of seeds guaranteed as to purity, germination and place of growth. Her surplus supply is of such high grade that the finding of a market is a serious problem. The Michigan State Farm Bureau is in an advantageous position to do a great deal along the same line as is being followed by M. A. C. and the state and the international crop improvement associations.

"The trouble is that few state organizations are in a position to buy our seeds. Most of them have no cooperative associations which can collect



Farmstead of Allen Goodall, Shiawassee County.

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Any dealer will furnish in sizes to suit rooms and climatic conditions.

For Soft Coal	No. 1-B Size IDEAL-Arcola with 100 sq. ft. of Radiation	\$142
	" 2-B " " " " " " " " " "	176
	" 3-B " " " " " " " " " "	213
	" 4-B " " " " " " " " " "	251
	" 5-B " " " " " " " " " "	290
For Hard Coal	No. 1-A Size IDEAL-Arcola with 135 sq. ft. of Radiation	\$163
	" 2-A " " " " " " " " " "	206
	" 3-A " " " " " " " " " "	251
	" 4-A " " " " " " " " " "	299
	" 5-A " " " " " " " " " "	349

Prices include Expansion Tank and Drain Valve. Prices do not include labor, pipe and fittings used in installation and which are supplied by the local dealer at extra charge. Radiation is of regular 38-in. height 3-column AMERICAN Peerless, in sizes as needed to suit your rooms. Outfits shipped complete f. o. b. our nearest warehouse, at Boston, Providence, Worcester, Springfield (Mass.), Albany, New York, Philadelphia, Harrisburg, Pittsburgh, Baltimore, Washington, Richmond, Buffalo, Cincinnati, Indianapolis, Birmingham, Detroit, Chicago, Milwaukee, Minneapolis, St. Paul, Des Moines, or St. Louis.

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The beauty of the IDEAL-Arcola method is that no cellar is needed. Everything is on one floor. The Arcola is placed in any room that has a chimney connection. No running to cellar. Same water is used over and over again for years. No fire risk.

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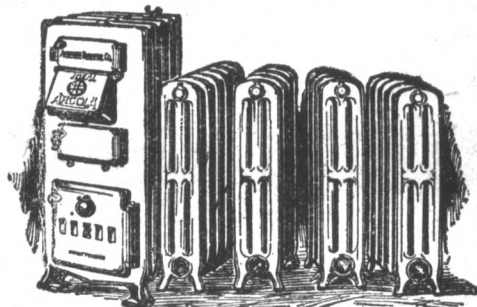
IDEAL-Arcola outfits consist of the boiler and radiators to heat various size houses. Write us your requirements! Unlike stoves, there are no coal-gas leaks into the living-rooms. The IDEAL-Arcola delivers the soft, radiant warmth of hot water—not the dry, burnt-out atmosphere of stove heating. There is no fire risk to building—no danger to children—fire lasts for hours! The Arcola burns hard or soft coal.

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AMERICAN RADIATOR COMPANY

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Rot of Apples in Storage

THE losses due to the rot of apples in storage are very heavy each year. In some sections it is estimated that apple rot losses amount to twenty per cent of the crop. The most common causes of the rot in apples are black rot and blue mold funguses.

In helping to keep down the amount of rot in stored apples an expert who has had much experience in handling apples, says the storage room should be kept clean. The rot fungus thrives on litter and produces its spores on rotten fruit. If the cellar is kept clean and free from refuse, and no rotten fruits are allowed to remain there, the

chances for rot infection are largely eliminated.

This authority says the cellar should be kept reasonably free from moisture, and the temperature of the cellar kept as low as possible. The less bruises and skin abrasions the apples receive in handling the less rot will there be in storage.

High temperature, moisture and stagnant air are all favorable to the development of rots, spots and scalds, and it is recommended that a cool, dry storage, with a continuous supply of fresh air is the proper environment for apples in storage.—E. E. R.

Green Manuring

PLOWING under green crops, more commonly known as green manuring, is a practice that has been in use over a long period of time, being advocated and used by the Romans in their farming operations. And in all probability they obtained their knowledge from preceding generations. The practice has been handed down from generation to generation, each one adding to the store of knowledge concerning it until at the present time it has a recognized value in our systems of soil fertility. It alone is not the secret of a permanently productive soil, but when utilized in the right way, and in combination with other recognized practices, it is of great value. Crop rotation, liming, good tillage, etc., have much to do with the successful use of a green manure. The greatest benefit to be derived from green manuring is in the amount of organic matter that is added to the soil. However, in the case of a legume, and a green manure crop should be a legume wherever possible, there is also a valuable amount of nitrogen added to the soil.

A green manure crop may be included in the rotation, or may be used separately as a cover crop, or nurse crop. There are a number of crops that may be utilized as green manures, but in general the one selected should have the following characteristics: It should have a deep root system, the seed should be cheap, it should be a legume whenever possible, it should be hardy, it should be quick growing, and in case it is sown broadcast, it should be capable of making a good growth. Of the various crops that may be utilized as green manures the following are well known: Cowpeas, soy beans, peanut, vetches, Canada field pea, the various clovers, alfalfa, rye, oats, buckwheat, rape, etc., all but the latter four being legumes. The effects of a green manure crop on the soil may be considered under three heads, being the physical, and bacteriological effects. Physically, a green manure crop will influence the temperature, moisture condition, and aeration of a soil, tending to make the soil warmer, capable of retaining more moisture in the case of a light soil, and allow the air to penetrate better.

Its action on a light sandy soil is of a binding nature, tending to make it more compact and capable of holding moisture, while with a heavy clay soil its action is opposite, making it lighter and more open, thus insuring better drainage and aeration. Chemically a green manure will conserve plant food by absorption, and by holding many of the plant food compounds in solution, in which form they must be in order to be utilized by the plant. The root systems of the deep rooted plants especially, tend to bring together the various plant foods, and then when the plants are plowed under this plant food is brought to the surface where it may be utilized by the more shallow

rooted plants. When a green manure is turned under many different bacteria begin to act on the carbohydrates and protein, breaking them down into various necessary plant food elements. If the crop is a legume and has been inoculated, nitrogen will be added to the soil through a symbiotic relation between the plant and certain bacteria. Bacteria require moisture for their action, and a variation in the water content of a soil, as well as a variation in the temperature and aeration will have a marked effect on their action.

And, as stated above, plowing under a green manure has a noticeable effect on the water content of a soil. The amount of air in the soil will determine the class of bacteria that will function the most, being either the aerobic, (those requiring air), or the anerobic, (those not requiring air). The plant food produced will depend somewhat on the type of bacteria active. The addition of a green manure will increase the activity of the bacteria largely through the organic matter added. The best time to plow under a green manure is when the crop contains the most moisture, as this encourages a rapid and more complete decay. When turning under the crop it is not a good practice to throw the furrow over flat as this forms a layer which may hinder capillary action until the crop has more or less decayed. As a result of decreased capilarity the succeeding crop may suffer from lack of moisture. Also, by turning the furrow slice only partly over, aeration and drainage are greatly helped. During the process of decay of a green manure crop various organic acids are produced, tending to make a sour soil. As a result it is necessary to apply lime during some part of the rotation, or it may be added when the crop is seeded and may be turned under with it.

H. W. BALDWIN.

MIXING POULTRY MANURE.

On poultry and fruit farms the poultry manure is a valuable asset for fertilizing trees. The Massachusetts station recommend the following mixture: Hen manure, 1,500 pounds; high-grade sulphate potash, 170 pounds; sixteen per cent acid phosphate, 330 pounds. This makes a total of 2,000 pounds of fertilizer for orchard use. The approximate analysis is nitrogen 1.1 per cent; phosphoric acid 3.3 per cent; potash 4.5 per cent.

Poultry manure spread on strawberry patches seems to induce a rapid weed and grass growth and is not conducive to the production of large quantities of fruit. The Massachusetts station recommend the following mixture of poultry manure when it is used on strawberry patches: Hen manure, 1,000 pounds; nitrate of soda, 100 pounds; ammonium sulphate, 100 pounds; high-grade sulphate potash, 200 pounds; acid phosphate, 600 pounds.—K.



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"The big Goodyear Cord Tires make a motor truck a real farm tool. I use mine to pull a hay cutter, or a rake, or an automatic loader, as well as to haul grain to the threshing machine and then to the barns for storage. The pneumatics roll through our peat bogs, 14 feet deep in places, which we use for fuel supply; teams can't go into them after rains, pneumatics can. I haul pure-bred Holstein stock to St. Paul, 80 miles, without appreciable shrinkage. Others take days to do the harvesting that I do in hours—because of my truck on pneumatics."—E. H. Kuchenbecker, Owner, Oakcraft Grain and Dairy Farm, Owatonna, Minnesota, R. F. D. No. 1

THROUGHOUT agricultural America today there is many a farmer who can make a report similar to the one given above, regarding the all-round utility and value of a truck on Goodyear Cord Tires.

Just as the application of motor power quickens plowing, pumping, spraying, grinding and other farm operations, so does truck power aided by the active pneumatics quicken farm work in a large variety of ways.

All those tons of produce, stock and supplies that otherwise require such tedious toil in handling and hauling, are rapidly loaded and whisked between farm and town on the big, smooth-going Goodyear Cord Tires.

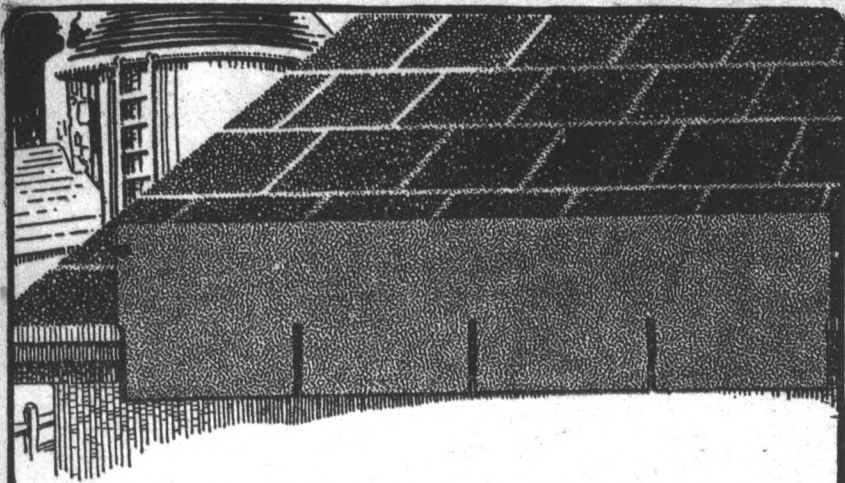
Farm products formerly limited to selling points only a few miles away, now have ready access by means of trucks on Goodyear Cord Tires, to markets sometimes 50 to 100 miles distant.

In the most strenuous of such duty these pneumatics demonstrate the rugged strength of their Goodyear Cord construction which makes possible that exceptional reliability with which they serve.

Farmers' reports of savings and advantages obtained with pneumatic-tired trucks and other motorized equipment, will be mailed on request by The Goodyear Tire & Rubber Company, from Akron, Ohio, or Los Angeles, California.

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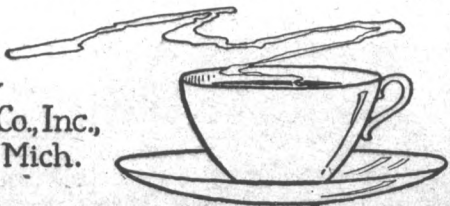
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LATE CUTTING OF ALFALFA.

I seeded four acres of oats to alfalfa and I got a good seeding. When I cut the oats the alfalfa was from ten to sixteen inches long in the butts of the bundle, and it now stands about the same height. What I want to know is, will I hurt this seeding if I cut it now? It looks as though it was too much to leave on the ground. It might smother it out and I do not want to pasture it. Washtenaw Co. J. M. C.

It is not advisable to cut this new seeding of alfalfa this fall. It would be much better to leave this on the ground to hold the snow, protecting the crowns of the plants against severe freezing this winter. Even old fields of alfalfa ought to have a protecting growth in the fall to prevent injury from severe freezing, in fact, all clover, and even grasses are much better if they are not cut or clipped too close late in the fall. You get a more vigorous growth in the spring and with the clovers a good coverage in the fall is a great protection for the winter.

I am positive that I injured one field of alfalfa very much by cutting it late in the fall. It was so late that there was very little growth after cutting and this field was winter-killed quite badly. Joseph Wing says in his book on alfalfa that alfalfa should always have more or less of a growth when the first killing of frost comes, this then protects the plant during the winter. Joseph Wing is one of the best authorities on alfalfa in this country and I think we can follow his advice, and I am positive from my own experience that he is correct. Of course, this nice growth of alfalfa looks good and would make a nice little bunch of hay, but you have harder plants and they will yield much better next summer, so that you can afford to leave this as a winter covering. I do not believe you need to worry about this growth smothering the plants. I have seen such heavy growths of Common Red Clover that some plants were smothered during the winter, but I have never seen a heavy enough growth of alfalfa to do this and I believe that your present growth of this new seeding will not have any tendency to smother and I am positive that it will be a great protection to the plant. My advice would be not to cut it this fall. C. C. L.

PECULIAR PUMPKIN VINE.

What causes a pumpkin vine to produce a thick band of tissue two inches or more wide instead of growing as a tube?

Wayne Co.

J. E. L.

This freak is called a "fascination" or banding. It results from some injury to the growing tip which leads the cells to grow in a transverse instead of a radial direction. It is often noticed in asparagus or dandelions, especially in those near a patch.

G. H. C.

SUNFLOWERS DISEASED.

Our field of sunflowers looks as though forest fires had been through it. Some sort of fungus disease has hit this crop, killing the leaves and injuring the crop for silage. What is to be done?

The disease of sunflower responsible for the damage is sunflower rust, caused by the fungus *Puccinia helianthi*. Nothing is known of the method of introduction of this disease in the field, the relation of rotation, or the influence of wild sunflowers. All that is

known is that the disease is serious and shortens each year an excellent silage crop. Professor Spragg, of the Michigan Agricultural College, reported in the May Quarterly Bulletin of the college that some South American seed showed some signs of disease resistance. This gives some hope for the future. At present the disease is under investigation at the agricultural college laboratories and control measures may be discovered. The only advice to be given is to cut the crop before all the succulent leaves are dead—sacrifice quantity for quality.

G. H. C.

DRY LIME SULPHUR.

Is the dry lime-sulphur as economical and as effective as the lime-sulphur solution, and how can the dry lime-sulphur be kept from losing strength and becoming lumpy?

Mecosta Co.

W. A. S.

We have used the dry lime-sulphur or soluble sulphur compound but do not believe the results have been quite as good as the lime-sulphur solution. It is cheaper to ship and easier to haul to the farm because it is without the water, but in our experience has not been quite as effective for scale as the solution.

However, we have stored it successfully in a dry attic room by closing the drums as tightly as possible. It has not seemed to become very lumpy. Any lumps that have appeared are very small and can easily be pulverized with a stick. We find the soluble sulphur compound handy to mix for small spraying jobs but believe the commercial orchardist may have more success with the liquid solution.—K.

ENSILOING SHOCKED CORN.

I have a stave silo but was unable to get it up to put in the corn as it was cut. So I put it in the shock early in October. It was not frosted, and was green and nice, though the ears were ripe. Should I go ahead and put that corn in the silo, or feed it out in the old way? If I put it in the silo would it be necessary to add water or would it be all right to run it in dry?

Benzie Co.

F. A. H.

This shocked corn will make good ensilage if it is properly wet down when it goes into the silo. If you would run this dry corn into the silo you would lose a large amount of it by dry mold. It is hard to tell you how much moisture to add. There is little danger of your adding too much water. When corn is put in the silo at the proper time, i. e., when it is fully matured, and the ears dented and with stalks in a green condition, then it needs no added moisture. Now what you have got to do with dry corn is to supply as much moisture as the corn contains sap at that time. You would want a stream of water, all that would run through a one-half or three-fourths inch hole all the time you are cutting. It is better to have this stream of water run into the blower. Some people fill in one foot or more and then wet it down, but you never can get it as thoroughly mixed that way as you can to have a stream of water run into the blower when the machine is in operation.

You will surely get more out of this shocked corn by putting it into the silo in the proper way than by feeding it dry. I have an idea that it would increase the value more than one-third because the cattle will not eat the dry cornstalks up clean. C. C. L.

FALL SEEDING OF CLOVER AND ALFALFA.

As we sometimes experience difficulty in getting clover started in rye and wheat by sowing in the spring, because of insufficient covering, and consequent drying out, I am wondering whether it would be safe and surer of results if we would sow the clover seed as late as possible just before snow comes, leaving it to the actions of weather and soil to cover it up in early spring. We have sandy soil. Regarding seeding in wheat, would you recommend seeding alfalfa at same time wheat is sown in fall, or just before winter as suggested above in the case of clover, or should it be seeded in spring and harrowed in with spike-tooth drag?

While there may be an occasional failure from seeding clover and alfalfa in the spring, I am of the opinion that the chances of failure would be even greater if the seed were sown late in the fall as you suggest. As your trouble appears to result from insufficient covering of the clover seed when sown on the grain fields in spring, I would advise more vigorous harrowing. Many farmers find it necessary to harrow the ground before and after seeding. There is very little danger of injuring the grain. This summer I observed one rye field with a sandy loam soil which was dragged twice with a tractor in order to thoroughly cover alfalfa seed. It surely looked as if the rye were ruined, but the crop was apparently uninjured by this treatment and a fine stand of alfalfa was secured. H. L. B.

POTATOES ARE GREEN AND SOFT.

We dug our potatoes a few weeks ago and find that some of them are soft and green under the skin. They were a little immature, but owing to successive heavy rains, we were afraid they would rot in the ground. We found a few rotted ones, but sorted them all and put some in a pile in the field, covering them with paper and stalks. Some were also put on the barn floor and covered with burlap. They seem to be keeping good but some are wilted. Do you think they would keep in a good cellar? I have a good cellar, cement walls and ground floor. There is a platform which I can cover with straw. These potatoes are the Petoskey Russets. Some say air-slaked lime sprinkled over them improves them and helps to keep them. What is your opinion on that? Would you advise me to keep these potatoes? Cheboygan Co. P. J. M.

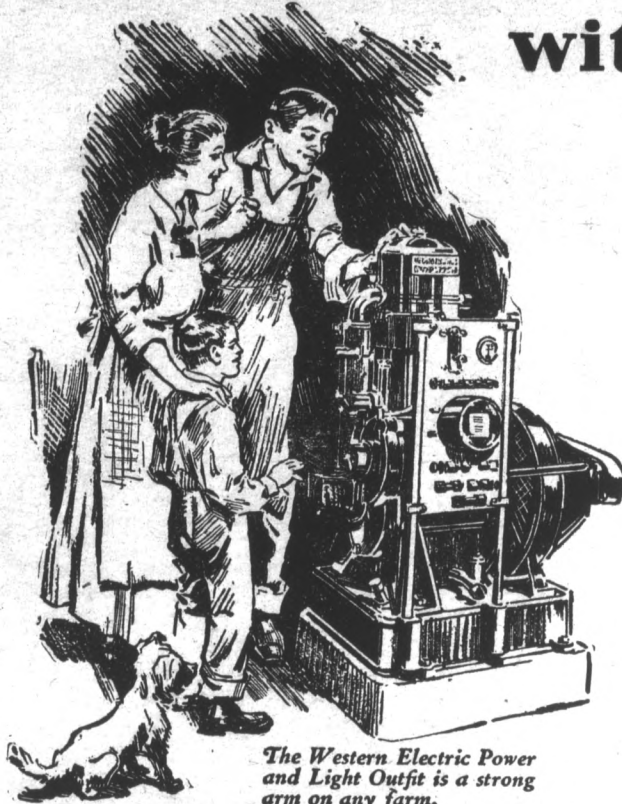
The greening of under-ripe potatoes results from too long an exposure to light. If the green potatoes occur only occasionally they are probably the tubers set high on the stem because of Rhizoctonia attack. If general, then exposure to light is responsible. In the case mentioned, it would seem that covering had not been adequate. It does not take many hours of exposure to light to bring about noticeable greening.

The wilting of potatoes will not take place with fairly mature potatoes to a degree to do damage under ordinary storage conditions. A loss in weight of ten per cent occurs by spring and this averages about one per cent a month. With very immature potatoes the wilting is more excessive. Especially is this true of potatoes with broken skins.

Cellar storage is usually excellent for keeping potatoes. Air-slaked lime absorbs excess moisture and this aids in potato storage. G. H. C.

How can the fall season be made more profitable for the poultryman? First, cull out the early moulters and next year breed only from the late moulting hens which are vigorous and of good laying type. Then try to hatch early. It will mean the purchase of an incubator and some brooding equipment if a large flock is to be raised. If only a few chicks are needed, possibly a few of the old hens which wish to set may be used to hatch out the chicks wanted. Do not make the mistake of setting the best layers on the eggs laid late in the season by the poor layers and then expect an improvement in egg production.

"Did the first frost catch you with some corn still out?"



The Western Electric Power and Light Outfit is a strong arm on any farm.

"Harvest is a time of worry and hard work to us farmers — and we don't always get the crops in either. Time is short and help can't be had. Anyway, that was my fix up till this year, when I put in a Western Electric Power and Light Outfit. Of course this outfit doesn't do any field work. But the work it does do saved so much of my time that I was able to get all my corn in before the first frost."

B. B. Griesemer

Editor's Note: Mr. Griesemer is a farmer near Griesemerville, Berks County, Pa.

"MAYBE you have done better in getting farmhands to work for you than I could. In recent years I've been a sort of a farmhand and choreboy rolled into one. I was so busy milking cows, grinding feed and pumping water that I couldn't get through all my work in the field.

"Not long ago I began to notice the good work done by an electric farm plant belonging to one of my neighbors. It gave all the light needed, but what I liked even better was that it was a powerful plant, built with the idea of doing a man's work.

An outfit that saves time and labor

"The name of this powerful plant was Western Electric, and because I believed it would give me the help I needed, I installed a Western Elec-

tric on my farm. The story of what it did may interest you, if you need help too and if you believe an electric outfit should supply power even more than light.



The portable motor makes churning easy

grindstone. I tell you, that engine can handle a lot of work. The powerful battery gives all the light needed, and it runs my wife's washing machine and pumps the water.

"So you see, Western Electric power is saving me a lot of time. When harvest came around, I was

able to work about three hours more in the field every day. That is why I got all my corn safely in."

The battery lasts longer!

The reason the Western Electric battery lasts so long is that it is charged without stress or strain. As it fills, the rate of flow becomes less very gradually till the current stops by itself. This "tapering charge" means long life to the battery.

For more information about the powerful Western Electric Outfit, send a postcard for booklet MF7. The nearest distributor to you will be glad to furnish it.



With Electric power you can have running water all the time.

Western Electric distributors in your neighborhood:

Clayton Gibson, Tekonsha, Mich.
Western Electric Products Co., Grand Rapids, Mich.
Thompson Battery Co., Kalamazoo, Mich.
Lansing Electric Eng. Co., Lansing, Mich.

For territory still available write to Western Electric Co., Chicago

Western Electric Power & Light

Makes the Battery last longer

SOY BEANS WANTED

All varieties,
Send samples,
State quantity

EDW. E. EVANS,
West Branch, Mich.

FOR SALE. Sandwich baling press. Manufactured by Sandwich Manufacturing Company, Sandwich, Illinois. With self contained gasoline engine. All in A-1 condition. Will sell cheap as I have no further use for it. Apply, M. H. Coleman, 745 Meldrum Avenue, Detroit, Mich.

Good Reading at a Bargain

OFFER No. 110.

The Michigan Farmer, one year..\$1.00
Pictorial Review, one year..... 3.00
Woman's World, one year50

Total value\$4.50
All for \$3.75.

OFFER No. 104.

The Michigan Farmer, one year..\$1.00
Christian Herald, one year..... 2.00

Total value\$3.00
Both for \$2.20.

OFFER No. 107.

The Michigan Farmer, one year..\$1.00
Today's Housewife, one year..... 1.00
Young People's Weekly, one year .75

Total value\$2.75
All for \$2.25.

OFFER No. 108.

The Michigan Farmer, one year..\$1.00
Metropolitan Magazine, one year 3.00
Boy's Life, one year 1.50

Total value\$5.50
All for \$4.25.

Consistency and its Result

More than twelve years ago Willard built his first automobile starting, lighting and ignition battery—several years before electric starting came into general use.

For more than twelve years the one object on which Willard effort has concentrated has been automobile batteries—batteries that would serve the car owner longer, more efficiently and more reliably.

This consistency, this concentration on one big problem, has resulted in Willard leadership in the automotive battery field, and is responsible for—among many and varied contributions to the industry—the perfection of Threaded Rubber Insulation, the greatest battery improvement in years.

There are today 152 passenger car and truck manufacturers using the Still Better Willard Battery—the only battery with Threaded Rubber Insulation.

Willard Service

This trade-mark is branded in red on one side of the Still Better Willard Storage Battery—the only storage battery with Threaded Rubber Insulation.



Consistent devotion to one aim, the building of a better automotive battery, has resulted in the adoption of the Still Better Willard by the 152 manufacturers below.

Acason	G M C	Oneida
Acme	Giant	Oshkosh
All American	Glide	
Allis-Chalmers	Great Western	*Paige
*American		Parker
Beauty	Hahn	Peerless
American	Hatfield	Peugeot
LaFrance	H C S	Phianna
Apex	Hawkeye	Pierce-Arrow
*Apperson	Haynes	Premier
Armleder	Henney	Preston
Atco	Highway	
Atterbury	Holmes	Rainier
*Auburn	Holt	Renault
Austin	Hupmobile	*Reo
	Hurlburt	Republic
Bacon		Revere
Bell	Independent	Riddle
Belmont	Indiana	Robinson
Bessemer	International	Rock Falls
Betz	(I. H. C.)	R & V
Biddle		Knight
*Bour-Davis	*Jordan	Rowe
Brockway		Sandow
Buffalo	*Kissel	Sayers
*Buick	Kochler	Seagrave
		Service
Cannonball	Lancia	Shelby
Capitol	Landa	Signal
*Case	Lewis-Hall	Singer
*Chevrolet	Lexington	Southern
Clydesdale	*L. M. C.	Standard 8
Cole	Luverne	Standard
Collier		Stanley
Colonial	Madison	Studebaker
Comet	Marmon	Stutz
Commerce	Master	Sunbeam
Commodore	Menges	
Corliss	Menominee	Tarkington
Cunningham	Mercer	Thomart
	Mercury	Titan
Daniels	Meteor	Tow Motors
Dart	(Phila.)	Transport
Denby	M H C	Traylor
Dependable	*Mitchell	
Diamond T	Murray	Ultimate
Dixie Flyer	McFarlan	
Dodge	*McLaughlin	Velic
Dorris		Vulcan
	Napoleon	
*Elgin	Nash	Ward
Fargo	Nelson	LaFrance
Federal	Nelson &	*Westcott
Fergus	Le Moon	White
Ferris	Noble	Wilson
F W D	Northway	Winther
Franklin		Winton
Fulton	Ogren	Wolverine
	Old Hickory	
Garford	*Oids	*For Export

Willard STORAGE BATTERY

WORLD EVENTS IN PICTURES



These Alaskan dogs of the famous blue-eyed Siberian breed, have just completed a trip by aeroplane, from Nome, Alaska, to Minneola, L. I. They attracted quite as much attention as the aviators who drove the machines on this strenuous trip.



Fifty-six Polish refugee children, practically all of them orphans, recently arrived at Seattle, Washington. They are under the care of the American Relief Commission.



American relief worker returns after remaining on duty in Warsaw throughout the Bolshevik siege.



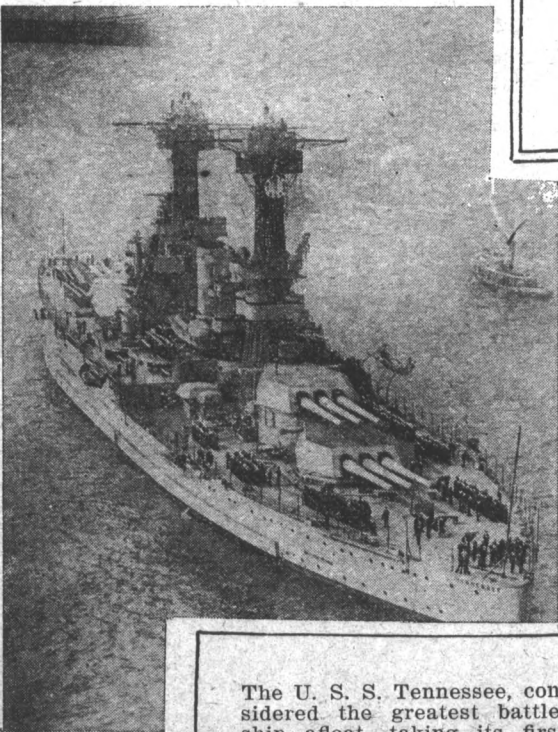
Daughter of Alexandre Millerand, recently elected president of the French republic.



Prodigy of twelve years, the youngest student ever admitted to Columbia University, speaks twelve languages.



This hockey team will represent the United States in a series of games with English teams, to be held in various parts of England.



The U. S. S. Tennessee, considered the greatest battle-ship afloat, taking its first trip in open waters.



A commission of the Mexican government officials are here shown distributing land to the Xachimilco Indians.

THE VALLEY OF THE GIANTS

A ROMANCE OF THE REDWOODS

By Peter B. Kyne

CHAPTER XXXV.

EVENTS followed each other with refreshing rapidity. While the crew of the big locomotive on the crossing busied themselves getting up steam, Sexton and Jules Rondeau toiled at the loading of the discarded boiler and heavy castings aboard two flat-cars. By utilizing the steel derrick on the company's wrecking-car, this task was completed by noon, and after luncheon the mogul backed up the main line past the switch-engine into the Laguna Grande yards; whereupon the switch-engine kicked the two flat-cars and the wrecking-car out of the yard and down to the crossing, where the obstructions were promptly unloaded. The police watched the operation with alert interest but forebore to interfere in this high-handed closing of a public thoroughfare.

To Sexton's annoyance and secret apprehension, Bryce Cardigan and Buck Ogilvy promptly appeared on the scene, both very cheerful and lavish with expert advice as to the best method of expediting the job in hand. To Bryce's surprise Jules Rondeau appeared to take secret enjoyment of this good-natured chaffing of the Laguna Grande manager. Occasionally he eyed Bryce curiously but without animus, and presently he flashed the latter a lightning wink, as if to say: "What a fool Sexton is to oppose you!"

"Well, Rondeau," Bryce hailed the woods boss cheerfully, "I see you have quite recovered from that working over I gave you some time ago. No hard feelings, I trust. I shouldn't care to have that job to do over again. You're a tough one."

"By gar, she don' pay for have hard feelings wiz you, M'sieur."

"Yes, by gar, an' she don' pay for cut other people's trees, M'sieur," Bryce mimicked him.

"I t'enk so, M'sieur." He approached Bryce and lowered his voice. "For one month I am no good all ze tam. We don' fight some more, M'sieur. And I have feel ashame' for dose Black Minorca feller. Always wiz him eet is ze knife or ze club—and now eet is ze rifle. Cochon! W'en I fight, I fight wiz what le bon Dieu give me."

"You appear to have a certain code, after all," Bryce laughed. "I am inclined to like you for it. You're sporty in your way, you tremendous scoundrel!"

"Mebbeso," Rondeau suggested hope-



fully, "M'sieur likes me for woods-boss?"

"Why, what's the matter with Pennington? Is he tired of you?"

The color mounted slowly to the woods bully's swarthy cheek. "Mademoiselle Sumnair, he's tell me pretty soon he's goin' be boss of Laguna Grande an' stop all thees fight. An' w'en Mademoiselle, he is in the saddle, good-bye Jules Rondeau. Thees country—I like him. I feel sad, M'sieur, to leave does beeg trees." He paused, looking rather wistfully at Bryce. "I am fine woods-boss for somebody," he suggested hopefully.

"You think Miss Sumner dislikes you then, Rondeau?"

"I don't theenk. I know." He sighed; his huge body seemed to droop. "I am out of zee good luck now," he murmured bitterly. "Everybody, she hate Jules Rondeau. Colonel—she hate because I don' keel M'sieur Cardigan; Mademoiselle, he hate because I try to keel M'sieur Cardigan; M'sieur Sexton, she hate because I tell her thees mornin' she is one fool for fight M'sieur Cardigan."

Again he sighed. "Dose beeg trees! In Quebec we have none. In zee woods, M'sieur, I feel—here!" And he laid his great calloused, hairy hand over his heart. "W'en I cut your beeg trees, M'sieur, I feel bad."

"That infernal guerilla of a man is a poet," Buck Ogilvy declared. "I'd think twice before I let him get out of the country, Bryce."

"Whose salt he eats, his song he sings," quoth Bryce. "I forgive you, Rondeau, and when I need a woods-boss like you, I'll send for you."

CHAPTER XXXVI.

AT eleven o'clock Saturday night the deputy United States marshal arrived in Sequoia. Upon the advice of Buck Ogilvy, however, he made no attempt at service that night, notwithstanding the fact that Jules Rondeau and his bullies still guarded the crossing. At eight o'clock Sunday morning, however, Bryce drove him down to the crossing. Buck Ogilvy was already there with his men, superintending the erection of a huge derrick close to the heap of obstructions placed on the crossing. Sexton was watch-

ing him uneasily, and flushed as Ogilvy pointed him out to the marshal.

"There's your meat, Marshal," he announced. The marshal approached and extended toward Sexton a copy of the restraining order. The latter struck it aside and refused to accept it—whereupon the deputy marshal tapped him on the shoulder with it. "Tag! You're out of the game, my friend," he said pleasantly.

As the document fluttered to Sexton's feet, the latter turned to Jules Rondeau. "I can no longer take charge here, Rondeau," he explained. "I am forbidden to interfere."

"Jules Rondeau can do ze job," the woodsboss replied easily. "Ze law, she have not restrain' me. I guess mebbe so you don' take dose theengs away, eh, M'sieur Cardigan. Myself, I lak see."

The deputy marshal handed Rondeau a paper, at the same time showing his badge. "You're out, too, my friend," he laughed. "Don't be foolish and try to buck the law. If you do, I shall have to place a nice little pair of handcuffs on you and throw you in jail—and if you resist, I shall have to shoot you. I have one of these little restraining orders for every able-bodied man in the Laguna Grande Lumber Company's employ—thanks to Mr. Ogilvy's foresight; so it is useless to try to beat this game on a technicality."

Sexton, who still lingered, made a gesture of surrender. "Dismiss your crew, Rondeau," he ordered. "We're whipped to a frazzle."

A gleam of pleasure, not unmixed with triumph, lighted the dark eyes of the French-Canadian. "I tol' M'sieur Sexton she cannot fight M'sieur Cardigan and win," he said simply. "Now mebbe he believe that Jules Rondeau know somet'ing."

"Shut up," Sexton roared petulantly. Rondeau shrugged contemptuously, turned, and with a sweep of his great arm indicated to his men that they were to go; then, without a backward glance to see that they followed, the woods-boss strode away in the direction of the Laguna Grande mill. Arrived at the mill-office, he entered, took down the telephone, and called up Shirley Sumner.

"Mademoiselle," he said, "Jules Ron-

deau speaks to you. I have for you zee good news. Bryce Cardigan she puts in the crossing today. One man of the law she comes from San Francisco with papers, and M'sieur Sexton say to me: 'Rondeau, we are whip.' Deesmess your men.' So I have deesmess doze men, and now I deesmess myself. Mebbeso bimeby I go to work for M'sieur Cardigan. For Mademoiselle I have no weesh to make trouble to fire me. I queet. I will not fight dose dirty fight some more. Au revoir, mademoiselle. I go."

And without further ado he hung up.

"What's this, what's this?" Sexton demanded. "You're going to quit? Nonsense, Rondeau, nonsense!"

"I will have my time, M'sieur," said Jules Rondeau. "I go to work for a man. Mebbeso I am not woods-boss for heem, but—I work."

"You'll have to wait until the Colonel returns, Rondeau."

"I will have my time," said Jules Rondeau patiently.

"Then you'll wait till pay-day for it, Rondeau. You know our rules. Any man who quits without notice waits until the regular pay-day for his money."

Jules advanced until he towered directly over the manager. "I tol' M'sieur I would have my time," he repeated once more. "Is M'sieur deaf in zee ears?" He raised his right hand, much as a bear raises its paw; his blunt fingers worked a little and there was a smoldering fire in his dark eyes.

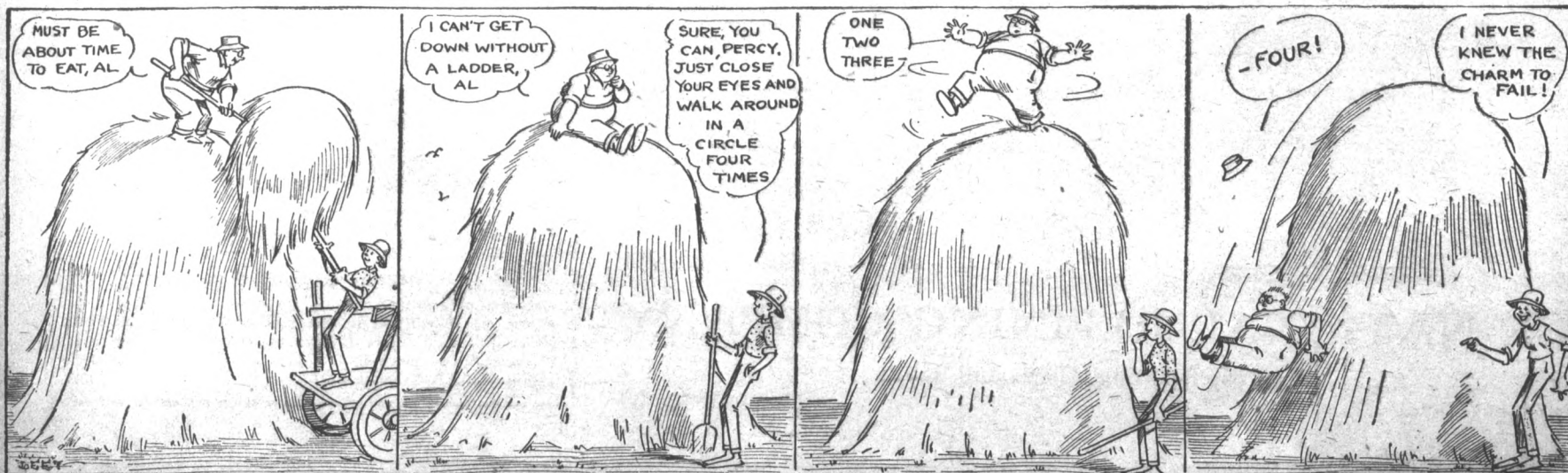
Without further protest Sexton opened the safe, counted out the wages due, and took Rondeau's receipt.

"Thank you, M'sieur," the woodsboss growled as he swept the coin into his pocket. "Now I work for M'sieur Cardigan; so, M'sieur, I will have zee switch-engine with two flat-cars and zee wrecking-car. Doze dam trash on zee crossing—M'sieur Cardigan does not like, and by gar, I take heem away. You understand, M'sieur? I am Jules Rondeau, and I work for M'sieur Cardigan. La la, M'sieur!" The great hand closed over Sexton's collar. "Not zee pistol—no, not for Jules Rondeau."

Quite as easily as a woman dresses a baby, he gagged Sexton with Sexton's own handkerchief, laid him gently on the floor and departed, locking the door behind him and taking the key. At the corner of the building, where the telephone-line entered the office, he paused, jerked once at the wire,

AL ACRES—The Packers Have Nothing on Al When it Comes to Maneuvering for a Drop in Beef.

—By Frank R. Leet



En-ar-co

SCIENTIFIC REFINING

"Crude oil is like a rainbow"

Crude oil contains many elements which are separated by distillation. Distillation is boiling a liquid until it evaporates, then condensing the vapors. The elements of crude oil are so completely blended that it is as difficult to separate them as to separate the blended colors of the rainbow. To get complete separation through repeated distillations we make countless tests of a most delicate and scientific nature. These tests are made almost hourly during the 23 days of the refining period. Only in this way can the absolute purity of oil products be insured.

"The Oil of a Million Tests"

The secret of successful scientific oil refining is painstaking care and unceasing vigilance. In making En-ar-co oils we average over a million tests a year. It is only by this multiplying of tests that perfect products can be made. This thoroughness in our scientific refining processes is the protection we offer to users of our products.

All refiners make oil, as all cooks make biscuits—but there's a difference

There's as much difference between scientifically refined En-ar-co motor oils and other oils, as there is between the deliciously light, flaky, fragrant biscuits mother makes and the soggy, heavy, unappetizing corner restaurant biscuits.

Yet all motor oils are made from crude petroleum, just as the same ingredients go into biscuits. We select our crude oil more carefully and make our motor oils with such painstaking care and such scientific accuracy that En-ar-co motor oils and motor greases are considered everywhere the best to be had.

Good motor oils safeguard your engine

Two things cause most engine troubles—insufficient lubrication and poor motor oils. Users of En-ar-co oils constantly tell us that since they began using them they have enjoyed a remarkable freedom from engine troubles, repair costs and other similar annoyances. Plenty of En-ar-co oil and grease in your motor, gears, transmissions and differentials will make your car, truck or tractor run sweetly and last longer, for good oil adds years of usefulness to any motor vehicle.

EN-AR-CO AUTO GAME FREE

Here is a fascinating game in which autos compete in a cross country race. Two, three or four can play. Only one game to a family.

Get this game for the children

Grown folks too will like it. Sent free only to auto or tractor owners, to acquaint you with the merits of EN-AR-CO MOTOR OIL. USE COUPON.

USE THIS COUPON

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2177 Rose Building,
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Date.....

Enclosed find 2-cent stamp to partially cover postage and packing. Please send EN-AR-CO game free. I have never received an EN-AR-CO game.

Name.....

Street or R. F. D.....

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County..... State.....

I own.....

(Make of automobile or tractor)

and am at present using..... motor oil. I will be in the market for more oil again about..... (give date).

Please quote me price on..... gallons EN-AR-CO motor oil.

WHITE ROSE GASOLINE

Clean—Uniform—Powerful

NATIONAL LIGHT OIL

For Tractors, Lamps, Stoves, Incubators

EN-AR-CO GEAR GREASE

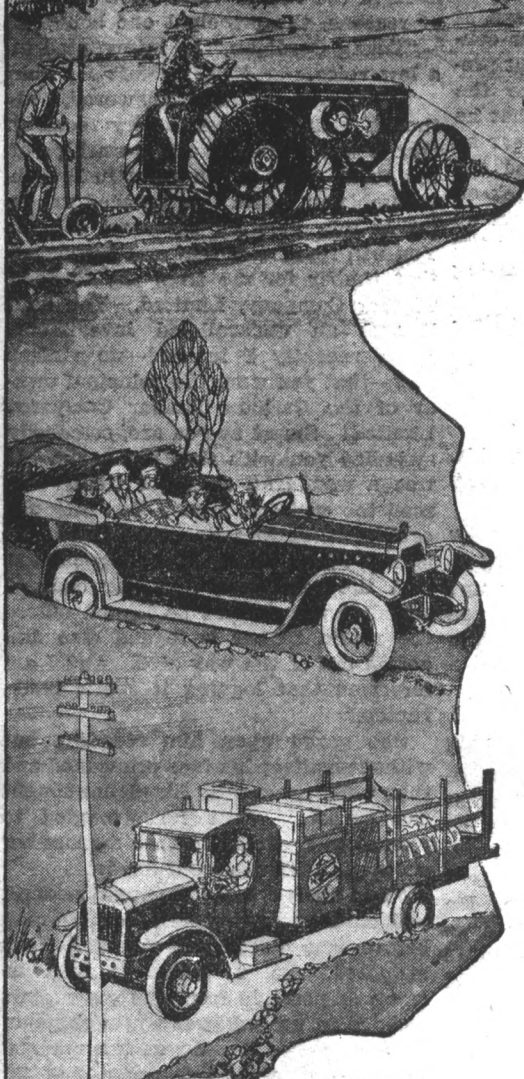
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It pays to put underwear money into "HANES"

—bigger value,
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greater comfort!



ELASTIC KNIT
UNDERWEAR

FOR years "Hanes" winter underwear for men has proven itself to be the national standard. Its popularity extends from coast-to-coast! It wins on merit! Your confidence in every "Hanes" garment can never be misplaced. "Hanes" guarantee proves that!

"Hanes" underwear is made in heavy and medium winter weight union suits and heavy weight shirts and drawers. The medium weight union suit, new this year and illustrated in this advertisement, is exceptional value. It is made of full combed yarn, is silk trimmed and carries a yellow Hanes label.

"Hanes" Union Suits for boys

duplicate the men's Union Suits in important features with added fleeciness. They stand the stiffest wear and the hardest wash. Sizes 20 to 34, covering ages from 2 to 16 years. Two to four year old sizes have drop seat. Inspect these remarkable "Hanes" garments at your dealer's. If he cannot supply you, write us.

P. H. HANES KNITTING CO.
Winston-Salem, N. C.
New York Office: 366 Broadway

Next Summer—You'll want to wear Hanes Nainsook Union Suits!



Read Hanes Guarantee:

"We guarantee Hanes Underwear absolutely—every thread, stitch and button. We guarantee to return your money or give you a new garment if any seam breaks."

and passed on, leaving the broken ends on the ground.

In the round-house he found the switch-engine crew on duty, waiting for steam in the boiler. The withdrawal of both locomotives, brief as had been their absence, had caused a glut of logs at the Laguna Grande landings, and Sexton was catching up with the traffic by sending the switch-engine crew out for one train-load even though it was Sunday. The crew had been used to receiving orders from Rondeau and moreover they were not aware of his recent action; hence at his command they ran the switch-engine out of the round-house, coupled up the two flat-cars and the wrecking-car, and backed down to the crossing. Upon arrival, Jules Rondeau leaned out of the cab window and hailed Bryce. "M'sieur," he said, "do not bozzer to make zee derrick. I have here zee wrecking-car—all you need; pretty soon we lift him off zee crossing, I tell you, eh, M'sieur Cardigan?"

Bryce stepped over to the switch-engine and looked up at his late enemy. "By whose orders is this train here?" he queried.

"Mine," Rondeau answered. "M'sieur Sexton I have tie like one leetle pig and lock in her office. I work now for M'sieur."

And he did. He waited not for confirmation from his new master but proceeded to direct operations like the born driver and leader of men that he was. With his late employer's gear he fastened to the old castings and the boiler, lifted them with the derrick on the wrecking-car, and swung them up and around onto the flat-cars. By the middle of the afternoon the crossing was once more clear. Then the Cardigan crew fell upon it while Jules Rondeau ran the train back to the Laguna Grande yards, dismissed his crew, returned to the mill-office, and released the manager.

"You'll pay through the nose for this, you scoundrel," Sexton whimpered. "I'll fix you, you traitor."

"You feex nothing, M'sieur Sexton," Rondeau replied imperturbably. "Who is witness Jules Rondeau tie you up? Somebody see you, no? I guess you don't feex me. Sacre! I guess you don't try."

CHAPTER XXXVII.

COLONEL PENNINGTON'S discovery at San Francisco that Bryce Cardigan had stolen his thunder and turned the bolt upon him, was the hardest blow Seth Pennington could remember having received throughout thirty-odd years of give and take. He was too old and experienced a campaigner, however, to permit a futile rage to cloud his reason; he prided himself upon being a foeman worthy of any man's steel.

On Tuesday he returned to Sequoia. Sexton related to him in detail the events which had transpired since his departure, but elicited nothing more than a non-committal grunt.

"There is one more matter, sir, which will doubtless be of interest to you," Sexton continued apologetically. "Miss Sumner called me on the telephone yesterday and instructed me formally to notify the board of directors of the Laguna Grande Company of a special meeting of the board, to be held here at two o'clock this afternoon. In view of the impossibility of communicating with you while you were en route, I conformed to her wishes. Our by-laws, as you know, stipulate that no meeting of the board shall be called without formal written notice to each director mailed twenty-four hours previously."

"What the devil do you mean, Sexton, by conforming to her wishes? Miss Sumner is not a director of this company," Pennington's voice was harsh and trembled with apprehension. "Miss Sumner controls forty per cent

of the Laguna Grande stock, sir. I took that into consideration."

"You lie!" Pennington all but screamed. "You took into consideration your job as secretary and general manager."

He rose and commenced pacing up and down his office. Suddenly he paused. Sexton still stood beside his desk watching him respectfully. "You fool!" he snarled. "Get out of here and leave me alone."

Sexton departed promptly, glancing at his watch as he did so. It lacked five minutes of two. He passed Shirley Sumner in the general office.

"Shirley," Pennington began in a hoarse voice as she entered his office, "what is the meaning of this directors' meeting you have requested?"

"Be seated, Uncle Seth," the girl answered quietly. "If you will only be quiet and reasonable, perhaps we can dispense with this directors' meeting which appears to frighten you so."

He sat down promptly, a look of relief on his face.

"I scarcely know how to begin, Uncle Seth," Shirley commenced sadly. "It hurts me terribly to be forced to hurt you, but there doesn't appear to be any other way out of it. I cannot trust you to manage my financial affairs in the future—this for a number of reasons, the principal one being—"

"Young Cardigan," he interrupted in a low voice.

"I suppose so," she answered, "although I did think until very recently that it was those sixteen townships of red cedar—that crown grant in British Columbia in which you induced me to invest four hundred thousand dollars. You will remember that you purchased that timber for me from the Caribou Timber Company, Limited. You said it was an unparalleled investment. Quite recently I learned—no matter how—that you were the principal owner of the Caribou Timber Company, Limited! Smart as you are, somebody swindled you with that red cedar. It was a wonderful stand of timber—so read the cruiser's report—but fifty per cent of it, despite its green and flourishing appearance, is hollow-butted! And the remaining fifty per cent of sound timber cannot be logged unless the rotten timber is logged also and gotten out of the way also. And I am informed that logging it spells bankruptcy."

She gazed upon him steadily, but without malice; his face crimsoned and then paled; presently his glance sought the carpet. While he struggled to formulate a verbal defense against her accusation Shirley continued:

"You had erected a huge sawmill and built and equipped a logging-road before you discovered you had been swindled. So, in order to have as much as possible from the wreck, you decided to unload your white elephant on somebody else. I was the readiest victim. You were the executor of my father's estate—you were my guardian and financial adviser, and so you found it very, very easy to swindle me!"

"I had my back to the wall," he quavered. "I was desperate—and it wasn't at all the bad investment you have been told it is. You had the money—more money than you knew what to do with—and with the proceeds of the sale of those cedar lands, I knew I could make an investment in California redwood and more than retrieve my fortunes—make big money for both of us."

"You might have borrowed the money from me. You know I have never hesitated to join in your enterprises."

"This was too big a deal for you, Shirley. I had vision. I could see incalculable riches in this redwood empire, but it was a tremendous gamble and required twenty millions to swing it at the very start. I dreamed of the control of the California redwood; and if you will stand by me, Shirley, I shall yet make my dream come true—and

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half of it shall be yours. It has always been my intention to buy back from you secretly and at a nice profit to you that Caribou red cedar, and with the acquisition of the Cardigan properties I would have been in position to do so. Why, that Cardigan tract in the San Hedrin which we will buy in within a year for half a million is worth five millions at least. And by that time, I feel certain—in fact, I know—the Northern Pacific will commence building in from the south, from Willits."

She silenced him with a disdainful gesture. "You shall not smash the Cardigans," she declared firmly.

"I shall—" he began, but he paused abruptly, as if he had suddenly remembered that tact and not pugnacity was the requirement for the handling of this ticklish situation.

"You are devoid of mercy, of a sense of sportsmanship. Now, then, Uncle Seth, listen to me: You have twenty-four hours in which to make up your mind whether to accept my ultimatum or refuse it. If you refuse, I shall prosecute you for fraud and a betrayal of trust as my father's executor on that red-cedar timber deal."

He brightened a trifle. "I'm afraid that would be a long, hard row to hoe, my dear, and of course, I shall have to defend myself."

"In addition," the girl went on quietly, "the county grand jury shall be furnished with a stenographic report of your conversation of Thursday night with Mayor Poundstone. That will not be a long, hard row to hoe, Uncle Seth, for in addition to the stenographer, I have another very reliable witness, Judge Moore. Your casual disposal of my sedan as a bribe to the mayor will be hard to explain and rather amusing, in view of the fact that Bryce Cardigan managed to frighten Mr. Poundstone into returning the sedan while you were away. And if that is not sufficient for my purposes, I have the sworn confession of the Black Minorca that you gave him five hundred dollars to kill Bryce Cardigan. Your woods-boss, Rondeau, will also swear that you approached him with a proposition to do away with Bryce Cardigan. I think, therefore, that you will readily see how impossible a situation you have managed to create and will not disagree with me when I suggest that it would be better for you to leave the county."

His face had gone gray and haggard. "I can't," he murmured, "I can't leave this great business now. Your own interests in the company render such a course unthinkable. Without my hand at the helm, things will go to smash."

"I'll risk that. I want to get rid of that worthless red-cedar timber; so I think you had better buy it back from me at the same figure at which you sold it to me."

"But I haven't the money and I can't borrow it. I—I—"

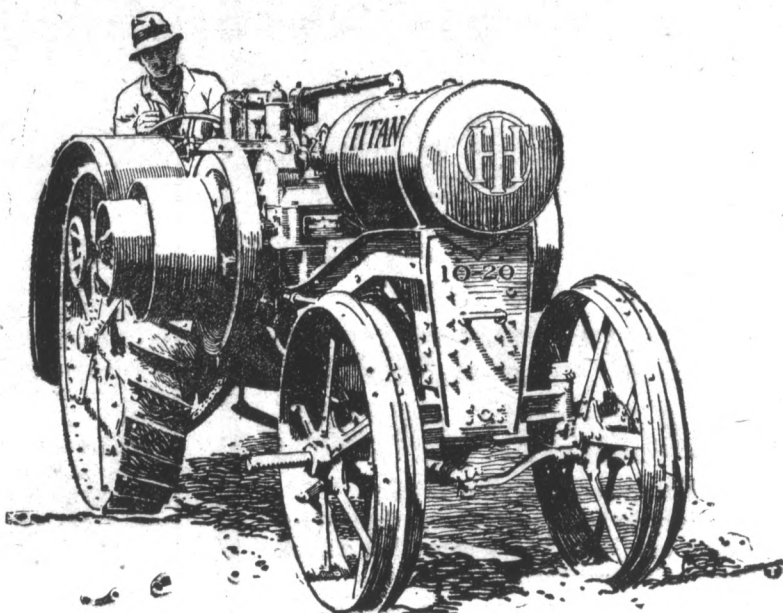
"I will have the equivalent in stock of the Laguna Grande Lumber Company. You will call on Judge Moore to complete the transaction and leave with him your resignation as president of the Laguna Grande Lumber Company."

The Colonel raised his glance and bent it upon her in cold appraisal. She met it with firmness, and the thought came to him: "She is a Pennington!" And hope died out in his heart. He began pleading in maudlin fashion for mercy, for compromise. But the girl was obdurate.

"I am showing you more mercy than you deserve—you to whom mercy was ever a sign of weakness, of vacillation. There is a gulf between us, Uncle Seth—a gulf which for a long time I have dimly sensed and which, because of my recent discoveries, has widened until it can no longer be bridged."

He wrung his hands in desperation and suddenly slid to his knees before her; with hypocritical endearments he strove to take her hand, but she drew

(Continued on next page.)



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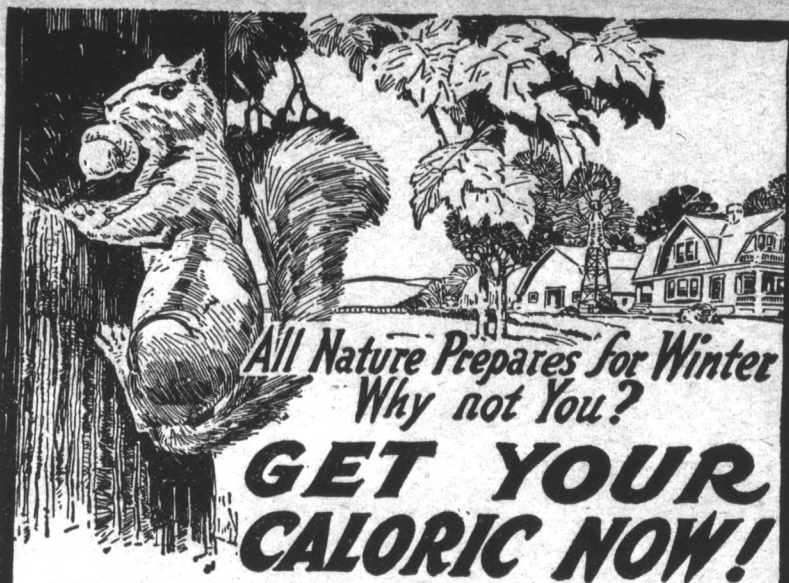
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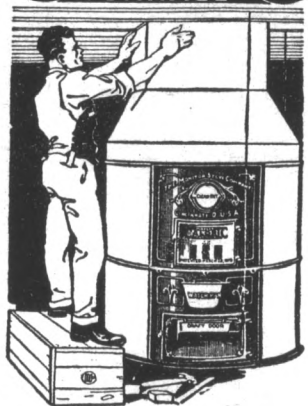
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The Value of Trade Marks

Our Weekly Sermon—By N. A. McCune

THE American manufacturer leads the world in making trade marks. He has the art of describing what he wants to sell so that one cannot forget it. When you read any of the following, what do you think of? "Hasn't Scratched Yet," "Eventually, Why Not Now?" "Wins its Favor Through its Flavor," "See that Lucky Curve?" "There's a Reason," "His Master's Voice," "Obey that Impulse," "The Typewriter You Will Eventually Buy." When you think of the trade-mark you think of the product it represents. Now, trade-marks are valuable. Some have been years in building, and are worth millions to their owners. One company a few years ago appraised one word in their trade-mark at \$1,600,000 a letter. Another company held its trade-mark at forty-five millions. The reason these trade slogans are held at such immense sums is because they have been built up at great cost. The law protects genuine trade-marks. They cannot be infringed upon without peril.

THERE are false trade-marks—pity that it should be so. Millions are spent annually on patent medicines, many of which have been exposed by the medical journals. 'Tis said that a farmer once took some acid, some water and some coloring matter, mixed them, put the concoction in a bottle, pasted a pretty name on it, and sold it. Then he made some more and sold it. Now he has a house on Fifth Avenue, and his family spend their summers in Europe and their winters in California. The brewers used to say that beer was "liquid bread." But German chemists said that the nutriment in nine quarts of beer can be put on the end of a knife blade. Two pounds of bread and three quarts of milk contain sufficient food for a man for a day and may be had for forty cents or so, while a man would have to drink seven gallons of beer to get the same food value, and it would cost him nearly six dollars. The business world is now on the alert against the false in all branches of advertising. Goods are supposed to be what their description calls for. But it is easier to check up on goods than it is on men. Ever and again the rogue appears, and we are wiser and usually poorer, after he has "taken us in." But genuineness, too, is always with us. I remember my father telling of the contractor the church engaged. When the specifications called for certain lumber, more than once the building committee found him slipping in better timbers, or substituting hard wood for soft. When the building was completed, he admitted he had not made much on the job. "But," said he, "You've got a good building there."

NOW, people have trade-marks. When the name of Washington is mentioned what do you think of? America, patriotism. When Lincoln's name is spoken what comes into your mind? The Civil War, "Honest Abe." When you hear Shakespeare's name what does it suggest? Poetry. Morgan's name? Wealth. Edison's name? Invention. Ringling? Circus. Guiteau? Murder. Foch? Victory. Kaiser? World War. Edith Cavell? Martyrdom. Babe Ruth? Base ball. And one does not have to be famous to have a trade-mark. We all have our trade-mark. It is known to the members of the family, and to our friends. And when habit has gotten a firm hold on us, and we become "set," the trade-mark has come to stay. It has always seemed a fearful thing that some Bible characters must go on with the name they have to bear. When Jeroboam is referred to, it is almost always the "Sins of Jeroboam." And Judas is forever Judas Iscariot, which also betrayed him." And then there is that list of the mighty, who had good records. Read the eleventh of Hebrews. There is no hymn like it, there is no song of patriotism that rises to its height. Every name signifies that the owner had no cause to be ashamed. There is a study of that subject. And Jesus Abraham who had the vision; there is Christ came into the world to make Moses the giant, and there are Barak just such transformations possible.

The Valley of the Giants

(Continued from preceding page.) riotously around the base of the de-away from him. "Don't touch me," she cried sharply and with a breaking note in her voice. "You planned to kill Bryce Cardigan! And for that—and that alone—I shall never forgive you." She fled from the office, leaving him cringing and groveling on the floor. "There will be no directors' meeting, as she passed through the general office. "It is postponed."

CHAPTER XXXVIII.

HAT trying interview with her uncle had, wrenched Shirley's soul to a degree that left her faint and weak. She at once set out on a long drive, in the hope that before she turned homeward again she might regain something of her customary composure.

Presently the asphaltum-paved street gave way to a dirt road and terminated abruptly at the boundaries of a field that sloped gently upward—a field studded with huge black redwood stumps showing dismally through coronets of young redwoods that grew

riously around the base of the de-away from him. "Don't touch me," she cried sharply and with a breaking note in her voice. "You planned to kill Bryce Cardigan! And for that—and that alone—I shall never forgive you." She fled from the office, leaving him cringing and groveling on the floor. "There will be no directors' meeting, as she passed through the general office. "It is postponed."

Shirley had not intended to come here, but now that she had arrived, it occurred to her that it was here she wanted to come. Parking her car by the side of the road, she alighted and proceeded up the old skid, now newly planked and with the encroaching forestation cut away so that the daylight might enter from above. On over the gentle divide she went and down toward the amphitheatre where the primeval giants grew. And as she approached it, the sound that is silence in the redwoods—the thunderous diapason of the centuries—wove its spell upon her; quickly, imperceptibly there faded from her mind the memory of that groveling Thing she had left behind in the mill-office, and in its place there came a subtle peace, a feeling of awe, of wonder—such a feeling, indeed, as must come to one in the real-

ization that man is distant but God is near.

A cluster of wild orchids pendent from the great fungus-covered roots of a giant challenged her attention. She gathered them. Farther on, in a spot where a shaft of sunlight fell, she plucked an armful of golden California poppies and flaming rhododendron, and with her delicate burden she came at length to the giant-guarded clearing where the halo of sunlight fell upon the grave of Bryce Cardigan's mother. There were red roses on it—a couple of dozen, at least, and these she rearranged in order to make room for her own offering.

"Poor dear!" she murmured audibly. "God didn't spare you for much happiness, did He?"

A voice, deep, resonant, kindly, spoke a few feet away. "Who is it?"

Shirley, startled, turned swiftly. Seated across the little amphitheatre in a lumberjack's easy-chair fashioned from an old barrel, John Cardigan sat, his sightless gaze bent upon her. "Who is it?" he repeated.

"Shirley Sumner," she answered. "You do not know me, Mr. Cardigan."

"No," replied he, "I do not. That is a name I have heard, however. You are Seth Pennington's niece. Is someone with you?"

"I am quite alone, Mr. Cardigan."

"And why did you come here alone?" he queried.

"I—I wanted to think."

"You mean you wanted to think clearly, my dear. Ah, yes, this is the place for thoughts." He was silent a moment. Then: "You were thinking aloud, Miss Shirley Sumner. I heard you. You said: 'Poor dear. God didn't spare you for much happiness, did He?' And I think you rearranged my roses. Didn't I have them on her grave?"

"Yes, Mr. Cardigan. I was merely making room for some wild flowers I had gathered."

"Indeed. Then you knew—about her being here."

"Yes, sir. Some ten years ago, when I was a very little girl, I met your son Bryce. He gave me a ride on his Indian pony, and we came here. So I remember."

"Well, I declare! Ten years ago, eh? You've met, eh? You've met Bryce since his return to Sequoia, I believe. He's quite a fellow now."

"He is indeed."

John Cardigan nodded sagely. "So that's why you thought aloud," he remarked impersonally. "Bryce told you about her. You are right, Miss Shirley Sumner. God didn't give her much time for happiness—just three years; but oh, such wonderful years! Such wonderful years!"

"It was mighty fine of you to bring flowers," he announced presently. "I appreciate that. I wish I could see you. You must be a dear, nice, thoughtful girl. Won't you sit down and talk to me?"

"I should be glad to," she answered, and seated herself on the brown carpet of redwood twigs close to his chair.

"So you came up here to do a little clear thinking," he continued in his deliberate, amiable tones. "Do you come here often?"

"This is the third time in ten years," she answered. "I feel that I have no business to intrude here. This is your shrine and strangers should not profane it."

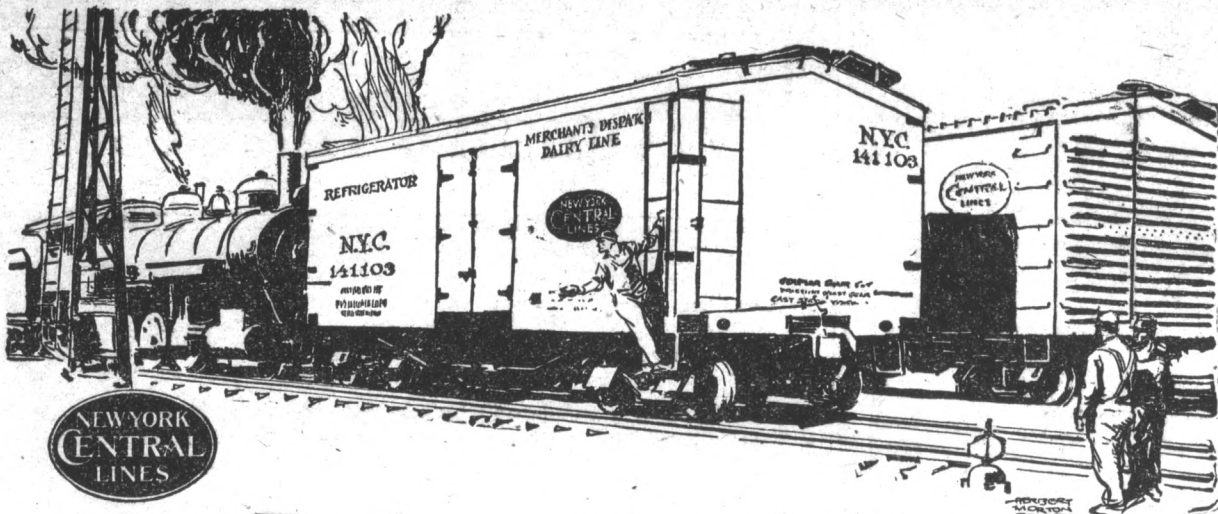
"I think I should have resented the presence of any other person, Miss Sumner. I resented you—until you spoke."

"I'm glad you said that, Mr. Cardigan. It sets me at ease."

"I hadn't been up here for nearly two years until recently. You see I—I don't own the Valley of the Giants any more."

"Indeed. To whom have you sold it?"

(Continued on page 577).



Equipment and Cost

THERE was but one way in which the railroads could have been made ready for the peak load of commerce this fall. That was by placing large orders for equipment and making heavy investments one, two and even three years ago.

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coal cars are being rebuilt at a cost of \$2,283,300. This new equipment will be available for service this fall.

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Woman's Interests

Well Planned Meals



HAVE you ever wondered why certain families are always complaining and employing a doctor? Why some mothers are up every night with crying children? Why some folks can't travel and eat en route, without having a sick spell?

Barring accidents, in nine cases out of ten, the afflicted parties habitually eat wrongly. For the greater part of the ills to which flesh is heir are traceable to wrong habits of diet.

Yet feeding the family correctly is a very simple matter, once you stop trying to make it difficult and scientific, forget calories and vitamins and proteins, and deal in terms of meat and potatoes, lettuce and apple sauce, turnips and cabbages, and eggs and bacon.

In the next column is a classification of the different sorts of foods. Cut it out, paste it over your table, and every day feed your family something from every one of the classes. That does not mean that every meal must be made up of foods from all five classes,

but every day if we are to be kept in the best physical trim we should have something of every sort of food,

Cut this out and paste over your work table.

THE FIVE FOOD GROUPS.

- I.
Vegetables or fruits.
- II.
Milk, or cheese, or eggs, or fish, or meat, or beans.
- III.
Cereal: Corn, rice, oats, rye or wheat.
- IV.
Sweet: Sugar, honey, syrup.
- V.
Butter, cream, meat fat, butter substitute, oil.

vegetable or fruit, animal foods, cereals, sweets and fats.

The most common mistake of cooks is to leave out fresh vegetables or fruits, or give them in insufficient

amounts, and to substitute too much of one or the other sorts of food. Next to vegetables and fruit, most families use too little milk and eggs. In the city the middle class cook substitutes meat in quantities out of proportion to the rest of the food, with the result that the family grows irritable and quarrelsome, with a tendency towards diseases of the kidney.

The country housewife omits the vegetables or fruit, and gives too much baked stuffs, cakes, cookies and pies, with the result that everyone suffers from constipation. One can see a reason for the city cook, who must buy everything, to omit the vegetables. But in the country where vegetables and fruits should be abundant, and milk is to be found on every farm, the reason for the lack of enough green stuff, fruit and milk in the family diet is hard to see. Yet the farm table is usually lacking in enough of these important foods.

Many of our ideas about food have changed in the past ten years, and

An Attractive Doily in Crochet

By Gracia Shull

CROCHET cotton or linen thread in any desired size may be used to make this handsome doily.

The pattern is attractive but is not at all difficult to make. Care must be taken, however, that all stitches are exact and of the same size, else the pattern will not work up satisfactorily.

To Make: Wind the thread around end of fore-finger twenty times, over the ring thus formed double crochet (dc), 35 times, fasten and chain (ch), 8 stitches, (sts), skip 7 and dc 1 in next stitch, repeat until there are five loops or chains of 8 sts.

Third Row.—Treble crochet (tr c), 2 over ch, ch 2, tr c 11 in same loop, ch 2, tr c 2 in same place. Repeat around row.

Fourth Row.—Tr c 2 over ch of 2 in third row, ch 2 tr c 2 in same place, ch 1, tr c 2 in each of next 7 trebles in previous row, ch 1, form shell in shell of third row. Repeat around row.

Fifth Row.—Form shell in shell, ch 3, single crochet (sc) 1 in each of 14 trebles in previous row, ch 3 form shell in shell, repeat around ring.

Sixth Row.—Form shell in shell, ch 4, sc 1 in first single of previous row, ch 5, skip 3, sc 1, repeat 4 times, ch 4, form shell in shell and repeat to end of row.

Seventh Row.—Form shell in shell, ch 5, repeat with chains of five same as in previous row catching in center of preceding loop until there are 6 loops, ch 5, form shell in shell and repeat around row.

Eighth Row.—Form shell in shell, ch 6, sc 1 in first loop, repeat with 4 more loops, ch 6, form shell in shell ch 4, form shell in shell and repeat around row.

Ninth Row.—Form shell in shell, ch 7, form 4 loops same as in previous rows, ch 7, form shell in shell, ch 5, sc 1 over ch of 4 in previous row, ch 5 form shell in shell and repeat.

Tenth Row.—Shell in shell ch 8, tr c 2 in next space, ch 2, tr c 2 in same place, ch 2, repeat in next two spaces,

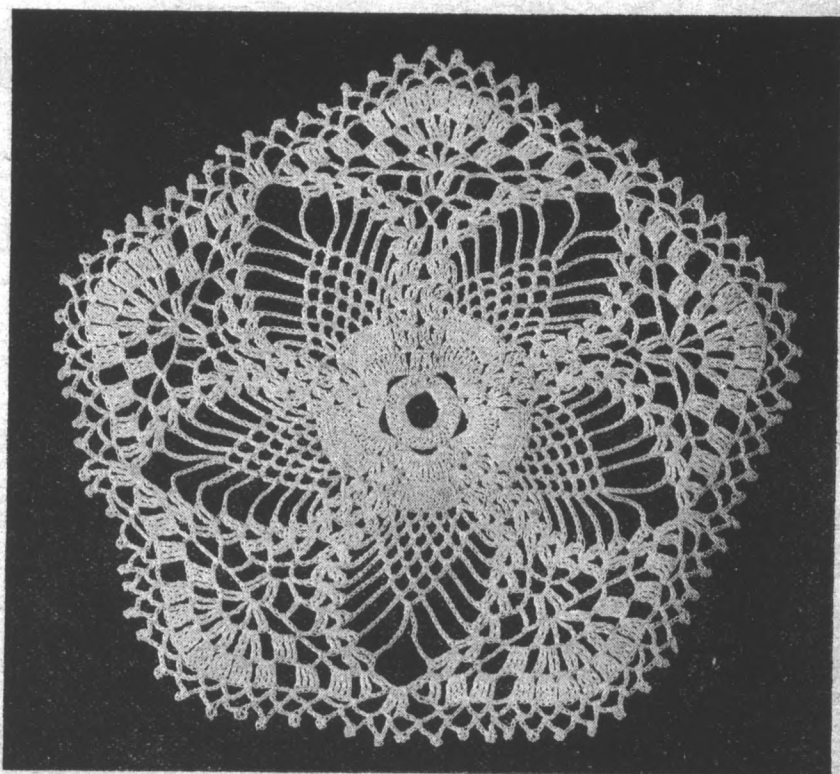
sc 1 in first space, ch 5, sc 1 in next space ch 5 shell in shell and repeat.

Eleventh Row.—Shell in shell ch 9, form 2 loops, ch 9, shell in shell, ch 5, tr c 1 in first space ch 2 tr c 2 in next space ch 2, tr c 2 in same place, ch 2, tr c 1 in third space. ch 5, shell in shell and repeat.

Twelfth Row.—Shell in shell, ch 10, form 1 loop, ch 10, shell in shell, ch 5,

ch 2, tr c 4 in next space, ch 5, sc 1 in last space, ch 5, shell in shell and repeat.

Fourteenth Row.—Shell in shell, repeat in next shell, ch 2, tr c 4 in first space, ch 1, repeat trebles in next space, ch 4, repeat trebles in next seven spaces with 1 st between every 4 trebles, ch 4, repeat 4 trebles in next two spaces with 1 st between the two



sc 1 in first space, ch 5, tr c 2 in third space, ch 3, tr c 1 in same place, ch 3 tr c 1 in same place, ch 3, tr c 2 in same place, ch 5, sc 1 in last space, ch 5, form shell in shell and repeat.

Thirteenth Row.—Shell in shell, ch 11, sc 1 in center of last loop formed, space, ch 5, tr c 4 in next space, ch 2, tr c 2 in next space, ch 2, tr c 2 in same place, ch 2, repeat in next two spaces,

groups of trebles, ch 2, shell in shell and repeat around row.
Fifteenth Row.—Form shell over ch of 1 between two shells at point, ch 6, sc 1 in first space, ch 6 and repeat around row.
Sixteenth Row.—Ch 7, catch back to third st and form a picot, ch 3 and sc 1 in first space or loop. Repeat around outer edge and doily is completed.

many more are likely to change as time goes on. Scientists are constantly working to find new light on the subject of food values, so it is not wise to run to extremes and follow every new light. But certain things are definitely established. We know that sailors, or soldiers, who are for a long time deprived of fresh vegetables and fruits, develop scurvy, which is cured as soon as the missing foods are supplied. So we may know to a certainty that we need those foods to keep us in trim. We know that children who are not fed enough milk or eggs or lean meat are undersized and anaemic, which shows pretty well that those foods are necessary to growth and bodily upkeep. And we know that however "filling" vegetables may be, they do not give us the vigor that bread and cereal foods supply. So we can see that all those foods are necessary to keep up in the best physical condition.

But the right sort of food is not enough. It must be handled with discretion. That is, it must be eaten in sufficient quantities and at regular intervals. Too much stress can not be laid on both these qualifications to good health. Sufficient means just enough. Too much is as bad as too little, in fact, worse. If we take too much food the body can not use it fast enough. It can neither be taken up as nourishment, nor eliminated as waste, and a part remains as poison. What is known as auto-intoxication follows, that is, the body poisons itself, and a train of ills follow.

Then meals should be regular. Breakfast, dinner and supper at the same hours every day, and no constant "piecing between meals." Growing children need more than the three meals daily, but the lunch hour should be regular. Give them a glass of milk and a sandwich at ten, and a similar light lunch at three o'clock; or, if they are in school, when school is over, and nothing more in between. There seems no end to a growing boy's stomach capacity, but do not let him be testing it every hour in the day. Fill him up, but do it at regular intervals.

Chewing—that is as important as choosing food. Most men and boys, and some women, bolt their food without properly chewing it first. The starch, which should be digested in the mouth, enters the stomach undigested and is as good as lost to us, and the other foods enter in large pieces which are hard to digest. Take at least an hour for dinner, and chew the food long enough to get the flavor.

Don't drink with the meal. Drink a glass of water when you sit down, or your tea or coffee at the close.

If you have never given the subject of eating properly any thought begin today. You feed your stock a carefully thought out ration. Why not try it on yourself? It is cheaper to eat properly than to pay doctor bills, and lots more fun.

GOOD HEALING LOTIONS.

BY AGNES MILLER.

THERE are certain healing lotions that every housewife should have in the medicine chest, as the ingredients for some of the best lotions are found in nearly every home and take but little time to prepare.

An excellent lotion for sore or chaffed skin is made by mixing to a paste a heaping teaspoonful of boric powder, a little camphor and a cupful of melted mutton tallow. Allow to stand until cold, and when wanted for use, heat a small amount and rub well into the skin. To keep the hands in good condition, rub a little of this mixture over them before retiring, covering the hands with old loose kid gloves. Use a little corn meal with the soap when washing the hands during the day.

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Sickness Compels Sale Fine 75 acre farm near Hadley, four acres woods, ten permanent pasture, balance first class dark loam soil, nice stream, good 8-room house, electric lights, barn 30x60 and 20x84. Near twelve grade school. \$115 the acre. D. M. Taylor, Lapeer, Michigan.

180 ACRES less than 4 miles from State University at Ann Arbor good investment can easily be divided in 3 parcels, some very good high class corn and clover lands, near Detroit, black loam soil no trades not the trading kind actual values only.

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For sale, 200 acre farm, large house, 2 barns, granary, hen house, potato cellar, new silo, corn crib, tool shed, sandy loam, mostly level, 150 acres cleared. Price \$7000, 1/2 down, will sell tools and stock also if wanted. Reason for selling poor health, no help. Address Andrew Knecht, R. 2, Cadillac, Mich.

Fine 160 Acre Dairy Farm. Near Lapeer, good pasture, with water, fine new house, new modern barn 35 x 80, Louden Dairy equipment and Human Milker. Near school. \$125 the acre, easy terms. Elmer Holman, Lapeer, Michigan.

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Calumet Sunshine Cake Recipe

1/2 cup of butter,
1 1/2 cups granulated sugar, 2 1/2 cups flour, 1 cup water, 2 level teaspoons Calumet Baking Powder, 1 teaspoon lemon, yolks of 9 eggs. Then mix in the regular way.

warm water is excellent to apply to slight cuts and wounds, and if used at once is all that is needed, as it is a fine antiseptic and cleanser. It is a good plan to keep a bottle of the solution ready for use.

For burns, bind scraped raw potato onto the burn, renewing when dry. The potato pulp furnishes the moisture which the burn has taken out and relieves the burning sensation.

For a sprain, bathe well with hot vinegar and salt solution, or with one pint of hot water in which one tablespoonful of epsom salts has been dissolved.

For sore or inflamed eyes there is nothing better than a boric acid powder solution.

In fact, it is the very thing which a doctor will prescribe for sore eyes. Take two-thirds of a cupful of warm water and dissolve in it one-fourth teaspoonful of boric acid powder. Wash the eyes with the solution, using either an eye cup or a soft cloth.

If a child's mouth is washed out twice daily with a weak boric solution, it will be less susceptible to infant diseases. If the child's eyes are weak or sore, this same solution will be found beneficial.

An excellent healing liniment for bad cuts and wounds of all kinds is made with one part liquid carbolic acid, four parts glycerine and six parts sweet oil. It is just as valuable among the stock as in the home.

Calender for November

VISIT your school. Outside work is practically ended now, so you should have time to visit the school twice this month. Our school system is due for an overhauling. Visit your own school, study its defects and its good points, and interest your co-workers in plans to improve conditions. Visit your neighbors. That good old-fashioned custom is rapidly dying out with the advent of flivvers and movies. We haven't time to be friendly. We are losing our power to entertain ourselves and each other because so much cheap entertainment is being furnished us. If you are complaining of the high cost of living, stop and think how many people you are helping to make rich through these same forms of amusement, which cost only a few cents at a time, but when multiplied grow into dollars. So plan some way of entertaining your friends in your own home.

THESE cool days are just the time to make quilts and rugs. And here is an idea for a little-cost party. Have a quilting bee, with a potluck dinner. If you do not need comforts, plan the party for that woman down the road who has four small children and no help. If you would like to get rid of the accumulation of old black stockings, make a hooked rug. Decide on the size of the rug you want to throw down just inside the door. Commandeer a grain bag or potato sack which is in good condition. Wash, and cut two inches larger all around than the size you want your rug. Cut old stockings into strips a half-inch wide, starting at the top and cutting round and round to the heel. Fasten the grain bag to the quilting frames, and with a wooden hook, pull the rag up through the sack about a half-inch, and from an eighth of an inch to a quarter of an inch apart. Fill in the entire burlap with the black stockings. Or if you prefer, use alternating strips of black and a color. Or you may have a black square in the center and the rest filled in with a contrasting color. When the "hooking" is done, remove from the frames, turn the edges under and hem.

mince pie made the day before, a salad, and home-grown nuts and fruit. Let daughter make the salad and set the table, and son get the celery ready and polish the apples, while father cracks the nuts and keeps the fire going. They'll enjoy the novelty and you'll enjoy the rest.

MAKE your Christmas cake now. Here is a good recipe, and with the high price of raisins it is relatively cheap: Christmas Cake.—One cup of butter, two cups of sugar, one cup of raisins chopped, one cup of home-canned peel and one-half cup of citron chopped; four eggs, one cup of milk, three cups of flour, four rounded teaspoons of baking powder, one cup of chopped nut meats—any you have—half a teaspoon of salt, and flavoring, either spices or vanilla. Cream butter and sugar, add fruit and nuts, then the eggs and milk, and lastly the flour and baking powder sifted together. Bake in a slow oven and store in the cellar in a stone jar. The day before the feast, frost with a boiled icing.

PREPARING WOOL FOR A COMFORTER.

Household Editor.—I want to tell your women readers how I prepare the wool for comforters. A six-pound fleece is considered about the right amount for an ordinary-sized comforter. I open the fleece and carefully pick out any loose chaff or straw, then I put it in a suds in the washing machine, adding a tablespoon of washing soda. I have the water as hot as the hands can bear, and wash for five minutes, then put in another soapy water the same temperature as the first. Stir the wool thoroughly then squeeze it out and drop it into warm water in which a little mild white soap has been dissolved. Now pick out any dirt that may be seen, squeeze out again and put into perfectly clear warm water. Squeeze as dry as you can and place the wool on a sheet and lay out on the grass in the sun to dry. Never twist the wool to get the water out, as that will make it much harder to pick.

While it is drying I pick out any pieces of dirt that remain and put it onto another dry cloth. Sometimes it will be dry at the end of one day, but if not I spread it out in an upstairs room to finish drying. The wool is then ready to work on. I sometimes have to loosen it up nicely and card it with the common wool carders, putting a small bunch of the wool on one carder and combing it the opposite way with the other one. This may seem like a lot of work, but when you see the pile of snow white wool, you will feel repaid for the trouble.—Mrs. A. E. F.

Wild grape and apple juice in equal parts makes delicious jelly. Even grape juice is better if part apple juice is added. It will not crystalize.—M. baked squash and baked potatoes, M. N.

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THE VALLEY OF THE GIANTS.

(Continued from page 573).

"I do not know, Miss Sumner. I had to sell; there was no other way out of the jam Bryce and I were in; so I sacrificed my sentiment for my boy. However, the new owner has been wonderfully kind and thoughtful. She reorganized that old skid road so even an old blind duffer like me can find his way in and out without getting lost—and she had this easy-chair made for me. I have told Judge Moore, who represents the unknown owner, to extend my thanks to his client. But words are so empty, Shirley Sumner. If that new owner could only understand how truly grateful I am—how profoundly her courtesy touches me—"

"Her courtesy?" Shirley echoed. "Did a woman buy the Giants?"

He smiled down at her. "Why, certainly. Who but a woman—and a dear, kind, thoughtful woman—would have thought to have this chair made and brought up here for me?"

Fell a long silence between them; then John Cardigan's trembling hand went groping out toward the girl's. "Why, how stupid of me not to have guessed it immediately!" he said. "You are the new owner. My dear child, if the silent prayers of a very unhappy old man will bring God's blessing on you—there, there, girl! I didn't intend to make you weep. What a tender heart it is, to be sure!"

She took his great toil-worn hand, and her hot tears fell on it, for his gentleness, his benignancy, had touched her deeply. "Oh, you must not tell anybody! You mustn't," she cried.

He put his hand on her shoulder as she knelt before him. "Good land of love, girl, what made you do it? Why should a girl like you give a hundred thousand dollars for my Valley of the Giants? Were you"—hesitatingly—"your uncle's agent?"

"No, I bought it myself—with my own money. My uncle doesn't know I am the new owner. You see, he wanted it—for nothing."

"Ah, yes. I suspected as much a long time ago. Your uncle is the modern type of business man. Not very much of an idealist, I'm afraid. But tell me why you decided to thwart the plans of your relative."

"I knew it hurt you terribly to sell your Giants; they were dear to you for sentimental reasons. I understood, also, why you were forced to sell; so I—well, I decided the Giants would be safer in my possession than in my uncle's. In all probability he would have logged this valley for the sake of the clear seventy-two-inch boards he could get from these trees."

"That does not explain satisfactorily, to me, why you took sides with a stranger against your own kin," John Cardigan persisted. "There must be a deeper and more potent reason, Miss Shirley Sumner."

(Concluded next week).

Sunshine Hollow Items

By Rube Rubicon

While Max Welton was in Detroit the newspapers printed a story about how he was injured saving a woman's life from in front of a dashing motor car. Max is a truthful man and says that he saw a runaway Ford plunging down the street and knocked down two women and then broke his leg trying to get out of the way.

Melvin Hogan says a man's family will do more for him than anyone else. They stick around when he's sick and turn out good to the funeral when he dies. So Melvin says a man might just as well spend a lot of smiles and decent words right on the folks at home and not save them all for the strangers and acquaintances and keep the grunts and whines for the wife and kids.



That Fine, Sweet Aroma Comes From Good Curing!

And Good Curing Means the Right Salt

The way your hams smell is a pretty good indication of the way they're going to taste—also of the kind of salt you use in curing.

Poor salt won't do good curing. Cheap salt may ruin expensive meat. Buy the salt that's safe, economical, convenient and full strength in flavor.

COLONIAL SPECIAL FARMER'S SALT

It makes the meat tender, firm, natural in color and appearance, brings out the full flavor, gives longer keeping quality because it penetrates every fibre. It is all pure salt, in fine flaky grains, without grit, moisture or adulteration of any kind.

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Convenient — Economical

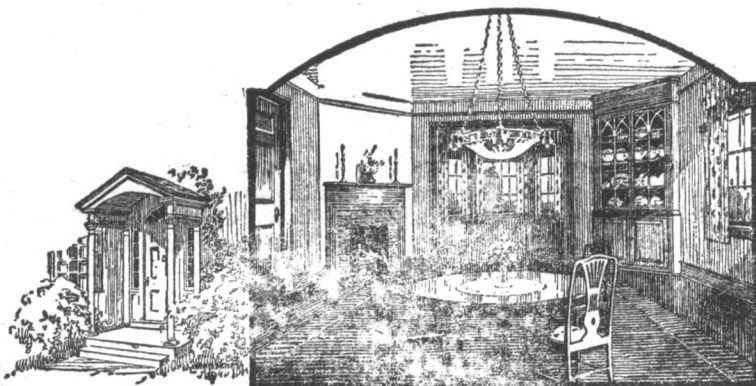
Packed in 70 lb. bags which can be moved around—won't tip over and leak. Economical because it goes farther, does its work more thoroughly and saves time by dissolving instantly. The bags when empty make excellent toweling.

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Don't accept a substitute and be disappointed. Write us, giving the dealer's name. We will see that you are supplied. Always insist on the genuine. The name is on every bag.

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Large quantities of every item of Curtis Woodwork are manufactured at the same time. Highest-grade lumber only is used. Rigid inspection and skilled craftsmanship are a part of every unit made. The result is Curtis Woodwork—for more than fifty years famous for its beauty, reliability, and exceptional value.

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than two hundred different houses. These ideal houses range in size from three-room cozy cottages to eight-room homes.

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If there is no Curtis dealer in your town, send us 25c in stamps (50c in Canada) and the portfolio you desire will be sent you direct. Ask for "Better Built Homes," Volume VI, if you are interested in houses of three, four, and five rooms; Volume VII, for houses of six, seven, and eight rooms; Volume VIII, for houses especially designed for farm use.

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For Sale Milch Goats 1 Nubian Doe 3 years old Reg- gas 1/4 grade but really is a 3/4 Nubian Doe Cleopatra \$60.00 also her last springs doe Kid from a 3/4 Nubian Buck \$35.00. Both a 25-18 Tog doe no papers with this doe she is bred to come in late this fall and a year round milker \$60, both does gave 2 qts when fresh, if anyone wishes foundation stock here is as good a start as can be bought for the money; Michigan Acclimated and Healthy must sell at these prices on account of moving, to one person \$130 for all three, your check first gets them, order from this ad.

C. E. BYERS, Ithaca, Mich.

Our Boys' and Girls' Department

A Farmer With Horse Sense

EVERYWHERE one hears talk of "cooperation," and nowhere is this same cooperation more urgently needed than between father and son, on the farm. The farsighted father knows that to an ordinary boy, hard work and plenty of it, is no inducement to great effort; there must be a goal, with a prize worth while, and plenty of points of interest along the road. And what could furnish more interest, than live stock that is really worth while?

There never was a better time for father and son to join interests than right now. Any number of stories of success have been written, through the co-partnership of father and son. Many of our most successful breeders look back to the time when their start was made, in the humblest way, but with the kindly help and encouragement of a wise parent, they were enabled to be of real assistance to the father in later years, and to carry on successfully the business founded by him.

Right now, land values are entirely too high to permit of its being used to raise scrub stock, and expect it to furnish the percentage of profit necessary, for everyone knows that it costs no more to feed and raise first-class animals than to raise poor ones, the amount of feed consumed, and the care necessary are the same, and the return in enjoyment and profit in raising pure-breds, is out of all proportion to the labor involved.

Again, one can use grade draft mares, and do the work just as efficiently, but the colts they produce do not bring over one-third as much as average pure-bred colts, and a pasture full of mediocre animals will not interest the boy on the farm nearly as much as will one outstanding colt which he can call his own. Neither is there the incentive to give an animal the care, that there is when he knows it is just a bit out of the ordinary.

The father needs to begin early in sharing the young stock with the boy, for fewer boys would leave the farm, if they felt a proprietary interest in the live stock of the farm, and a boy and his father make a great team when they work together and are interested in the same thing.

Seldom is it given to a fourteen-

year-old boy to have the foresight of maturity, but when Charles Markee's father sent him out to buy a calf which would develop into a sire, fit to head a herd, the boy could not satisfy himself with any calf that he saw, until he found a young registered animal, for which the owner wanted four times as much as for any ordinary calf. Forty years ago \$300 was a good deal to pay for a herd sire, when one could be bought for \$75, but that same foresight made the boy insistent that only the best was worth considering. With the father's consent, the bull was purchased, and became the most prized animal on the farm. Right then and there, the boy's decision was made and announced to the father, that when the time came for him to branch out for himself, pure-breds were what he intended to handle.

Several years later, when Charles Markee, of Bureau county, Illinois, established his own home, nearly every cent of his savings went into a team of Percheron mares. When he drove

these two mares. Finally, I was urged to put a price on the two, and I set what I thought was a price that would hold them, \$800, but they were sold before I had time to change my mind. There I was—the mares had paid amply for their keep, by the work they had done, (for they never missed a day except at foaling time), they, and their offspring had produced thousands of dollars worth of colts, and yet—only forty dollars to be charged off to depreciation for all the years I had owned them; and the wife, just like a woman, she cried as hard when I sold them as she had when I came driving them home.

I've always used the best sire I could find, for I figured that if I expected to raise good horses, the sire as well as the dam must be the best. Now that my boys have started out for themselves, they all know the value of pure-bred live stock, and they had some thing to start with. They are handling my Percherons now, and I've tak-

rusting away, never producing anything, a continuous source of expense, and horses are doing the work. They try to sell us tractors here, but I just figure it this way: If tractors are no good in Canada, where the fields stretch to God knows where, how can they be expected to make money here, where our fields are patches in comparison?

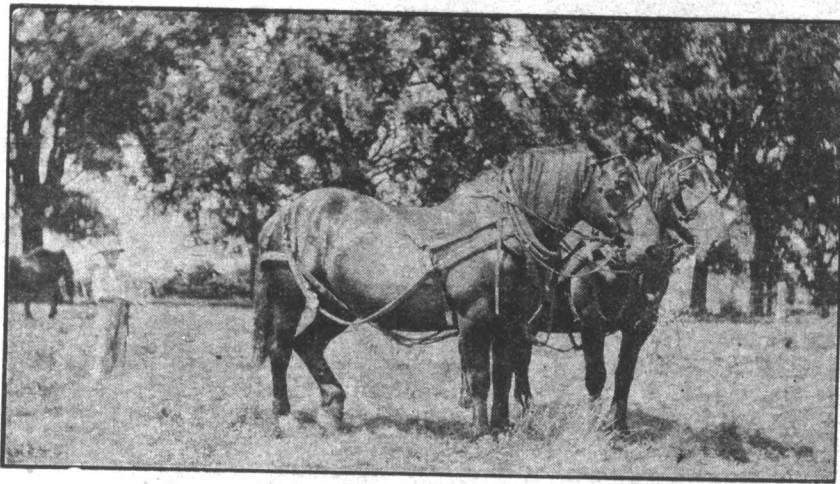
No, sir—I'll stick to horses, for I know from experience that they can do for me what tractors and autos never can do, and that is, put money in my pocket and contentment in my heart."

A boy naturally takes to a good horse, and the wise father chooses the breed which is popular, and which has proven itself to be the standard of draft breeds in America. Every time he produces a good Percheron colt, he knows that he never need hunt or beg for a buyer, for the market is there as soon as the colt is ready.

One of the greatest points in their favor, is the ease with which Percheron mares can be handled, even by the youngsters. They are sweet tempered and docile, and can be entrusted to a boy in safety, also they are quick movers, and are to be relied upon in an emergency, all very necessary traits when an animal is to be handled by a boy.

A lad soon becomes vitally interested when he knows that part of what he takes care of, is his own. Then, too, it is a small thing from the father's point of view to consult with the boy, occasionally, but it means much to the boy that the father asks his opinion on certain matters. On the other hand, the father is encouraged immeasurably by genuine interest displayed by the son.

Every business has its ups and downs, and the horse business is no exception. It is not a dead proposition, however, but one of the live interests of the day. Right now, when the horse business has come into its own so splendidly, after a most discouraging season, is a most favorable time for father and son to form a close corporation, and for father to think seriously of the old adage, and say, not "What's mine is his, and what's his is his own."



A Proud Boy and His Team.

them home, his young wife thought en them into full partnership with me. that he had taken leave of his senses, They will not have the struggle that I and a great deal of persuasion was had in the beginning.

I've been up into Saskatchewan, where the boys have moved, several times in the last three years, and I've seen the way horses are proving out up there. The fields are big up there, and every little way, you see a tractor

He says: "That team of mares cost me \$840, but was the best investment that I ever made. In nine years, that pair had raised sixteen colts for me, and several years later, when I held a dispersion sale, I sold \$7,000 worth corner, needing some repair or other,

An Interesting Sheep Story

Our Boys Will Read With Interest What One Man Has Done with Sheep

By J. A. Kaiser

ASK almost any farmer who owns a flock of breeding ewes, the feature of general farming which yields him easiest money, and nine times out of ten he will tell you, without hesitation, that his sheep produce the most satisfactory results of all his farming projects. The rapid rise of late years, in the price of wool and mutton, has added greatly to the desirability of owning a good flock of sheep. Another big factor in the question grows out of the farm labor problem. High wages and scarcity of good farm help have cut down materially the number of acres under cultivation. In this crisis, many farmers have answered the call of "More Sheep for Michigan," and have converted the land not under cultivation into pasture fields. By so doing, the land is getting a much-needed rest, the total number

of sheep in the country has been increased and the farmer has found a profitable side-line to general farming. \$1,069.

In the light of the foregoing facts, the story of Emery E. Nye, of Hillsdale county, and his flock of registered Delaines, is of more than passing interest. Several years ago, Mr. Nye purchased eight recorded Delaine ewes. He added to his flock from the best breeders, and in an astonishingly short time achieved rare success. It is only necessary to set forth the following facts and figures, to show conclusively Mr. Nye's title to exceptional success as a breeder of recorded sheep:

During the past year Mr. Nye sold in ewes and rams stock amounting to \$1,835. He received in premiums at

fairs \$1,140. Last year's wool crop, one hundred and ten fleeces, brought \$1,069.

In this connection, a single deal in sheep consummated by Mr. Nye will be of interest. He sold to Texas parties fifty-two sheep—twenty-two rams and thirty ewes. He received for these sheep the sum of \$1,755, or an average of over thirty-three dollars per head.

The foregoing facts present a brief summary of what may be considered exceptional success in the business of raising registered sheep. Mr. Nye's sheep business is not his chief concern. He carries on general farming, and is successful in the field of diversified farming. When asked by the writer if he considered blooded sheep

a paying proposition for the average farmer, Mr. Nye's answer was significant. He said it depended on the man. And is not the man the deciding factor in any undertaking? What Mr. Nye has done, others may achieve, but not all. A flock of sheep is a paying investment these days, for the man who really wants to win. Time, money, patience, work—these are some of the essentials to success in this as in all other lines of endeavor.

From his own experience, Mr. Nye gives the following advice to those who wish to embark in sheep-raising. "Start with a few registered ewes—say five or six. Don't be afraid to spend a little money in starting. It will cost no more to feed good sheep than it will to feed poor ones. Save your ewe lambs each year, and you will soon have a flock that you can be

proud of. Any farmer with eighty or one hundred acres can keep a flock of breeding ewes that will make him easy money. He can plow and cultivate and reap less, and at the same time have breeding ewes that will make him good returns. By doing this the land will get the rest it needs. The expense account for farm labor can be decreased, and in the end the man who attends strictly to business will be a winner."

May not these principles be given a much broader application? The right start, a willingness to work hard for results, the profit that comes from experience—these are essentials of success in any line. The sheep-raiser who strives for success is helping to solve some of the many problems of today. Perplexing problems confront the average farmer. Does not the sheep proposition solve some of them? Surely, it is one way of getting around the high cost of labor, without permitting the land to become unproductive. Sheep and wool are needed as much as wheat or corn or cattle. Let every farmer with eighty or a hundred acres keep forty or fifty good breeding ewes, and Michigan would have a great many more sheep than she now possesses.

It is not necessary to attain to the success of Mr. Nye. Sheep are profitable, as many a man doing general farming is demonstrating. The case set forth in this article is noteworthy, and ought to serve as an inspiration to all who strive for success in sheep-raising.

GOING TOO NEAR TO DANGER.

WHEN the fuse attached to a stick of dynamite or a bit of powder burns slowly, you are apt to get in a hurry and wonder why it does not "go off" after it has been lighted. Here is the story of an old man, that is, he is old now. Some boys asked him to go with them to the woods one day. They had some powder and were going to have a lot of fun, so they said. But the boy had some things to do at home so he could not very well go, unless he ran away, which he would not do. He always has been glad since that he did not yield to the temptation to play hookey. The boys went to the woods, found a hollow log, put their powder into it and lighted a fuse. They went a long way from the log, but after a while when the powder did not blow up they crept up to see if the fuse was still burning. All at once the charge blew up. One of the boys never has seen anything since. I used to see him groping about in the dark, and how sorry I was and am for him. The boy who was true and kept away from danger will never cease to be thankful that he kept away from danger.—L.

PAINTING ON CHINA.

A GIRL I knew used to spend a good many spare hours painting on small china dishes. I do not know that she ever had any lessons in art. She just took it up of her own free will and accord. It was then only a source of enjoyment to her. But the day came when she took up the work because there was nothing else she could do to keep the wolf from the door. Her father and mother both went away, never to come back any more, and the girl knew she must do something; and she thought of the china painting. It was slow work getting a trade established, but her things were dainty and her friends not only admired them but bought them for their homes. Then, too, she sold a great many pieces in the stores of the city where she lived; and now she has all she can do to supply the demand. One thing I notice, high prices for her work. In that way she sells many more pieces and people feel that they can afford to come back for more.—E.

73 years old—he cuts 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."

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The Michigan Farmer, Detroit, Mich.

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White Chinese Geese,

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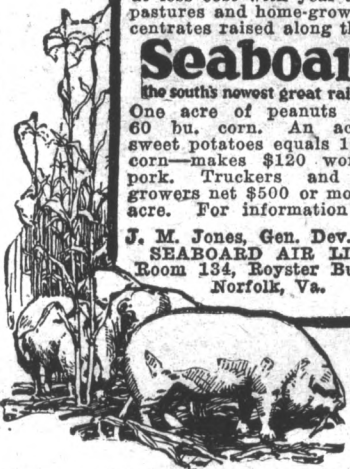
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2000 Ferrets they hustle rats and rabbits booklet and price list free. **N. A. KNAPP & SON**, R. 2, New London, Ohio.

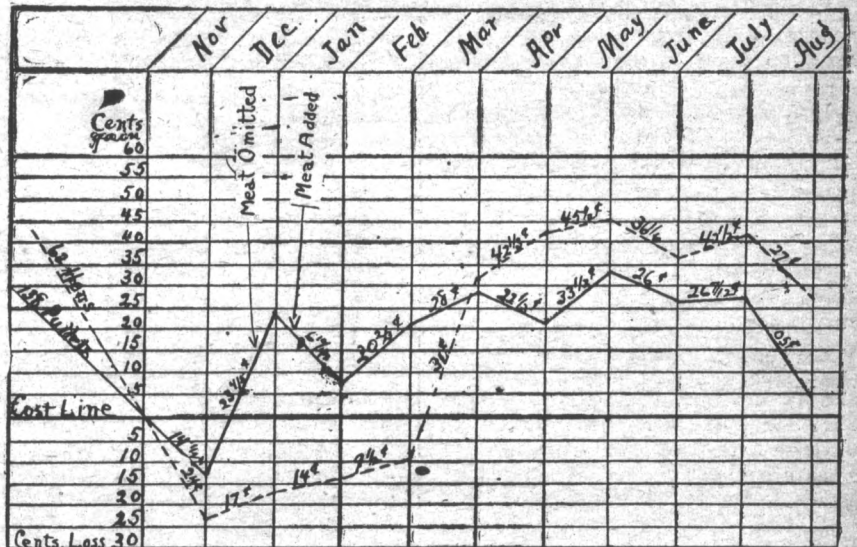
Hens versus Pullets for Egg Production

To throw light upon the question as to whether hens or pullets are the more profitable I placed sixty-two hens and one hundred and thirty-eight pullets in two separate coops on November 1 last. Each lot had equally good quarters and were fed alike. By March 1 the hens were in debt to me sixty-four cents each, and the pullets had a credit of thirty-six cents each, just eggs against feed. This placed them an even dollar apart, so if I had placed sixty-two pullets in the place of the hens I would have stood at a gain of sixty-two dollars on that coop. In March the hens jumped ahead of the pullets and held there each month until September, when I sold the hens to make ready for the new lot in that coop. On September 1 the pullets had a gain of \$179 each and the hens a gain of \$161 each, on a difference of only eighteen cents, and I am sure if I could have kept the hens until Novem-

ber 1 they would have been in the lead. This test convinces me that it is the pullets that give us the winter eggs and the older birds lead in the summer, so to have an even supply the year through it is well to keep both. The birds were all White Leghorns, and the hens were about equal in numbers of one, two and three years old. They all would have made a better showing had I not left out the meat from the feed from about December 20 to January 10, as is shown by the drop in gain of pullets in January. While the hens did not drop off in January, as did the pullets, they did not gain as they no doubt would have done had I continued the meat ration.

To me it is plain the reason the hens did not pay out before March is, they had not recovered from the moult. The chicks were hatched April 4 and May 1, 1919. See accompanying diagram.

H. H. HUTCHINS.



Record of egg income against cost of feed of sixty-two hens and one hundred and thirty-five pullets.—Single Comb White Leghorns, from November, 1919, to August, 1920. The figures show average production per bird in cents. Average total gain of hens \$1.61 and of pullets \$1.79.

Rations for Fattening Poultry

Combinations Recommended by Cornell

SCUFFLING feet on the board walk startled Alfred Munn, who was cleansing his hands of dirt and some blood running from deep scratches made by too healthy spurs on one of his aged male fowls which he had been crating with others for shipment to market. The newcomer was the county agent and he immediately became interested.

"Why don't you finish the birds before you market them?" was the first interrogation of the live official.

"We always felt that it didn't pay."

"But it does. It pays just as well, and perhaps better, than it does to put the finish on hogs or lambs," came back the confident reply of the agent.

"I'm not the one who will turn down a good thing and I am sportsman enough to give a fellow a chance to show that he has the goods; but I must have some of your sage advice on this fattening business."

It so happened that the county agent had that morning received a sheet from Cornell giving a ration for fattening poultry and this he handed over to Mr. Munn. It read as follows:

Ration with Milk.

Fifty pounds of corn meal, twenty pounds of white wheat middlings, ten pounds of ground heavy oats.

Mixed to a batter fresh at each feeding, with buttermilk or skim-milk. This will require approximately one quart (two pounds) of milk to one quart (one pound) of feed.

Ration with Meat.

Fifty pounds of corn meal, twenty

pounds of white wheat middlings, ten pounds of heavy oats, twenty pounds of meat scrap.

Mixed to a batter fresh at each feeding, with water. This will require approximately one and a half quarts (three pounds) of water to two quarts (two pounds) of feed.

Methods and Practice.

These rations are recommended for both young and old stock. Birds "off condition" or of low vitality cannot be profitably fattened. Before putting in crates, grease for lice below vent and under wings with equal parts of vaseline and "one-third strength blue ointment." (Buy at drug store).

Clean, mite-free quarters are necessary to insure keen appetites—the keynote of successful fattening.

Grate Fattening.

If you wish to fatten in crates construct them 36x20 inches high, of slats, using false bottoms of one-inch mesh wire poultry netting and suspend trough outside. The capacity of this crate is six to eight fowls, or ten to twelve broilers, determined by the number that can eat from the trough at once. Locate crates in comfortable temperature—outside in shade or open shed for summer use and in reasonably warm house for fall and winter.

Pen Fattening.

For best results in pens limit flock to twenty or thirty birds, allowing two square feet of floor space per bird. To prevent dirt and waste, feed in troughs

so built that the birds cannot walk in them.

The milk ration is to be preferred where milk is available or can be bought at a price not to exceed forty-five cents per forty-quart can (fifty-five cents per cwt.) Feed all they will clean up readily twice daily for about two weeks, which is usually as long as fowls will "stand up" under such heavy feeding.

Broilers may be held longer, especially in the case of pen-fattening, when they should be fed grain in the litter at noon.

Birds should not be fed for the first

twenty-four hours so they will eat the new ration greedily. Omit one feeding if at any time birds go "off feed;" clean pails and troughs will help to avoid this. Grit, shell, green feeds and water are unnecessary except in hot weather when milk or water may be given at noon.

Well-fattened birds are worth one to two cents per pound more than range stock, due to the improved quality of flesh. This increase in price, together with the increase in weight, make it decidedly profitable to fatten surplus stock before selling. To get top prices, label as "milk-fed" or "crate-fattened."

The Farm Poultry Flock

By C. E. Burgess, Poultry Department, M. A. C.

A HEN'S life is divided into three very important periods: Her life in the brooder, on the range, and in the laying quarters. Every period must receive its greatest attention, provided she is to produce her greatest number of eggs. Lack of attention at any one of these times, the results are reflected in the egg basket.

Three very important factors must be recognized and followed in the renewal if the farm flock is to be made to pay.

Her breeding, housing, and feeding. These three factors manifest themselves during the three periods of the hen's life. Let one factor be lacking and the results are problematic.

The farmer should breed from hens that lay in the winter time if he wishes the new lot of pullets to lay in that time of the year. Hatch the chickens early (from April 1 to May 1). From April 1 to April 15 is best. Hatch the chickens from hens that were known to mature quickly, the outward manifestation of which is the rapidity with which she grew her first feathers. Mate with these hens a cock-bird or a cockerel that is standard weight and type. The male bird should be from a heavy-laying hen. He must be strong; he must be vigorous. Remember that the male bird transmits shape and color and his individual characteristics of development and growth.

Now that we have settled upon the breeding and that we have successfully hatched the flock of chicks and that the entire flock is of the same age, let us pass to the discussion and show one of the ways which has been found successful both at the college plant and out in the state as well. Care should be exercised first of all not to feed too soon after the chicks are hatched. Never feed young chicks till they are at least forty-eight hours old. Nature has provided plenty of food for the first forty-eight hours to seventy-two hours of the young chick's life. Upon taking chicks from the incubator, dip their beaks in sour milk, seeing to it that each one gets a few drops into its system. Sour milk should be before them when placed in a brooder or in a brood coop with a hen. Never let there be a time in the chick's life when sour milk is not before him. It is indispensable to the starting of a young chick in its growth. It is absolutely necessary to the growth of the pullet on range. It is one of the great egg producers in the laying-house.

From the time that a chick is hatched it is a matter of proper housing and feeding that brings success. First of all let us discuss the question of housing. A good colony house for young chicks should be on every farm. Plans for same can be secured by writing the Poultry Department, Michigan Agricultural College. During the brooding. A good colony house for young has plenty of room. Never over-crowd a brooder, two hundred and fifty chicks to a brooder stove is quite sufficient and this number is about the average number that should be hatched on the

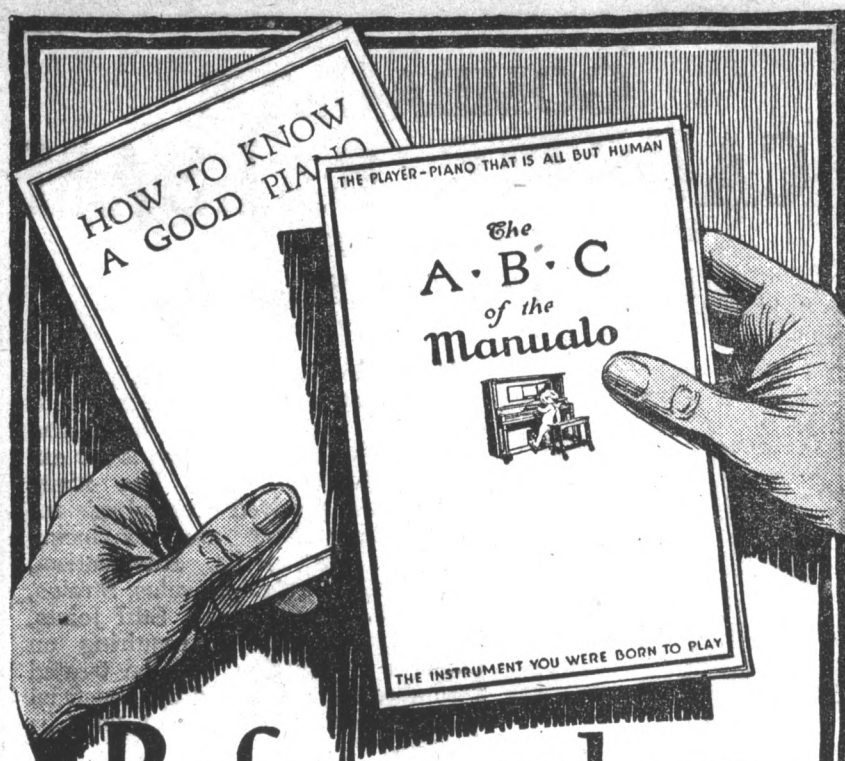
average farm, provided a flock of one hundred pullets are desired for the laying-pens.

During the first forty-eight hours after placing the chicks in the brooder is a very critical time. The heat question is one of the most important questions. If the chicks are in too hot quarters they are apt to catch cold or are so weakened that thirty to seventy-five per cent of the brood are lost. If the chicks are in too cold quarters they become chilled and one is apt to lose from thirty to seventy-five per cent of them. Heat on the floor under the brooder should range from ninety-five degrees to one hundred degrees and be held at no higher or lower temperature for the first week. Lower the temperature about five degrees per week until the chicks are roosting. Place two-by-four's on edge in the brooder house after the chicks are two weeks of age, induce them to commence roosting early. When they stay on the roost at night, artificial heat is unnecessary. One will notice that the young chick by this time has completed its first period.

The next period (range) is also an important one. This is the time when the sex should be separated. If the colony house has been properly built upon runners it can be hauled to a good meadow where the hay has just been harvested and near a corn field (two of the most ideal places to grow young pullets). They need their quiet, the shade, the insect life and the succulent growth of the new growing grass. During the months of August and September place nest boxes in the house for the early-laying pullets. By October 1 transfer the pullets to the laying quarters. See to it that the laying house allows four square feet of floor space per hen. See to it that the house has plenty of fresh air and sunshine. See to it that it is well ventilated to avoid dampness. See to it that the house is free from dust, that it is proof against vermin.

So much has been said relative to the housing of chicks during the three periods. Now let us take up the question of feeding during the three periods of the hen's life. First the chick feeding ration. Practice retarded or limited early feeding. Nature has provided the newly-hatched chick with a "bread basket" containing sufficient food to last from sixty to seventy-two hours. Before emerging from the shell the yolk is absorbed into the body of the chick for nourishment during the first three days of its existence. Do not feed too soon. The first day leave the chickens in incubator for twenty-four hours after completion of hatch. Supply more pure air by opening slightly the incubator floor. The second day provide plenty of sour milk in shallow pans for drinking purposes. It helps prevent outbreak of contagious white diarrhea and stimulates growth. Provide chick with grit also. The third day feed solid food. This should be easily seen and nutritious. Mash of

(Continued on page 385).



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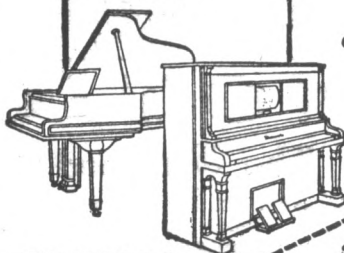
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As a veterinary remedy its curative qualities have been acknowledged for many years in cases of Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Spavin, Ringbone and other bony tumors. A trial will convince anyone that here is a remedy without an equal.

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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.

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Imported Herd Bulls
ELCHO OF HARVESTOUN (45547)
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For Sale Longwood Farm herd of Aberdeen Angus Cattle 17 head including calves and would sell full set of herd books with them.
MARSHALL KELLY, R. 10, Charlotte, Mich.

For Sale Registered Guernsey bulls. May Rose breeding cheap if taken soon. Come or write.
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SPRING DELL FARM GUERNSEYS
For sale: Choice of two bulls two and three years old; also bull calves three to twelve months. Registered. Splendid individuals and breeding. Prices right.
WHITE BROTHERS, R. 2, Box 20, La Porte, Indiana.

FOR SALE Registered Guernsey heifers, yearlings and calves.
E. A. BLACK, Route 3, Howard City, Mich.

Guernsey Bull Busto of Smallidge Farm, born Feb. 2nd, 1920. Sire Bennie of the Ridge, who's dam Trixy of the Ridge holds first place in class EE in Michigan. Granddam Abbie of Riverside is champion of Mich. Dam May Kings Ezalia of Eau Claire an A. R. cow.
E. J. SMALLIDGE, Eau Claire, Mich.

Pure bred Guernsey bulls from one to four weeks old. Registered \$30, not registered \$25. Orders shipped in rotation received. No excuse for scrub bulls.
WALTER PHIPPS FARM 80 Alfred St. Detroit, Geo. E. Currie, Mgr.

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.

FOR SALE

Serviceable May Rose Guernsey Bull. Dam record 553 lbs. fat 2 yr. old. Priced to sell. Herds Federal Accredited. Gilmore Brothers, Camden, Mich.

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

Guernsey Cows Three years old due in Dec. Sire and dam and several other ancestors in A. R. Four year old due in Jan. Chene Sequel Glenwood blood. Priced to sell.
G. A. WIGENT, Watervliet, Mich.

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

Long Distance HOLSTEINS
HERD-SIRE
PRINCE O NA
Five dams av. 1186 lbs. butter and 24771 lbs. milk in 1 yr. Bulls all sold. State and Federal Supr.
A. FLEMING, Lake, Mich.

OUR HERD SIRE Model King Segis Glista

By a 30 lb. son of Lakeside King Segis Alban De Kol. His dam Glista Fenelle 32.37 lbs. Her dam Glista Ernestine 35.96 lbs. His three nearest dams average over 33 lbs and his forty-six nearest tested relatives average over 30 lbs. of butter in seven days. Write for prices on his sons.

Grand River Stock Farms
Cory J. Spencer, Owner Eaton Rapids, 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. R. 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.

Our County Farm Bureaus

(Continued from page 554).
and is a young man with sound business judgment.

J. F. Eardley, secretary-treasurer, is well-known throughout the state as a breeder of registered Jersey cattle. In partnership with his brother, F. E. Eardley, he owns and operates an excellent three-hundred-acre farm ten miles from Grand Rapids. During the past few years Eardley Brothers have devoted special attention to breeding and developing one of the best herds of Jersey cattle in Michigan. At present they have about thirty females, mostly daughters of Golden Oxford Lad. At the head of the herd is Majesty's Gamboe Lad 2nd, a bull of splendid type and wonderful breeding qualities. The herd is now under federal inspection and every effort possible is being made to breed healthy and vigorous cattle that have the ability to yield maximum returns for the food consumed.

JUST outside the city limits of Grand Rapids we visited the market gardens of R. Yonkers. Here we found a model greenhouse and truck farm. Mr. Yonkers is a veteran greenhouse gardener and has made a market success growing lettuce, tomatoes and cucumbers under glass. He has nearly one and one-fourth acres under glass and fourteen acres under overhead irrigation. In addition he has twenty-four acres devoted to growing truck crops on an intensive scale.

One of Mr. Yonker's hobbies is growing improved specimens of vegetables for producing his own seed. Working along these lines he has had remarkable success in producing vegetables of superior qualities for market. After testing some of his melons from seed he has been saving for several generations one could hardly fail to be impressed with his success in improving the qualities of this special crop. Mr. Yonkers has made a careful study of marketing problems and is one of the leaders in the Grand Rapids' Growers' Association.

Milo Edieson, prominent fruit grower and breeder of pure-bred Jersey cattle, owns and operates a fine farm three miles north of Grand Rapids. Mr. Edieson makes a specialty of growing fine apples and breeding high-class Jersey cattle. At present he has twenty-five females in his Jersey herd, the majority being of Raleigh and American blood lines. His herd sire, McKay's Sensational Laddy, is a wonderfully good individual and was grand champion of the breed at the recent West Michigan Fair. Always active in any movement to promote the breeding and feeding of better live stock in his community, Mr. Edieson is doing his share to popularize the Jersey breed of cattle in Kent county.

Another interesting visit was at Wilhelm Stock Farm, owned and operated by R. A. Holmes. Mr. Holmes is an extensive fruit grower and has been breeding Guernsey cattle for more than eight years. Apples, pears, peaches and plums are his main fruit crops. At present he is keeping a herd of nearly thirty registered Guernsey cattle. Most of the females are of May Rose and Glenwood breeding, and as a herd they present a remarkably uniform and type appearance. For a herd sire Mr. Holmes has Brookmead's Secret King, a son of Pencoyd's Royal Secret. This young bull's dam is a full sister to Brookmead's May Rose, who made five hundred and two pounds of butter-fat from 9,766 pounds of milk at two years of age. Mr. Holmes has been a prominent exhibitor at some of the big fairs during the past few years and has won his share of the first and second prizes. Like other breeders of pure-bred cattle who have made a success of the business, he has retained

the most of his good female calves to add to his herd until he now owns one of the best Guernsey herds in Michigan.

Over near Alto we visited Lindhurst Farm where Wm. H. Lind breeds pure-bred Poland China swine. Mr. Lind was not at the farm but we found the swine an excellent lot of individuals. The herd sire, Mammoth Ben's Chief, is an excellent individual, and one of the best pigs ever sired by Wesley Hile's Mammoth Ben. Among the females in the herd are Lind's First Pick, Boine Beauty, Mastodon Jumbo Queen, Iowa Lady Timm and Giantess Prospect. Mr. Lind has made a good start in the business of breeding pure-bred Poland China swine and is sure to be heard from. One more cross with top-notch blood and he will be in line with the best breeders of Poland China swine in the country.

No man has done more toward building up the dairying and live stock interests of Kent county than Dudley E. Waters, farmer-banker, of Grand Rapids. Mr. Waters has one of the best equipped breeding plants in the country, and for years he has been building up his herd of Holstein-Friesian cattle. At the present time he has more than one hundred and twenty females, many of them holding A. R. O. records which compare favorably with the leading herds of the breed. Always interested in promoting his favorite breed of cattle Mr. Waters has made it a point to sell most of his surplus breeding stock to young men who are just making a start in the business of breeding pure-bred cattle. Working along these lines he has made many friends and influenced many men to breed better cattle.

All of the cows on Maryland Farms are from popular lines of breeding and no individual has been added to the herd that failed to give promise of becoming a profitable producer at the pail. The milk is sold at a special price in the city of Grand Rapids, and is produced under good sanitary conditions at the farm.

The senior herd sire at Maryland Farms is Colantha Sir Korndyke Clothilde, a son of Colantha Johanna Lad, who has more daughters with records above six hundred pounds of milk in seven days than any other sire. His dam was the first thirty-five-pound cow. For a junior sire Glen Alex King De Kol, a son of Spring Farm King, and out of Tietje Queen De Kol, is being used. This young bull combines some of the very best blood lines of the breed. The average seven-day production of his dam, her full sister and the sire's full sister average above forty-three pounds of butter. This young bull, when mated with the daughters of Colantha Sir Korndyke De Kol, should produce remarkably good results. If size, vigor and heavy milk yields combined with heavy butter-fat production mean anything in the general scheme of breeding dairy cattle, such a blending of blood lines cannot fail to bring satisfactory results.

Among the organizations active in spreading the gospel of improved breeding stock is the Kent County Shorthorn Breeders' Association. This organization has twenty-two members and is one of the live organizations of the county. Plans have been made to put on a sale some time in November. The officers are: M. H. Bowman, president; Arnold Raab, secretary.

Mr. Carr is a firm advocate of boys' and girls' club work, but other matters of pressing importance have compelled him to limit his projects along these lines. One of his main projects is the Junior Boys' County Pig Club. The officers are: Carl Bloom, president; Wm. Roth, secretary. J. L. Wilson is club leader. Chester White hogs are owned by the members. This year's exhibit at the West Michigan Fair was a credit to the boys and their leader.

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.

Sick Horse.—You prescribed potassium bromide for my cow; have given her one dram doses for one week; she is no better. Druggist charges me forty cents an ounce. What do you recommend? N. H., Alta, Mich.—Give her one teaspoonful of acetate of potash at a dose in feed or in drinking water twice a day. Change her feed.

Chronic Rheumatism—Lampas.—I have a mare, twelve years old, that is troubled with rheumatism in both hind quarters. Can she be cured? Would like to have remedy for lampas. M. I. S., Coleman, Mich.—Give her one dram of salicylate of soda at a dose three times a day, but it may not effect a cure. Lampas seldom interferes with a young horse eating. When treated it is best to scarify upper gums, but don't cut back of the third bar, for if you do you might wound the artery and have trouble to stop hemorrhage. Apply one part coal tar and thirty parts water to itchy parts of body twice a day.

Contagious Abortion.—When contagious abortion becomes thoroughly established in herd of cows it is difficult to get rid of it? Should well cows be allowed to pasture with aborters? C. M. B., Charlotte, Mich.—It takes time to get rid of the infection, but it is a mistake to dispose of a good dairy cow on account of her having miscarried. Keep her, breed her again and she will very likely carry her second or third calf full gestation period. Clean and disinfect your stable and keep it clean. Burn or deeply bury dead calf and afterbirth, remove cow from well stock, keep her away from them for three or four weeks. Thoroughly clean and disinfect her stall, burn litter. Don't breed her for eight weeks. Don't attempt to flush uterus unless you have proper instruments for doing so.

Cow Pox.—Is cow pox a blood disease? What is the remedy for it. H. C. B., Milan, Mich.—Cow pox is widely distributed. It is a frequent disease among dairy cows, to which it is spread by recently vaccinated milkers, the cause is evidently an ultramicroscopic organism which passes through coarse but not fine filters. The milker usually spreads it from cow to cow. The disease may also be propagated by contaminated bedding, forage or food. Treatment.—No internal treatment is necessary. Wash the udder with a one per cent solution of hypsulphite of soda once or twice daily.

Bunches on Legs.—One of our two-year-old heifers has a few bunches on hind legs and we have thought it made her nervous, but not lame. S. L., Howell, Mich.—Paint bunches with tincture of iodine three times a week.

Indigestion.—I have a cow that came fresh some twenty weeks ago; since then she has gradually lost flesh and is now giving very little milk. G. D. S., Grand Rapids, Mich.—Increase and change her feed, give her two table-spoonfuls of ground or powdered gentian at a dose two or three times a day. The other heifer may have been with calf, and aborted, without any person knowing it.

Partial Loss of Power.—Some of my pigs seem to be losing the use of their legs, especially the hind legs. What is the remedy? J. W., Standish, Mich.—Feed less corn and fat-producing food, add some air-slaked lime and enough of Glauber's salt to keep the bowels open. Keep them clean and dry. Their recovery is somewhat doubtful.

Worms.—Have three pigs that are troubled with worms, but they are all thriving and growing well. A. C., Midland, Mich.—Mix some powdered gentian in feed once or twice daily.

Dainty Feeder.—I have a hog eleven months old that is not fond of grain, but will eat green feed, such as cabbage and grass. C. H., Hope, Mich.—Give him five grains of ground nuxvomica and a teaspoonful of powdered gentian in feed two or three times a day. Give him the kind of food he craves.

Rheumatism.—I have a boar twelve months old that has grass pasture, six ears of corn daily, also milk and water to drink. Lately he limps on hind legs and changes position very often. H. K., Wayne county.—Give him ten-grain doses of sodium salicylate three times a day. Feed more oats, oil meal and tankage.

H. C. POTTER

JAY HARWOOD

Breeders' Sale

REGISTERED HEREFORDS

Thursday, Nov. 18, 1920
CHARLOTTE, MICH.
at Eaton County Fair Grounds, 1 P.M.

35 head of high class cattle. 20 cows with calves at foot. A few yearling and two year old bred heifers and 6 yearling bulls. This is an offering of good well bred cattle, just in pasture condition. The kind that will make good. We ask the breeders of Michigan to be with us and lend their support and cooperation.

Bulls in service:

Captain Stamway 733192

Don Fairfax 704378

Keep On 508019

Calves are by and cows and heifers bred to these good bulls.

H. C. Potter and Jay Harwood

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Facts in BLACK & WHITE

How a Purebred Holstein Bull will Make Money for You

The Iowa Experiment Station recently conducted an experiment under the direction of Prof. L. S. Gillette. A purebred Holstein bull was mated to scrub cows and the resulting heifers were bred to another pure bred Holstein bull.

Here's what happened—
Dams average yield, 3255 lb. of milk, 161 lbs. of fat.

Daughters average yield, 6,313 lbs. of milk, 261 lbs. of fat.

Granddaughters average yield, 11,295 lbs. of milk, 431 lbs. of fat.

In other words, the daughters of the purebred Holstein bull averaged:

94% MORE MILK

62% MORE FAT

than their dams, and his granddaughters averaged

245% MORE MILK

168% MORE FAT

than the original scrub dams.

The short cut to greater dairy profits is a purebred Holstein bull.

Think it over!

Send for free booklets.

THE HOLSTEIN-FRIESIAN ASSOCIATION
164 Hudson Street
Brattleboro, Vermont.

Superior Holsteins

Bulls all sold but are now booking orders for our expected fall crop of

Bull Calves

sired by my new herd bull, a grandson of

May Echo Sylvia

My sire's two nearest dams average over 35 lbs. butter and 800 pounds milk in seven days.

A. W. COPLAND

Birmingham, Mich.

Herd under state and federal supervision

Reg. Holsteins. For Sale. A few choice cows and heifers. 2a.3w St. Johns. J. R. HICKS, St. Johns, Mich.

A SIRE TO HEAD YOUR HERD

Let us help you locate a good Holstein sire to use in your herd.

We have good ones of all ages listed at reasonable prices.

Write Us What You Need.

**MICHIGAN HOLSTEIN-FRIESIAN
ASSOCIATION**

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

An Introduction

Mr. Dairy Farmer, Mr. Holstein Breeder Meet
KING FLINT

ALL THREE are working to a common purpose—to increase the production of Michigan Dairy herds.

We believe all three should work together.

We feel sure that no Michigan bull has ever been better equipped for the work.

We have it on high authority that there are none better individually.

His three nearest dams each averaged to produce 100 lbs. butter and 2100 lbs. milk per month for a full lactation period with an average of 3.8% fat.

His dam is one of Michigan's greatest families—three full sisters that have produced over 30 lbs. butter in seven days, two of them producing over 700 lbs. milk, and two of them producing more than 1000 lbs. butter and 21000 lbs. milk in ten months.

His sire is the direct descendant of three generations of 30 lb. cows and two generations of 1200 lb. yearly record cows.

His first three sisters to enter yearly test will each produce more than 800 lbs. butter and 17000 lbs. milk as heifers.

Let King Flint Help You Improve Your Herd Through
One Of His Sons

A son of this great young sire suited to head any herd in Michigan, grade or purebred, can be secured in Genesee County and we want them all to stay in Michigan.

Write us about your herd, tell us what you need and what you feel you can afford to pay and let us help you find just what you want in Genesee County, the center of Michigan's long distance dairy cattle.

Genrida Farm

Walter T. Hill

Davidson, Mich.

Elmcrest Stock Farm

G. L. Spillane & Son Co.

Clio, 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.

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.

"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.

Bull advertised last week was bought quickly by an Allegan County Dairyman.

Here's another "Top Notcher"—

King Colantha Genieve Pietertje,
No. 272177, Born Feb. 3, 1919.

Sire's dam a 30 lb. cow with a 31 lb. daughter, who has a 31 lb. 4 yr. old daughter.

Dam's record:—Butter 7 days 23.26 lbs. at 4 yrs.

Dam's sire's three nearest dams average 30.87 lbs. butter in 7 days. Color: about half and half.

Price \$150.00 f. o. b. Howell.

McPherson Farms Co. Howell, Mich.

All herds under U. S. Supervision.

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.

Hatch Herd Ypsilanti, Mich.

(In Government Accredited list) offers young registered sons from 34 lb. King Korndyke Sadie Vale bull for \$150 to \$250.

Cluny Stock Farm

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.

NOTICE! Springwell Korndyke Pietertje for sale. 70% white, born Oct. 2nd 1920, a good one, for a \$50 Liberty bond. Write for pedigree of this Holstein bull calf. W. C. HENDER & SON, Pinckney, Mich.

\$75 gets 6 weeks old gdson of Maple Crest Korn. Heng. and Flint Heng. Salina 27.09 butter 561.2 milk in 7 days. Calf's dam is my best untested cow. Terms. M. L. McLAULIN, Redford, Mich.

Reg. Holstein-Friesian Bulls ready for service and priced to sell. Light in color and richly bred. B. B. REAVEY, Akron, Mich.

HEREFORDS

We want 25 heifer calves from our herd bull RENNEN BULLION. We will buy part of them from you, if you buy cows from us. We will give you a contract to buy back the heifer calves from the cows you buy from us, at \$150.00 each.

Correspondence Solicited.

COLE & GARDNER, Hudson, Mich.

Herefords Double Disturber bull at head of herd, Offer 5-2 yr. olds, bred, 9 yearling and 6 heifer calves. Fairfax breeding. Bulls any age.

EARL C. McCARTY, Bad Axe, Mich.

BROOKWATER JERSEYS

Register of Merit Jerseys won 3 championship 16 first and 5 second prizes at the Mich. State Fair.

Ready for service bulls at profitable prices.

Brookwater Farm,

Ann Arbor, Mich.

H. W. Mumford, Owner

J. B. Andrews, Mgr.

The Wildwood Farm

Jersey Cattle, Majesty strain. Herd on State accredited list. R. of M. testing constantly done. Bulls for sale. ALVIN BALDEN, Phone 143-5, Capac, Mich.

BUTTER BRED JERSEY BULLS

CRYSTAL SPRING STOCK FARM

Silver Creek, Allegan County, Michigan.

JERSEY BULLS Ready for service.

Lad, Majesty breeding. Meadowland Farm, Waterman & Waterman, Packard Rd., Ann Arbor, Mich.

Jerseys For Sale. Register of Merit stock of both sex.

Smith and Parker, Howell, Michigan.

For Sale Jersey bull calves of Majesty breeding from good producing stock. Herd on Government "Accredited List." Write for price and pedigree to C. A. TAGGETT, R. 2, Fairgrove, Mich.

Lillie Farmstead Jerseys 2 R. of M. bull calves, one year old this fall.

O. C. LILLIE, Coopersville, Mich.

Jersey Bulls from R. of M. dams \$75 to \$150 each.

NOTTEN FARM, Grass Lake, Mich.

Bloomdale Shorthorns

Why use scrubs when you can buy a registered bull for \$100. We have two at that price. Also some good females.

OARR 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.

Think Boys and Act, start in the

Large Type Poland Chinas

right by coming to

Clarke's 3rd Annual Fall Sale

and buying some of as good as can be bought anywhere, you can get your choice of 50 head of top boars an gilts

NOV. 9th, 1920

sired by
Orphans Superior
L's Big Orange
L's Long Program

Lord Clansman
Smooth Wonder 3d.
Arts Progress

This offering will far surpass my offerings of the past they are the long, high backed, stretchy kind they are all craving over. Sale held on farm under cover. Write for catalogue.

All trains will be met.

AUCTIONEERS

Col. Ed. Bowers, South Whitley, Ind.
Col. Jim Post, Hillsdale, Mich.
Col. Porter Colstock, Eaton Rapids, Mich.

WM. J. CLARKE, Prop.
Eaton Rapids, Mich.

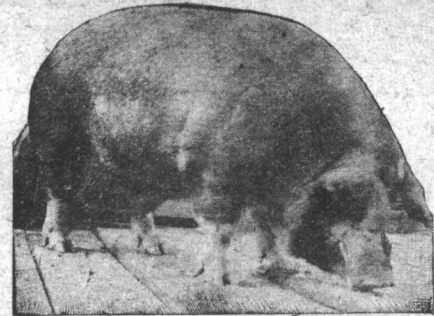
W. M. KELLY for The Michigan Farmer

Those Who Have Made Arrangements to Attend My Sale Can Easily Reach Hanover in Time for W. R. Ramsdell's Sale Wednesday, November 10th.

BIG TYPE POLAND CHINAS

36 Head WILL BE SOLD WEDNESDAY, NOV. 10th 36 Head
W. B. RAMSDELL, Hanover, Mich.

All animals in sale have been double-immuned. Certificate furnished with sale.



Smooth Wonder, Senior Herd Sire

Hanover can be reached by way of Jackson or Hillsdale, Mich.

Among the offerings are gilts from spring litters out of Lady Wonder and Lady R, sired by Clansman's Image 2nd. These pigs are well-grown, carry strong arched backs and have wonderful bone. One of the above sows will be sold.

Fashion Belle, a daughter of Big Fashion; her dam, by The Clansman, will be represented in sale by gilts and boars, sired by The Outpost, the boar that sold for \$10,000 at 10 months of age, the record price for a boar of that age of the Poland China breed. Here is one of the opportunities you have been waiting for.

Lady Wonder 2nd and Nellie R both go in sale along with gilts from spring litters. They are real brood sows and their pigs are hard to beat.

King's Giant, one of our herd sires, will be sold along with about five or six young boars from the above lines of breeding. All good, strong-backed, big-type fellows with plenty of quality.

All sows and open gilts will be sold with privilege of breeding to either of our herd sires if not safe with pig at time of sale. These gilts will be held and bred at our expense.

Sale will be held under cover on the farm, Wednesday, November 10th at 12:30 o'clock. Catalogs will be mailed on request.

W. B. RAMSDELL, R. D., Hanover, Mich.
COL. BILLY WAFFLE
Auctioneer

W. M. KELLY
For The Michigan Farmer

Those attending W. J. CLARKE'S Sale Tuesday, can reach Hanover in time for my sale Wednesday.

Shorthorns—Shropshires

The B. D. Kelly Estate will sell

AT AUCTION

WED. NOV. 10, 1920, AT 12.30

on the farm 3½ miles south of Ypsilanti, Michigan 30 Shorthorns of the Beef type with milking ability consisting of 26 females and 4 bulls including the "Campbell Claret" herd bull Banker 717768 sired by Imp. Hillhead Chief Dam Imp. Claret 23.

Also 60 Reg. Shropshire sheep of all ages, both rams and ewes. This is one of the oldest breeding establishments in Michigan Catalog ready Nov. 1. Lunch at noon. Trains met A. M. of sale day.

ANDY ADAMS, Auctioneer
L. C. & W. B. KELLY, Administrators

JERSEYS



The Sure Breeders

LOOK at a line of Jerseys and note their even conformation. Straight udders, straight teats, good dairy type! Truly, Jerseys are the cows without a fault. 200 years of careful breeding have made them the certain breeders. There are now more bulls owned by cooperative bull clubs than all other breeds combined. Take advantage of the service offered by the Jersey Information Bureau which will tell you about The Profit Breed and of the profits their owners are making with them. Address

The American Jersey Cattle Club, 324-R West 23d St., New York

O. I. C. BOARS

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

J. CARL JEWETT, Mason, Mich.

Milking SHORTHORNS. Clay bred bull calves Herds under Federal Supervision. Davidson & Hall, Beand & Beland, Tecumseh, Mich.

Shorthorns Scotch and Scotch Topped bulls and heifers priced right. Sultan Champion heads herd, one scotch two yr. old herd bull by Red Cumberland priced right. H. J. FLOWER & SON, Milo, Mich.

BIDWELL SHORTHORNS
You Can Buy

a bull that will put weights on your dairy calves—the difference will soon pay for the bull. Now selling good Scotch and Scotch-topped yearlings, reasonable priced. A roan, senior yearling, a Missie of Villager breeding, a herd bull prospect, Federal Test.

BIDWELL STOCK FARM,
Box D, Tecumseh, Michigan

Richland Shorthorns

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.

Fairland Shorthorns. Bred for beef and milk. For sale young bulls from 3 to 12 mos. Two are grandsons of Jewell all sired by Walgrove star. Reds and roans, prices \$100 to \$200, also Shropshire rams priced right. JOHN J. FOSTER & SONS, R. 5, Niles, Mich.

Shorthorns Good Scotch bred bulls, cows and heifers, priced right. W. B. McQUILLAN, R. 7, Howell, 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.

For Sale Several young bulls, sired by Sultan's Standard. A few heifers and cows. Prices reasonable. Branch County Farm breeders of American Polled Shorthorn cattle. O. E. Burdick, Mgr., Coldwater, Mich.

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

Milking Shorthorns 3 mos. heifer calf \$125 bred heifers and serviceable bulls at farmers' prices. Central Mich. Shorthorn Assn. Oscar Skinner Sec. Gowen, Mich.

Red Polled cattle for sale bulls from 4 to 18 mos. also cows with calves by side and heifers. G. A. CALHOON, Bronson, Mich.

Reg. Red Polled cattle choice young bulls from 6 to 18 mo. old for sale. FRANK KEHLER, R. 1, Grand Ledge, Mich.

Reg. Red Polled Bull calves for sale, from 3 mos. to 1 year old, sired by Famous Charmer grand son of Charnier 1919 International Grand Champion. WESTBROOK BROS., Ionia, Mich.

HOGS

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.

Fine Registered Berkshire pigs for sale, prolific, large litters. C. H. WHITNEY, Merrill, 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.

BLUE HOGS. Large, growthy and prolific. Everybody likes them. Write for booklet. Mention this paper. The Blue Hog Breeding Co., Wilmington, Mass.

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. THOS. UNDERHILL & SON, Salem, Mich.



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

For Sale Duroc Jerseys of the big heavy boned type. CHAS. BRAY, Okemos, 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.

DUROC Boars Ready for service, sired by the following boars. Brookwater Demonstrator. The Principal 19th, Panama Special 4th, Walts King and Oakwood Gold Stamp. Prices \$40 and up. Come and make your selection early, mail orders carefully selected. Rush Bros., Oakwood Farm, Romeo, 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 King number 169239 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.

THE FARM POULTRY FLOCK.

(Continued from page 581).

one raw egg to one hundred chicks, three small handfuls of rolled oats, three small handfuls of bran. Thoroughly mix by rubbing, give four feeds every three hours apart. A dash of fine charcoal and bone meal in above mixture is beneficial. Supply sour skim-milk for at least the first two weeks.

From the fourth to the fourteenth day give two feeds of commercial chick feed (this consists of finely ground grains), give two feeds of above, raw egg, oat and bran mixture, give one feed of green food, sprouted oats, lettuce etc. Keep the young chicks hungry an active all the time.

After the second week, simplify and cheapen the ration, substitute the following mash for the egg mixture: Bran, middlings, corn meal, ground oats, equal parts by weight, and ten per cent meat scrap. Increase the size of grain feed as the chicks grow older from fine chick feed to developed size and finally coarse ground grains. Green food is a good appetizer and stimulates growth. Meat scrap or skim-milk hastens growth and makes early broilers. A small hopper containing grit, charcoal and granulated bone aids in building a substantial frame and tends to correct leg weakness. A dry mash of bran, ground oats and meat scrap will interest the chicks and prevent toe picking and other signs of cannibalism with young growing chicks.

Some good rations for laying hens may be made from oats, bran, gluten meal, meat scrap, barley, buckwheat, and corn, fed as follows:

Mash.—Three hundred pounds fine ground oats, 100 pounds of wheat bran, 100 pounds gluten meal, 100 hundred pounds meat scrap, and scratch-feed made up of the following: One hundred pounds barley, 100 pounds corn, twenty-five pounds buckwheat.

The nutritive ratio of mash alone is 1:2.5; the nutritive ratio of grain alone is 1:3.5; of the grain and mash fed equal parts, 1:9.4.

Feed the mash in open hoppers; the corn as a scratch-feed in litter; soak the oats for a half-day and feed moist; and give the fowls all the sour milk or buttermilk they will drink. It is well to allow four square feet of floor space per hen.

Another good ration is as follows: Twenty pounds shorts, twenty pounds ground oats, and twenty-six pounds of beef scrap, twenty pounds bran, and twenty pounds corn meal.

ACCOUNT BOOKS POPULAR.

FOLLOWING up the distribution of farm account books throughout the state, H. W. Eliot, farm management demonstrator at M. A. C., announces that a series of accounting schools taking up the principles of business management in agricultural work will be held in various counties over the state during the coming winter.

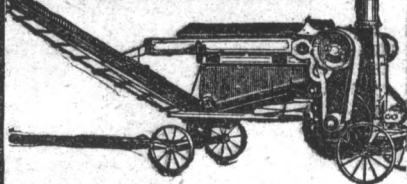
It is planned to hold fifty or more of these schools in about twenty-five counties between December 1 and April 1. Arrangements in each case will be made by the county agricultural agent, with provision for holding a school if twenty-five or more men are lined up to receive the instruction.

Proper methods of keeping farm records and account books, including inventories, will be taught, with the fundamental aim of putting the farm on a business basis. By a well-kept set of accounts, farmers may often spot the leaks in their system or find parts of their business that are especially well paying, experts in farm management contend.

About 2,500 farm account books have been sent out by the college during the year. More than 1,000 of these have been distributed through the state Grange.—H.

Three Machines IN ONE

The Jenney Silo-Filler-Husker



SAVES All your corn All your fodder

Why waste your Ear Corn in silage, when Stover Silage made the Jenney Silo-Filler-Husker way answers your every silage need? Hundreds of users testify to the truth of this statement. Saving your corn from the silo and saving all the leaves, stalks and husks bring double profit from your fields.

The Jenney Silo-Filler-Husker is ready any time, no need to stop busy fall work to fill the silo. With it you can refill several times a year. It allows the ears to go into the silo if small, soft or unfit for cribbing. It husks fast and clean. It handles either green corn or ripe. It always serves as a shredder for your surplus fodder.

The Jenney Silo-Filler-Husker is in its sixth successful year. It is sold under guarantee to be exactly as represented and to do all claimed for it. You profit as soon as you begin to use this money-making and time-saving machine. You lose money every year you are without it.

Write for Full Particulars Now

HALL MFG. CO.
Dept. O Cedar Rapids, Iowa
Clip this Coupon—Mail Today

HALL MFG. CO. (11)
Dept. O Cedar Rapids, Iowa
Please mail me full particulars.

Name.....
Town.....
State..... R. F. D.....

Fifteen Head of

Reg. Holstein

Cows and young stock will be sold at auction on my farm, one-half mile north of Grand Ledge on

Tuesday, Nov. 16th
Sale to begin at 10 o'clock. Terms.

F. A. BEASORE,
Grand Ledge, Mich.

HOGS

DUROC JERSEY SPECIAL

Newton Barnhart, St. Johns, Mich.

Will sell a choice offering of brood sows, gilts and young boars. The offering includes all of the show boars and sows in the 1920 show herd. Most of them sired by Walt's King, (2942) a son of Walt's Top Col. Watch for next week's list of offerings. Sale will be held Thursday, Nov. 18th. Write for information.

Newton Barnhart St. Johns, Mich.

Duroc Jerseys

2 jr. yearling boars sire Long Wonder, Jr. Champion at the Minn. State Fair in 1917. 1 jr. yearling sir Giant by Giant Invincible one Sr. yearling by Panama Special all perfect individuals and weigh over 600 lbs. We only have 2 spring boars left.

CHASLEN FARMS, Northville, Mich.

For Sale, Boars. A few reg. Duroc Jerseys at a price you can afford to pay. Guaranteed to suit you. W. C. HENDEE & SON, Pinckney, 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 Jerseys of the right type, good blood lines and in good condition at a price you can afford to pay. Guaranteed to suit you. W. E. Bartley, Alma, Mich.

Duroc Jersey's Herd headers in boars. Why? Because they are bred right, fed right, grown right and from Grand Champion stock. Write or better come and see. F. J. Drott, R. 1, Monroe, Mich.

Michigana Farm Durocs. Service boars and open gilts for sale at \$40 and \$50. These are real hogs. Satisfaction guaranteed. O. F. FOSTER, Mgr., Pavilion, Mich.

DUROC JERSEYS

Carey U. Edmonds, Hastings, Mich.

Big Type Chester Whites, Choice, stretchy spring boars, also tried sows and fall gilts bred for Sept. litters. These hogs are big and will fatten at any age. Grand champion blood lines of the breed, Wildwood Prince Jr., Rajah, and Champion X. Cholera immune. Satisfaction guaranteed.
N. L. HILL JR., Mackinaw, Tazewell Co. Ill.

DUROC JERSEYS Boars and gilts by Mich. Pathfinder. E. D. HEYDENBERG, Wayland, Mich.

PLEASANT View Durocs. Choice spring boars and gilts. Come and see or get our price before buying. W. C. BURLINGAME & SON, Marshall, Mich.

\$12.00 for a Duroc-Jersey fall pig 6 weeks old, either sex. Express charges paid and registration papers free. M. A. C. Brookwater breeding. D. W. SUTHERLAND, Gd. Ledge, 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

SPECIAL prices on Fall, Winter and Spring boars during October.
WEBER BROS., R. 2, Royal Oak, Mich.

O. I. C.'s choice spring pigs either sex. Booking orders for fall pigs. We register free and ship C. O. D.
A. J. BARKER & SON, Belmont, Mich.

Look for Miller Meadows L. T. P. C.'s at Marshall Calhoun Co. Fair, Sec. 21-25
CLYDE WEAVER, Ceresco, Mich.

O. I. C.'s Eight young boars and spring pigs for June shipment.
CLOVER LEAF STOCK FARM, Monroe, Mich.

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.

For Sale O. I. C. Swine, Strictly Big Type with 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.
R. 1, MARLETTE, MICH.

O. I. C.'s One last fall boar wgt. 435, two last fall gilts, bred lots of spring pigs and this fall pigs either sex, good growthy stock 1/2 mile west of Depot. Citz's Phone 124. Otto B. Schulze, Nashville, Mich.

O. I. C.'s June and July boars and open gilts. Recorded and express paid for next 30 days each one a guaranteed feeder. 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.

Big Type P. C. Bred gilts, Fall yearlings, prize winners, out 1100 lb. sire and mammoth sows from Iowa's greatest herds. E. J. Mathewson, Burr Oak, 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. Jao. C. Butler, Portland, Mich.

Big Type Poland Chinas

Young Bros. Niles, Mich.

Will sell 60 head of gilts, fall yearlings and tried sows.

MONDAY, NOV. 15th
Auctioneers Cols. Flesher and Foster.

POLAND CHINAS

W. J. HAGELSHAW, Augusta, Mich.

Large type Poland China's spring boars ready to ship. Everything immune from Cholera.
A. A. FELDKAMP, R. No. 2, Manchester, Mich.

Poland Chinas

Spring boars and gilts from the Sr. Champion boar at the State Fair at Detroit this year also Grand Champion at West Mich. Fair at Grand Rapids weighing 1025 lbs.

If you want something that will give you satisfaction let us sell you a boar or gilt.

ALLEN BROS., Paw Paw, Mich.

L. S. P. C.

Everything sold previously ad. 25 spring pigs placed on the bargain counter for mo. of Sept. pairs or trios not akin.

H. O. SWARTZ, Shoolcraft, Mich.

Big Type Poland Chinas

Our herd is representative of the best in Big Types. Choice boars for sale now. Wesley Hile, R. 6, Ionia, Mich.

L. T. P. C. We have a large number of spring and summer pigs ready to ship sired by such boars as "Hart's Black Prince," "Leonard's Big Bob," the "Model Clansman" and "Prospect Yank" a great son of the \$40,000 Yankee. Write for prices or come and look them over if you are in the market.
HART, FULCHER & OLIVE, address R. T. HART, St. Louis, Mich.

Poland China Special pig sired by Hovers' Giant 12925 and from our best sows are the best ever offered. Write for particulars.
DORUS HOVER, Akron, Mich.

6 boar pigs best I have raised in my 15 years of breeding sired by Big Bob Mastodon a son of the world's champion. Price \$50 and 50 fall pigs send orders now.
C. E. GARNANT, Eaton Rapids, Mich.

BIG T. P. Chinas for sale. A few tried sows, spring boars. Aug. pigs both sex. Recorded free in buyer's name. L. L. Chamberlain, Marcellus, Mich.

I am offering Large Type Pol and China Sows, bred to F's Orange, at reasonable prices; also fall pigs. Write or call Clyde Fisher, St. Louis, Mich. R. R. 3.

My! Oh My! What An Opportunity

We are now offering a few choice big type Poland China Boars, from Big Smooth Jones, one of the breeds best sires, from dams by such noted sires as Grand Master, Hillcrest Wonder, Mastodon Wonder and Hillcrest Bob.

You can't get better breeding. Individually they will please you. Price \$50.00.
HILLCREST FARM, Kalamazoo, Mich.

Big Type Poland Chinas with quality, at reasonable prices. Pigs of both sex, and bred sows and gilts.
G. A. BAUMGARDNER, R. 2, Middleville, Mich.

BARGAINS on Big type spring and summer Poland China Pigs also yearling Shorthorn bulls, bull and heifer calves.
Robert Neve, Pierson, Mich.

HAMPSHIRE

1914 1920

Choice Spring boars, popular breeding. Booking orders for fall pigs. All stock Cholera Immuned and guaranteed Breeders. Satisfaction guaranteed.

STEUBEN'S HAMPSHIRE FARM
R. 3, Angola, Ind.

Spring boars, fall pigs and tried sows, quality, and breeding unexcelled. Guaranteed. Hampshire Square Deal Farm, R. 1, Three Rivers, Mich.

Edgewood Hampshires

All bred gilts sold. Now booking orders for gilts bred for fall farrow, and pigs for pig club work only.

Depew Head, Edgewood Farm, Marion, Ohio.

HAMPSHIRE

Delaine Rams B. & C. type, having size, quality, best of breeding, priced to sell, write.
S. H. SANDERS, R. 2, Ashtabula, O.

FOR SALE Registered Delaine Rams, also 35 ewes. GEHRINGER & WRIGHT, Cohasset, Mich.

FOR SALE 10 Black Top Delaine Merino Rams registered.
J. MEACHAM, R. 2, Millington, Mich.

WHITTUM FARM SHROPSHIRE

A fine lot of imported and house bred yearling ewes and rams for sale. A fine chance to start a new flock or improve the old one call at the farm or write for just what you want.

C. H. WHITTUM, Eaton Rapids, Mich.

Hillcrest Shropshires

A nice lot of Ewes and Rams of all ages our flock is headed by McKerraw 3164 a son of Senator Bibby write or call on.
R. J. & C. A. WILLIAMS, Middleville, Mich.

FOR SALE 35 Registered Shropshire yearling rams and ram lambs. Also some choice Duroc Jersey boars and gilts.
CLIFFORD MIDDLETON, Clayton, Mich.

Shropshires Am offering one choice two year ram and a few good yearlings.
C. J. THOMPSON, Rockford, Mich.

SHROPSHIRE

Shropshires sire imported Minton Ram Lambs \$20, some ewes, 2 yearling rams.
DAN BOOHER, R. 4, Ewart, Mich.

Shropshire Rams lambs, yearlings and one 2 yrs. old, priced right.
CARL TOPLIFF, Eaton Rapids, Mich.

Shropshires Yearling and rams, with quality, from imported stock.
W. B. McQUILLAN, R. 7, Howell, Mich.

Shropshires yearling rams. Ewes of all ages. Priced right.
W. B. KELLY, Ypsilanti, Mich.

Shropshire Rams yearling or lambs for sale.
ARMSTRONG BROS., R. 3, Fowlerville, Mich.

Wool-Mutton Shropshire Rams. Good strong individuals, royally 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.

Maple Lawn Farm Shropshires, rams and ram lambs of choice breeding. Woolled from nose to toes. A. E. Bacon & Son, Sheridan, Mich.

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

Cotswolds yearling, and lamb rams, ewes all ages, with size and quality, priced to sell.
A. N. BORTEL, Britton, 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.

For Sale. Registered Hampshire yearling rams and ram lambs. Yearlings weigh 375 lbs. price \$40.00. Lambs weigh 120 price \$30.00.
OTTO C. KNOB, R. R. 3, Monroe, Mich.

Registered Hampshire Rams ready to ship. 40 yearlings, 20 ram lambs also a few good ewes. A. M. Welch & Sons, J. B. Welch, Manager, Ionia, Mich.

Reg. Hampshire Down ram lambs, one registered Shorthorn bull calf, 9 mo. spring and fall farrowed Berkshire pig. M. G. Mosher & Sons, Osseo, Mich.

OXFORD RAM choice yearling Reg. and delivered for \$50.
C. E. BARKER, R. 1, Belmont, Mich.

For Sale Oxford ram lambs registered and delivered \$25.00. Guaranteed.
GEO. T. ABBOTT, Palm, Mich.

Registered Rambouillet Rams. For sale. Good bone and covering.
J. M. EAGER, Howell, Mich.

HORSES

BAY MARE

For Sale, sound and right in every way, weight about 850 lbs. Must be sold at once come and see her or write L. J. Hamlin, 496 Huribut Ave., Detroit, Mich.

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

LATEST MARKET REPORTS

GRAIN QUOTATIONS

November 3, 1920.

Wheat.

Detroit.—Cash No. 2 red \$2.21; December \$2.15; March \$2.11; No. 2 white and No. 2 mixed \$2.19.

Chicago.—No. 3 red \$2.19½; December \$2.09½; March \$2.02.

Corn.

Detroit.—Cash No. 2 mixed 95c; No. 2 yellow \$1.

Chicago.—No. 2 mixed 89½¢@90½¢; No. 2 yellow 90½¢@92c.

Oats.

Detroit.—Cash No. 2 white 58c; No. 3 white 56½¢; No. 4 white 53½¢.

Chicago.—No. 2 white 55½¢@56½¢; No. 3 white 53½¢@54½¢.

Beans.

Detroit.—Immediate and prompt are lower at \$4.40 per cwt.

Chicago.—Market easy. Hand-picked beans choice to fancy \$4.75@5; red kidney beans \$9.25@10 per cwt.

New York.—Market continues dull. Choice pea \$5.50@6; do medium \$6.25.

Rye.

Detroit.—Cash No. 2 rye \$1.75.

Seeds.

Detroit.—Prime red clover \$13.50; December \$13.75; alsike \$16.75; timothy \$3.30.

Toledo.—Prime cash \$13.80; December \$14.10; alsike \$17.25; timothy \$3.40.

WHEAT

The world's wheat supply shows considerably closer adjustment to the probable world requirements than it did six weeks ago. The reduction in the United States spring wheat crop by 20,000,000 bushels, belief that the Canadian crop has been over-estimated by as much as 50,000,000 bushels, the change in the India crop due to the drouth and revisions of European estimates which increase their import requirements have been the changing factors. An example of the last sort was the reported sale the past week of 320,000 bushels of wheat and rye by New York exporters to Jugo-Slavonia, a country which a short time ago was said to have a large surplus of wheat for export. Cold weather and frost are reported in Argentine where the wheat crop is in the last six weeks of growth. The bureau of markets states, in a recent summary, that "an analysis of the world situation seems to indicate a supply of wheat and rye to meet the probable European demand unless the buying power of Central Europe becomes much stronger than is now indicated. Other cereals will meet European demands even on a pre-war consumption basis."

The heavy wheat export movement from United States ports continues. The total during the last four months was about 145,000,000 bushels from a surplus variously estimated at 230,000,000 to 250,000,000 bushels. Of the balance probably 50,000,000 has been sold ahead for export. What turn affairs will take when our theoretical surplus is sold out is a question. Will European buyers turn entirely to Canadian grain and then wait for the southern hemisphere crops, or will purchases in our markets continue?

CORN

The statistical position of the coarse grains is weak, but receipts are small and prices have advanced, corn even showing greater strength than wheat at the week's close. However, the shadow of a prospective heavy movement will be over the market for a long time. At the lower price with a profitable feeding ratio it is expected that farm consumption will be very large even with a reduced live stock population. Manufacturing demand from starch and glucose industries is limited. Perhaps, as last year, the lowest prices on the corn crop will be made before the new crop commences to move. The same thing has frequently occurred in the past so that the recent low of near 79c on December corn may be the season's minimum.

BEANS

Bean markets have been weak, due to absence of buying for future needs such as usually takes place at this season of the year. The total yield is below the average, but the weather has favored harvesting. Some observers close to the trade think the mar-

ket is being manipulated. Michigan beans are relatively low priced compared with those in California, which are cheap enough, and growers are disposed to hold. The movement from the state up to October 1 was much below that of last year, but higher than two years ago.

BUCKWHEAT

Buckwheat prices are now below the level justified by prices on other food stuffs. Milwaukee quotes the market as slow, with prices at \$2.25 to \$2.50 per 100 lbs. Higher prices for other grains, especially wheat, which appear probable will be likely to carry buckwheat prices along.

SEEDS

Red clover advanced the past week, although alsike and timothy did not share in it. Reports from country points have been less favorable, but there is no broad demand, although prices are only about 35 per cent of those reached last March. Toledo's prices at the weeks close were: 1919 prime red clover, \$13.80; 1920 prime, \$14.00; 1919 prime timothy, \$3.25; 1920 prime \$3.40; 1919 prime alsike \$16.75; 1920 prime alsike, \$17.50.

FEEDS

Mill feed demand was not sufficient to maintain the recent advance, as offerings were liberal at the higher prices. Bran is relatively stronger than shorts. Linseed meal declined about \$2 and the cottonseed meal market remains weak, as the demand is very poor. Crushers are not active as they claim seed prices and meal prices are out of line. Tankage has sagged along with other protein feeds, although the discount under former levels is not so great. There is no bullishness in the feed trade, but there is a feeling that the worst is over. Detroit—Bran, \$50; standard middlings, \$44; flour middlings, \$53; coarse cornmeal, \$46; cracked corn, \$47; chop, \$41.

HAY

Only light receipts have prevented further declines in hay, as demand is very slow. The South is buying much less than usual. Prices show little change for the week except that Cincinnati is lower. All the factors have been against the market, such as the open weather, a crop above the

average, abundance of other feed everywhere, reduced livestock populations, distressing conditions among dairymen and cotton producers, and corn and oats priced on a per pound basis not far above hay.

EGGS AND POULTRY

Although the stocks of eggs in storage are much smaller than at this time last year, they are being depleted at a rate more rapid than last year. Fancy eggs are very scarce and bring a big premium. Storage holdings of poultry were the smallest ever reported on October 1, notwithstanding the fact that broilers increased about 70 per cent during the month. Latest prices are as follows:

Chicago—Eggs—Fresh firsts at 58¢@59c; ordinary firsts, 51¢@53c. Poultry—Spring chickens, 26c; hens, general run, 22c; roosters, 22c; ducks, old and young, 28c; Indian Runners, 25¢@26c; geese, old and young, 25c; turkeys, fancy, 33c.

Detroit—Eggs—Fresh candled, 56¢@67c. Live poultry—Spring chickens, 30c; leghorns, 22¢@23c; hens, 28¢@30c; small hens, 20¢@22c; specially fat hens 32c; roosters 18c; geese 26c; ducks, 28¢@30c; turkeys, 35¢@37c.

BUTTER

After the severe decline and weakness of the butter market of the past two weeks the recovery which continued all last week was a surprise even to the few optimists there were left in the butter business. Buyers were entirely out of stocks and when the trend became evident and some confidence was restored, buying was very active. The change to cooler weather helped the situation, especially on storage butter. Strength was at first only on fancy grades, but later the low prices on undergrades attracted attention to these and they advanced also. Before this advance occurred, however, a lot of undergrade butter and quite a little of medium grade changed hands at prices representing a big loss to the owner. The Chicago market cleaned up best, due to buying by the packers.

The market closed firm on fine stock and fairly firm on other grades. Chicago quotes 92 score at 60½¢; New York and Philadelphia, 62c; Boston, 58c.

CHEESE

The cheese markets at distributing centers opened weak and unsettled. After returns from country markets were received and quotations reported as the lowest in four years, dealers gained confidence. After price adjustments were made on practically all styles in all markets the Chicago market turned quite firm and eastern markets later gained strength.

APPLES

The apple market continued dull and weak on both barrel and boxed stock. The movement into consumption has been unusually slow. Shipments show little change in volume. The northwestern stock is running smaller than anticipated, which will mean a smaller crop than was officially estimated. Baldwins at A-2½ were quoted by the Bureau of Markets at the week's close at \$4.25 per bbl. at Western New York shipping points, \$4 to \$4.50 New York City, and \$3.75 to \$4.50 at Chicago. Northern Spies were \$4.75-\$5.25 at Chicago, McIntosh \$6-\$7, best Jonathans \$7-\$8, and Greenings about the same as Baldwins.

POTATOES

Potato prices started upward the past week and closed very strong. Shipments declined to about 975 cars per day and demand was more keen. Northern round white stock advanced 10 to 20 cents at loading points and was quoted at the week's close at \$1.50 to \$1.60 f. o. b. per 100 lbs. sacked. Eastern and Northern round white stock held firmly in eastern consuming markets and 10 to 25 cents higher on middle western, being quoted at \$1.90 to \$2.15 at the week's close at Chicago.

Cleveland-Michigan round whites, \$3-\$3.25 per 100 lbs. sack; New Jersey Giants, \$2.50.

Detroit-Michigan, \$3-\$3.25 per 150 lb. sack.

STATE FARM BUREAU MARKET REPORT.

Elevator exchange reports export demand for wheat in past week strong because European countries were in market to replace orders cancelled in Argentine and market advanced 12 cents. Nation's corn crop estimated largest in history and with less cattle to feed markets advanced 3 cents from low point. But very little corn will be shipped in Michigan this year compared with past years, and same is true with oats. Export demand for rye stiffened market during week four cents per bushel. Market Monday declined two and one-half to four cents, due to all export requirements being filled. Seed department reports clover seed market dull, many farmers holding for higher prices. Government reports indicate 50 percent larger crop than 1919. Timothy seems near low level, with slight tendency to advance. Northwest alfalfa yields disappointing with threshing greatly hindered by unseasonable snows. Cannot hope to lower last year's prices for alfalfa seed from that district.

DETROIT CITY MARKET

There was a light supply of produce and trading rules slow; \$1.35@1.40 was the moving price for potatoes; \$1.50 was the top price asked. There was practically no demand for apples, except for the fancy stock which was scarce. A light offering of tomatoes, most of which were not attractive, met with very slow demand. Spinach has been stronger for the past few days and reached \$1.50 Saturday. Today, \$1.25 was the top price and most of the movement was at a dollar a bushel. Good quality cauliflower continues in good demand.

COMING LIVE STOCK SALES.

Poland China.—November 9, Wm. J. Clarke, Eaton Rapids, Michigan.
Shorthorns and Shropshires.—November 10, B. D. Kelly & Son, Ypsilanti, Michigan.
Poland Chinas.—November 10, W. B. Ramsdell, Hanover, Michigan.
Poland China.—November 15, Young Bros., Niles, Michigan.
Holsteins.—November 16, F. A. Beasore, Grand Ledge, Michigan.
Herefords.—November 18, Potter & Harwood, Charlotte, Michigan.
Duroc Jersey.—November 18, Newton Barnhart, St. Johns, Michigan.

Live Stock Market Service

DETROIT

Cattle.

Market active and 50c higher.

Best heavy steers	.....	\$11.00@12.00
Best handy wt bu steers	.....	9.00@10.75
Mixed steers and heifers	.....	8.00@ 9.00
Handy light butchers	....	7.50@ 8.00
Light butchers	.....	6.00@ 7.50
Best cows	.....	8.00
Butcher cows	.....	6.50@ 7.25
Common cows	.....	4.00@ 4.25
Canners	.....	3.50
Choice bulls	.....	7.50
Bologna bulls	.....	6.00
Stock bulls	.....	5.00@ 6.00
Feeders	.....	7.00@ 9.00
Stockers	.....	6.00@ 7.50
Milkers and springers	...	\$ 65@ 110

Veal Calves.

Market very dull at Tuesday's close.
Best \$14.00@15.00
Others 5.00@12.50

Hogs.

Market 35¢@50c higher.
Mixed pigs and yorkers.....\$14.50
Roughs 12.00
Stags 10.00

Sheep and Lambs.

Sheep steady; lambs 25c lower.
Best lambs\$12.50@12.75
Fair lambs 9.00@11.50
Light to common 5.00@ 8.00
Fair to good sheep..... 5.00@ 6.00
Culls and common..... 2.00@ 3.00

CHICAGO

Hogs.

Estimated receipts today are 8,000; holdover 6,306. Market 25¢@50c higher than yesterday's average. Bulk of the sales \$13.50@14.20; tops \$14.25; heavy 250 lbs up medium, good and choice \$13.75@14.25; medium 200 to 250 lbs medium, good and choice at \$13.90@14.25; light 150 to 200 lbs common, medium, good and choice at \$13.50@14.25; light lights 130 to 150 lbs common, medium, good and choice \$13.35@13.75; heavy packing sows 250 lbs

up smooth \$12.90@13.25; packing sows 200 lbs up rough \$12.50@12.90; pigs 130 lbs down medium, good and choice \$13@14.50.

Cattle.

Estimated receipts today are 13,000. Fat classes steady to lower; stockers slow; calves firm. Beef steers medium and heavy weight 1100 lbs up choice and prime \$17@18.15; do medium and good \$12@17; do common at \$9@12; light weight 1100 lbs down good and choice \$15@17.75; do common and medium \$8.50@15; butcher cattle, heifers, common, medium, good and choice at \$6.25@13.25; cows, common, medium, good and choice \$5.50@11.25; bulls, bologna and beef \$5.75@10.75; canners and cutters cows and heifers \$3.85@5.50; do canner steers at \$4.50@6.25; veal calves, light and handyweight medium, good and choice \$12.50@14.50; feeder steers, common, medium, good and choice \$8@12.25; stocker steers common, medium, good and choice at \$5.25@9.50; stocker cows and heifers, common, medium, good and choice at \$5@7.75; western range cattle, beef steers, medium, good and choice at \$9.25@14; do cows and heifers, medium, good and choice \$6.50@9.85.

Sheep and Lambs.

Estimated receipts today are 18,000. Lambs 25c lower. Lambs 84 lbs down medium, good, choice and prime \$11.50@13.75; do culls and common \$9@11; spring lambs medium, good, choice and prime at \$9.75@11.85; ewes, medium, good and choice \$6@7.25; ewes, cull and common \$3@5.75; breeding ewes, full mouths to yearlings at \$6@8.50; yearling wethers, medium, good and choice \$12.50@13.50.

BUFFALO

The hog market here today was higher, with the top going to \$15.50; lambs brought \$17.25; calves \$18; cattle ruled steady.

WOOL

"Nothing doing" is the stereotyped description of the wool market by representatives of the trade in this country. Boston quotes the tendency of prices as lower, although it is hard to tell by what this judgment is gauged as transactions are few. At the government's auction of carpet wools the bids were mostly at or above the limits so that only five per cent were withdrawn. Prices on low quarter-blood territory wools ranged from ten to fourteen cents in the grease or twenty-five cents clean basis. The latest Australian auctions have been firm and higher on the finer grades, again indicating that there is no surplus of such wools. Growers are backing measures to prevent dumping foreign wools on our market and to favor the sale of low-grade wools, of which there is so great an abundance, to central European countries. The woolen goods trade is still stagnant and in spite of reduced production the quantity of goods is large. Many of these are of low grade but high priced. Latest reports show 1,283,204 active woolen spindles with 975,578 idle and 1,722,396 active worsted spindles with 606,040 idle.

DECLINE CONTINUES IN THE HOG MARKETS.

AFTER a momentary show of strength during the middle of the week hog markets resumed their downward course, the net loss for the period being about 35 to 50 cents at leading markets. The spread has narrowed decidedly, 60 to 75 cents covering the bulk at most points. Even pigs, usually abundant at this season, are selling only a small distance below the top. Scarcity and strong demand for stock pigs are responsible for the unusual condition. Receipts declined the past week but were larger than a year ago, a reversal of the comparison that has prevailed most of the time this year. Greater firmness was in evidence at the week's close and readjustment to the winter basis may be suspended for a short time, although there is little doubt that still lower prices will be seen. Fresh pork, cured hog meats, and lard all declined, the break in hogs evidently leading the way this time as consumptive demand has been strong. Packer buyers urge as one reason for reducing the price of hogs that the ratio of corn and hog prices is too wide. If they have ever boosted hog prices because this ratio was too narrow it has not appeared in the records, although their opportunities to do so have been numerous.

PROVISIONS BREAK, EXPORTS LARGE.

NOTWITHSTANDING a good consumptive demand and a liberal export movement, cured hog meats and lard are distinctively lower for the week. The British coal strike news was more favorable than otherwise, and the export movement reported for the preceding week was the largest since last winter. If meat and lard stocks should decrease as much in October as they did in March there would be little left. If, as has been commonly believed, packers have been supporting the hog market in order to provide a higher level for the merchandising of their hog products accumulated during the year, the fact that these have been mostly closed out may have caused them to withdraw their support thus bringing about the recent break in live hog prices.

CONDITIONS AND PROSPECTS IN THE CATTLE TRADE.

CATTLE markets have been rather uneven the past week with price changes on steers at various markets so irregular that trends are uncertain. A tendency toward a narrower spread was noticeable, prime steers declining slightly at Chicago and Kansas City while common light steers made a fractional advance. Good cows and heifers as well as cutters and canners advanced slightly, but bulls went the other way. Calves have recovered some of their recent losses, St. Louis advancing \$2.50; heavy grassy calves were less of a burden. Dressed beef prices advanced sharply and veal prices were slightly higher.

Receipts were reduced for the week and at ten markets were about thirty per cent under those of a year ago. A lot of Canadian cattle have been arriving contrary to early season expectations when it was asserted that that country would have none for outside markets.

If the range movement declines as appears probable now the market

should show more strength on grass beef after another two weeks, although the final cleanup before going into winter quarters is still to take place. Choice and prime cattle will probably hold up well until after international week, but thereafter the outlook is not especially favorable for a time and readjustment on these grades will be in order. Hogs flirting with the \$12 mark and steers at \$18 is a price ratio which neither packers nor public will long maintain. However, the price is likely to remain at such a level that feeders will have a fairly profitable season.

THE WHEAT STRIKE.

SUPPLY and demand conditions statistically favor the success of the farmers' wheat "strike," but foreign buyers have been able to get nearly all the wheat they need from this country while prices were low.

Prices advanced the first two days of the past week, due to belief in the wheat strike, and reports of export sales. Later the trend was irregular but prices are higher than at the close of last week.

Most of the reports from the southwest deny that farmers are holding their wheat. Terminal receipts in that section prove little thus far, as elevators are selling their supplies and some sharp trade observers believe that the power of the strike is being underestimated. Since the world situation this year is so closely balanced, the reduction in acreage this fall may be a prominent factor next spring when the world crop summaries for 1921-1922 are available.

NEWS OF THE WEEK.

(Continued from page 550).

Germany must deliver 275,000 tons of shipping to the allies in compensation for the fleet sunk at Scapa Flow.—British leniency with Germany in the matter of renouncing the right to confiscate German property arouses protest from France.—British representative on the council of the league of nations announces that four big nations are about to become members of the league.

Saturday, October 30.

THE decline in prices in twelve basic items has been the heaviest during the month of October of any month since the movement started, index figures showing a drop of 11½ percent during the month and down 20 percent from the year's peak.—Bank clearings for the past week show a decline of 6.5 percent.—Secretary of state Colby announces that the United States will recognize the new government of Mexico.—Philadelphia textile mills are to declare for an open shop.—War is about to be resumed between Lithuania and Poland.—The Greek parliament proclaims Prince Paul, son of the former ruler, as king.

Sunday, October 31.

THE government of Angora is reported to have come under the control of the bolsheviks, Kemal Pasha and his colleagues being in power.—Belgian coal miners are talking strike.—Four hundred cars of Canadian grapes have found a market in the United States at prices ranging from \$85 to \$125 per ton.—Italians and the Jugo-Slavs will begin direct negotiations in seeking an adjustment of the Adriatic question.

Monday, November 1.

RUSSIAN bolshevik forces have started a violent offensive against the troops of General Wrangle, who are operating in the Black Sea district.

Another series of two-day beekeepers' schools will be held this year in those parts of the state where there is a demand for them. Anyone interested should communicate with Mr. Kindig, of the M. A. C., at once so that satisfactory dates may be fixed.

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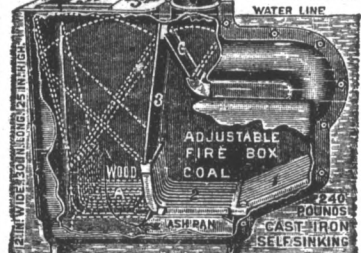
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Fur Merchant

52 Shelby St. Detroit, Mich.

To our customers—

The fur season is close at hand and we want to say to our many friends and shippers that the trade is now going through a trying time. But the fur business will still remain the fur business and the thinning out of the fakirs and speculators will be a good thing for the trade. The good houses still remain and its up to you to deal with one of these reliable firms.

Our list will be out later on, meanwhile we advise caution, write us.

ROBT. A. PFEIFFER

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

FARM HELP

Wanted At Once

Experienced married man as working farm foreman. Wife to board 3 or 4 men. Must be a good farmer. Capable of handling men and understand the proper care of Modern Farm Machinery. Both man and wife to be clean and tidy in every respect. Steady position for right party. Give reference and salary in first letter. Box S116 care of Michigan Farmer, Detroit, Mich.

Wanted Experienced farmer, man and wife no children. For 140 acre farm three miles from Birmingham. General grain and dairy farming. Guernsey cattle. Salary paid. Box 0116, care of Michigan Farmer, Detroit, Mich.

DETROIT

The Auto Center is the
Logical Place
To

Your
Future



Training for
Head and
Hand

LEARN AUTO AND TRACTOR BUSINESS

Make \$500 a Month and More

depends on how you prepare yourself now. Trained men (the M. S. A. S. kind) are constantly in demand and are given preference. Employers know they have been trained according to factory specifications. That's why a diploma from the factory endorsed school in Detroit, the Auto Center, is a real start in business. Our graduates will tell you that employers were after them as soon as they finished their course, and that they held their positions when green men were laid off; or that their garage was filled with work as soon as people learned they had been to the M. S. A. S. in Detroit. It is not an unusual thing for our graduates in the garage business to

A Few Examples From Our Thousands of Successful Graduates

Carl Wright, Campbellburg, Ky., is 18 years old. Trained at the M. S. A. S. and is getting over \$40 a week.

Russell Naylor, Deport, Pa., is just 20 years old and is managing a large garage.

J. S. Steckel, of Coplay, Ill., was a loom fixer at \$18.00 a week. He trained at the M. S. A. S. and now he has a garage of his own paying a profit of over \$100 a week.

W. F. Harms, of Eldridge, Iowa, was a farm hand at \$35.00 a month. Today, after training at M. S. A. S., he has a garage business and three helpers; profits are \$500 a month.

Before training, Byron Hylton, at Floyd, Va., was working for \$40.00 a month. Now he has a half interest in a garage business that pays a profit of over \$1,000 a month.

Before training at M. S. A. S., H. A. Bradley, of Cleveland, was a shipping clerk at \$12 a week. Now he has a business of his own in Cleveland, monthly profits over \$500 a month.



Have a Business of Your Own

If you have an ambition to have a business of your own, there never was a better opportunity than there is now in the Automobile and Tractor business.

Opportunities for You

Start a garage, a repair shop, a service station. There are thousands of openings in good territories. Very little capital is required when you know your business. You can sell cars, tractors and all kinds of accessories in connection with a garage business.

Repair and operate Tractors. Many of our graduates train and go back to the farm and operate and repair tractors. There is big money in this work.

Factory and other positions open. The factories where they are turning out millions of automobiles, trucks and tractors each year always need real trained men.

Be a Salesman. M. S. A. S. graduates are in great demand as salesmen. Their complete and thorough knowledge of the business and the machines gives them a great advantage over the ordinary salesman.

Have a Tire Repair Shop. Think of the tremendous number of tires that require repairing each day in your district. Just multiply the number of cars by four.

Brazing and Welding is a good trade, too. Splendid opportunities for brazing and welding shops.

Or be a Lighting Plant Expert. Many positions open for service and installation experts in the farm lighting plant field.

All Leading Manufacturers Endorse Our School

HUDSON MOTOR CAR COMPANY

DETROIT, MICH. U.S.A.

The Michigan State Auto School in our opinion, is the finest institution of its kind in the country. In fact we endorse its method of instruction.

We have recommended a great many students to them and the results were satisfactory.

The Michigan State Auto School ranks highest in the standard of schools. Its equipment and personnel is second to none. This school is thought very highly of by the automobile men of Detroit and is considered one of the most efficient schools in the country.

If you intend to visit any school, then by all means choose the best one. The Michigan State Auto School, so far as we know is the best. You will make no mistake by entering for a course. Yours faithfully,

HUDSON MOTOR CAR COMPANY
Service Department



One of Our Class Rooms in Session



Our Repair Section. Get our Free Catalog Showing Over 100 School Pictures

MAXWELL MOTOR COMPANY

DETROIT, MICH.

Wish to say that this is one of the best schools in the country and would not hesitate to recommend it to anyone who is desirous of learning the automobile business. It is a recognized institution among the automobile factories of this city.

Their methods of instruction, their lectures and theories are 100 per cent perfect. With all of the equipment and with the practical work that the students are able to get in their own organization, I really believe that mechanics throughout the country are missing one great opportunity if they do not take advantage of their course. I do not know of another place in the country that has the number of different type motors, chassis and the thoroughness of going into various electrical appliances and equipments as used on modern motor cars, that I found in their school.

MAXWELL MOTOR CO., INC.
A. E. Richmond, Supt. of Service.

Big Demand for DETROIT Trained Men

Train in Detroit and be the best automobile and tractor man in your district. You can get a training here that is not possible elsewhere.

More than 180 of the leading automobile and accessory factories are located in Detroit. 94% of all automobiles are manufactured within a radius of 100 miles around Detroit and 71% are made right in this city. All leading manufacturers endorse and recommend our courses. The greatest automotive experts in the world are in Detroit and they helped outline our courses for you.

WHAT WE TEACH

Anyone can learn by our factory outlined, factory endorsed methods. M. S. A. S. training covers every point of knowledge and practice required of a successful automotive expert.

Automobiles and Tractors. We teach the automobile and tractor business from A to Z. Very thorough and complete training is given in electrics, starting, lighting, ignition, wiring, testing, repairing, including batteries, etc. Our equipment and instruction are positively the best obtainable. We give actual factory experience in assembling, block testing, bearing scraping, valve grinding, road testing, etc.

Farm Tractor Instruction. Complete and thorough instruction in the principles, construction and operation of automotive equipment used on the farm. Lighting plants, stationery engines, tractors, their care and repair are part of the M. S. A. S. Regular Course. Tractor Course includes actual work on M. S. A. S. 18 Acre Tractor Farm.

The M. S. A. S. Tractor Farm, located at Detroit city limits, is fully equipped. Here the student gets actual field experience and instruction in addition to the complete course given in class rooms and mechanical departments.

Tire Repairing. Complete training for operating a tire repair shop or for production work in a tire factory. Course includes retreading, vulcanizing, all types of cord tires, etc.

Oxy-Acetylene, Brazing, Welding and Cutting. Complete training in structural and repair work.

Life Membership. The M. S. A. S. can teach you how to conduct a business of your own successfully. You become a life member of the school and our Graduates' Service Department is ever ready to render any assistance possible. You will hold a Life Membership in the school, and may return years later and "brush up" on new equipment without charge.

Facts You Can't Afford to Overlook

In choosing an automobile and tractor school, there is one thing above all others to bear in mind, that is this—you cannot learn the automobile and tractor business properly in six to eight weeks. The leading manufacturers, all of whom assisted in outlining our courses, recommend ten weeks, or more.

The Manufacturers Know Their Business Our Course is Given as Specified by Them

That's why our graduates succeed, are constantly in demand and are given preference. Nowhere else can this factory outlined and factory endorsed course be found.

Money Back Guarantee

We guarantee to qualify you for a position as chauffeur, repair man, demonstrator, auto-electrician, garage man, automobile dealer, tractor mechanic and operator or farm lighting expert, paying from \$125 to \$400 monthly, or refund your money.

FREE Big 124-page Catalog

Send the coupon today for big 124-page illustrated catalog and copy of latest "Auto School News." They tell about Courses—show more than a hundred pictures of equipment—give letters from big auto factories and stories of success from graduates and opportunities for you. Resolve to learn the business in Detroit. The Heart of The Auto Industry. Use coupon now.

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Detroit, Michigan, U. S. A.

Gentlemen:—Please send me absolutely FREE New 124-page Illustrated Catalog. "Auto School News", and information as checked below.

(Mark each course you are interested in)

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[] Tire Repairing [] Brazing and Welding

Name

Street

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P.S.—Or, better still, you can expect me to look over your school about.....

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