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DETROIT, APRIL 3, 1920

CURRENT COMMENT

Sugar Beet Settlement Desirable

THE failure of the Michigan sugar manufacturers to favorably reply to the ultimatum of the growers to meet them in conference by March 20 is a disappointment to all who have the best interests of Michigan agriculture at heart. This result is the more disappointing because of the reports received from the western sugar producing areas to the effect that conferences have been, or are being, arranged looking toward the settlement of the points at issue between the beet growers and sugar manufacturers will show an

Obviously, the settlement of this controversy is impossible without the contending parties will meet to attempt its settlement, or submit their cases to some fair and disinterested tribunal for arbitration. The apparent lack of response on the part of the manufacturers, led to the suggestion of such a tribunal in our issue of March 20. The officials of the beet growers' organization have signified their willingness to submit their case to such a tribunal, to be composed of the circuit judges of the beet producing counties. This shows a spirit of willingness on their part to meet the manufacturers half way in a final attempt to secure a settlement which will save this industry to the state without compromising their stand for a fair division of its rewards. It is to be hoped that the sugar manufacturers will show an equal willingness to have their differences with the growers adjudicated by such a fair, capable and disinterested body of public men, to the end that the available equipment for the production and manufacture of beets may be profitably employed during the coming season, and continue to serve the balance of the public in a useful way, instead of lying idle, with a consequent loss to all concerned.

The time for effecting such a settlement is short if an optimum of sugar production is to be realized this year. But there is still time for such reasonable action, which we hope may be taken before the opportunity passes.

Beneficial Effects of Cooperation

AT first thought it would appear to the average man the only benefits to be derived from organization for the purpose of cooperative selling would be in the elimination of expense in the process of distribution and a consequent better profit for the producer. While this is the moving, primary object in cooperative selling enterprises, in most

cases it is found that the benefits derived from the standardization of products and the improvement of their quality is a direct result of organization for cooperative selling. And the profit to the producers resulting from this standardization and improvement of quality may easily exceed the saving in distribution cost effected through cooperative selling.

In the first enthusiasm for cooperative enterprises this factor is likely to be overlooked, but experience brings it out in nearly every case. Likewise, economies of production may be neglected to an unprofitable degree in the development of distribution plans. Economic production of quality products and economic distribution by cooperative action should go together for best results. And neighborhood cooperation is capable of profitable development along both lines.

Children Livestock Dollars

IT is time for more farmers to awaken to the fact that farms like some of the industrial corporations have two kinds of stock—the "preferred" and the "common." The owner of the farm may so manage the business that dividends on "preferred" stock—the good things of life that add to the comfort and happiness of his family are reasonably certain. But there is no known system of farm management that will make "common" stock dividends absolutely certain. A severe storm may ruin the crops, or disease destroy the animals before they are ready for market. If our farms pay only one kind of dividends let us make sure of some of the good things of life that we ought to be cashing in as we go along. The farm is not always a failure if it fails to pay large dividends on its "common" stock. It somehow appears that farmers, in some instances, need to be impressed with a spirit that considers the "preferred" stock dividends—the family comfort and happiness more than mere dollars. The farms do not pay now and probably never will pay so large dividends from a money standard as some other kinds of business. Their strong attraction is for people who appreciate things other than money. One of the first duties of parents is to instill a love for these other good things of life into the subtle minds of boys and girls rather than holding up the dollar as the standard of life.

The finest young animals in the world are the boys and girls, and it is interesting to watch their development. When we consider some of the fine things done by the boys and girls in the club way of growing crops and calves and pigs when under proper guidance, naturally the thought is suggested that their interest in farm life would become more permanent if they could have the kindly counsel of parents. If given encouragement to develop along the right lines and put their personality into the little things of farm life the chances are ten to one that they would not think of leaving the farm. Boys and girls do not always desert the farm and go to cities and towns because the social life and advantages in the country are not sufficiently varied and interesting. In too many instances their parents are so busily engaged in endeavoring to make the "common" stock of the farm pay dividends that they overlook entirely the "preferred" stock. It is probably due to this fact more than all others that the majority of desertions from the farm result.

While many writers have told us how to feed, train and develop colts, calves, pigs and lambs, and to care for our fields, it would be very interesting, indeed, if some of our practical farmer friends would write and tell us how they have managed to keep their boys and girls on the farm. Some live articles that would appeal to the high-spirited, red-blooded, one hundred per

cent American boys and girls from eighteen to twenty-one years of age, who know values and who are capable of putting such knowledge into practical, every-day use. It is easy to secure wishy-washy stories of how Johnny and Sally have been given runt calves and pigs, and who think that life on the farm is a most wonderful adventure when they get \$3.47 of the proceeds when the animal is sold. We know of a few good farmers whose families feel that they have an interest in the cow or brood sow regardless of who may have owned the calf or pig. We want to hear from farmers who understand boys and girls, and who have entered into partnership and mutual sympathy with them.

We believe that many farmers who refuse to take their boys into some kind of partnership or mutually satisfactory business relationship as soon as the boys are capable of doing a man's work on the farm deserve mighty little sympathy if the boys desert the farm as soon as they reach their majority. In many instances the relations between father and son become strained about the time the boy reaches an age when he begins to think and reason for himself, especially if he has ideas and opinions which he is not afraid to express. To be treated as a common laborer, constantly nagged, his opinions ridiculed and given no share in the profits of the business hurts his feelings. Real red-blooded boys will not endure such treatment; it is brutal, unfair and short-sighted from a business point of view.

It is certainly a great thing when the father can take his son into partnership with him and they remain friends and confidants, and when the son can tell his father his hopes, fears, plans and ambitions without fear of harsh reproof or unjust criticism. Some farmers are too proud to admit, even to their boys, that they have not made a success of their business. Naturally the boys think they are being treated unfairly when their father is practicing economy which to them savors of stinginess. If the father has not made his farm pay well the boys will frequently grasp the situation quickly, respect the father the more for his toil and his sacrifices, and together they face the problem. Interest and helpful cooperation between father and sons is only possible when there is complete confidence. Tell your boy about your business, make him the best proposition you can afford to make him, and then if you fail to enlist his cooperation it will not have been your fault.

Improving Poultry Products

EVERY farmer who keeps poultry should make an effort to establish uniformity in his flock. Eggs and dressed fowls sell to better advantage when they are of uniform quality. The consumers prefer eggs of uniform quality, and if they cannot get eggs of this kind from the farmer he prefers to deal direct with the dealer who grades and sorts them to conform to the consumer's fancies. The same rule holds good for the purchase of dressed fowls. Experienced market authorities agree that careful attention to such details will add from ten to twenty per cent to the selling price of eggs. A careful survey of farm flocks in some of our communities indicates that farmers are neglecting this phase of the business by keeping flocks of mongrel birds, and as a result some of their eggs are white, some brown, some large and some small; and all other shapes, sizes and colors between. Keeping such a flock is poor business policy, especially when the products must be sold for from ten to twenty per cent below the cost of more uniform ones. The only kind of a flock that will pay maximum returns for feed and labor is the uniform flock of purebred fowls that look

alike, grow alike and begin laying at about the same time and produce eggs that are alike in quality and appearance. Such a flock can be managed in such a way as to simplify the feeding problem and make it possible to handle a larger flock with the same amount of labor as is now employed in handling a smaller flock. Specialization in breeding is not necessary to establish uniformity in the farm flock. The farmer can add the new blood through the purchase of eggs or baby chicks. This is easier and safer than attempting to conduct expensive breeding operations.

News of the Week

Tuesday, March 23.

WASHINGTON state ratifies the proposed suffrage amendment to the federal constitution.—Gustav Noske, German minister of defense, resigns and the probabilities are that the Ebert cabinet will quit.—Fighting continues in Leipzig and Halle between troops and workmen.—Orders for the deportation of 120 radicals held at Fort Wayne have been issued by the immigration department at Washington.—South Dakota holds presidential primaries, being one of the first states to vote on nominees.—Wire communication is seriously disturbed by an unusual display of aurora borealis or northern lights.

Wednesday, March 24.

THE allied supreme council permits the Ebert government to send German troops into the Ruhr district near the Holland frontier to restore order.—Preliminary returns indicate that General Leonard Wood is leading in the South Dakota primaries.—A note to the allied supreme council from the State Department at Washington reiterates the American demand that the Turks be expelled from Europe.—Eight persons are killed in traffic accidents in Detroit during the past week.—It is reported that 16,000 anti-Bolshevik soldiers were found frozen on the steppes of Siberia.

Thursday, March 25.

INDICATIONS of heavier fighting in the Ruhr district are reported. The United States will join with Great Britain and Italy in opposing any military action in the Ruhr valley.—It is reported that there are over 200,000 cases of typhus in central and eastern Europe.—Suspension of work in the anthracite coal fields on April 1 has been averted through an agreement between operators and workers.—Almost complete reports on the South Dakota primary election gives Wood a plurality of about 4,000 votes over Lowden and about 6,000 votes over Johnson for the republican nomination for president.

Friday, March 26.

GREAT Britain seizes a shipload of artillery rifles destined for Dublin.—Wesel, Germany, is captured by revolutionary workmen from government troops.—President of the French aero club predicts that it will be possible within a few years to circumnavigate the globe in four days.—The senate committee on appropriations reports favorably on \$105,649,871 for the legislative, executive and judicial departments of government.—An agent of the Lenin government of Russia is reported to be in Germany directing the present revolt.—Canada is ready to demobilize her naval officers.—Delaware holds hearing on suffrage amendment to the federal constitution.—During 1919, 52,064 Americans settled in Canada.

Saturday, March 27.

THE Turkish commander in Thrace orders a mobilization of Turkish troops, and announces he will oppose the occupation of Constantinople by allied troops.—The Turkish ministry resigns.—Martial law is introduced in Russian railroad workshops to put an end to idleness and slacking.—Representatives of farm organizations approve bill for marking woolen fabrics, now before congress.—Bank clearings in the United States have gained thirty-five per cent since a year ago.—A strike in Buenos Aires has paralyzed traffic in that port.—Free trade in the prime necessities of life is arranged for between Japan and Argentine.—Four persons are killed in a snow slide near Salt Lake City.

Sunday, March 28.

A GIGANTIC military offensive by a powerful Bolshevik war machine is said to be in full swing against Poland and military critics believe that the Russian armies intend marching to (Continued on page 574).

Dusting for Fruit Disease Control

*The Scientist's Viewpoint by Dr. G. H. Coons,
Michigan Agricultural College*



NO subject is arousing greater interest among horticulturists to-day than the consideration of dusting, its possibilities and limitations. One might almost say that fruit men are divided into two groups—those who dust and ardently champion the method, and those who spray and are equally positive that their method is the only safe and sure one.

In the absence of facts, many arguments arise and controversy runs high, be the matter horticultural or be it any other sort of thing. It is not peculiar to agriculture that there are unsolved problems to arouse debate, but it is in a way peculiar to agriculture that the problems presented are marked by, and involved in, so many contributing factors that years are necessary for determining the facts.

Dusting vs. spraying is thus following true to horticultural form. Not so many years ago the debate arose about the relative merits of lime-sulphur or Bordeaux, and men were equally positive on one side or the other, as they are today either for or against dust. It is interesting to note that in this case many of the men who championed Bordeaux are using lime-sulphur today, and many who used lime-sulphur are either casting about for something else or are using Bordeaux, as of old.

It is the writer's purpose to review the case both for and against dusting and, without being partisan, to attempt to draw conclusions from the present-day findings. Being convinced that the case needs the presentation from the horticulturist's side as well as the plant pathologist's side, I have asked the editor to secure it from a practical horticulturist whose judgment everyone in the state recognizes, a presentation of the case as he sees it, as a practical fruit grower.

Historically, dusting as a plant dis-

ease control measure is older than spraying. Nearly seventy-five years ago French peasants adopted the application of sulphur in the dust form as their control measure against powdery mildew, and exactly as dusting became a vineyard practice, so did the yield of grapes gradually come back to a normal production. Dusting was the one method of control possible at the time and it saved the vineyards of France. From that time, it has been recognized that sulphur is a specific against mildews and given dry, hot weather its efficiency is all that we can ask. Even now, in California, where the conditions in the growing season are such as to make sulphur most efficient, dusting is the standard control measure against the powdery mildew.

Little was done, aside from desultory experiment, in the next fifty years to control plant diseases. The knowledge of plant disease, the study of the parasites concerned, was in its infancy. With the epoch-making discovery of Bordeaux mixture by Millardet of France, there arose the practice of giving plants a fungicidal coat as protection against invading enemies. For years little was done in plant protection or the control of plant diseases, aside from the improvement of the original Bordeaux mixture and the methods and times of its application. In the years of work between 1890 and 1900 machinery for spray application was being improved. And not without its own interest is the part which Mich-

igan took in this work of development of efficient control measures.

In the period between 1900 and 1908, dusting was subjected to rather extensive testing. T. A. Farrand at the South Haven Substation in 1905 was among the pioneer workers who gave dusting a trial. This work indicated that codling moth was controllable by the method. But Illinois experiments conducted by C. S. Crandall in 1906 showed conclusively that the dust method did not give satisfactory control of scab or bitter rot. A glance at the pictures in their report told the story of failure to obtain satisfactory results. This dusting was with Bordeaux dust and Paris green.

With the discovery by Cordley, in 1908, of the value of lime-sulphur as a summer spray in control of apple diseases, a new era in fruit protection was inaugurated. Quickly, this new spray was tested by various experiment stations and in this work the Michigan Experiment Station experts made an enviable record by their tests and their contributions to our knowledge of how lime-sulphur acts. In this connection should be mentioned the work of Dr. Shafer of the Entomology Department, who worked out the principle underlying lime-sulphur's action as a scalecide.

At the Cornell Experiment Station was begun a series of tests with sulphur dust in the control of apple diseases. This work was carried on by Mr. Blodgett, who had had experience

in the control of hop mildew by sulphur dust. The success of self-boiled lime-sulphur, which being a spray mixture extremely weak in polysulphides but rich in free sulphur, gave to this investigator strong reason to expect good control when sulphur alone was used. With the sulphur, lead arsenate in dust form was used, and this combination was successful in producing in a year when scab was fairly common, a satisfactory yield of clean fruit.

Since that time the Cornell Station has carried on year after year of test and satisfied itself and numerous fruit growers of the state that dusting has merits which can not be overlooked. So confident were they of the value of dust that the matter became an extension project of Cornell University and many demonstrations were started. Of the outcome of these trials, more will be said later.

The Michigan Experiment Station entered the field in 1915 and has continued each year since then. This work has been published in Special Bulletin 87 of the Experiment Station, by W. C. Dutton, who has had charge of this line of experiment. This bulletin is still available, and for the Michigan fruit grower gives a set of results obtained under Michigan conditions, which are applicable to the Michigan fruit-growers' problems. This bulletin also gives complete account of relative costs, and as such is a valuable piece of work in enabling a fruit man to decide upon his practice. Since that time, at least a half dozen stations have been dusting and commercial orchards have tested the method under their own conditions.

The fruit man is sometimes a little impatient with the experimenter when this man, working on a problem and cognizant of its many phases, will not (Continued on page 536).

How the Practical Man Views Dusting

By C. B. Cook, County Agent, Oakland County

THE dusting idea is by no means new. In dryer sections this recourse against insect and fungus attack has been in vogue for many years. In Michigan and other sections more or less surrounded by water the problem of protecting fruits and vegetables against their enemies is by no means easy. In wet seasons nothing but the most thorough methods in spraying have given susceptible varieties of fruits that freedom from attack that insures the quality demanded by our better markets.

Dusting has had more to its credit in a state like Michigan than many authorities have been willing to concede.

In order to make the duster a factor in the more humid sections, a few principles must be especially noted. First, a type of machine that would develop sufficient power and capacity to make the dust reach every particle of the area to be treated. Second, materials so finely ground that they can as completely cover every part of the exposed leaf and fruit surface as will the spray mixture. Lastly, it has been very important to get away from any accepted schedule found adequate for liquids and work out a formula that should be especially adapted to a humid climate and the dusting principle.

The last few years have seen these principles all worked out with a reasonable degree of satisfaction, and at present, we feel as secure in planning to fight all summer insects and fungi with the dusting system as it was ever

possible to do with the liquid sprays. There is so much uncertainty about plant lice that it is probably safer to except this pest from the above list of enemies. It comes so quickly and often departs so unexpectedly that it may be necessary to speak conservatively; however, both black leafed forty and tobacco dust used properly have the reputation of making it warm for the green louse.

We have also used a strong lime and sulphur solution—home-made—successfully against this pest. If applied as the newly-hatched lice cluster on the buds, before the latter expand enough to afford a hiding place, scale and lice can be caught at the same time. When first hatched, they are covered with a fine fuzzy coat and only a high pressure at the nozzle can drive the lime and sulphur fluid through to the enemies "hide."

Friends of the duster are no longer rare. Many of Michigan's best fruit growers, both apple and peach, have adopted this type of equipment as a regular business. In our own experience, we find the dust carrying such susceptible varieties of apples as Spy, McIntosh Red, and Snow as free from any signs of scab as any treatment we have ever used.

Our first experience with the duster came in 1917 when very wet weather made the heavy spray rig very difficult to handle. The light dusting rig ran lightly over the mud and effectually covered the trees in about one-fifth of

the time required by a large-sized spraying outfit. During the long run of wet weather during that year the dust held the scab in check fully as well as did the lime and sulphur solution that was intentionally used on parts of our orchards.

In 1918 the price of dusting materials went so high that we preferred to use liquids already on hand rather than encourage an almost prohibitive price on dust.

Sulphur dust is bad for the eyes. If one desires a "night of weeping" let him handle sacks of dust and other sulphur equipment carelessly. Self-protection and regard for horses as well, prompts the humane operator to work with and not against the wind. Also to keep bare hands that handle dusting material completely away from the face and eyes until washed. The least smattering of this material in the eyes gives the user an idea of what the enemy is up against when the "guns are turned loose."

Sulphur dust must be applied frequently if we would play safe with apple scab in a wet time. Just ahead of a rain is a very good time to destroy the spores of disease that may be lurking around leaves and fruit waiting for a little moisture to give them a start. Once rooted to leaf or fruit, these spores become masters of the day and generally get away with their victim.

A general impression has been current for some time that dust is more

lasting if used when foliage is damp or dripping with dew or rain. We are not sure that a fine dust sticks to a wet surface better than it does to a dry. Many auto drivers say a machine cleans up harder after a drive across the country in a very dry time than it does when the trip has been made in the rain. However, we are reasonably sure that either method followed persistently will give a crop of fruit free from worms, scab, and other bad fungus diseases. It must be remembered that dust should be used frequently if a high degree of protection is desired. At least two applications to one used in case of liquids is highly essential on fruits that scab easily.

We can hardly draw this article to a close without a word as to the effect on foliage and fruit surface. Spray injury is but a nightmare when dust becomes the protective agent. The influence of sulphur on many varieties of red apples is well known to the fruit grower who has pinned his faith to the lime and sulphur solution. As far as our observation goes, the effect of sulphur dust on such fruits is likewise beneficial. Dusted trees show a strength and vigor of foliage that is surely gratifying to the fruit grower. We have never used any class of spraying material that has given apple foliage such a fine, luxurious appearance that tells the grower most emphatically that a medium is at hand which can say to Dame Nature, "do your best."

News of the Agricultural World

ILLINOIS WOOL POOL.

ARRANGEMENTS have been made with the National Wool Warehouse & Storage Company of Chicago, whereby members of the Illinois Agricultural Association may pool their wools similar to the plan followed last year. The Live Stock Marketing Department of the Illinois Agricultural Association believes that, looking to the future in the interest of better wool marketing facilities, it is advisable to pool Illinois wools, yet no effort will be made to induce individual producers to pool their wool unless they feel fully justified in doing it.

Attention should be called to the fact that this is a presidential campaign year and it is quite possible that the wools will not be sold quite as readily as they were last year. In other words, that returns will be longer in coming in. Plans are being perfected whereby a representative of the Illinois Agricultural Association will be at the National Wool Warehouse & Storage Company to receipt for consignments of wool as soon as they arrive. It is also planned to send the producer or the farm advisor, a report of the grading of the wool as soon as it has been graded.

There was some criticism last year because of the seemingly exorbitant cartage charges. This experience should suggest that local freight shipments on small lots be avoided wherever possible and that, by shipping in carload lots this high cartage cost can be eliminated. That there may be no misunderstanding, there will be a charge of three cents instead of two and a half cents per pound by the National Wool Warehouse & Storage Company and an additional half cent to their association. No additional charge is being made by the Illinois Agricultural Association this year.

An early order for wool sacks, figuring two hundred pounds of wool per sack, will insure an ample supply. Sacks are scarce and high. If ordered soon they will cost approximately ninety cents each. Paper twine should be used in tying the fleeces. Orders for twine may be made at the same time sacks are ordered. H. W. M.

INDIANA BERRY GROWERS SEEK BETTER METHODS.

COUNTY agents of the Borden and Floyds Knobs sections are working among Indiana berry growers to bring about much needed improvements in the grading and handling of berries from southern Indiana sections what has been for several years a declining industry.

Many of the trade will remember the days when the southern Indiana berry was held in highest esteem upon the majority of the northern markets and they will likewise recollect the period of decline which followed the placing upon the market of a superior product from competitive sections. That Indiana lost her place in the sun through the failure of her growers to keep apace with modern methods of handling and grading and because of the poor condition in which shipments from Indiana points have been received, has been realized by the growers and it appears now that efforts are being made to prevent the "extinction" of the industry.

V. J. Mann, of Charlestown, has been particularly active this past season in securing assistance from the Federal Bureau of Markets and the agricultural college in conducting investigational work in connection with the handling of the crop. Two special agents from the Bureau of Markets and a produc-

tion specialist from the university spent several weeks during the 1919 deal in conducting temperature tests and other experimental work in connection with the Indiana berry crop.

IMPORTED CLOVER SEED UNSAFE.

CLOVER seed imported from abroad or from other sections of the country is unsafe for Michigan planting. The best and really cheapest seed for Michigan farmers is Michigan-grown, purchased from dependable local dealers—even though the cost looks high as judged by past prices.

As never before, large out-of-the-state seed companies are advertising for sale in Michigan, seed mixtures at apparently attractive prices. In reality this seed is usually of lower standard of purity and germination than that offered by dependable local dealers, and it may cause great loss to Michigan farmers.

smallness of the seed. Many who ordinarily plant eight or ten pounds of red clover to the acre may find it economical to use four pounds of red and two of alsike.

In sections where red clover does not catch well, due to lack of lime or other unfavorable conditions, a mixture of red and alsike will often give better stands than red alone. Clover seed is scarce and high, and every effort must be made to increase the production in Michigan. Secretary A. M. Brown, of the M. A. C., himself a practical farmer, makes the suggestion that every farmer in the state buy at least enough clover seed to plant a field to furnish him with enough seed to plant his entire clover acreage the next year. In view of the great shortage, and the need for Michigan-grown seed, we are urging that every effort be made to plant as large areas as possible of this important crop, and that farmers make it a point to harvest as much as possi-

Twenty-five thousand bushels of Nebraska certified seed were produced last year. They averaged fifty cents a bushel above the price of uncertified seed.

Thirty-four growers applied for the certification service last year, and seed produced by fourteen of them was approved as good enough to protect the reputation of the state. The fourteen growers produced 25,000 bushels, mostly of the Triumph variety.

The object of the certification service is to encourage the development of the seed potato industry in western Nebraska, to help growers of superior seed to find a proper market, and to give Nebraska growers an inspection system whereby they can compete with other states. Many states are now demanding certified seed and Oklahoma will admit no other kind.

A SHORTAGE OF TEACHERS.

THE country is faced with a serious shortage of school teachers, chiefly through failure to provide adequate salaries, according to reports to the United States Bureau of Education.

Conditions are becoming slightly better, however, the reports states, in some sections, compared with those of last October, when the National Education Association conducted an inquiry into the situation.

A. O. Neal, of the bureau's division of rural education said there is an increasing withdrawal of men teachers from the profession, the percentage of male teachers in 1918 being only seventeen per cent, or one in every six.

Based on returns from state school officials, the reports show that on February 13 last there were 18,279 schools closed because of lack of teachers, and 41,000 being taught by teachers characterized as "below standard, but taken on temporarily in the emergency." Greater shortages are shown to exist in southern states.

Responding to a questionnaire sent out by the commissioner of education, a great majority of the states in which schools are closed report that children are being transferred to other districts, while the remainder report pupils losing their grade. To another question as to what extent taxpayers are interesting themselves in paying better salaries for teachers, the response was almost unanimous for an increase.

Salaries paid teachers in 1918, statistics show, were on an average of \$606 for elementary teachers, and \$1,031 for those teaching in the high schools. From salary schedules collected from various states, it is shown that wages paid rural teachers fell far below the foregoing average in many states, many localities showing salaries paid as low as \$150 and \$200 a year.

In 190 state, county, city and private normal schools, representing sixty per cent of the total normal schools in the country, there were 11,503 fewer students enrolled on November 1, 1919, than during the pre-war period. A similar falling off is shown in teacher-training departments in colleges, while other departments show great increases in enrollment.

OVERDUE MORTGAGE.

We have a mortgage overdue. Would rights under it be lost by letting it run? M. A.

A mortgage can be foreclosed at any time within fifteen years after it is due even though the notes secured by the mortgage would be outlawed in six years. J. R. R.

National Program for Better Schools

United States Bureau of Education

1. A minimum school term of not less than one hundred and sixty days.
2. A sufficient number of teachers adequately prepared for their work.
3. The consolidation of rural schools where practicable, and where impracticable to make the one-teacher school the best it is possible to make it by placing therein an adequately prepared teacher.
4. The teacher's home and the demonstration farm of five or more acres as the property of the school and as an illustration for the community in better home-making and in better farming.
5. An all-year session of school adapted to local conditions—school home projects similar to the work which Superintendent E. J. Tobin has carried to such a signal success in rural Cook county, Illinois.
6. Community organization with the public school building as a social and civic center.
7. Free county public libraries similar to the California plan.
8. A high school education for country boys and girls that still allows them to secure such education without breaking home ties.
9. Such readjustment and reformation of the course of study in elementary and secondary rural schools as will adapt them to the lives of the people they are to serve.
10. The elimination of illiteracy.
11. Better civic and patriotic instructions so as to make true Americans of all who live under the Stars and Stripes.
12. The conservation of rural health.
13. Good roads as related to better rural schools and the improvement of country life conditions.
14. The needs of the farm woman.
15. Federal aid in cooperation with the states in carrying out the foregoing program to its ultimate success.

A warning against extensive seeding of Giant Incarnate or Crimson clover is given farmers of the state. This variety is adapted to sections south of the Ohio river for fall planting, but it will not live over Michigan winters except when conditions are extremely favorable. It is not adapted to spring planting.

Information is reaching the college to the effect that large shipments of clover are coming into the United States from Italy. This seed also is not adapted to Michigan conditions.

Michigan-grown seed of red, alsike, or mammoth clover is best for Michigan conditions. Seed of these varieties grown in other northern states or in Canada is also acceptable. The seed is recommended by the college crops department for a mixed hay is: Four pounds of red clover, two pounds of alsike clover, and from two to four pounds of timothy. Alsike, though selling at approximately the same price as red, will go farther, owing to the

ble for seed purposes.

East Lansing. Prof. J. F. Cox.

NEBRASKA CERTIFIED SEED POTATOES.

To further secure the reputation Nebraska certified seed potatoes have obtained in southern and middle western states, H. O. Warner, secretary of the Nebraska Potato Improvement Association and in charge of potato work at the state college of agriculture, has announced that the certification inspection service of the state will be continued this year in western Nebraska.

Though the inspection service was first established in this state last year, Nebraska certified seed have already made a favorable impression in several states. One Texas dealer wrote Mr. Warner that a carload of Nebraska potatoes which he recently bought were the best seed potatoes he ever handled. Almost as flattering reports years.

Michigan's Place in Agriculture

By Verne H. Church, Field Agent
U. S. Bureau of Crop Estimates

UNTIL one has had the privilege of visiting every part of the state of Michigan, he can scarcely appreciate the size of the empire lying between Lake Superior and Lake Michigan and between Lake Michigan and Lake Huron. A casual glance at the map does not wholly satisfy the sense of proportions nor measure the real distances. If a rule is laid on the map of the upper peninsula and the extreme length from east to west determined, and a similar measurement made of the lower peninsula from north to south, it may be a surprise to some to find that the upper peninsula is considerably longer than the lower peninsula, and that nearly one-third of the land in the state is in the upper peninsula. Taking the rule again and placing one end at Detroit and measuring the air-line distance to the western extremity of the upper peninsula and, with this distance as a radius and Detroit as the center, describe a circle. The circle will pass through Albany, within a few miles of New York City, beyond Philadelphia, fifty miles beyond Washington, beyond Ashville, between Knoxville and Chattanooga, and a few miles beyond Nashville, Cairo, St. Louis, Hannibal, Keokuk and Waterloo, (Iowa). It incloses a part or all of eighteen states as well as a considerable slice of Canada.

When we meet a foreigner having the physical characteristics of his race well outlined in his face, some will facetiously remark that he is wearing the map of his native country. Not only every native son and daughter of Michigan, but every normal person in the world carries a map of the lower peninsula with him from the cradle to the grave. A look at your right hand will convince you of the fact, and that Michigan bears this singular honor is a distinction worthy of the state. When we summarize and analyze the state's great resources, we find that there is little in the world needed for the comfort and happiness of mankind that is not produced within the hollow of that hand. It is said that cotton is the only necessary product that we import, and our scientists and investigators are already working on the problem of supplanting that commodity with the lint of other plants that are grown within our borders.

All of the primary resources, agriculture, mines, forests, fisheries, water power, and water transportation are present in abundant measure and sufficient to make the state, what it is fast becoming, a leader in the manufacturing world. However, this brief article will be limited principally to a discussion of its agricultural resources.

It ranks twenty-first in total area and in the amount of land in farms. In 1910, only a little more than one-half of the total area was in farms and only about one-third had been improved. In 1919, the value of its crops is estimated at \$415,615,000, or twentieth place among the states. The value of live stock on farms, January 1, 1920, was estimated at \$236,000,000, the state ranking thirteenth in this respect. It grows more white beans, mint, chicory and cucumbers than all other states combined, and in 1919 it produced more corn than one-third of the states of the Union combined. It ranks second in the production of rye and potatoes; third in sugar beets and clover seed; fourth in buckwheat and cabbage; sixth in apples and pears; tenth in barley and winter wheat; twelfth in tame hay; fourteenth in oats, and seventeenth in corn.

In the production of the thirteen ranking crops of the United States, Michigan is given nineteenth place. This low rating is due to the fact that only eight of those thirteen crops are

grown on a commercial scale in the state. The five not grown to any extent are cotton, tobacco, sweet potatoes, rice and flaxseed, but let us see if we cannot buy our share of these crops with the proceeds of other crops that we do grow. Our bean crop will buy us thirteenth place in cotton; our apple crop, eighth place in tobacco; our sugar beets, fifth place in sweet potatoes; our clover seed, fifth place in rice; and our pear crop, fifth place in flaxseed. No other state could make this same substitution and only two, New York and California could make a different one.

With reference to the yield per acre, let us examine the ten-year average yields in Michigan with the leading states in the production of principal crops. We say "Corn is King," but not many are willing to admit Michigan to a place among the corn states, nor have we ever made any great claims in that direction. Iowa is first in the production of corn with a ten-year average yield of 3.8 bushels per acre greater than Michigan; Illinois is second with 2.8 bushels more; and Texas is third with 14.2 bushels less. In 1919, Iowa's yield exceeded Michigan's by 2.6 bushels; Illinois fell 4.0 bushels below us; and Indiana lacked 2.0 bushels of coming up to our average. When consideration is given to the fact that lands of similar character bring from two to three times the price in Iowa, Illinois and Indiana that they do in Michigan, the slight difference in average yield is a rather poor return for the greatly increased investment of capital.

Kansas leads in winter wheat production with a ten-year average yield

3.1 bushels less than that of Michigan; Missouri is second with a yield of 2.6 bushels less; and Illinois is third with 0.6 bushel less. Last year, the yield was greater in Michigan than in all other states except three.

The leader in the production of oats is Iowa with an average of 2.8 bushels more than Michigan; Illinois is second with a yield of 3.9 bushels more; and Texas is third with a yield of 6.3 bushels less. California, which is first in barley production, has an average yield of 2.4 bushels more than Michigan; South Dakota is second with an average yield of 3.9 bushels less; and Minnesota is third with an average yield of 1.4 bushels less.

North Dakota now leads in rye production but it required 1,687,500 acres in 1919 to grow what Michigan grew on 900,000 acres. However, the average in that state is only 0.6 bushel less than in Michigan.

New York leads in potato production with three bushels per acre to her credit; Wisconsin and Minnesota are second and third with twelve bushels each per acre more than Michigan. The fact that Michigan is falling behind in this one crop, is good evidence that steps should be taken to improve these yields through the use of better seed, standardized varieties, and better cultural methods. The average yields in Ohio, Indiana, Illinois and Iowa range from ten to sixteen bushels less than in Michigan, but those states make no particular claim as being potato states.

Hay yields vary less between the different states than most other crops. New York leads in production with an average yield of .04 ton less than

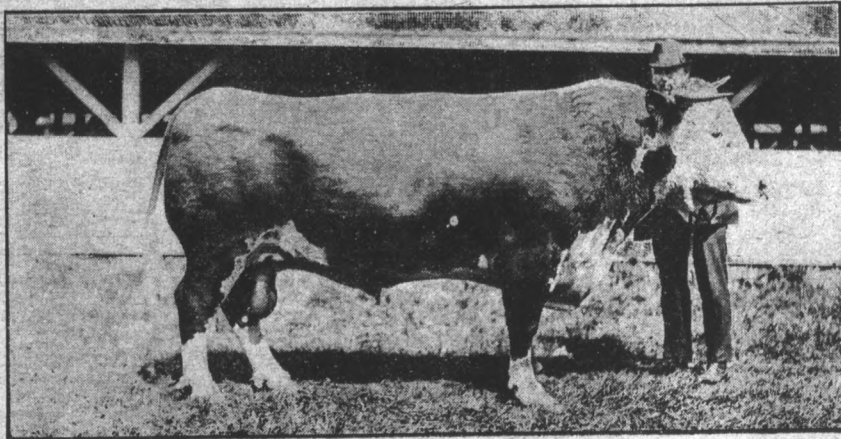
Michigan; Iowa is second with a yield of .07 ton greater; and Illinois is third with an average of .07 ton less. Therefore, it may be seen that we are holding our own on hay yields as well as on the yields of most of the other principal crops in comparison with leading states.

Our real rank among the states is partially obscured by the fact that our crops are so varied and our interest divided among so many different ones. For this reason our total production of some of the principal crops naturally does not come up to that of states whose efforts are centralized on, and whose climatic conditions limit their crops to, a much smaller number. Our great variety of crops is not merely the outgrowth of a large variety of soils but to the fact that our range of climatic conditions is unusually large, due to the proximity of the Great Lakes, particularly the effect produced by lakes Michigan and Superior.

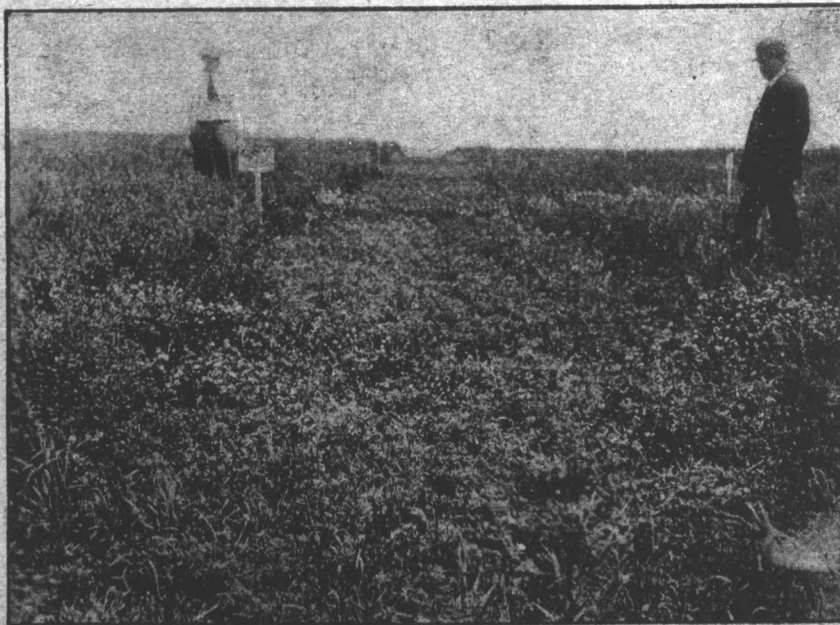
While living in adjoining states, the writer noticed a marked prejudice against Michigan on the part of home-seekers. The chief reason for this attitude seemed to be a lack of information and a superabundance of misinformation, for which we of the state of Michigan are chiefly to blame. There is no just reason why a farm in Michigan goes begging on the market at \$100 to \$150 per acre when it would sell quickly at \$350 if it were located in Illinois or Iowa. Why should we sit idle and allow people of other states to find out these things by accident? We have, in addition to our great agricultural and other resources mentioned, a great profusion of lakes, beautiful scenery, excellent fishing, and the best summer resort climate of any section between the Rocky Mountains and the Alleghenies. Why do we not tell our friends in other states about them? If we spent one-fourth as much in advertising our resources and attractions as does California, our land values would double immediately and we would all be kept busy in entertaining and producing for our tourist visitors.

A few years ago a newspaper man stated that Michigan needed an alarm clock. We agreed with him. We are not too modest nor too penurious to speak of and advertise our good qualities, but rather too busy with our own affairs to spend any time or money telling others of the good features of our state. Advertising of the right sort pays, and to get our share of the results we must advertise as extensively as our competitors. Outside of the work that our meagrely-supported development bureaus and some of the railroad companies have been able to accomplish, which has been of a highly commendable sort, little has been done in Michigan to attract home-seekers or protect the interests of those who come voluntarily. Not a publication is issued that tells the home-seeker what he would like to know, or gives the information he needs to make an intelligent selection of a location. Machinery should be provided by the state for the collection of complete county agricultural statistics, and from these figures charts and tables should be prepared showing the resources, development and adaptability of each county, to which should be added selected views of choice scenery, and complete and accurate descriptions of soil, topography and climate and detailed information relative to market conditions, educational facilities, social and religious institutions and many other things of interest to the prospective settler. Such a volume would be of equal interest and value

(Continued on next page.)



One of Allen Bros. Hereford Sires.



The High Average Yields of Crops in Michigan Are Due Largely to the Big Crops of Legumes Her Farmers Are Able to Grow.

From Our Washington Observer

HEARINGS on the pure fabric legislation now being held before the House Interstate and Foreign Commerce committee, are attracting to Washington quite a number of representative wool growers. There are several bills before the committee designed to prevent deception in woven fabrics, but the Truth in Fabric bill introduced in the house by Representative Burton L. French, and in the senate by Senator Capper, is evidently the measure most nearly meeting the approval of wool growers and the public generally.

The Rogers bill is general in its scope, aiming to protect the public against fraud by prohibiting the manufacture, sale or transportation in interstate commerce of misbranded, misrepresented or falsely described articles; but it is not thought to be sufficiently specific in its provisions to meet the requirements of a pure fabric act.

The French bill and the Rainey bill are similar in their purposes, but the French bill provides machinery for the enforcement of the act, while the Rainey bill does not. The French bill requires not only the stamping of fabrics and tagging of garments made therefrom with the percentage of virgin wool, shoddy, cotton and silk they contain, but defines each of these materials.

The arguments so far have been strongly in favor of the proposed legislation "to prevent deceit and profiteering that result from the unrevealed presence of substitutes for virgin wool in woven fabrics."

Representative French reviewed the history of textiles for the past fifty years, showing the enormous increase in shoddy as compared with wool in woven fabrics. His bill is based upon the recognition of shoddy as a useful product, the supply of virgin wool being so small that we could not get along without shoddy; and to say that the manufacturer would lose by the use of the name shoddy is to say that he is selling his products under false pretenses.

The term "all wool" now means one thing to the manufacturer and another to the public. The public understands that "all wool" means the fresh virgin wool from the sheep's back, while the manufacturer applies the term to shoddy made from woolen rags.

Dr. F. R. Marshall, representing the National Association of Wool Growers, with headquarters at Salt Lake City, said the members of his association, owning upwards of eight million sheep, were much interested in this legislation, and were favorable to the French bill.

It was pointed out by Mr. Bonney, of the National Sheep and Wool Bureau, that the opposition to the Truth in Fabric bill was based on the theory that it is to the interest of the people to be kept in ignorance as to the contents of the woven fabrics. Encouragement of the wool industry, he said, is essential to the security of the country. No country is safe unless it is able to clothe its people. Representatives of the woolen and shoddy manufacturers are in attendance and will no doubt undertake to show that the methods of marking woven fabrics as provided in the Truth in Fabric bill are impracticable.

Secretary of Agriculture Meredith recently received a large delegation of grain growers and elevator men from the northwest, asking him to modify the existing grain rules. It was said that no one was benefited by these rules except the millers, and they did not ask for it. They caused more dissatisfaction than anything else the farmers had had to contend with. It

was also shown that while the country elevator men are obliged to grade much of the wheat as No. 2, and No. 3, the millers mixed these grades with No. 1 in such a way as to make No. 1 flour. The federal grading system is too technical, and the buyers use the technicalities to reduce the grades and prices.

Congressman Andrew J. Volstead, of Minnesota, said that for many years Minneapolis grades had dominated the situation; that they were the result of a development in which the growers and dealers had cooperated, and gave general satisfaction. He argued for a return to these old grading rules. "If the Department of Agriculture wants the support of the farmers," he said, "it should give a grading system that the farmers can understand, one that will enable the practical man to determine for himself the quality and proper grade of the grain."

It was asserted that the present grading system in the three years, in which it has been in force, has cost the spring wheat growers sixty million dollars. Farmers who are members of cooperative elevator associations get some of the profits returned to them, but in the line elevators the dealers get all the advantages.

Secretary Meredith and other department officials were much interested in the discussion, and it is safe to predict that there will be substantial changes made in methods of grading wheat that will make them more acceptable to the grain growers.

The National Board of Farm Organizations has prepared and submitted to the presidential candidates a questionnaire, asking their views on a number of problems in which the farmers are especially concerned. Among the questions asked are these: Will you do your best to bring about such direct dealing between producer and consumer as will secure to the farmer a fair share of the wealth they create; to secure to farmers and consumers the right of collective bargaining; to see that the farmers are represented on boards and commissions in whose membership various interests are recognized; to appoint a secretary of agriculture satisfactory to farm organizations; to secure improved credit facilities on reasonable terms for farmers; to secure the payment of the war debt by a chiefly graduated income tax; to enforce the national conservation policy; to secure and enforce effective federal control over the packers and other great interstate combinations of capital engaged in the manufacture and distribution of food and other farm products and farm supplies? The candidates are also asked if at the end of two years of further trial of private ownership the railroads fail to render reasonably satisfactory service to the people, will you then favor reopening the railroad question?

T. C. Atkeson, Washington representative of the National Grange, and W. I. Drummond, chairman of the board of governors of the International Farm Congress, have issued a statement disapproving of the questionnaire, and disclaiming any responsibility for themselves or their organizations.

The elimination of the profiteer is sought in a bill introduced in the house by Representative W. C. Lankford, of Georgia, and referred to the committee on agriculture. This bill provides for the establishment in the Department of Agriculture of a Bureau of Producer to Consumer Exchange. The bureau is to be under the control of a director appointed by the President, and shall draw a salary of \$12,000 a year.

The director is empowered to employ agents to whom producers may deliver products of the farm, garden,

mine and factory, and they shall be employed in such number and be so located as to receive for transportation the products offered for sale.

The bureau will encourage the producer of foodstuffs and other staple products sufficient to supply all demands for such supplies and endeavor to secure a profitable sale for such products. The director is given authority to determine the price to be paid for products and the price to be collected at the time of delivery, and he shall so far as possible pay a sufficiently high price for products to make it profitable to produce them, and shall at the same time negotiate the purchase of said products at a price sufficiently low to make the cost to the consumer as low as possible. An appropriation of \$100,000,000 is asked to finance the bureau.

This is an ambitious program in direct farm to consumer dealing. If fully developed it would put the private handlers of produce out of business to a large extent, and replace them with government agents. It would turn the handling of the smaller farm products almost entirely over to the government. I am not aware that any of the great farm organizations are back of this movement, but I have it direct from Congressman Lankford that he means business and is determined to put his bill through if possible, to a successful finish.

Hearings on the Muscle Shoals nitrate fixation plant development before the senate committee on agriculture the past week have brought out much information in regard to this proposition, showing that there is a wide difference of opinion regarding the capacity of the plant and its relative importance in supplying the needs of the country for nitrates.

Secretary of War Baker appeared before the committee in behalf of the bill, and presented strong arguments in its favor. It was pointed out by the experts that the capacity of the plant will be about 240,000 tons of sulphate of ammonium a year, equal to about 350,000 tons of the Chilean product. Upwards of \$72,000,000 has already been spent on the Muscle Shoals plant No. 2, and \$12,500,000 more will be required to equip it and finance its operation. But Secretary Baker said that if the bill passes, the war department could sell 150,000 tons of nitrates now in hand for enough to pay the expenses of developing the Muscle Shoals plant and operate it until such times as it becomes self-sustaining without the necessity of an appropriation.

The government will largely determine the selling price of nitrates after the plant is operated. Secretary Baker thought the plant could be perfected to produce sulphate ammonium in commercial quantities by next season, and that when running in full capacity an annual profit of \$2,900,000 would result from government operation, after selling the product at a considerable reduction under the price now charged by the Chilean nitrate trust.

It is proposed that the plant be operated to provide the government with nitrates for military use in times of war, and to supply the farmers with fertilizer in peace times. Nations have failed through defeat in war or through loss of soil fertility. Here is a proposition which will safeguard both interests.

Senator Norris, of Nebraska, says it is time the citizens of the United States quit paying tribute to Chile in the form of an export duty on nitrates. The absurdity of paying an export duty on something which the country itself can produce in abundance should be apparent to even a superficial thinker. We are paying Chile in export duty

alone about \$10,000,000 annually for the nitrates she permits us to use. The farmers of this nation have no voice in naming prices that are paid for the Chilean product. The price is fixed in London by a commission, which fixes prices for practically all nitrates used in fertilizing the soil of the United States. The farmers are entirely at the mercy of this foreign body. They must either pay the commission demands or dispense with the needed fertilizer.

"Some of the senators may be accused of government ownership proclivities," said Senator Norris. "But a man may be a consistent supporter of the idea that public utilities should be privately owned, and at the same time he can be sincere in his support of a government nitrate plant. The fact must not be lost sight of that any private organization cannot produce the needed fertilizer for the farmers of this country for the simple reason that they cannot compete with an established system supported by a foreign government and manipulated by powerful and entrenched agencies in this country and Europe."

Senator Gore, of Oklahoma, has introduced a joint resolution to repeal the Lever food and fuel control act, which if adopted, may mean the end of price fixing on these products.

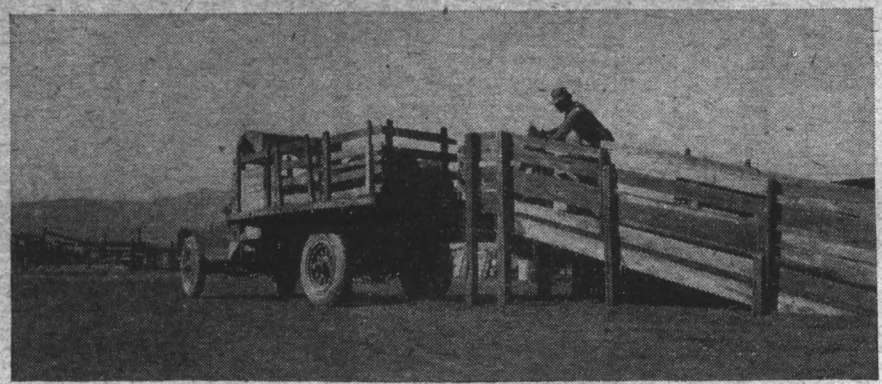
The Reed resolution to investigate the activities of the United States Grain Corporation has been referred to an investigating committee of which Senator La Follette is chairman. I am told that the committee will go to the bottom of the wheat deal, and will also investigate other transactions of the corporation, one of which is the bean deal. This investigation promises to be exceptionally interesting, and it is quite probable that the farmers will be able to obtain inside information in regard to some of the mysteries of this organization.—E. E. R.

MICHIGAN'S PLACE IN AGRICULTURE.

(Continued from preceding page.)

to every resident of the state as well. Existing or newly-created agencies should be given broad authority and ample funds with which to create a strong immigration policy and place Michigan in its proper light before the people of other states.

The few comparisons of Michigan's crop production with that of other important states given herein are undoubtedly of interest to Michigan people, but information of this character will greatly benefit the state if placed in the hands of people in other states who may have a very erroneous conception of what Michigan can and does grow, and who would come and look us over if that impression were corrected. The acute labor situation is prompting or forcing many farmers to sell their farms, so that a large number of farms are constantly on the market and being sold at ridiculously low prices. There are plenty of people who would like to have these farms, and who are just as anxious to know about them as the seller is anxious to sell. Anything that the state can do in bringing good buyers into it will benefit both buyers and sellers, and tend to improve the prices that our farmers can obtain for their land. Homesteading is practically a thing of the past, and with new lands coming under cultivation very slowly and at considerable expense, the price of our well-improved farms must inevitably increase. Land is relatively the cheapest commodity in the state today, and the sooner the proper rise in value takes place the more of our farmers who have earned these fine farms by hard labor will benefit by it.



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"The use of Goodyear Cord Tires on our hog ranch is a source of all-round farming economy as well as of simple hauling economy. These tires save time and the handling of supplies and animals while reducing wear on truck, minimizing operating cost, saving hog shrinkage and sickness in transit and demonstrating other important advantages."—N. T. Shearman, Owner, Shearman Hog Ranch, P. O. Box 452, El Paso, Texas

AS in the instance cited above, a large number of farmers, planters, dairymen, and ranchers are reducing much of their general farming work, in addition to their actual hauling work, with pneumatic truck tires.

By freeing farm trucks of the handicaps imposed by solid tires, Goodyear Cord Tires relieve farmers of the necessity of hauling slowly and laboriously either with teams or solid-tired trucks and thus hindering other activities.

The full traction, cushioning and nimbleness of Goodyear Cord Tires primarily equip a motor truck to go anywhere on and off a farm with utmost protection to mechanism, load, driver and plowed ground or paved road.

Thus these athletic pneumatics save time and labor in the handling of supplies, crops and

stock, and in the operation of power-driven farm machinery, enabling easier feeding, watering, fencing, threshing, wood-cutting and the like.

The rugged strength of Goodyear Cord construction, affording the foundation of the whole success of pneumatic truck tires, results both from Goodyear pioneering work and that extraordinary care in manufacturing which protects our good name.

The detailed reports of many farmers using pneumatic truck tires to improve the work connected with diversified crops, or such specialties as fruit, livestock and dairy products, can be obtained by writing to The Goodyear Tire & Rubber Company, at Akron, Ohio.

GOODYEAR

CORD TIRES

Classification of American Wools

WOOLS are classified according to their origin, value and adaptability for different uses. In this country wools are divided into two classes, Domestic and Territory.

Domestic wools are those wools coming from the flocks east of the Missouri river and usually from sheep of the mutton type and breeding. When compared with territory wools, these wools are usually cleaner and brighter, due to the better protection and care given the sheep. States producing Domestic wools are Ohio, Pennsylvania, New York, West Virginia, Kentucky, Indiana, Illinois, Iowa, Michigan, Wisconsin and Minnesota. Territory wools are those produced west of the Missouri river and from sheep which contain a large percentage of fine wool blood. These wools shrink quite heavy when scoured, due to the presence of sand, dirt and considerable yolk in the fleeces. States producing territory wools are Montana, Wyoming, Idaho, Utah, Nevada, Colorado and Washington.

Upon reaching the market wools are divided into Domestic and Territory classes and these in turn into combing and clothing. Combing wool should be at least three inches long and is usually sold from six to ten cents more per pound than the short or clothing

wool; therefore it should be the aim of all wool growers to produce combing wool, instead of the shorter or clothing wool.

Each class of wool is again divided into grades by professional graders, the grade depending upon the fineness of fibre, length of fibre, shrinkage and general character.

Following is a classification of Domestic wools, and this being the class in which we are directly interested, we will not take up classification of Territory wools.

Domestic Wools.

Combing.—Delaine, half-blood, three-eighths blood, quarter-blood, low quarter-blood, braid.

Clothing.—Fine, half-blood clothing, three-eighths blood clothing, quarter-blood clothing.

In the early days of the wool trade, the half-blood, three-eighths blood and quarter-blood grades referred to wools from sheep of half, three-eighths and quarter Merino blood, but today they have no such significance.

As graded by the usual grader each class has the following grades:

Fine, (delaine or clothing), half-blood, three-eighths blood, quarter-blood, low quarter-blood, low, coarse, common or braid.

Fine wool is usually shortest in

length of staple, has an exceptionally fine crimp and contains a large percentage of yolk or grease. Half-blood wool, often spoken of as fine, is not so finely crimped, is somewhat longer of staple and usually has a lighter shrink. Three-eighths-blood wool often spoken of as medium, is less crimped, less elastic, and has a lighter shrinkage containing less yolk than either of the above grades. Quarter-blood wool ranks next in the scale of fineness and crimps, with less yolk and a lighter shrinkage. The low, coarse, common or braid, as the term implies, is coarser, varies in length from four and a half to five inches in length and is particularly suitable for the manufacture of braids. It is usually very coarse and has a light shrink.

While it is impossible to assign wool to a particular grade solely upon the basis of the breed of sheep, because of the wide variation within a single breed, yet a fair idea may be conveyed from the following lists from United States Department of Agriculture. Bulletin 206, how wool from the various breeds would be likely to grade.

Kind of Wool Produced by Breeds.

Merino (eastern states)—delaine or fine.

Merino (range states)—Fine and fine medium, staple or clothing.

Rambouillet.—Fine and fine medium, staple or clothing and a small amount of half-blood.

Southdown.—Half and three-eighths blood (chiefly three-eighths combing or clothing, chiefly clothing).

Shropshire.—Mainly three-eighths blood, combing or clothing. Some quarter-blood.

Hampshire.—Three-eighths and quarter-blood, combing or clothing.

Dorset.—Three-eighths and quarter-blood, combing and clothing.

Suffolk.—Three-eighths blood combing and clothing.

Cheviot.—Quarter-blood combing.

Oxford.—Quarter and low quarter-blood combing.

Corriedale.—Three-eighths blood combing.

Cotswold, Lincoln, Leicester.—Low quarter-blood combing or braid.

Crossbred, long wool on Merino or Rambouillet.—Half-blood, three-eighths blood and quarter-blood combing.

Crossbred, Shropshire or Hampshire on Merino, Rambouillet or western ewe.—Half-blood and three-eighths blood combing or clothing.

D. WILLIAMS.

Extension Specialist in Sheep Husbandry, M. A. C.

Problems Confronting Congressmen

CONGRESS is making an honest effort to cut down appropriations and thereby keep Uncle Sam's expenses somewhere within range of his income. If it fails it will not be due to any lack of good intentions, but owing to the overpowering influence of political jobbery and other questionable practices of long standing and official respectability. At no time in the history of the nation has there been more urgent need for rigid economy in government expenditures than now, and no one more fully realizes this than the senator or congressman.

Whenever a bill or an amendment calling for an appropriation comes before the house or senate there is a good deal of objecting. Long speeches are made in which the speakers denounce extravagance in the departments and point out in vivid word pictures the deplorable condition of the country's finances. The other day a senator, speaking in opposition to a certain appropriation, said that there was no limit to the voracious appetite of the various departments of government; their only interest was in spending, not in saving, the people's money. "You seldom hear the executive officer of a department pleading economy. He wants to make a big showing, regardless of the cost." "Where are our taxes going to come from?" he asked. "Our exports and imports are going to diminish. The incomes of our people will be reduced, cutting down the income tax returns along with the customs revenues."

The senator's pessimistic oratory was wasted, however, for when the vote was taken the friends of the appropriation were in a majority.

Much of this congressional oratory is for home consumption. The senator or congressman can go back to his own state or district and refer to his speeches in congress in proof of his undying devotion to the cause of economy in government affairs.

Too frequently, especially in the lower house, politics and trades between the members, are leading factors in the success or failure of appropriation bills. I have seen appropriations of

thousands of dollars for some trivial matter put through, apparently as a favor to a representative who helped other congressmen put through appropriations for the purpose of strengthening their political fences back home. Then I have seen the lower house divide on political lines over the question of appropriating money to investigate the green tobacco worm.

Never did a congress labor under more difficulties in its efforts to please all the people than at the present time. The representative who can walk the political fence without slipping off on one side or the other, is indeed an expert. In the old days the well organized commercial, manufacturing and financial interests were represented in Washington by expert lobbyists, and usually got what they asked for without much difficulty, while the unorganized farmers received little attention. Now that labor unions and organized farmers are ably represented in Washington by men of influence who are constantly on their jobs of looking after the interests of their organizations, the average law-maker is kept in "hot water" most of the time.

This situation led Senator Thomas, of Colorado, to say in an address at a Washington's Birthday meeting, that "We, your servants, are threatened, cajoled, persuaded and warned of the fate, political and otherwise, that awaits us if we dare exercise our own judgment. We'll be hanged if we do, and we'll be hanged if we don't."

"The galleries of both houses are constantly filled with representatives of various class interests. You can not imagine the mental anguish of the man who wants to be re-elected. Someone once said that the most terrible thing imaginable was to be a dray horse in the infernal regions, but he has a happy time of it compared to some public servants. The surrender of some congressmen is exhibited in the statutes now on the books. Just think! We have exempted the labor and agricultural societies from the operation of the anti-trust laws, and we cannot appropriate a dollar unless

These words of Senator Thomas are significant. They indicate something of the power that organized farmers will have if they ever get into action and are as well organized and represented as is organized labor.

There are many farm organizations but they are not cooperating as thoroughly and as efficiently as do the many units which compose the Federation of Labor.

The National Board of Farm Organizations evidently aims to be a representative federation of farm organizations, but its methods are crude and its claims relative to the actual number of farmers it represents open to question. So far as I have been able to learn, it has no definite program of action or legislative demands. I cannot find that it has any effective means in force for ascertaining the sentiments of the individual members of the various organizations for which it acts as the Washington representative.

The Washington representative of the Grange is bound to the declaration of Grange principles and national legislative recommendations adopted by the National Grange at its annual sessions in Grand Rapids, Mich., last fall. All his acts and declarations must be governed by this program which is supposed to reflect the sentiment of the seven hundred thousand members of the order. The American Federation of Farm Bureaus is developing a plan of conducting a referendum of all the members, so that the officers and representatives of the farm bureaus may know the exact sentiments of the rank and file and be able to act intelligently on all questions.

The National Board of Farm Organizations holds an annual conference in which all farm societies are invited to participate. Resolutions are adopted which are published as representing the demands of millions of farmers; but as the sessions are conducted an organization with less than a half dozen members can have about as much influence in shaping the policy and demands as one of a million members. Anyone who registers as holding membership in a farm organization is al-

lowed to vote, and the conference could be easily packed by a local Grange or Farmers' Union from one of the nearby communities.

I have no criticism to make concerning the resolutions adopted at the recent conference, held at the National Board's headquarters. Many representative farm leaders were in attendance, men who have won and merit the confidence of the farmers. I am referring to this matter at some length because I feel that farmers should know who are claiming to represent them, by what authority, and how they are being represented.

It would seem that the leaders of the National Board of Farm Organizations might devise some plan whereby voting in the annual conferences could be limited to accredited delegates of the farm bodies, each organization being represented according to number of members.

In behalf of those who attended the conference, I will say that the report which found its way into the daily papers that the conference went on record as being against the government relinquishing control of the railroads was erroneous, no such proposition having come before the meeting. The associated press report that the conference adopted a resolution expressing confidence in the Federal Trade Commission was also wrong, as this resolution was tabled.

The resolution adopted at the conference of farm organizations to appoint a committee to interrogate the presidential aspirants on their attitude towards the demands of farmers and the farming industry has evidently had a wholesome effect upon congress, and more especially upon the party campaign managers. It is safe to predict that the farmers are going to receive some consideration from the politicians. But whether this present recognition of the farmers as an important factor in our government proves beneficial to agriculture and the nation depends largely upon the farmer himself, upon his wisdom, his conservatism, and his patriotic devotion to his country. (Concluded on page 540).

The Moline

Tractor is Universal



6 Indispensable Results

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Because

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Because

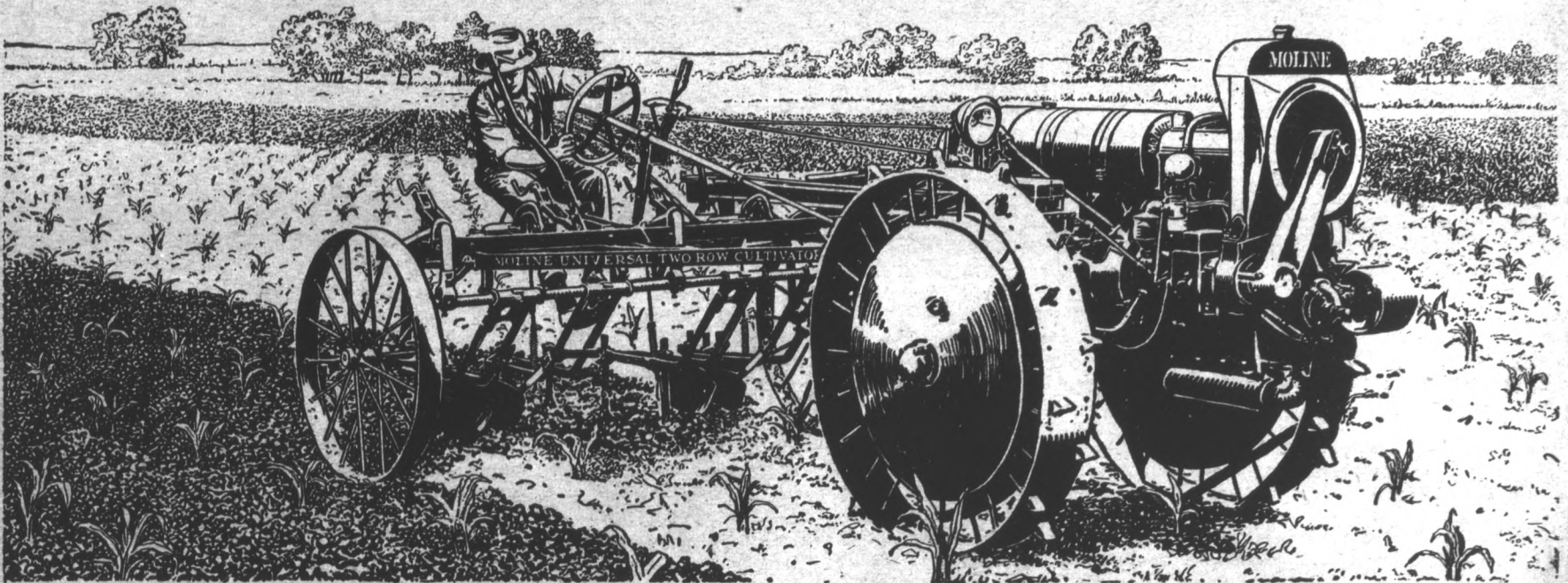
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Dusting for Fruit Disease Control

(Continued from page 531). pronounce, off-hand, a judgment on relative values. The fruit grower has failed at times to recognize the wisdom of a station reporting a method as being in the experimental stage when only the results of a year or two are at hand. The Michigan Station has given its figures and has not tried to draw conclusions from a single year.

The work in New York state has gone further. It has now continued without interruption since 1912. In the eight years of experience the experts have met a wide range of conditions and they are ready to take the stand that dusting is here to stay.

An analysis of dusting experience for these years is extremely interesting. In 1915 the investigators enthusiastically reported: "It now seems settled that a mixture of an insecticide and a fungicide can be applied in powdered form, using air as a carrier, with better commercial results in the control of preventable apple diseases and of insects than can be obtained by spraying."

The results of 1916 when many commercial men tested the matter for themselves, were not so optimistic. It happened that 1916 was the worst scab year in twenty years of New York state records. The previous work had admitted that "in every case but one in which scab was a factor, the percentage of scab on the dusted plats was greater than on the sprayed plats, though in some cases the difference is insignificant." The weather in 1916 was favorable for the scab fungus; the cold, rainy season made applications difficult. In this year the results were decidedly in favor of spraying. Sprayed trees showed about forty per cent perfect apples, while dusted trees showed only fifteen per cent perfect fruit.

The unfavorable showing was attributed to inexperience of the operators, coarse sulphur dust, and imperfect machinery. This contention was not at all unreasonable for it must be remembered that no fruit man obtained perfect control with spray the first year he tried it, and the spray machine has had years of development behind it in the perfection of our present-day efficient machinery.

Turning now to the Michigan results we find that in 1915, in one test, fifty per cent sound fruit was obtained on sprayed trees against forty-one per cent on dusted trees, whereas the untreated check trees gave no sound fruit at all. The question in this year would turn on the grower's interpretation of

the value of that difference, nine per cent sound fruit, to him.

In 1916 the results were decidedly against the dust as is shown by the following table abridged from Dutton's Bulletin:

Kind of Apple.	Sprayed.	Sound Fruit. Dusted.	Un-treated.	Scabby Fruit. Sprayed.	Un-treated.
Stark	27.18	3.89	0	72.82	96.11
Baldwin	61.45	.73	0	38.55	99.27
Spy	51.6	10.56	0	48.4	89.44

In 1917 the dusting gave us as good control of scab as the spraying, as the following table from Dutton's bulletin indicates:

	Sprayed.	Sound Fruit. Dusted.	Check.
Stark	93.4	93.6	0.2
Baldwin ..	68.0	80.5	0.0
Spy	96.2	94.3	...

Results in 1918 and 1919 have not been made available, but conclusions from these years have not been possible, due to the fact that apple scab has not been a serious factor in the orchards used for the tests.

Costs.

The relative costs of the methods must be considered. Dusting averaged in the early New York experiments, seventy-seven cents per tree against forty-three cents a tree in spraying. Ninety-five per cent of the cost of dusting is for materials, hence increase in the cost of materials, as has taken place in the last few years, is directly reflected in the cost of the process.

In the Michigan experiments the cost of four applications per tree of dust was \$1.36, against thirty-six cents for spray. With the dust advocates advising five and six applications, it is evident that the cost per tree will mount higher and higher.

Discussion.

At first glance, it would seem that there was no chance for difference of opinion in the relative values. Here is a new method which all agree will require the learning of a new technique of application, which requires the purchase of new machinery and which costs upwards of a dollar or two per tree to use. In certain years, years of heavy disease attack, control obtained has not been equal to that obtained in spraying. Where, then, does the question arise? Is not the matter settled once and for all for the spray method?

A hasty answer to this question overlooks the urge behind this whole dust program. Fruit growers with large acreages have not been harrassed by men the last few years looking for farm labor. They have turned to this machine which works two to three

times faster than the liquid sprayer. They have suffered in the past from inexperienced help spraying trees and have sought a machine which the owner or a trusted man could operate and cover the orchard in a short time so

as to leave some time for needed cultivation. The problem, like many other plant disease control problems, has to be settled on the individual farm by the account book, and by the principles of farm management.

We may cite the arguments for and against the duster. Its chief virtues have been cited. Nothing has been said of its value in control of codling moth, the bane of the successful orchardist. I think all tests have agreed that as a means of insect control in the summer, the dust method is shoulder to shoulder with the spray. Given the additional applications which the grower is prone to apply, it may give superior results to that obtained with the standard application of four sprays. The failure of the late sprays in catching the aberrant broods of codling moth, the past season has already caused the fruit man great loss.

The high cost of dusting is going to decrease instead of increase. In this day when everything has doubled it is reassuring to know that with superior methods of production of dust and with greater demand, costs are going to be less. With a finer dust—and many failures in disease control can be traced to coarse materials—the cost per tree will decrease because a little will go farther.

The good dusting machine which you can buy today has a large enough engine to do the work, and here again one sees the improvement which the increased demand has brought about. Against the dusting method we can always bring the argument, "Let well enough alone." If a man has invested years of experience and considerable money in learning to handle one method, why follow new gods?

If one has invested in a spray machine, a duplex or a triplex, has an engine equipment competent to do his work, why add the overhead by another machine? The dust has never been advocated as a means of scale control, so that on any fruit farm the spray rig will still be necessary. Spraying costs are not assessed in

terms of difficulties of getting labor, but in cold dollars and cents per tree. These are the figures which show in your bank account. If the sprayer had to work every day in the season to keep the orchard covered, but cost less to do the job than the swifter duster, where did the gain come in?

The writer will not pretend to answer these questions. They are not in the domain of his information. These are the things that the grower can best answer.

I am frank to say that I believe in spraying; so far as our present experience goes, as the superior means of plant disease control. I believe that with the spray gun and a liberal use of spray we can more nearly approach a higher speed of application than was possible in former years. I am led to this position because of my interest in the control of disease. I believe the records bear me out in this stand. That, with better technique, more information as to times of application and the like, dusting may become equally efficient with spraying. I am ready to admit, and I may say that I believe such will surely be the case. I do not believe that the average grower who does a poor enough job with the sprayer will do any better job with the duster.

We are now at the turning point in Michigan apple production. We have the chance to insure for our orchards the best markets of the world, if we can turn out the superior product which these markets demand. They do not tolerate blemished fruit any more than they will tolerate poor pack. I fear that carelessness in plant disease control will give us a surplus of "seconds," whereas for our best success we must be known for our "firsts."

In presenting these opinions I have tried to be fair to the new method which is developing. The situation now is comparable, as was said, to the introduction of lime-sulphur to replace Bordeaux. Bordeaux is by far the better all-around fungicide. It had its weaknesses, as experience has developed. Lime-sulphur, in view of its greater applicability for ready use in the orchard, is now the standard for Michigan's fruit disease control. So, too, we must expect development in the dusting.

Let us, therefore, strive to produce the best grades of fruit and in doing this let us remember that the orchard is the place where decisions will be rendered.

Spring Care of Work Horses

THE time will soon be here when the farm horses will be called to the heavy work of the spring. No doubt it would favor the horses more if corn cultivating, cutting hay, etc., were placed first in order after the winter's idleness, but nevertheless the heavy drawn machines have to be used first and it is our part to get the farm team in the best possible condition so that there will be no horses laid up with colic, indigestion, lameness or sore shoulders.

Although we did not have much good oat straw to feed this year on account of a short crop, we do not believe in making a horse spend all his time and energy in trying to digest dry straw all winter. Professor Henry says: "Farm horses should not be wintered in the barnyard on straw and corn fodder only, without any grain, for they will not be in condition to endure the severe labor upon the sudden opening up of spring work."

Although hay is costly to feed in any great amount to idle horses it does not pay to omit a meal of hay at least once a day, along with home grain. Feeding straw through the winter with very little grain or other roughage, tends to clog the digestive system, leaving them in poor shape to handle the heavy allowances of grain and hay that is fed during spring work.

Many horses suffer from indigestion colic or other stomach ailment just when we cannot afford to lay them up, but it is largely our own fault. If a person used to sitting at a desk is given a job pitching hay without any preparation what will be the result? It is exactly the same with our horses. A gradual change of feed must be made along with some light work which tends to strengthen their muscles, also their digestive tract. We have never had any trouble with our horses in the spring, and I would like to tell how we manage our horses to

get what we consider good results.

We keep our horses in about the same flesh the year around, not overly fat, nor poor. When they are kept this way the collars always fit, and if your collars are good ones and fit good you need not worry about sore shoulders in the spring. We never use sweat-pads on our regular team, they are a nuisance and a damage to the horse's neck, no matter how well you may fit them to your team. They absorb the sweat, gather the shedding hair and form it into lumps which are continually causing sores. After a hard day's work they are soaked with moisture, which never dries all the time they are used.

How many have worn rubbers that hold the moisture from one day to the other, and always keep your feet not cold and damp? Well, it's the same with sweat pads. If you haven't the best of harnesses give them a good collar and bridle to wear at least, of it.

These are the two things that either gives them comfort or pain.

Next, look to their feet. See that they are in good condition. If your team cannot go without shoes, watch that they are not left on too long, thus causing the foot to grow crooked and probably break the hoof. We do not shoe our horses at all unless there is a hauling on the road to be done. All we do is to trim their feet occasionally to keep them from becoming ragged. Personally, I do not like shod horses for plowing or other work on a soft field; many times in turning around at the ends or getting into a soft spot the horses step on each other, sometimes cutting their legs or feet quite severely.

The first few days of plowing should not be rushed. Let them take it easy. Give them their "wind" often. Plowing is hard work and it takes a few days for the team to get the "hang" of it.

T. J. ROBERTSON.

FORMS OF LIME—ALFALFA.

Which is the best, hydrated lime or ground limestone for quick results? How much to the acre of each kind do you advise sowing, also is there danger of using too much hydrated lime? If the hydrated lime is as good as the other I would rather use it because I am quite a distance from a railroad. What variety of alfalfa is best for this part of Michigan, (Cass county?) Is the Baltic or Grimm the best?

The question of the best kind of lime to use is an important one and is often asked. It was pretty well answered in a recent issue of the Michigan Farmer in an article by Prof. M. M. McCool, of the Michigan Agricultural College. At present there seems to be but little argument left in favor of hydrated lime. The price alone seems to eliminate it. When we can get the fine grade of ground limestone that is now on the market the question of availability of hydrated lime is being overcome. Ground limestone that is ground finely enough to pass a seventy-five to ninety-mesh screen is just as available as hydrated lime. We find that it takes seventy-four pounds of hydrated lime to equal one hundred pounds of ground limestone. When you can buy nearly four tons of the pulverized lime, it seems to me that the question solves itself. If hydrated lime is to be used, an application of from one thousand five hundred to two thousand pounds would likely be as good as two to three tons per acre of finely ground limestone but would not be as lasting. The second year you would see little difference and probably after the second year the difference would be in favor of the two or three tons per acre of the ground limestone, as the amount of lime applied is greater. The operation would not have to be repeated as quickly where the larger amount is applied. There is little danger of using too much hydrated lime. The danger lies in using too little. The idea that has formerly gone out that from four hundred to five hundred pounds of hydrated lime per acre is enough is wrong. The rate of application should be from one thousand five hundred to two thousand pounds per acre. With ground limestone use from two tons per acre up. There is no danger of using too much.

With reference to the best variety of alfalfa to sow, would say that the Grimm, Baltic and Cossack seem to be the three leading strains. Grimm is probably the leader as it is an older variety and more of the seed is available. Cossack is very promising, but has not been tried in Michigan to any great extent as yet. The seed is also very scarce and high in price. Would suggest that you make arrangements to get your seed very soon, as the supply is light and the demand is the heaviest ever known. It will pay to buy the best rather than to take up with just common seed. D. W.

LEGAL FENCE.

Is the owner of enclosed land legally required to maintain a line fence that will turn sheep and hogs, or cattle and horses only?—A. J.

The statute merely says that all fences four and a half feet high, in good repair, etc., shall be deemed a legal fence, and the supreme court has said this means a fence of such construction as will turn the animals ordinarily kept on the farm. It is believed that no case involving the answer to the writer's question has been decided. J. R. R.

TENANT'S RIGHTS.

A tenant rents a farm for three years for money rent. Can they put me off the place inside of three years? It says nothing in the lease about selling the place. What can be done?—T. C.

If tenant complies with the terms of his lease and pays his rent he cannot be put out before the end of his term. J. R. R.



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ERADICATING POISON IVY.

Please send me your best method for killing out poison ivy. There is a small patch in front of our house and we have small children and the ivy causes us much annoyance R. E. B.

Small patches of poison ivy can be gotten rid of best by the simple expedient of digging them out. This must be done by a man who is immune to the poison. The best tool, unless the soil is very stony, is a heavy, sharp hoe, with which at one blow the stem can be severed two or three inches below the level of the ground. This work should begin when the first young red leaves begin to unfold. Unfortunately one cutting out will not discourage this persistent plant. It will be necessary for the man to visit the place at frequent intervals and repeat the chopping out whenever some more new shoots appear. This may mean chopping out the plants five or six times during the summer, but if this is persisted in, not permitting the leaves to entirely unfold and turn green at any time, one season's work will usually entirely kill out the plants. The portions of the plant thus chopped off should be handled only by an immune person and should be thrown where they will cause no harm to man or beast. Preferably when dry, they should be burned, but care must be taken that the smoke is not inhaled and that it does not blow upon passers-by or into neighboring houses. There are various poisons with which poison ivy may be sprayed in order to kill it, but these will also kill all surrounding vegetation so that they are not to be recommended for a yard, except for places where it is desired to have no growth of any kind. Unfortunately, birds are fond of the berries of poison ivy and are unharmed by them. They scatter the seeds far and wide so that it will be necessary to keep watch and cut out any young plants each year as soon as they appear, before they have become less established.—E. A. B.

COOKED CULL BEANS FOR HOGS.

Are cooked cull beans a desirable feed for pregnant sows, or for sows suckling pigs, and for young pigs? St. Joseph Co. T. H.

Cooked cull beans mixed with corn meal is an excellent food for pregnant sows or growing fattening pigs. The cull beans are rich in protein and corn meal in carbohydrates and by combining the two you have a well balanced ration. Mix the corn meal and cull beans in equal parts before cooking or you can cook cull beans and feed the corn meal raw, but you can get much better results out of beans to have them cooked. C. C. L.

PROBLEMS BEFORE CONGRESS.

(Continued from page 538).

tional ideals and the country's good, above class benefit and the promotion of selfish interests.

The bill providing for the return of the railroads to their owners had a hundred majority in the house and nearly three to one in its favor in the senate, notwithstanding the threats of the labor leaders and the appeals of the parlor socialists.

Hearings on packer legislation are now being held before the House Committee on Agriculture. Representative Tincher, of Kansas, told the committee that he could sum up the true situation in the meat industry by saying that "the stock producers are going bankrupt, the packers are rolling in wealth and the consumer is facing want." Representative Sidney Anderson, of Minnesota, explained to the committee a measure introduced by him, similar to the Kenyon bill introduced in the senate, and urged a federal live stock commission, the divorcing of packer-owned refrigerator cars and the conduct of the industry only under federal license.—E. E. R.



What Does It Cost You A Year To Feed Your Pests?

EVERY farmer knows that pests are an expensive luxury, especially when prices are higher than ever before.

It's not only a question of expense this year, but how much they will cost you next year and the year after, if they are not kept down.

Fortunately, there are many farmers who consider this question on a broader basis than that of their individual interests. But even the conscientious citizen who endeavors to keep down the pests on his own place is more or less at the mercy of the man who is indifferent to this menace. Bird and animal pests do not recognize boundary lines of property.

Remington
UMC
for Shooting Right

A Remington autoloading or repeating shotgun is the all-around firearm to have for combatting these robbers of your crops. And then during the seasons for squirrels, quail, rabbits, ducks and other game you've got a gun for real sport.

When a farmer devotes the same care and attention to the selection of his firearms as he usually does to his automobile, harvester, tractor or gas engine, he is likely to select a Remington. It's an arm backed by over 100 years of steady progress in gun-making wherein each improvement is the result of real needs and practical tests.

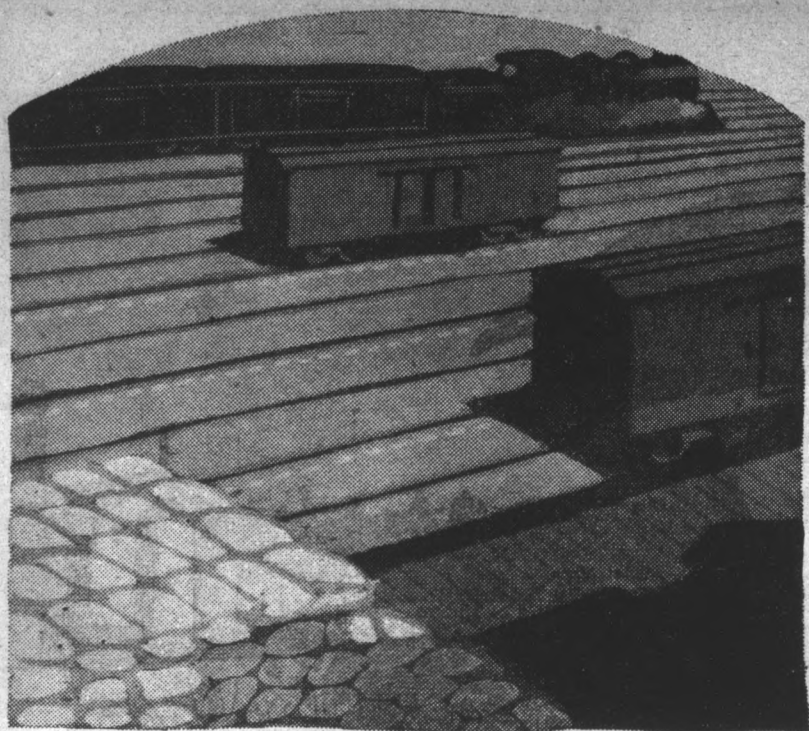
In ammunition, Remington developed the famous Wetproof shotshells—shells which are absolutely waterproof. Wetproof is not a brand of shells but a great forward step in shotshell manufacture. The next time you buy shells ask your dealer for "Nitro Club" and "Arrow" (smokeless powder) or "New Club" (black powder). You'll get Wetproof shells. And look for the Red Ball on the box.

Send for "Model 10 Folder" on Remington pump-action shotguns; "Model 11 Folder" on autoloading shotguns, and "Wetproof" folder on shotshells. This literature will give you full information.

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Fewer Freight Cars —More Shipping

During the last two years, few box cars and few locomotives have been purchased by the railroads.

The nation's industry is requiring more shipping this year than ever before—and the railroads are badly handicapped by the scarcity of rolling stock.

This Means Frequent Delays in Shipments

Late deliveries of Solvay Pulverized Limestone, Arcadian Sulphate of Ammonia, and "U-S" Potash may have a serious effect on your plans.

Don't wait until the materials are actually needed on your farm—

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Ordering in advance gives us an opportunity to protect you against a late delivery by tracing your shipment, if it goes astray; or by replacing it, if lost.

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2097 Jefferson Ave., Detroit, Michigan



Protecting Michigan's Live Stock—By J. H. Brown

HELLO, dad! Come quick! The dogs are at the sheep again!" Mr. Mason and his wife had just returned from town in the automobile. It was just after dark and Mrs. Mason said she would hurry in and get supper ready in short order. Just then Tom came on the run from the barnyard.

Mrs. Mason held the horse while Mr. Mason and Tom ran back to the sheep yard. There were two dogs visible in the dusk and they jumped over the fence as they saw and heard the farmer and his son coming on the run.

"If I only had my gun ready I could have shot one of those mean curs!" exclaimed Tom.

They both went into the sheep yard where the thoroughly frightened animals were closely huddled into the shed and in one corner near the straw stack. Three sheep were found more or less mangled and in a dying condition.

"Unless something is done by the state to rid the country of these worthless dogs there are some farmers who will quit trying to keep sheep! And I'm one of them!" exclaimed Mr. Mason to his son.

"I don't blame you, dad. But I do love sheep, and since you have given me some interest in them I have been reading and studying how to become a good shepherd. But there are so many worthless dogs in this neighborhood and the owners don't even try to

prevent their running after sheep, even after they know their dogs have been caught at it."

Some farmers were anxious to know whether the disease had invaded their herds. They welcomed the test, saw it conducted, watched the reading of the thermometers and study of the temperature chart at the close of the second day's reading of the thermometers, etc. Almost invariably Dr. Dunphy's careful explanation of details in taking the preliminary temperatures, and showing the typical reactions the second forenoon, caused the farmers to see the matter in a new light.

Generally those farmers who owned reactors eventually desired that they be destroyed. Post mortems were made by the doctor, and it was seldom that any farmer or his neighbor was not convinced of the importance and necessity of eradicating this terrible scourge, even though the state paid nothing to recompense the owner for his loss. It was generally admitted by such farmers that it would be only a matter of time before other cattle and even the entire herd might possibly be affected.

But since those days of pioneer work in the use of the tuberculin test for



Mr. Halliday and Dr. Dunphy in their Office at Lansing.

detecting tuberculosis in cattle many changes have occurred. And now the old commission has been eliminated and the last legislature created the "State Department of Animal Industry."

The duty of this department is to care for the health of approximately 7,500,000 animals which are owned in the state of Michigan. It is estimated that the value of these animals is \$325,900,000, which shows that the responsibility resting upon this department is no small matter.

The department consists of one commissioner (instead of three, as formerly under the old law), a state veterinarian, assistant state veterinarian, pathologist, two inspectors, one appraiser and two clerks. The United States Bureau of Animal Industry is cooperating with the state department in eradication of tuberculosis and hog cholera. The expense of these inspectors is borne by the federal government. These departments are all working from the office of the state department of animal industry in the "Old State Block," Lansing.

H. H. Halliday, a well-known, very successful and prominent farmer, of Clinton, Lenawee county, was appointed a member of the commission in

testing of dairy cattle there were many skeptics among the farmers and many dreaded having the state live stock sanitary commissioners or state veter-

ed a member of the commission in

1912 by Governor Osborn. He has held this position continuously ever since and is known as one of the best animal industry commissioners in the United States. He has a fine farm near Clinton and still manages it. Only recently he has been obliged to move his family to Lansing. He had lived continuously on his farm for over fifty years, since the date of his birth. He and his brother still continue to handle live stock, and in the years gone by have bought and handled many hundreds of thousands of pounds of wool. When the old state live stock sanitary commission was abolished, and the new department started last January, Mr. Halladay was reappointed by Governor Sleeper for another six years and immediately became the "Commissioner of Animal Industry" of the state of Michigan.

Now, in regard to the new dog law, at the present time farmers are more interested because it is entirely different from anything enacted in the history of the state and they feel that sheep may come back on the farms again and become as common as they were so many years ago in almost every community.

Briefly stated, the new dog law is designed to protect the sheep industry from extinction. In some cities a few law-enforcing officers seem to be doubtful of their duties and ability to enforce the regulations inside the city limits. Commissioner Halladay will in due time impress upon these doubtful-Thomas law-enforcing officials the need of getting right on the job and putting it through every day in the week. The law is a good one for farmers and their sheep and ultimately will help in reducing the high cost of clothing to everyone who wears duds with wool in the warp or woof.

The prosecuting attorney of Antrim county has started out in good shape to handle the work of enforcing this law. He has taken the proper means to acquaint every male voter in his parish with the provisions of the law. He has mailed out a circular which covers the case completely. Under the heading, "Do You Own a Dog or Keep One?" he states that the new law requires the following of the dog owner:

1. Apply in writing to your township or county treasurer for a dog license and tag.
2. Application must state breed, sex, age, color and marking of the dog, and name of last previous owner.
3. Application must be accompanied by a fee of \$3.00 for male; \$6.00 for female, and \$2.00 for an unsexed dog.
4. The treasurer will deliver you a license and a metal tag.
5. Metal tag is to be affixed to the collar of the dog and worn at all times except when hunting with the owner.
6. This should have been done before January 20, 1920.
7. Keep your dog confined on your own premises from sunset of each day to sunrise of the next day.

The circular calls attention to the fact that it is unlawful:

1. To keep a dog without a license to do so.
2. To keep a dog without a collar and tag attached to its neck.
3. To allow your dog to stray beyond your premises at any time unless under the control of some person.
4. To violate any of the provisions of the dog law.

Police officers are authorized to kill all dogs running at large unaccompanied by their owners. The sheriff and his deputies of each county and the state constabulary are requested to locate and kill all unlicensed dogs.

The prosecuting attorney of each county is to prosecute all who fail to comply with this law. The fine is not to exceed \$100, or not to exceed three months in jail.

The sheriff of each county will not call upon the owners of dogs for the tax. It is up to the dog owner to go after his tag and pay the tax. If the sheriff or his deputy has to call it will (Concluded on page 548).

COLONIAL

SPECIAL FARMER'S

SALT

THIS is the salt famous for fine meat curing. Not only does it penetrate and draw out the moisture more quickly, preserving the color of the meat and preventing crust, but Colonial Special Farmer's Salt actually makes the meat sweeter, more tender and flavory. Don't use cheap salt on good meat. It's worth the best salt you can buy!

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The fine, soft, flaky grains of Colonial Special Farmer's Salt dissolve readily and leave the water clear and free from any skum—which proves that this salt is absolutely pure and free from adulteration of any kind.



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Once you try Colonial Farmer's Salt you will appreciate its superiority over ordinary salts that cake and lump. Always ready for use. Packed conveniently in strong, non-leakable bags, much easier to handle than a clumsy barrel.

Perfect Salt For Every Farm Purpose

Use it for butter—brings out the flavor and gives good keeping quality.

Use it for cooking and baking—seasons meats and vegetables to perfection, and never gives a gritty taste. Improves the flavor of bread and pie crust.

Use it for all farm purposes—the purest, finest salt you can buy. When empty, the clean, strong bags make splendid towel material.

Colonial Special Farmer's Salt costs more but goes farther, and is therefore the most economical. You don't have to use as much; there is never any waste.

Colonial Farmer's Salt is packed only by the Colonial Salt Company of Akron, Ohio. Look for the name on every bag. Packed in 70-lb. bags only. If your dealer does not have it, write to us, giving his name.

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Specialist in taking out stumps by the roots, digging ditches wholesale, moving hills, and general heavy work. Strong as a thousand men.

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I have helped thousands of farmers to clear their land of stumps and boulders, to smooth the way for plow and tractor, to drain off swampy areas. I have hundreds of testimonials showing that I am a faithful, tireless and safe worker for the good of the land—and my services are very cheap. I want neither food nor water, nor will I ever ask for a day off.

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that make a horse Wheeze, Roar, have Thick Wind or Choke-down, can be reduced with

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also other Bunches or Swellings. No blister, no hair gone, and horse kept at work. Economical—only a few drops required at an application. \$2.50 per bottle delivered. Book 3 R free. ABSORBINE, JR., the antiseptic liniment for mankind, reduces Cysts, Wens, Painful, Swollen Veins and Ulcers. \$1.25 a bottle at dealers or delivered. Book "Evidence" free.

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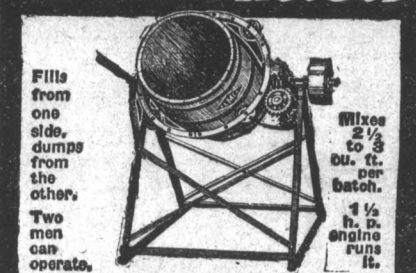
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Our Service Department

BARLEY FOR FATTENING AND GROWING HOGS.

I am making plans to feed about forty pigs for market next fall. This year my corn crop matured so that I had enough ear corn to finish my pigs for market, but we have had so many corn crop failures that I would like to have your advice regarding the seeding of a few acres of barley. Is it as valuable for hog feeding as corn, and how does it compare with corn for feeding growing pigs and brood sows? I am making plans to keep purebred hogs and want to raise my best gilts and breed them before they are offered for sale. Can you give me information regarding the relative merits of the two feeds for fattening hogs upon which I can base my use of the two kinds of grain?

Sanilac Co.

H. G. R.

Many hog growers in Michigan are handicapped through the frequent failure of the corn crop to mature sufficiently to furnish sound ears for feeding hogs. In many instances heavy expenses for purchased grain could have been avoided by seeding a few acres of barley. If all farmers would plan their feeding operations so that they would not be dependent upon the corn crop alone there would be less risk in growing hogs and a considerable number more could be fed to good advantage on many farms.

The fact that most experiments conducted have compared barley and corn for fattening hogs rather than for growing them leaves us with comparatively little data on the relative value of the two feeds for growing pigs or for feeding breeding stock. Some years ago at the Minnesota station, starting with pigs weighing about fifty pounds and running the work in periods of five weeks each, it was found that for the first two periods barley proved slightly superior to corn. At the beginning of the third period the pigs weighing one hundred and twenty-five to one hundred and thirty pounds had attained a large part of their growth and were beginning to fatten rapidly; consequently corn gave slightly better results. Comparing the composition of the two grains we might expect barley to be slightly more valuable than corn for growing pigs. Although somewhat more bulky than corn it has the advantage of having considerably higher content of the important constituents for growth—ash and digestible protein.

As a feed for brood sows barley offers some advantages over corn. Sows fed barley suckle their pigs better, the same as dairy cows produce milk more abundantly when barley is used in the ration rather than corn. Barley is generally recognized as tending some what more toward stimulation of milk production than does corn. The grain ration fed some of the heavy milk producers while making world's yearly records shows barley used quite extensively in the grain ration, with no corn except that contained in the silage.

Breeding swine and growing pigs that are to be kept in good condition without putting on too much fat should be supplied with rather bulky feed. For this purpose barley with its slightly greater bulk than corn is advantageous. The brood sow during the period of pregnancy should be fed a ration supplying an abundance of bone and muscle-building material. Though a ration consisting largely of alfalfa or other good forage may supply sufficient ash and protein it is probable that substitution of barley for corn in the ration of the sow would, because of its higher protein and much higher

ash content, result in stronger, more active and more vigorous pigs not quite so fat at birth but with just as large frames.

Experimental data show that for fattening hogs weighing one hundred to one hundred and twenty-five pounds, eight to ten per cent less corn is required to produce a pound of grain. A comparison of prices will show that the price of corn is often more than ten per cent higher than that of barley. By making a careful study of the prices of these two feeds you can easily plan your feeding operations so that you may use the two crops to good advantage in years of plenty, and years when the corn crop fails to mature you will find barley a highly efficient substitute.

W. M. K.

CROPS FOR HOG PASTURE.

I have about two acres of heavy soil that I would like to plow and plant for hog pasture this spring. What would you advise me to seed it with?

Ottawa Co.

A. V.

The inquiry does not state whether this pasture is for a catch crop or for a permanent pasture. If to be used this summer, probably no forage plant meets with the approval of the farmer or will give a like amount of green feed than winter rape.

The ground should be prepared and seeded as early as conditions permit. It is usually sown broadcast and covered by a light harrowing, or with a grass seeding drill. It is preferred by some however, to sow in drills sufficiently far apart to permit cultivation during its early growth. One should not attempt to pasture rape until it is several inches high, nor should it be over-pastured during its early growth.

W. J. R.

SEEDING ALFALFA.

I have about ten acres of land that I would like to seed to alfalfa, and would like to know the best time to seed it, kind of seed to use, condition the seed bed should be in and amount of seed to sow, as I have had no experience with this crop. Have three ten-acre plots, sandy clay loam, or about half clay and sandy loam. Each plot could be well drained, and would grow good clover, except the sandy soil.

Arenac Co.

SUBSCRIBER.

Alfalfa is sown from early spring to mid-summer, according to conditions of soil and weather. Early sowing is generally preferred unless extra time is needed to work down a loose seed bed and kill weeds. While there is a lot of talk about Grimm seed and other superior strains, their high price and scarcity will limit their use for some time. The average farmer will continue to buy common northern grown seed and, except in rare cases, will experience fair to good success. The seed bed should be fine and solid through generous working. Fall plowing, or simply harrowing a field which had a clean cultivated crop last year, is to be preferred to spring plowing as a rule. On a well fitted seed bed twelve to fifteen pounds of seed per acre is used. Try to buy scarified seed, and be sure to inoculate it with a pure culture of bacteria which may be secured from the agricultural college. A twenty-five-cent bottle will treat one bushel of seed. Directions with each bottle. Use your best soil, the best is none too good for alfalfa. It would be wise to have a sample of your soil tested for lime requirement. Often failures with alfalfa result from an acid soil.

H. L. B.

FERTILIZER FOR CORN AND POTATOES.

Please advise how much fertilizer to use to get a good crop of corn. My land is rolling and contains gravel, clay and sand. Also, what kind of fertilizer should I use to get a good crop of late potatoes on the same type of soils?

Berrien Co.

G. S.

One cannot advise intelligently what brand of fertilizer to use without knowing how the land has been treated. Have you used stable manure on this land for the last two or three years? Have you plowed down any clover sod or will you plow down a sod for this crop of corn? This makes a lot of difference as to the kind of fertilizer to use. If you plow down a good crop of clover sod, or if you have used a good coating of stable manure, then I would use acid phosphate only. If you apply the fertilizer only in the hill at the time of planting, use about one hundred pounds per acre. To get a bumper crop of corn, you could use as high as five hundred pounds per acre, or even more, but any amount above one hundred pounds should be applied broadcast before the corn is planted.

Fertilizer for Potatoes.

In the same way one would want to know how this land was treated to recommend a fertilizer for potatoes, whether a clover sod has been plowed down or stable manure having been used recently. You would not have to apply nitrogen in the fertilizer. A brand containing ten or twelve per cent phosphorus and two to three per cent potash will do, but if you lack nitrogen then use a 2-12-2 brand and the same with corn if you need extra nitrogen.

C. C. L.

DISTANCE FOR PLANTING CORN.

We are planning to plant our corn this spring in rows three and a half feet apart one way, and the question is whether the corn would grow best thirty inches apart in the row, two stalks in the hill, or fifteen or twenty inches apart in the row and one stalk in the hill.

Allegan Co.

J. L. F.

Inasmuch as you intend to sow this corn just one way, it will make little difference whether you plant the corn thirty inches apart in the row, two stalks to a hill, or fifteen inches apart and one stalk to a hill. It will be just as easy to keep the corn clean with one method as the other. Because of the nature of the corn plant, that is, its ability to reach out after its food, neither system is materially better than the other. Your yield of corn will depend more upon the preparation of the seed bed, state of fertility your soil is in and the cultivation of the crop.—D. W.

GROWTH OVER EYE.

We had a chicken last November which had a growth over her eye. She was one year old and poor, but would eat and drink good. Now we have a pullet that is the same way. What had I better do for them?

St. Clair Co.

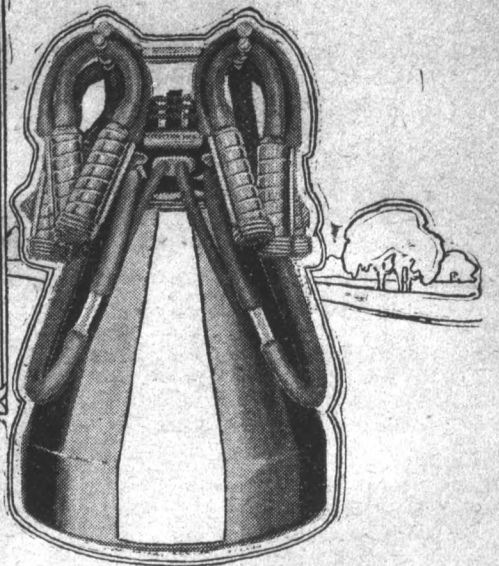
W. H.

The ocular type of roup may cause a swelling of the eye. A common cold may result in a sort of cold abscess near the eye. This can be opened and drained. Rubbing the head with camphorated vaseline will help to reduce the swelling. Dipping the head in a solution of one of the commercial dips is helpful in curing colds. Isolate any birds that show signs of inflammation around the eyes as such colds are contagious and will spread through the flock through the medium of the drinking water. Birds that are seriously devitalized with roup are seldom of any value and it is best to kill and burn them rather than risk congestion in the flock. Simple colds are easily cured and they can largely be prevented by keeping the flock in a sanitary open-front house free from draughts.

R. G. K.



Tom Christensen, who had nerve enough to install the first Perfection in his community.



His Neighbors Laughed at Tom Christensen When He Bought His Milker. Now There Are Fifty in His Neighborhood.

THREE years ago no one in Tom Christensen's neighborhood had ever used a milking machine. Mr. Christensen wanted to make more money out of his farm. But he did not have hands enough and there weren't enough hours in the day.

It took nerve to resist the scoffs of his neighbors and to try something new.

"When I first put in my milker", says Mr. Christensen, "Everyone around here said, 'There's another boob who's going broke on machinery. He will ruin his cows and he will lose a lot of money.'"

"But my hired men were going to leave and I had to do something. Today the Perfection Milker has changed this farm. We have an electric light plant, an electric washing machine, an electric vacuum cleaner and other improvements, but I was saying to my wife the other day that while all these things help us a great deal, it was the Perfection Milker that started us."

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"Instead of my cows being hurt by the milker, they like it. When I start the milker, I have often heard my cows bellow for it just like for their own calves and then turn

around and lick the pail. You never heard of a cow licking the hand of a man who was doing the milking, did you?"

"And the Perfection is better for my cows than hand milking. When a hired man thinks it's quitting time, he hurries and doesn't milk clean. This cuts down the amount of milk for weeks and makes no end of trouble. But my Perfection milks each cow just the same every night and it never gets mad no matter what happens."

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do the hardest work easier and quicker. If satisfied, keep Puller. If not pleased, return at our expense, you don't risk a penny. Four easy ways to pay.

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operates. Just a few pounds on the handle means tons on the stump. When stump starts throw machine into high speed and out comes the stump, roots and all. Positively no other machine like it. Send for most valuable Stump Puller Book ever published—pictures, prices, terms—and our Special Agent's Proposition—all FREE. Write today. One-man style or HORSE POWER, all sizes. 3-year guarantee with each machine. Shipment from nearest distributing point saves time and freight! Low prices now. Write for FREE BOOK, etc., TODAY!

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operates on wonderful leverage principle. One man alone handles and operates. Just a few pounds on the handle means tons on the stump. When stump starts throw machine into high speed and out comes the stump, roots and all. Positively no other machine like it. Send for most valuable Stump Puller Book ever published—pictures, prices, terms—and our Special Agent's Proposition—all FREE. Write today. One-man style or HORSE POWER, all sizes. 3-year guarantee with each machine. Shipment from nearest distributing point saves time and freight! Low prices now. Write for FREE BOOK, etc., TODAY!

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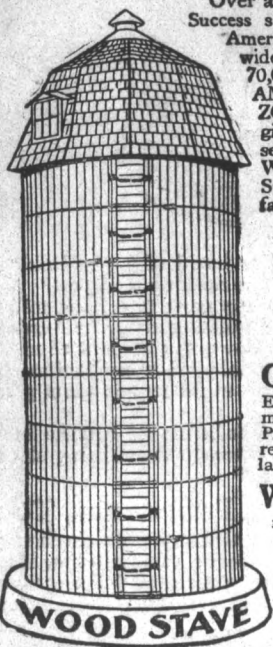
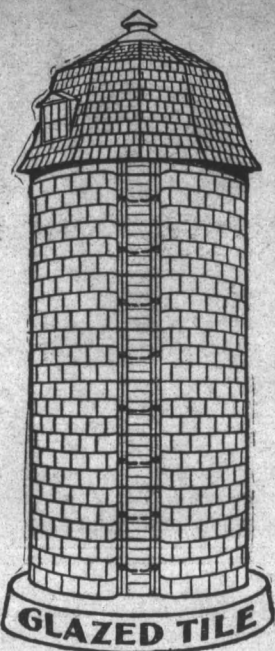
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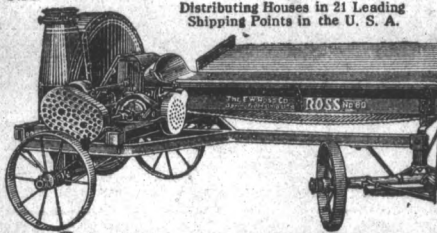
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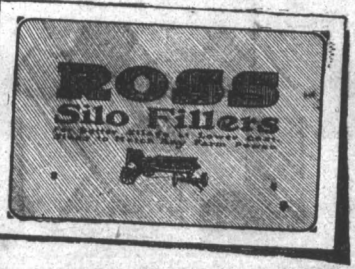
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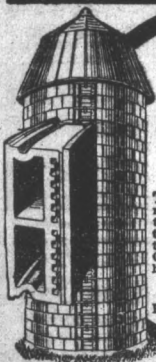


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Dairy Situation Demands Economy

By Bert Woods

IN face of the present high prices for all kinds of grain feeds and by-product concentrates and the chaotic foreign exchange situation dairy farmers are facing conditions that demand strict economy in every branch of the business. One possible means of keeping production costs low, and at the same time providing well for the fertility of the land, is to grow more kinds of feed than is ordinarily produced on dairy farms. Home-grown and home-mixed feeds are usually the cheapest and best. The shortage of labor will prevent many men from seeding or planting as many acres of suitable crops as may be needed for feeding their cows, but a man who is not in a good position to produce a sufficient quantity and variety of roughage for his cattle had better sell part of his herd and produce a larger part of the feed for the cows he keeps. Dairy farmers, of course, require a heavy tonnage of certain feeds, which they are not in a position to grow, but there is absolutely no reason for the average dairy farmer to depend upon purchased feeds to balance up inferior hay, silage and fodders.

Economical feeding demands that two-thirds of the dairy cow's ration should be of roughage; that is, hay, silage, roots, or all three, and one-third concentrates which include millfeeds and various by-product "feeds of commerce." A cow weighing one thousand pounds will consume about thirty pounds of silage or fifty pounds of roots and ten pounds of hay daily. The amount of grain and by-product feeds should be varied to meet the requirements of her capacity to produce milk. Some cows will use but six to eight pounds of grain a day economically, while some heavier producers will use from ten to twenty pounds. If a cow has a capacity to handle only six or eight pounds of grain, feeding her more will be done at a loss.

A very good ration can be made by feeding such a cow thirty pounds of silage and all of the good alfalfa or clover hay she will consume. The silage and legume hay make up an ideal ration of roughage. There are times when the prices of grain and by-product feeds are so high that the feeder can omit the grain from the rations of all cows that are not giving a full flow of milk. This will mean feeding larger rations of roughage. A mixture of grain that will go well with such roughage as corn silage and legume hay consists of four hundred pounds of ground corn and barley; two hundred pounds of ground oats and one hundred pounds of oil meal. There are many millfeeds and by-products which may be used to equally good advantage, but few mixtures will prove more efficient and economical than one approximating the above. Cows that are fed silage and alfalfa or clover hay will produce well if fed one pound of such grain mixture for every four pounds of four per cent milk produced. At times when milk is high in price and feeds are cheap and plentiful grain may be fed more liberally, but as a general rule heavier grain feeding is unprofitable.

Corn silage and alfalfa or clover hay make one of the best roughage rations, and there are few farms that cannot produce such grains feeds as corn, oats and barley. Better results are obtained, however, in most cases when some purchased concentrate is used to furnish more protein. Since alfalfa and clover hay are rich in protein they will make it possible to utilize home-grown grain feeds to more profitable advantage than is possible when the rough-

age feeds consist of silage and timothy hay.

The dairy farmer can meet the present situation in no other way than by feeding better cows, practicing more economical methods of feeding, and making plans to grow more of the right kinds of feed for his cows. His organizations may solve some of his selling problems, and do much to protect his markets and stabilize prices, but with little demand for dairy products from foreign markets there is sure to be a decline in prices which will compel many dairy farmers to grow more of their feed supply or dispose of some of their cows. With silage and good legume hay it is easy to regulate the feeding problem so as not to suffer any financial reverses even though prices decline during readjustment period.

VALUE OF MANURE SPREADER.

IF I were to advise one about buying implements for a dairy farm, the first in the list would be a manure spreader.

The main crop a dairy farm should produce is hay, and the manure spreader is the hay-maker that cannot be beaten. Two years ago we seeded a piece to clover and timothy. The seeding came along very good until the drought struck it, and by the last of August it didn't look good enough to leave for a hay crop, but we needed the hay badly and decided to give it a top-dressing with the spreader.

At this time we hadn't much manure but used all we had, which covered about an acre and a half. The next spring we went on with the spreader, covering the whole field lightly. And say, if anything can perform a miracle, manure can. Just before cutting time I went over the field to see what kind of crop we had. I was surprised to be able to track that manure spreader as easily as a dog would a rabbit on a fresh snow.

Wherever the spreader threw its "streak of gold" there stood clover up to my waist and where the manure did not cover, nothing but ragweed and sheep sorrel were growing. At the ends where the machine would lap, the clover was so rank that it lodged in such a shape that the mower would not cut all of it.

This top-dressing was put on in the early spring, in the forenoons of each day before the sun cut the frost and let the spreader down into the meadow.

Another advantage of putting the manure on the grass crop is, that not a bit is wasted. It is all washed to the roots of the plant and not down the dead furrows and larger creek. It makes a better and larger crop of hay and stores valuable plant food for the succeeding corn crop. T. J. ROBERTSON.

HENS WITH SCABIES.

My hens have the feathers off on the abdomen and also have a scab or a sore there. What can I do? They are healthy otherwise, fight for feed and combs are red, but they do not lay.

Newaygo Co.

D. W. M.

The disease called mange or scabies of fowls is caused by mites at the base of the feathers. The disease causes itching and loss of plumage and seriously infested birds are not apt to be thrifty or lay many eggs. An ointment consisting of one part flowers of sulphur and four parts lard is recommended. Rub this mixture on the parts lacking feathers and extend the treatment a couple of inches each way. Washing the affected parts with a solution of some commercial dip may cure the trouble.

R. G. K.

SILAGE FOR FEEDING HOGS.

What is the feeding value of ensilage for hogs? Would it be advisable to feed it to hogs? We have quite a quantity of silage, also quite a few hogs. We have lost money feeding cattle and would like to feed the remaining ensilage to the hogs. Would the hogs get as much feeding value from the corn in the ensilage as they would had the corn been husked and not put in the silo? D. M.

Experienced feeders do not give silage a high feeding value for feeding hogs. In some instances favorable reports have come from those who have fed it in limited quantities to breeding stock and shoats, but it is too bulky for fattening hogs. Then, too, there seems to be some doubt about its effects on the health of the hogs that are fed large quantities. According to experiments conducted at several stations there is a slight loss of feeding value of the corn that is put into the silo with the stalks. So much depends upon the quality of the silage that it would be impossible to give accurate data, but from all practical experience I would suggest that you feed the silage to other live stock rather than hogs. W. M. K.

SPRAYING APPLE TREES.

We have one hundred apple trees just beginning to bear. The apples are always wormy. What do you think we had better spray with? What do you think about whitewashing the trunks? J. R.

If there is San Jose scale on the apple trees, spray with strong lime-sulphur before the buds open. The second spraying comes when the blossom buds are "in the pink." Use Bordeaux mixture or lime-sulphur for the scab and add two or three pounds of arsenate of lead paste to each fifty gallons of the mixture.

After the blossoms fall, immediately apply the same mixture very thoroughly as this is the spray that is greatly needed for the codling moth. In about two weeks the same mixture is repeated. The second generation of the codling moth during the first week in August will require the application repeated.

We see little gained by whitewashing the trunks of the trees as the dormant spray of strong lime-sulphur kills the scale and is the only wash needed on the trunks. Write to the college experiment station at East Lansing for Special Bulletin No. 93, entitled, "Spray and Practice Outline for Fruit Growers." R. G. K.

EXTERMINATING MILKWEED.

Is it possible to exterminate milkweed on a rich clay loam, and how can it be done with the least amount of labor?

Shiawassee Co.

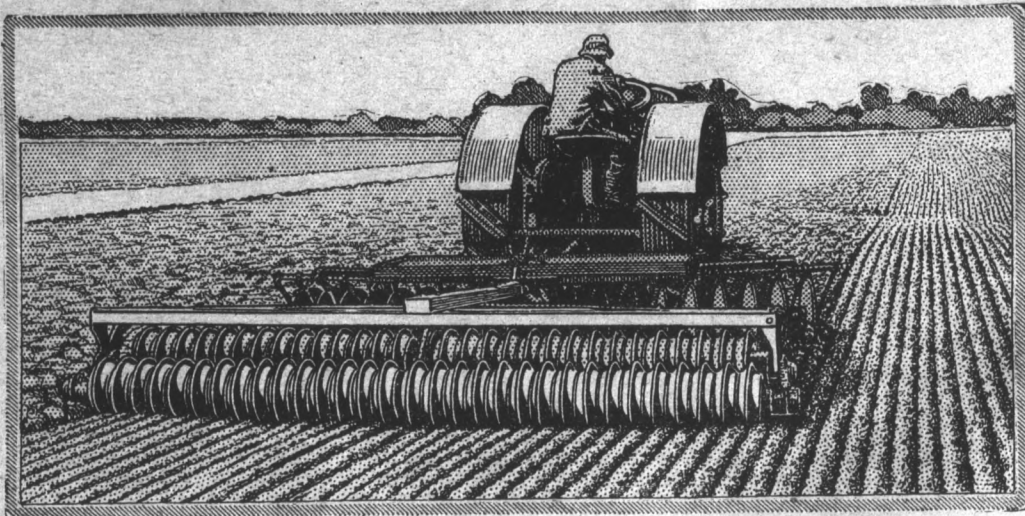
B. M.

Common milkweed should cause no great anxiety to the farmer. In cultivated fields where you have a rotation of crops, no particular attention need be paid to them. They will run out in a short time anyway, and they seem to do but little harm to the crop. For instance, milkweed in a field of oats does not seem to injure the oats growing close to it. The stalk of the oats seem to be just as thrifty and the heads just as well filled growing by the side of milkweed as one further away. This indicates that the milkweed is very deep-rooted and gets its food further down in the soil than the oat plant. Of course, they are not very nice to have in with the bundle of oats but they do very little harm and ordinary cultivation will destroy them in a year or so. In permanent pasture fields they are more bothersome. Sometimes they grow so thickly that they shade or smother the grass somewhat. But if one will mow them before they go to seed he can soon exterminate them from a pasture field. They are, in fact, about the simplest weed to get rid of that we have. C. C. L.

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Experience With Sudan Grass

THE spring of 1919 I was up against head out fully. On the whole, I cannot it for feed. My farm is small and recommend it, but perhaps I did not devoted mostly to fruit, but feed in give it a fair trial. The land was poor this section is so outrageously high and the seed bed not very thoroughly that I try to raise a part of what I worked.

My meadow was run out and I planned to sow oats and reseed it, which by the way, turned out a poor plan as the seeding mostly died out on account of the dry hot weather. I wanted some kind of crop which would produce an abundance of feed with a minimum of care as the berry crop would not allow much time for cultivation. The experiment station at East Lansing advised oats and Canada peas sowed together and cut for hay. I finally decided to give Sudan grass a trial.

I bought ten pounds of seed and gave it a thorough trial. I sowed it the last of May on a piece of ground which had raised a poor crop of corn the previous season. I should have waited longer to sow the seed as it was extremely slow in germinating and getting a start. I thought the spindly, weak looking plants would never amount to anything. With the hot, dry weather of July, the plants shot up amazingly and stooled to from ten to twenty stalks to the plant.

When the grass was about four feet tall, I made the first cutting and the stock ate it with relish. I was somewhat disappointed though, with the yield as the grass dried out to less than half of its green bulk. This cutting was made July 28. I made up my mind to allow the grass to mature more for the next cutting.

The plants began to grow again at once. I scattered broadcast a light sprinkling of fertilizer on part of the field where the soil was thin but could not notice any improvement. I allowed the grass to get about six feet tall this time and waited until it was fully headed out. The stalks were as thick as a lead pencil and averaged fifteen stalks to the plant. Leaves were long and wide and plenty of them on each stalk.

This cutting was made September 15 and the grass was so tall and rank that my neighbor broke his mowing machine on the second round. I had no machine so had to mow the remainder with a scythe. I sure knew that I had done something when that piece was finally mowed. No wonder the pioneers aged rapidly with their scythes and cradles. Not for me those good old days. I literally earned the cows' bread by the sweat of my brow, only my brow must have been exceedingly extensive for even my stockings were wet. I raked it by hand, too, and I might as well have raked sticks as the stalks were stiff and hard.

I had my troubles loading that hay as there was no coherence. The stalks would not stick together like timothy but fell apart easily. I could not get a full load on the fork for it just would not stay together. This cutting made a good-sized load of hay but the stock would not eat the stalks so I had to clean the mangers twice a day and use stalks for bedding. They did not rot well in the manure and made a tangled mess.

I finally got rid of that stuff but registered a vow of never again. The grass grew up again to a height of about two feet and I staked my cow on it. She ate it greedily but ate off a circle of twenty-foot radius in an hour or two and was ready for more, so evidently it did not have much substance.

My farm is in Berrien county so I had a fairly long growing season. I got two cuttings and could have made a third cutting, but the three cuttings would not have made more feed than one cutting of good timothy. It was miserable stuff to handle and not satisfactory as a feed when allowed to these days.

This year I shall try oats and Canada peas for a hay crop. I tried alfalfa twice following the full directions and failed to get a stand. I shall try a small piece this year and I plan to sow the seed the last of March with no preparation on some bare ground and let the frost work it into the ground. I don't utterly condemn Sudan grass, possibly you may like it fine and have good success with it, but as for me—never, no, never again.

Berrien Co.

L. B. REBER.

GLAD WE TRIED IT.

OUR meadows did not produce very well for a number of years after we bought the farm. They had been run for a long term of years, with little or no manure or other form of fertilizer put back. In this respect my fields were quite like those of my neighbors, as well as up to the average for the country. If we take the trouble to look it up, we will be surprised to find that the average annual production of hay is only about a ton and a half to the acre for this entire country. I know I was startled when I first found that out.

But it came to us that perhaps by using lime we might increase our yield of grass per acre. We applied it when we seeded the land down with oats, dressing the land with a few hundred pounds of the lime to the acre. We began by spreading it by hand, but that was not a very pleasant way of doing. It got in our noses and eyes and we felt that it was not very healthy. I know of one man who says he cannot get men to spread lime by hand for that very reason. So we now have a lime spreader which works well. It gets the lime on more evenly than we could by hand and is free from the objection that grows out of the hand work.

Now for the results. That is what tells the story. We have increased our production of hay one-half on the fields where the lime has been used. It is true that we have used some barnyard manure along with the lime. I think that should always be done where we have, or can get, that kind of fertilizer. In the absence of manure, a well-mixed commercial fertilizer will take its place.

If all the meadows of this country could be treated as we have treated ours, it would not be long before we would be cutting twice as much hay on the same land that we do now, and that means, according to the figures for last year, about one hundred and seventy million tons, and the best of it is, the hay is so much better.—E. L. V.

PROTECTING MICHIGAN'S LIVE STOCK.

(Continued from page 543).

be for the owner of the dog first, and that owner will have to pay all costs of trip and service papers in the case. Even at this late day there are some dog owners who may claim ignorance of this new dog law. As soon as the warm weather comes on there will be a round-up of both dogs and their owners in all sections of the state. June 15 of this year is the limit when the county treasurers and city and township officials compare notes to determine and locate all unlicensed dogs.

After a year or so we hope to ride on the roads in every direction throughout Michigan and see sheep so common that we may begin to talk about miserable stuff to handle and not satisfactory as a feed when allowed to these days.

GRAIN RATION FOR HORSES.

I would like to know what would be the best grain for working horses in place of oats. Do you think equal parts of corn meal and bran would do as well? Would also like to know how to cure a kicking cow. B. M.

Probably taking everything into consideration oats are the safest and best feed that can be fed to horses. But as you suggest, you can get splendid results by feeding corn meal and wheat bran, equal parts by measure. Several years back we did not grow any oats at all and the horses were fed almost entirely on this ration of corn meal and wheat bran with good results.

To Cure a Cow From Kicking.

The first thing to do is to find out the cause and remove it if possible. A cow hardly ever kicks unless there is a good reason for it. Possibly her teats and udder are tender, possibly they are cracked and chapped and when you milk her it hurts, and if this is so you can't blame a cow for kicking. The udder and teats should be examined and if they are sore or tender they should be attended to. Boiled linseed oil is about as good as any. You could use vaseline or camphorated vaseline. It is very healing and soothing. Then again, sometimes the milker has thick callouses on his hands and this hurts when you squeeze the teats, or a milker may have long sharp finger nails, etc. Discover the cause and remove it if possible.

You can't break a cow from kicking by abusing her. It does not do to thrash a cow for kicking. You have got to let her understand that you are her friend, that you are trying to do things for her benefit and when this is done in the right way there is very little trouble. However, there are cows that are vicious that will kick and hook and when you get one like that about the only way is to tie her legs when you milk her. Put a ring and staple in back of her, having a good wide strap about the leg, just above the gambo or just above the ankle, draw the rope up tight when the leg is in position for milking. In this way you make it impossible for her to kick, but don't leave her teats and udder cracked and sore, heal them up.

C. C. L.

HATCHING AND BROODING DUCKS.

Will you please tell me whether I can hatch duck eggs with an incubator and brood the ducklings artificially? How old may the eggs get before setting?

Bay Co.

J. V.

Duck eggs can be saved for three weeks for hatching purposes if they are stored in a room where the temperature is about fifty degrees. Of course, the fresher the eggs the greater the chances for hatching a large per cent of vigorous ducklings. If duck eggs are left for several days where the temperature is even eighty-five degrees, a change will occur and they will spoil in a short time. In general we believe that duck eggs saved for incubation need even better care than hen's eggs if the best results are to be expected.

Ducks are hatched very successfully in incubators with the temperature running at one hundred and three degrees throughout the hatch. It requires twenty-eight days to hatch the eggs. After the fourteenth day of incubation some breeders sprinkle duck eggs each day with water at one hundred and four degrees. This is continued until the eggs start to pip. Moisture pans are often used after the fifth day. The artificial heat is very drying and there will be many dead ducklings in the shells if moisture is seriously lacking.

Ducks are brooded much the same as young chicks in the same types of artificial brooders. Many breeders prefer to brood ducks artificially rather than use hens.

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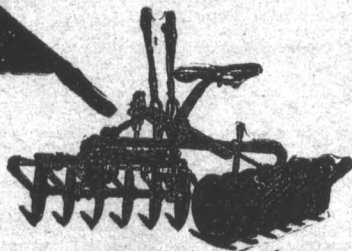
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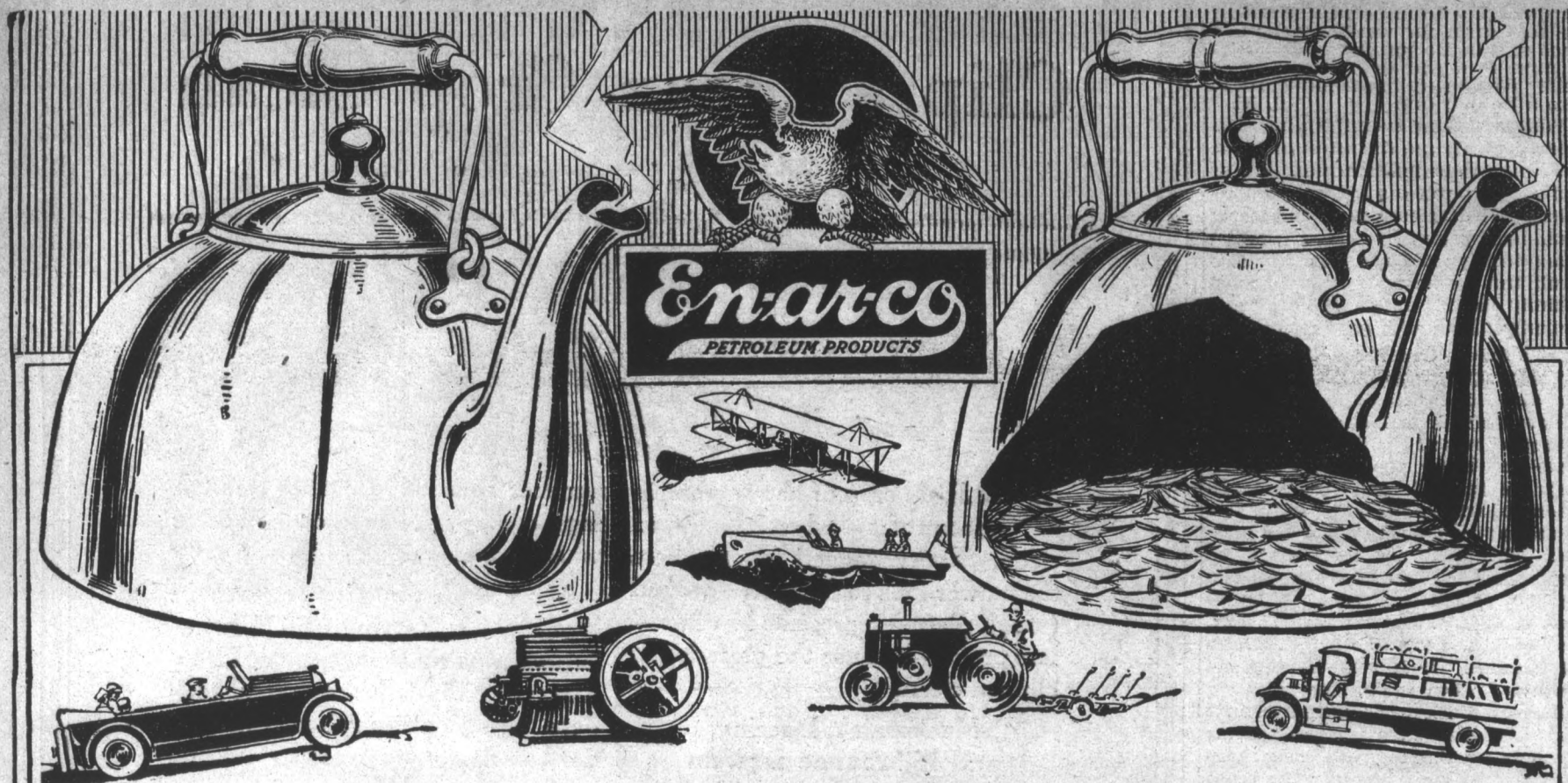
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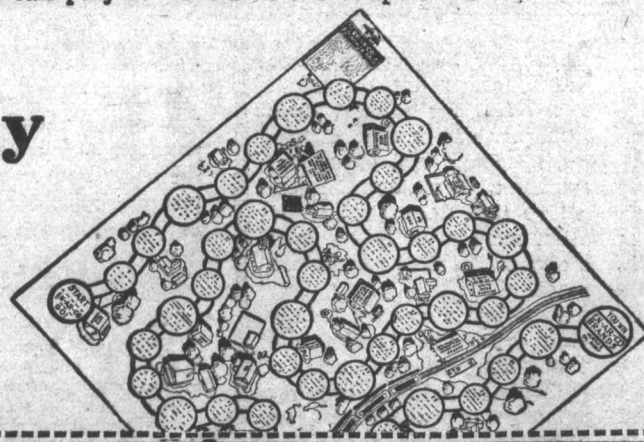
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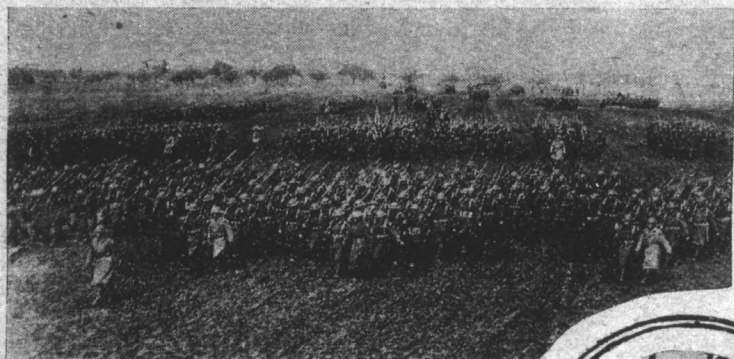
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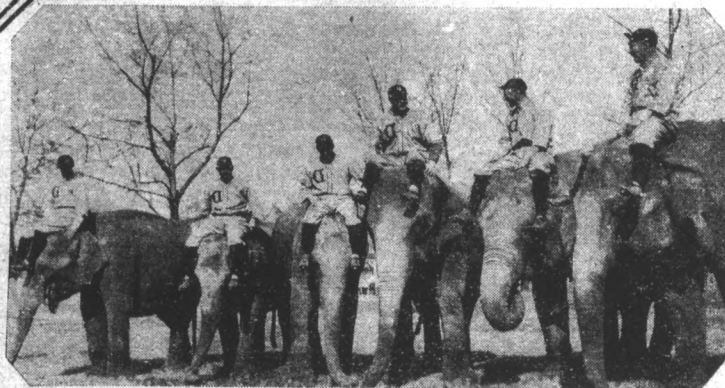
Chinese athletic champions, who have captured highest honors at home, may compete in Olympic games at Antwerp.



Mrs. Baright, prominent eastern attorney, contends that men are not made "sissies" by women.



United States troops marching in review before the German fortress of Ehrenbreitstein, succeed in preventing strikes and uprisings by Kapp followers that would in any way interfere with the responsibilities of the troops.



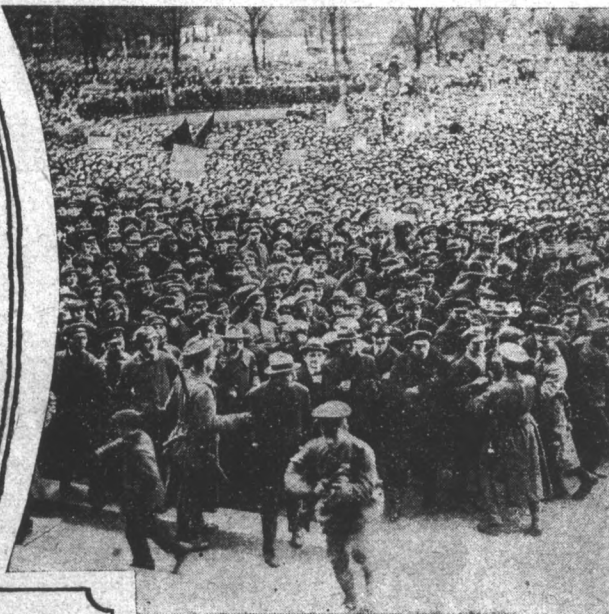
Detroit Tigers start the hunt for big game even during the hours of strenuous training at Macon, Ga.



English women now hold many responsible offices. Lady Arnott has been singularly honored by being appointed by the Lord Chancellor to act as magistrate.



Major-General Allen, commander of the American forces on the Rhine, makes both the German revolutionists and the supporters of the Ebert government behave during the present revolution.



Huge crowd finally succeeds in breaking through the line of police into the Reichstag building at Berlin, and in forcing the Ebert government to flee to Stuttgart.

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THE VALLEY OF THE GIANTS

A ROMANCE OF THE REDWOODS

By Peter B. Kyne

(The First Installment of Our New Serial)

CHAPTER I.

IN the summer of 1850 a topsail schooner slipped into the cove under Trinidad Head and dropped anchor at the edge of the kelp-fields. Fifteen minutes later her small-boat deposited on the beach a man armed with long squirrel-rifle and an axe, and carrying food and clothing in a brown canvas pack. From the beach he watched the boat return and saw the schooner weigh anchor and stand out to sea before the northwest trades. When she had disappeared from his ken, he swung his pack to his broad and powerful back and strode resolutely into the timber at the mouth of a little river.

The man was John Cardigan; in that lonely, hostile land he was the first pioneer. This is the tale of Cardigan and Cardigan's son, for in his chosen land the pioneer leader in the gigantic task of hewing a path for civilization was to know the bliss of woman's love and of parenthood, and the sorrow that comes of the loss of a perfect mate; he was to know the tremendous joy of accomplishment and worldly success after infinite labor; and in the sunset of life he was to know the dull despair of failure and ruin. Because of these things there is a tale to be told, the tale of Cardigan's son, who, when his sire fell in the fray, took up the fight to save his heritage—a tale of life with its love and hate, its battle, victory, defeat, labor, joy, and sorrow, a tale of that unconquerable spirit of youth which spurred Bryce Cardigan to lead a forlorn hope for the sake not of wealth but of an ideal. Hark, then, to this tale of Cardigan's redwoods:

Along the coast of California, through the secret valleys and over the tumbled foothills of the Coast Range, extends a belt of timber of an average width of thirty miles. In approaching it from the Oregon line the first tree looms suddenly against the horizon—an outpost, as it were, of the host of giants whose column stretches south nearly four hundred miles to where the last of the rear-guard maintains eternal sentry-go on the crest of the mountains overlooking Monterey Bay. Far in the interior of the state, beyond the fertile San Joaquin Valley, the allies of this vast army hold a small sector on the west slope of the Sierras.

These are the redwood forests of California, the only trees of their kind in the world and indigenous only to these two areas within the state. The coast timber is known botanically as sequoia sempervirens, that in the interior as sequoia gigantea. As the name indicates, the latter is the larger species of the two, although the fibre of the timber is coarser and the wood softer and consequently less valuable commercially than the sequoia sempervirens—which in Santa Cruz, San Mateo, Marin, and Sonoma counties has been almost wholly logged off, because of its accessibility. In northern Mendocino, Humboldt, and Del Norte counties, however, sixty years of logging seems scarcely to have left a scar upon this vast body of timber. Notwithstanding sixty years of attrition, there remain in this section of the redwood belt thousands upon thousands of acres of virgin timber that had already attained a vigorous growth when Christ was crucified. In their

vast, sombre recesses, with the sunlight filtering through their branches two hundred and fifty feet above, one hears no sound save the tremendous diapason of the silence of the ages; here, more forcibly than elsewhere in the universe, is one reminded of the littleness of man and the glory of his creator.

In sizes ranging from five to twenty feet in diameter, the brown trunks rise perpendicularly to a height of from ninety to a hundred and fifty feet before putting forth a single limb, which frequently is more massive than the growth which men call a tree in the forests of Michigan. Scattered between the giants, like subjects around their king, one finds noble fir, spruce, or pines, with some Valparaiso live oak, black oak, pepper-wood, madrone, yew, and cedar.

In May and June, when the twisted and cowering madrone trees are putting forth their clusters of creamy buds, when the white blossoms of the dogwoods line the banks of little streams, when the azaleas and rhododendrons, lovely and delicate as orchids, blaze a bed of glory, and the modest little oxalis has thrust itself up through the brown carpet of pine-needles and redwood-twigs, these wonderful forests cast upon one a potent spell. To have seen them once thus in gala dress is to yearn thereafter to see them again and still again and grieve always in the knowledge of their inevitable death at the hands of the woodsman.

John Cardigan settled in Humboldt county, where the sequoia sempervirens attains the pinnacle of its glory, and with the lust for conquest hot in his blood, he filed upon a quarter-section of the timber almost on the shore of Humboldt Bay—land upon which a city subsequently was to be built. With his double-bitted axe and cross-cut saw John Cardigan brought the first of the redwood giants crashing to the earth above which it had towered for twenty centuries, and in the form of split posts, railroad ties, pickets and shakes, the fallen giant was hauled to tidewater in ox-drawn wagons and shipped to San Francisco in the little two-masted coasting schooners of the period. Here, by the abominable magic of barter and trade, the dismembered tree was transmuted into dollars and cents and returned to Humboldt county to assist John Cardigan in his task of hewing an empire out of a wilderness.

At a period in the history of California when the treasures of the centuries were to be had for the asking or the taking, John Cardigan chose that which others elected to cast away. For him the fertile wheat and fruit lands of California's smiling valleys, the dull placer gold in her foot-hill streams, and the free grass, knee deep on her cattle and sheep-ranges held no lure; for he had been first among the Humboldt redwoods and had come under the spell of the vastness and antiquity, the majesty and promise of these epics of a planet. He was a big man with a great heart and the soul of a dreamer, and in such a land as this it was fitting he should take his stand.

In that wasteful day a timber-claim was not looked upon as valuable. The price of a quarter-section was a pit-tance in cash and a brief residence in a cabin constructed on the claim as

evidence of good faith to a government none too exacting in the restrictions with which it hedged about its careless dissipation of the heritage of posterity. Hence, because redwood timber-claims were easy to acquire, many men acquired them; but when the lure of greener pastures gripped these men and the necessity for ready money oppressed, they were wont to sell their holdings for a few hundred dollars. Gradually it became the fashion in Humboldt to "unload" redwood timber-claims on thrifty, far-seeing, visionary John Cardigan who appeared to be always in the market for any claim worth while.

Cardigan was a shrewd judge of stumpage; with the calm certitude of a prophet he looked over township after township and cunningly checker-boarded it with his holdings. Notwithstanding the fact that hillside timber is the best, John Cardigan in those days preferred to buy valley timber, for he was looking forward to the day when the timber on the watersheds should become available. He knew that when such timber should be cut it would have to be hauled out through the valleys where his untouched holdings formed an impenetrable barrier to the exit! Before long the owners of timber on the watersheds would come to realize this and sell to John Cardigan at a reasonable price.

Time passed. John Cardigan no longer swung an axe or dragged a cross-cut saw through a fallen redwood. He was an employer of labor now, well known in San Francisco as a manufacturer of split-redwood products, the purchasers sending their own schooners for the cargo. And presently John Cardigan mortgaged all of his timber holdings with a San Francisco bank, made a heap of his winnings, and like a true adventurer staked his all on a new venture—the first sawmill in Humboldt county. The timbers for it were hewed out by hand; the boards and planking were whipsawed.

It was a tiny mill, judged by present-day standards, for in fourteen-hour working day John Cardigan and his men could not cut more than twenty thousand feet of lumber. Nevertheless, when Cardigan looked at his mill, his great heart would swell with pride. Built on tidewater and at the mouth of a large slough in the waters of which he stored the logs his woods-crew cut and peeled for the bull-whackers to haul with ox-teams down a mile-long skid-road, vessels could come to Cardigan's mill dock to load and lie safely in twenty feet of water at low tide. Also this dock was sufficiently far up the bay to be sheltered from the heavy seas that rolled in from Humboldt Bar, while the level land that stretched inland to the timber-line constituted the only logical town-site on the bay.

"Here," said John Cardigan to himself exultingly when a long-drawn wall told him his circular saw was biting into the first redwood log to be milled since the world began, "I shall build a city and call it Sequoia. By tomorrow I shall have cut sufficient timber to make a start. First I shall build for my employees better homes than the rude shacks and tent-houses they now occupy; then I shall build myself a fine residence with six rooms, and the room that faces on the bay shall be

(Continued on page 554).



LEONARD WOOD

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the parlor. When I can afford it, I shall build a larger mill, employ more men, and build more houses. I shall encourage tradesmen to set up in business in Sequoia, and to my city I shall present a church and a schoolhouse. We shall have a volunteer fire department, and if God is good, I shall, at a later date, get out some long-length fir-timber and build a schooner to freight my lumber to market. And she shall have three masts instead of two, and carry half a million feet of lumber instead of two hundred thousand. First, however, I must build a steam tugboat to tow my schooner in and out over Humboldt Bar. And after that—ah, well! That is sufficient for the present."

CHAPTER II.

THUS did John Cardigan dream, and as he dreamed he worked. The city of Sequoia was born with the Argonaut's six-room mansion of rough redwood boards and a dozen three-room cabins with lean-to kitchens; and the tradespeople came when John Cardigan, with something of the largeness of his own redwood trees, gave them ground and lumber in order to encourage the building of their enterprises. Also the dream of the schoolhouse and the church came true, as did the steam tugboat and the schooner with three masts. The mill was enlarged until it could cut forty thousand feet on a twelve-hour shift, and a planer and machines for making rustic siding and tongued-and-grooved flooring and ceiling were installed. More ox-teams appeared upon the skid-road, which was longer now; the cry of "Timber-r-r" and the thunderous roar of a falling redwood grew fainter and fainter as the forest receded from the bay shore, and at last the whine of the saws silenced these sounds forever in Sequoia.

At forty John Cardigan was younger than most men at thirty, albeit he worked fourteen hours a day, slept eight, and consumed the remaining two at his meals. But through all those fruitful years of toil he had still found time to dream, and the spell of the redwoods had lost none of its potency. He was still checker-boarding the forested townships with his adverse holdings—the key-positions to the timber in back of beyond which some day should come to his hand. Also he had competition now; other sawmills dotted the bay shore; other three-masted schooners carried Humboldt redwood to the world beyond the bar, over which they were escorted by other and more powerful steam-tugs. This competition John Cardigan welcomed and enjoyed, however, for he had been first in Humboldt, and the townsites and a mile of tidelands fronting on deep water were his; hence each incoming adventurer merely helped his dream of a city to come true.

At forty-two Cardigan was the first mayor of Sequoia. At forty-four he was standing on his dock one day, watching his tug kick into her berth the first square-rigged ship that had ever come to Humboldt Bay to load a cargo of clear redwood for foreign delivery. She was a big Bath-built clipper, and her master a lusty down-Easter, a widower with one daughter who had come with him around the Horn. John Cardigan saw this girl come up on the quarter-deck and stand by with a heaving-line in her hand; calmly she fixed her glance upon him, and as the ship was shunted in closer to the dock, she made the cast to Cardigan. He caught the light heaving-line, hauled in the heavy Manila stern-line to which it was attached, and slipped the loop of the mooring-cable over the dolphin at the end of the dock.

"Some men wanted aft here to take up the slack of the stern-line on the windlass, sir," he shouted to the skip-

per, who was walking around on top of the house. "That girl can't haul her in alone."

"Can't. I'm short-handed," the skipper replied. "Jump aboard and help her."

Cardigan made a long leap from the dock to the ship's rail, balanced there lightly a moment, and sprang to the deck. He passed the bight of the stern-line in a triple loop around the drum of the windlass, and without awaiting his instructions, the girl grasped the slack of the line and prepared to walk away with it as the rope paid in on the windlass. Cardigan inserted a belaying-pin in the windlass, paused and looked at the girl. "Raise a chantey," he suggested. Instantly she lifted a sweet contralto in that rollicking old ballad of the sea—"Blow the Men Down."

For tinkers and tailors and lawyers and all, Way! Aye! Blow the men down! They ship for real sailors aboard the Black Ball. Give me some time to blow the men down.

Round the windlass Cardigan walked, steadily and easily, and the girl's eyes widened in wonder as he did the work of three powerful men. When the ship had been warped in and the slack of the line made fast on the bitts, she said:

"Please run for'd and help my father with the bow-lines. You're worth three foremast hands. Indeed, I didn't expect to see a sailor on this dock."

"I had to come around the Horn to get here, Miss," he explained, "and when a man hasn't money to pay for his passage, he needs must work it."

"I'm the second mate," she explained. "We had a succession of gales from the Falklands to the Evangelistas, and there the mate got her in irons and she took three big ones over the taffrail and cost us eight men. Working short-handed, we couldn't get any canvas on her to speak of—long voyage, you know, and the rest of the crew got scurvy."

"You're a brave girl," he told her. "And you're a first-class A. B.," she replied. "If you're looking for a berth, my father will be glad to ship you."

"Sorry, but I can't go," he called, as he turned toward the companion ladder. "I'm Cardigan, and I own this sawmill and must stay here and look after it."

There was a light, exultant feeling in his middle-aged heart as he scampers along the deck. The girl had wonderful dark auburn hair and brown eyes, with a milk-white skin that sun and wind had sought in vain to blemish. And for all her girlhood she was a woman—bred from a race (his own people)—to whom danger and despair merely furnished a tonic for their courage. What a mate for a man! And she had looked at him proudly.

They were married before the ship was loaded, and on a knoll of the logged-over lands back of the town and commanding a view of the bay, with the dark-forested hills in back and the little second-growth redwoods flourishing in the front yard, he built her the finest home in Sequoia. He had reserved this building-site in a vague hope that some day he might utilize it for this very purpose, and here he spent with her three wonderfully happy years. Here his son Bryce was born, and here, two days later, the new-made mother made the supreme sacrifice of maternity.

For half a day following the destruction of his Eden John Cardigan sat dumbly beside his wife, his great, hard hand caressing the auburn head whose every thought for three years had been his happiness and comfort. Then the doctor came to him and mentioned the matter of funeral arrangements.

Cardigan looked up at him blankly. "Funeral arrangements?" he murmured. "Funeral arrangements?" He passed his gnarled hand over his leon-

ine head. "Ah, yes, I suppose so. I shall attend to it."

He rose and left the house, walking with bowed head out of Sequoia, up the abandoned and decaying skid-road through the second-growth redwoods to the dark green blur that marked the old timber. It was May, and nature was renewing herself, for spring comes late in Humboldt county. From an alder thicket a pompous cock grouse boomed intermittently; the valley, quail, in pairs, were busy about their household affairs; from a clump of manzanita a buck watched John Cardigan curiously. On past the landing where the big bull donkey-engine stood (for with the march of progress, the logging donkey-engine had replaced the ox-teams, while the logs were hauled out of the woods to the landing by means of a mile-long steel cable, and there loaded on the flat-cars of a logging railroad to be hauled to the mill and dumped in the log-boom) he went, up the skid-road recently swamped from the landing to the down timber where the crosscut men and bark-peelers were at work, on into the green timber where the woods-boss and his men were chopping.

"Come with me, McTavish," he said to his woods-boss. They passed through a narrow gap between two low hills and emerged in a long narrow valley where the redwood grew thickly and where the smallest tree was not less than fifteen feet in diameter and two hundred and fifty feet tall. McTavish followed at the master's heels as they penetrated this grove, making their way with difficulty through the underbrush until they came at length to a little amphitheatre, a clearing perhaps a hundred feet in diameter, oval-shaped and surrounded by a wall of redwoods of such dimensions that even McTavish, who was no stranger to these natural marvels, was struck with wonder. The ground in this little amphitheatre was covered to a depth of a foot with brown, withered little redwood twigs to which the dead leaves still clung, while up through this aromatic covering delicate maidenhair ferns and oxalis had thrust themselves. Between the huge brown boles of the redwoods, woodwardia grew riotously, while through the great branches of these sentinels of the ages the sunlight filtered. Against the prevailing twilight of the surrounding forest it descended like a halo, and where it struck the ground John Cardigan paused.

"McTavish," he said, "she died this morning."

"I'm sore distressed for you, sir," the woods-boss answered. "We'd a whisper in the camp yesterday that the lass was like to be in a bad way."

Cardigan scuffed with his foot a clear space in the brown litter. "Take two men from the section-gang, McTavish," he ordered, "and have them dig her grave here; then swamp a trail through the underbrush and out to the donkey-landing, so we can carry her in. The funeral will be private."

McTavish nodded. "Any further orders, sir?"

"Yes. When you come to that little gap in the hills, cease your logging and bear off yonder." He waved his hand. "I'm not going to cut the timber in this valley. You see, McTavish, what it is. The trees here—ah, man, I haven't the heart to destroy God's most wonderful handiwork. Besides, she loved this spot, McTavish, and she called the valley her Valley of the Giants. I—I gave it to her for a wedding present because she had a bit of a dream that some day the town I started would grow up to yonder gap, and when that time came and we could afford it, 'twas in her mind to give her Valley of the Giants to Sequoia for a city park, all hidden away here and unsuspected."

"She loved it, McTavish. It pleased her to come here with me; she'd make

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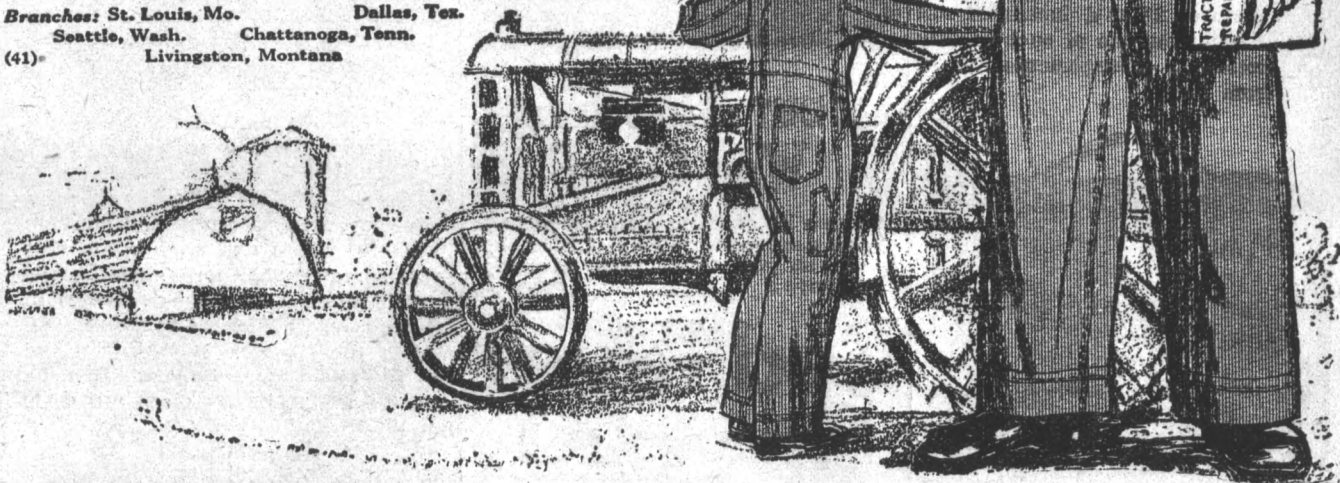
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up a lunch of her own cooking and I would catch trout in the stream by the dogwoods yonder and fry the fish for her. Sometimes I'd barbecue a venison steak and—well, 'twas our playhouse, McTavish, and I who am no longer young—I who never played until I met her—I—I'm a bit foolish, I fear, but I found rest and comfort here, McTavish, even before I met her, and I'm thinking I'll have to come here often for the same. She—she was a very superior woman, McTavish—very superior. Ah, man, the soul of her! I cannot bear that her body should rest in Sequoia cemetery, along with the rag tag and bobtail o' the town. She was like this sunbeam, McTavish. She—she—"

"Aye," murmured McTavish huskily. "I ken. Ye wouldna gie her a common or a public spot in which to wait for ye. An' ye'll be shuttin' down the mill an' loggin'-camps an' layin' off the hands in her honor for a bit?"

"Until after the funeral, McTavish. And tell your men they'll be paid for the lost time. That will be all, lad."

When McTavish was gone, John Cardigan sat down on a small sugar-pine windfall, his head held slightly to one side while he listened to that which in the redwoods is not sound but rather absence of it. And as he listened, he absorbed a subtle comfort from those huge brown trees, so emblematic of immortality; in the thought he grew closer to his Maker, and presently found that peace which he sought. Love such as theirs could never die.

The tears came at last. At sundown he walked home bearing an armful of rhododendrons and dogwood blossoms, which he arranged in the room where she lay. Then he sought the nurse who had attended her.

"I'd like to hold my son," he said gently. "May I?"

She brought him the baby and placed it in his great arms that trembled so; he sat down and gazed long and earnestly at this flesh of his flesh and blood of his blood. "You'll have her hair and skin and eyes," he murmured. "My son, my son, I shall love you so, for now I must love for two. Sorrow I shall keep from you, please God, and happiness and worldly comfort shall I leave you when I go to her." He nuzzled his grizzled cheek against the baby's face. "Just you and my trees," he whispered, "just you and my trees to help me hang on to a plucky finish."

For love and paternity had come to him late in life and so had his first great sorrow; wherefore, since he was not accustomed to these heritages of all flesh, he would have to adjust himself to the change. But his son and his trees—ah, yes, they would help. And he would gather more redwoods now!

CHAPTER III.

A YOUNG half-breed Digger woman, who had suffered the loss of the latest of her numerous progeny two days prior to Mrs. Cardigan's death, was installed in the house on the knoll as nurse to John Cardigan's son whom he called Bryce, the family name of his mother's people. A Mrs. Tully, widow of Cardigan's first engineer in the mill, was engaged as housekeeper and cook; and with his domestic establishment reorganized along these simple lines, John Cardigan turned with added eagerness to his business affairs, hoping between them and his boy to salvage as much as possible from what seemed to him, in the first pangs of his loneliness and desolation, the wreckage of his life.

While Bryce was in swaddling clothes, he was known only to those females of Sequoia to whom his half-breed foster mother proudly exhibited him when taking him abroad for an airing in his perambulator. With his advent into rompers, however, and the assumption of his American preroga-

tive of free speech, his father developed the habit of bringing the child down to the mill office, to which he added a playroom that connected with his private office. Hence, prior to his second birthday, Bryce divined that his father was closer to him than motherly Mrs. Tully or the half-breed girl, albeit the housekeeper sang to him the lullabys that mothers know while the Digger girl, improvising plank verse paeans of praise and prophecy, crooned them to her charge in the unmusical monotone of her tribal tongue. His father, on the contrary, wasted no time in singing, but would toss him to the ceiling or set him astride his foot and swing him until he screamed in ecstasy. Moreover, his father took him on wonderful journeys which no other member of the household had even suggested. Together they were wont to ride to and from the woods in the cab of the logging locomotive, and once they both got on the log carriage in the mill with Dan Keyes, the head sawyer, and had a jolly ride up to the saw and back again, up and back again until the log had been completely sawed; and because he had refrained from crying aloud when the greedy saw bit into the log with a shrill whine, Dan Keyes had given him a nickel to put in his tin bank.

Of all their adventures, together, however, those which occurred on their frequent excursions up to the Valley of the Giants impressed themselves imperishably upon Bryce's memory. How well he remembered their first trip, when, seated astride his father's shoulders with his sturdy little legs around Cardigan's neck and his chubby little hands clasping the old man's ears, they had gone up the abandoned skid-road and into the semi-darkness of the forest, terminating suddenly in a shower of sunshine that fell in an open space where a boy could roll and play and never get dirty. Also there were several dozen gray squirrels there waiting to climb on his shoulder and search his pockets for pine-nuts, a supply of which his father always furnished.

Bryce always looked forward with eagerness to those frequent trips with his father "to the place where mother dear went to heaven." From his perch on his father's shoulders he could look vast distances into the underbrush and catch glimpses of the wild life therein; when the last nut had been distributed to the squirrels in the clearing, he would follow a flash of blue that was a jay high up among the evergreen branches, or a flash of red that was a woodpecker hammering a home in the bark of a sugar-pine. Eventually, however, the spell of the forest would creep over the child; intuitively he would become one with the all-pervading silence, climb into his father's arms as the latter sat dreaming on the old sugar-pine windfall, and presently drop off to sleep.

When Bryce was six years old, his father sent him to the public school in Sequoia with the children of his loggers and mill-hands, thus laying the foundation for a democratic education all too infrequent with the sons of men rated as millionaires. At night old Cardigan (for so men had now commenced to designate him!) would hear his boy's lessons, taking the while an immeasurable delight in watching the lad's mind develop. As a pupil Bryce was not meteoric; he had his father's patient, unexcitable nature; and, like the old man, he possessed the glorious gift of imagination. Never mediocre, he was never especially brilliant, but was seemingly content to maintain a steady, dependable average in all things. He had his mother's dark auburn hair, brown eyes, and fair white skin, and quite early in life he gave promise of being as large and powerful a man as his father.

(Continued next week.)

Sunshine Hollow Items

By Rube Rubicon

Freddie Cooley wen to town to get his semi-annual hair cut last Saturday. The barber asked how he wanted it cut. Freddie replied, "Off." Then the barber said, "Do you want a shampoo?" Freddie said, "No, I always wait until spring and then take a real poo down to the creek."

Some children from New York City have been visiting in our neighborhood. The other day they heard a loud buzzing noise over by the next farm and wanted to know about it. Wife told them they were buzzing wood. "Oh, let's run right over and see them do it," said one kid. "I thought it was just a couple of aeroplanes."

Grandpa Cockerhill paid a visit to his daughter, now in New York City, and used to tell her children stories about the olden times. He said, "Children, I can remember when I could look up in the sky all day long and not see a single aviator." Willie, who is inclined to be rude, replied, "Grandpa, I think that is a lie."

Hiram Dingbat has been trying to raise pigs on short rations but before they were six months old the neighbors' cats had caught every one of them. He says there isn't any money in raising pigs and it costs too much to feed them. Some folks say Hiram can't tell whether it costs money to feed pigs or not, as he never gave them enough feed to find out.

EASTER.

BY GERTRUDE K. LAMBERT.

While Easter bells are ringing
And Easter anthems singing
And Easter lilies blooming sweet and fair;

All Nature now awaking,
The chill and sloth forsaking
For Spring and Life and Beauty everywhere,

Let me tell you what I'm thinking,
While the wine of spring I'm drinking:
What matter though the Easter Time departs;

What though Year and Life grow older,
And the later winds blow colder,
If we hold the Easter Season in our hearts!

THE TREES' CONVENTION.

BY AUNT QUILLIA.

Once on a time in April weather
The forest trees met all together;
Oak and ash and elm and pine,
And others I'll not here define,
Drank each to each of springtime's wine,
And then in friendly converse they
Told of their plans for future day.

First spake the oak in deep rich voice,
Of all my aims this one my choice:
By yonder wayside I would bide,
And throw my shadows cool and wide,
Across the road where horses go
With heavy loads that they must tow;
Perchance some driver kind, humane,
Will bid them halt and slack the rein
That they a grateful rest may know
Ere toiling through miry slough.

The hick'ry then took up the cue,
And told what best she'd like to do:
My nuts encased in firm tough shell,
The merry squirrels love so well,
I hope I may in autumn tide
A bounteous feast for them provide.

And now the pine in whisp'ring tone
Soft as distant ocean's moan,
Said, my friends, in shadows deep,
Some weary one I'll sing to sleep;
When in my branches breezes die,
In dreams, perchance, their tender sigh
Will seem his mother's lullaby.

The graceful elm whose pencils high
Trace arabesques on summer sky,
Declared the most delightful thing
To furnish bough where blackbirds sing
And orioles their nests might swing.

And so they told in varied ways
Of cherished plans for coming days;
And sure I am that you'll take note
Dear lad and lass, that all had thought
For others, in the plans they wrote.

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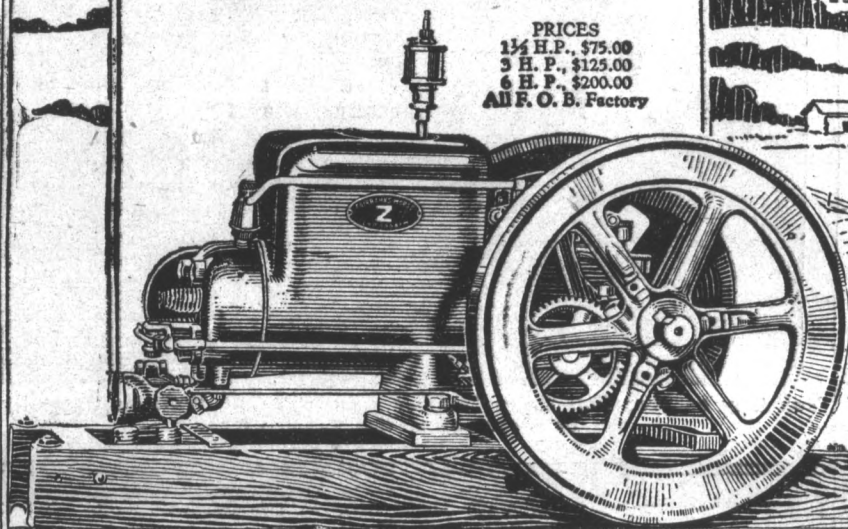
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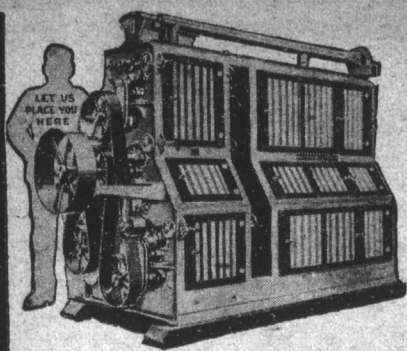
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Our Boys' and Girls' Department

Gold Bricks in Your Own Back Yard

By N. A. McCune

YOU have heard of the boy who was going to go to California, as soon as he got through high school, to make his fortune. Someway, fortunes look much bigger in California and Arizona and the Philippines, than they do in Michigan. And folks say that they are much more easily earned, in those places. But the facts are, that there are fortunes much nearer at hand, if we could only see them. A number of years ago, there was a tiny country in Europe, about one-fifth as large as Michigan, that was in a bad way. The finances were reduced, two of the best provinces had been taken away by Germany, the royal navy had been lost. Hundreds of the best farmers and business men were leaving for America. It looked as though there was no future for Denmark.

But a bishop in the Danish church by the name of Grundwig, went everywhere telling the farmers that what they had lost in the two stolen provinces, they should make up by increased crop production, and increased fer-

he would not go to town, where he was well known, to do the buying. He made his wife go. In spite of his best efforts, one cow died, the first winter. In addition to all this, he did not know a great deal about farming, as he was reared in the town. But he found a way to success and to moderate wealth, and to real happiness, on what many people would have called a God-forsaken place.

A while ago I talked with a boy who made \$785 on four and a half acres last year. He is going to use the money for school and college. Every week day you would see him at the city market in Lansing, with a load of vegetables, five thirty or six in the morning. This year, he did not do quite so well, owing to frost and other pranks of the weather. Still he sold \$477 worth of vegetables, and that is not a bad summer's work for a freshman in high school.

It is not so long ago that a boy in a tiny country town found himself in charge of his father's store. I say "boy," though he was twenty-one or

who didn't come in for his two shirts. One gentle tiller of the soil who weighed three hundred and twenty, was very sore and said many words, because there was not a shirt there big enough for him. Of course, many who came for shirts bought other things besides, just as the young merchant thought they would. The next Saturday he had another sale, and then another. One time it was milk pails and later it was women's hats, and another time it was canned pineapples, and another time it was condition powder for stock. In short, he kept something going all the time. The fellows didn't gather around the stove on a winter's evening as much as they had, not because they weren't welcome, but because there were so many people coming and going that there wasn't room for their solemn deliberations.

The youthful merchant made the country store move. He made money. The people got good value for their money. There was satisfaction all around. By and by he started another store. He found gold bricks, if not in his back yard, at least in a country store, which is even more surprising.

OUR FRIEND—THE TOAD.

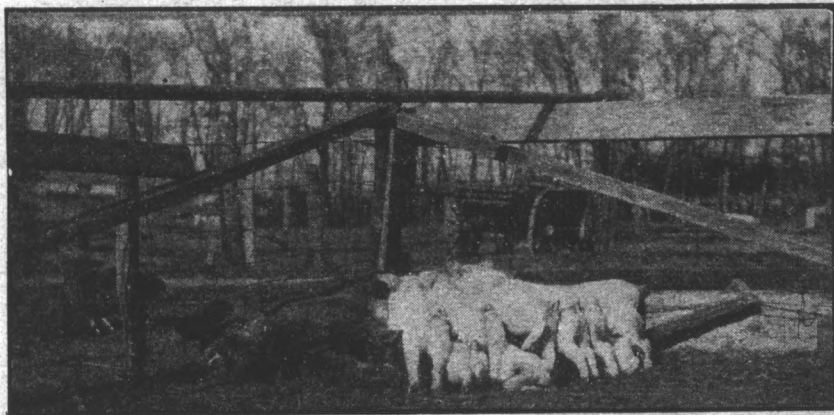
THIS squatty, warted amphibian is an asset to any flower or vegetable garden wherever he is found. He is an insect eater of the first magnitude and has an insatiable appetite. Investigations have proven the fact that, in twenty-four hours, the insects consumed by the toad equals in quantity four times the capacity of the toad's stomach. In other words, the stomach is filled and emptied four times every twenty-four hours.

One investigator, in order to find what the toads diet was composed of, examined the stomachs of one hundred and forty-nine toads during the months of April, May, June, July, August and September. As a result of this investigation he found that the toad's diet was composed mostly of insects, many of which were injurious. The following list shows the per cent of each article of diet as selected by this animal:

	Per Cent.
Ants	19
Cutworms	16
Thousand-legged worms	10
Caterpillars	9
Ground beetles	8
May beetles (white grub adult)	6
Wireworm beetles	5
Destructive weevils	5
Miscellaneous caterpillars	3
Grasshoppers and crickets	3
Spiders	2
Sow bugs	2
Potato beetles	1
Carion beetles	1
Miscellaneous beetles	1
Snails	1
Angleworms	1
Unidentified animal matter	5

Toads work mostly at night and hide under dense foliage or in deep grass during the day time. Some investigator has said that a toad in the garden is worth at least \$5.00, but that was several years ago before the dollar had shrunk so much. Judging by the way that other things have gone up in price this toad is easily worth protecting. They should be encouraged wherever it is possible to do so. The thoughtless boy should be taught its true value in the scheme of life.

DON B. WHELAN.



You May be Sure that Every Member of a Pig Club Watches Carefully the Development of the Young Stock.

tility. They were to educate their youth, for the farms, and for better ways of living. Bishop Grundwig has been dead for many years, but the people practiced his teachings. Denmark has more savings deposits in the banks per capita, than England or America. Her schools are the best rural schools in Europe. English, French and German magazines will be found in farm homes, besides those printed in the native tongue. Cooperative dairies are to be found everywhere. The butter, eggs and pork shipped to England from this tiny nation runs in value into millions of dollars. Denmark's schools became so famous that a proverb arose concerning them, like this: If you see a large building in England, you know it is a factory, in Germany it is a barracks, in Denmark it is a school. Denmark's people found gold bricks right at home, in their back yards and their farms.

One day at a farmers' institute, I listened to T. B. Terry tell how he did his farming. Mr. Terry was in great demand at all farmers' meetings because he had made such a success on a small Ohio farm. His fame had come by his success in bringing up a run-down farm, so that it produced very large crops. Part of it was swale, and part was clay, that had washed badly. And when Terry began, he cut marsh hay on the ice, for his cows. He was poor and had such shabby clothes that

two. His father was sick. You know how many country stores are. The stock looks pretty rusty. Part of it look as though it hadn't been moved or dusted for three years. Last July's circus posters are still in the windows, and three-legged chairs near the stove tell of the men who gather there o' nights, to swap stories and run the government. This young man did not know any too much about operating a store. But he had some ideas that he wanted to try out. He washed the windows. That alone was enough to give the neighbors something to talk about for a week. He took out last summer's circus posters. He took all the canned goods off the shelves and cleaned the shelves. He said it was a shame to disturb the microbes. He painted the interior, and had a decorator fix up the walls and ceiling. He put down a new hardwood floor, doing the work himself. Then he hired two boys to go everywhere through the village and country and advertise a sale. Anybody who wanted a shirt could have one at the regular price; white shirts, colored shirts, work shirts, any kind of shirt. And if you wanted two shirts, you could get the second one for a quarter. In other words, two dollar shirts for one and a quarter, and so on. And the folks came. It seemed as if every man in all that township must have worn his last shirt the day before. There was hardly a taxpayer

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HOW I STARTED IN PUREBRED SHEEP.

ROENA WALTROUS.

THREE years ago the tenant on my grandfather's farm gave me a grade wether lamb, which I raised on a bottle.

This lamb was named "Snookum's," after the Newly-wed's baby. As the baby was always crying, the lamb was always bleating, so I thought the name appropriate.

The tenant also gave the boy that was working for him a little ewe lamb. In the fall when the boy left, he was going to sell his lamb. I wanted to try to raise a flock so we traded.

This lamb was "Nell." I don't remember what she sheared the next spring or what I got for the wool. Last year she sheared fifteen pounds, which I sold for fifty-one cents per pound. She also raised a nice lamb which was sold to a shipper to be shipped to Texas this fall.

All of my father's sheep were registered Standard Delaines. He told me that he would give me the best ewe lamb in his flock for my grade. So poor "Nellie" was sold with another flock. So ended my grade sheep transfers, and I am now starting in the purebreds with this one lamb which is a nice one. She weighs about one hundred and twenty-five pounds, and has a four-inch staple of wool and I expect she will shear fifteen pounds or more. She is one year old this month and is valued at fifty dollars.

Father is going to fit her for the fairs this fall. Perhaps some of you may see her.

FINE TESTED MEAT RECIPES.

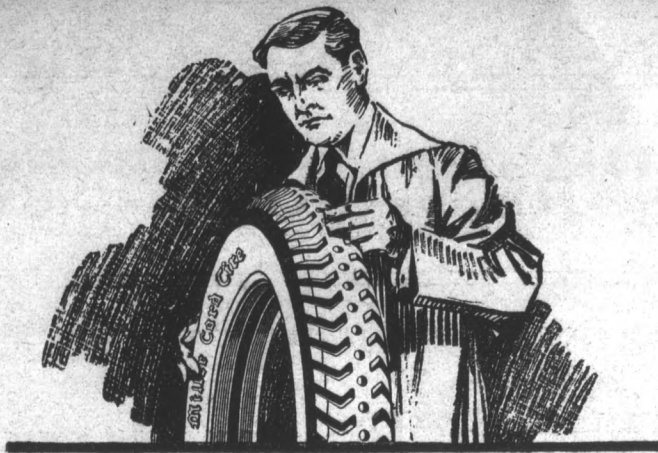
(Continued from page 561).

in boiling water, not forgetting to sterilize covers and rubbers. Pack meat in can, adding one teaspoon of salt and a dash of pepper, filling cans only to the shoulder, for if too full the juice will boil out, taking the flavor with it. Put a large tablespoon of lard on top of the can containing the heart and tongue, put covers on loosely and set in kettle with a folded cloth in the bottom. Fill kettle to shoulder of can with cold water, set on stove, bring to a boil and boil hard for three hours, keeping kettle filled up with boiling water. Old can rubbers slipped over the cans will keep them from bumping together. Seal air tight and cool right side up. This meat is especially fine for supper in hot weather, or for sandwiches.

The sausage is made of the trimmings of lean, with fat enough added to make it fry itself. It is seasoned by a recipe that has been handed down in our family for years. To each pound of meat add one level teaspoonful each of salt and sage and three level teaspoons of pepper to every four pounds of meat. Mix well, make in balls and bake in dripping pans in oven till ready to serve and then pack in cans in the same way that the fresh meat is canned, being extra careful to have top piece covered at least one inch deep with fat when cold. Set the can where it is warm for a while before taking out and it will not break up like it will if taken out cold.

When meats are put up in this way there is always a great accumulation of meat grease on hand and as it spoils quickly I can it up as fast as I get it. I have some more than a year old that is sweet and nice. These methods are a great deal of work, but more than compensate by the time saved in the summer.

Everyone knows how to try out lard, but not everyone puts the scraps in a cloth sack and boils them up in a kettle of water, taking out the sack when well drained and letting all cool. I get from a pound to two pounds of nice lard that only needs the water boiled out of it.—Mrs. M. K.



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The Eldorado Stage Co. of Los Angeles tried out 22 makes of tires on 12-passenger Packard buses. Millers far outlasted any other tire.

Facts to Know

Tests like these are going on everywhere. Hundreds of thousands of men are watching Miller mileage on their cars.

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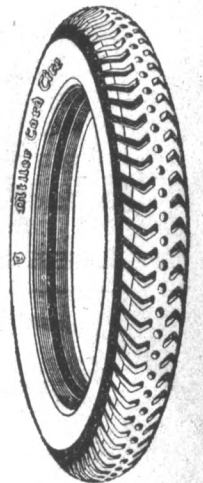
They have secured uniformity. A Miller Tire very rarely fails of expectations.

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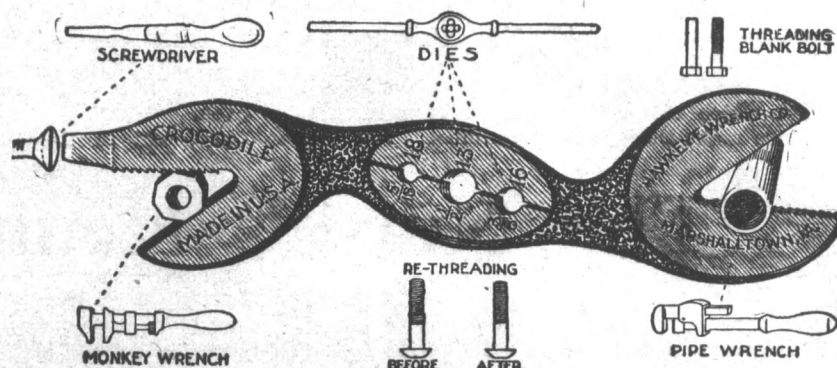
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Woman's Interests



Baking Fancy Breads and Rolls

AFTER you have mastered the art of making good plain bread, by all means learn how to make the sweetbreads which are so delicious. Sold to you under fanciful names in the bakeries, or served in high-class hotels and restaurants at high-class figures, you have a feeling that they must be very hard to make. But as a matter of fact, the making of fruit loaves and nut loaves is so simple that any woman with a bit of imagination can "discover" several fresh varieties.

The foundation is simply bread dough, or sponge, and to it is added sugar, shortening, egg, and whatever sort of fruit, nuts or flavoring the baker desires. For a medium-sized loaf two cups of dough, two tablespoons of shortening, a scant half-cup of sugar and one egg are the proportions. Beat the egg slightly and add all ingredients to the dough at once. The easiest way to mix them is to cut it with two sharp knives, provided you haven't a breadmixer.

For a nut bread add one cup of chopped nuts, with the egg, sugar, and shortening. English walnuts, pecans and almonds make the most delicious breads, but the nuts found on your own farm may be used. A cup of raisins, chopped, currants, candied peel and citron, figs, dried prunes or other dried fruits may be used instead of nuts for a fruit loaf. If you use dried fruit, wash thoroughly, remove stones, soak an hour in warm water, then dry and chop and mix with the bread, or leave in rather large pieces and spread on top of bread after it is in the pan in which it is to be baked. If dried fruits or candied fruits are used the amount of sugar may be reduced to a tablespoon or two.

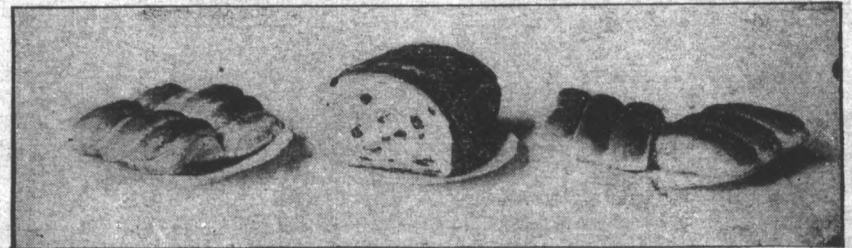
Home-made jams and marmalades make, but require some skill in shaping nicely. To two cups of sponge add a tablespoon of sugar, a half cup of melted butter, and flour to knead. may be used as fillings, and give a product which can take the place of cake. To make these, the dough must

be mixed stiff enough to roll. These will need only two tablespoons of sugar, as the jam gives the desired sweetening. When dough is mixed to the right consistency, roll into a sheet about quarter of an inch thick, spread with the jam or marmalade, roll like a jelly roll, and after wetting the ends with milk or water pinch them together so that the mixture can not ooze out as the bread rises and bakes.

Professional bakers often cut these rolls into pieces, making individual cakes. The amateur baker will do better to leave them intact, as it takes a great deal of experience to manage them so that they do not become "smeary." They may be baked in form

cups of sponge a third cup of melted butter, one-fourth cup of sugar, one slightly beaten egg, and the grated rind of a lemon. Mix the named ingredients with the sponge and let rise. Then add flour to make a stiff batter and after beating thoroughly, let rise again. Beat down and spread on a buttered baking tin. When light enough to bake, brush the top with a beaten egg and dust thickly with granulated sugar and cinnamon mixed. Bake in a hot oven.

Dinner rolls are made by adding the stiffly beaten white of an egg to two cups of sponge, and kneading lightly, keeping the dough as soft as possible. Then let the dough stand until double in bulk, cut down, and form into rolls



A Variety of Fancy Breads, Parker House Rolls, Raisin Bread, Dinner Rolls.

like a jelly roll, or shaped into rings and crescents. Let rise before baking. Of course, every housekeeper makes cinnamon rolls and "raised" biscuit. If you have always sprinkled your roll with granulated sugar and cinnamon, try brown sugar, instead, next time you bake.

Parker House rolls sound easy to knead about twenty minutes, let rise until double in bulk, then shape into small balls. Let rise again, and when ready to bake, flour the handle of a wooden spoon, and press into each roll until it is almost divided. Brush one side of the indentation with melted butter, press the halves together, and place the rolls on a buttered tin some distance apart. Let rise again and bake in a hot oven.

For Coffee Cake, add to the two

about three inches long and an inch thick, "fingers." Put in a well-greased pan and let rise until light enough to bake. Glaze with egg white diluted with water and bake about ten minutes. They should be a delicate brown.

English bath buns are made by adding four unbeaten eggs and a half cup of melted butter, to the sponge and beating thoroughly. About four cups of flour is all that is needed, as the mixture wants to be simply good and thick, not stiff enough to take out on the board. Beat thoroughly and let rise until light. Then sprinkle a quarter of a cup of sugar and a cup of chopped nuts lightly over the top while it is still in the mixing bowl, mix lightly and drop in buttered gem pans. Let rise again, and bake in a moderate oven.

DEBORAH.

The Nurse's Health Talks

By Elizabeth L. Parker

IN one of the smaller cities a public school nurse had been working for some time and getting very good results. There was also a parochial school in this city, but the officials of this school did not take kindly to the idea of a school nurse and she had never been permitted to visit this school.

One day it chanced that the nurse and the principal of the parochial school were introduced by a mutual friend. The nurse saw her opportunity and soon had tactfully drawn him into a conversation about the school. She learned that the reason for the existence of the parochial school was to give its pupils a knowledge of the Bible, that they teach history and geography in relation to the Bible. Her

interest was rewarded by an invitation to visit the school. Of course, the invitation was accepted.

"How can I teach health from the Bible?" was the question constantly before her. At first all she could think of was, "Drink a little wine for thy stomach's sake and for thine oft infirmities." But as she was a believer in preventive medicine rather than curative medicine, this did not seem to be the thing to say. She began to study her Bible more carefully and in the law as given by Moses to the Children of Israel she found just what she needed. The Ten Commandments outlined (1) duty to God; (2) duty to our parents; (3) duty to other people; (4) duty to ourselves. Then came the civil, financial and the sanitary laws. The reading of the laws on sanitation and health was a revelation. Here was something which corresponds to the regulations of our state board of health. (1) what to eat. Lev. 11. (Our pure food law. (2) keeping the camp clean. Deut. 23:9-14. (Our sewerage and garbage system). (3) keeping the body clean, washing, bathing, shaving, washing of garments and burning of infected clothing. Lev. 11 and 13. (Our disinfection—soap, water, fire and flame are not back numbers today). (4) lepers must stay outside the camp and cry "Unclean! Unclean!" (Our quarantine and isolation). What a help in the spread of venereal and other infectious diseases today if the infected persons would

cry "Unclean!" (5) rest for the body. Ex. 23:12. (Our labor laws). They had no housing code with regulation about light and ventilation because they were living in tents.

With this for a basis the nurse began preparing health talks and keep-well stories for all the grades into which she wove this ever fascinating Bible story. For instance, "you remember God had chosen people—the Children of Israel—who were slaves in Egypt for a long time. One day God spoke to Moses and told him that He wanted Moses to lead them out of Egypt into a land which was to be their very own. While they lived in Egypt these people had had to do as the Egyptians had told them but now God told them what to do. He wanted them all to keep well so He told Moses to tell them all to wash their hands every time before they ate anything.

Boys' and girls' hands are not clean enough to eat with unless they are well washed and their finger nails nice and clean."

While preparing for this visit a new and clearer vision of her work came to this nurse and she saw her work not as a secular occupation but as a religious service. In teaching health she was giving children the idea of God Himself, who gave us laws, not because He was an arbitrary Ruler who delights in punishing, but rather a loving Father who knows all our needs and is concerned and interested in every phase of our lives. So completely did she become imbued with the real idea of health work that the result of her first visit was to completely break down all opposition and thereafter she became a regular and welcome visitor.

Time Tested Meat Recipes

FOR a great many years I have been experimenting with every known, and some unknown, methods of putting up the meat foods of the farm. For every three years now, I have used the following recipes and have found them the best of all the great number that I have tried. Keeping a good meat supply through the summer working season is an unsolved problem on the majority of farms, and buying from the markets in harvest time is not only inconvenient, but very expensive as well.

* We plan to provide the summer pork supply either late in February or early in March. For a good while we did just the same as the usual farm family, gorged ourselves with fresh pork as long as we could keep it fresh, and ate salt pork the rest of the year. Now we have fresh pork all summer, also roast spare-rib, sausage, bacon, boiled fresh pork, and both smoked and un-smoked ham. It is no great trouble to cook for hired help when there is plenty of good meat, also unexpected company ceases to be a bugbear.

I always cut up the meat myself, cutting the pieces small enough so they will just make enough for one meal, and find this saves trouble when ready for use. As soon as the meat is thoroughly cooled through, I begin frying down the fresh shoulder and side pork, mixing the meat, and when it comes out of the can it is all shoulder meat, of course. This makes the choicest meat reach farther and the difference is never noticed. Before I begin frying I cut a heaping pan of meat, sterilize all cans in boiling water and am very sure that they are perfectly dry and warm before I begin. One pancake griddle and two steel spiders make all the cooking utensils I can watch at one time. The meat is cut the same as for the table and fried nearly enough to serve. Only a couple of pieces are dropped in the can before it has about three inches of boiling hot grease poured into it. Then the meat is crowded in till the grease fills the can, having the last piece rather large and working it down under the shoulders of the can, so it will hold the other meat down. The can is now set aside to cool. As it cools the grease settles, leaving the meat exposed and if set away in this condition it will soon spoil. When cold remove the top piece of meat, fill can with hot grease, making sure it is air tight, but do not leave can inverted. Meat put up in this manner will keep a year and be just as nice as it was when first butchered. A quart can will hold plenty for a family of five for at least two meals. Many people fry meat and pack it in crocks, but there are many losses from moulding and it is inconvenient to put away and be sure that nothing gets into it.

I like to make full use of my fire, so before I begin frying I fill the oven


with two-quart butter jars containing spare-rib pieces, also all pieces of back bone and tenderloin that I do not need for immediate use. This meat is seasoned the same as any roast, having about one inch of water in the bottom of the crock. Keep jar covered for the first hour. Remove cover at the end of this time and let brown well. When brown enough turn meat and brown on other side, letting cook till the water is all out, and if necessary to keep from drying out too much, cover again at the last. When removed from the oven put on a saucer and weight till cool, remove saucer and cover one inch deep with melted lard, put on waxed paper, with either cotton batting in a whole piece, or a cloth dipped in paraffin and several pieces of paper tied tightly over all. This meat will keep till harvest time if the water is all cooked out and you hide it where it will not tempt you to open it. When opened heat well and pour off most of the grease, take out meat, add water and make dressing and gravy as usual.

If you have old covers to cans, it is better to save these for canning meat as the grease spoils good covers. Old rubbers are just as well for the fried meat, if you are careful to seal tight.

The thinnest side meat is used for bacon, having all lean removed for sausage and using all thick fat pieces for salt pork. The bacon and what shoulders and hams that are not used fresh, are dry-cured by the following recipe, putting them on a rack so they will not touch each other but so the thin top pieces will drain down onto the larger pieces.

For two hundred pounds of meat use five pounds of fine butter salt, two pounds of brown sugar, and one and a half pounds of black pepper. Mix well and moisten with one pint of boiling water in which has been dissolved four ounces of saltpeter. Mix well and rub into meat, being sure to rub the skin side extra well and put meat on rack in such a manner that all sides are exposed to the air as much as possible. In ten days the bacon will be ready to smoke and it should not be left long as it will get strong. Do not soak the bacon, and when it is smoked slip each piece into a thick paper sack and tie up tightly. It will keep sweet till all is used. At the end of two weeks the hams should be ready to smoke and as I always fry mine down, I soak them in water over night, scraping well to remove pepper. I usually fry some without smoking and the rest as soon as smoked. In this way there is very little waste due to trimming and I do not have to worry for fear it will spoil. Besides it is most convenient in my busy season.

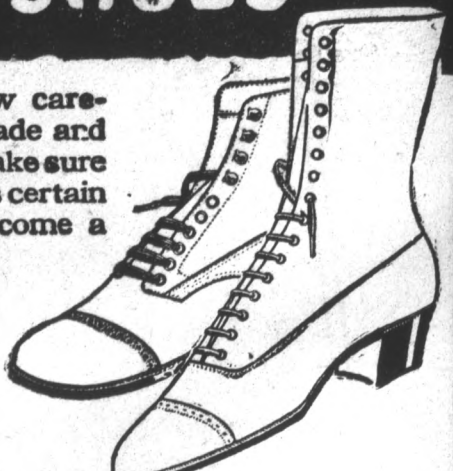
The heart and tongue and the upper part of legs are canned in the following manner: Meat is washed well and drained dry while cans are sterilized (Continued on page 569).



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IF you only knew how carefully every shoe is made and what steps we take to make sure of unvarying quality, it is certain you would promptly become a wearer and booster for Mayer Honorbilt Shoes. Right now it is essential that your shoe dollars should buy the utmost in value. You can always depend on Honorbilt values.




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Vegetable Novelties— Good and Bad

By Archer P. Wallon

ALTHOUGH not a professional market gardener it has been my practice for a number of years to give more attention to the growing of garden vegetables than that usually given by farmers engaged in a general line of diversified farming.

My most interesting, if perhaps not the most profitable, gardening experience has been derived from the growing of novelties, and the but little known and unusual vegetables. Many of these lesser vegetables I would hardly consider worth extensive cultivation and some are of such difficult cultivation or so exacting in their soil and weather requirements that their cultivation is, at best, unprofitable. Others, while not yet of much practical value, have evidently been neglected and give some promise of possible future development, and there are still others that are vegetables of the first rank that merit the widest cultivation.

In the first class may be placed plants that are of a tropical or semi-tropical nature, perennials, biennials, and even annuals that require a very long growing season. It is useless to try to grow crops that require a California, Florida or even a Virginia or Kentucky climate in Michigan or Minnesota. For this reason I never had any success in growing the green globe or French artichoke. This vegetable, while having some popularity with the French, seems to be in America but little more than something to begin a

came out, but "peace to his ashes." However, it is a safe rule, before you pay out your money for the seed of a new vegetable or variety, to ascertain whether or not your growing season is long enough to permit its maturity, and you are much safer in getting seed from a locality to the north of you rather than from one to the south. But there are exceptions. I once had a most excellent variety of squash from the French Kongo, about as tropical a locality as could be imagined, that matured its fruits in abundance, even when grown in a Michigan climate.

There is yet another class of vegetables that it hardly pays to bother with; that is, those whose cultivation is difficult or that require considerable manipulation or fussing and putting to prepare for the table. Among these I would class those that require earthing up, blanching or forcing in the dark, cardoon, Witloof chicory, sea kale and udu, or a biennial vegetable requiring two years for its maturity, like scorzonera. Japanese and European gardeners who farm under a glass jar and those who are the servants of rich epicures may have the time and patience to grow these fussy crops, and possibly, greenhouse owners who have the space available under the greenhouse benches and those having convenient root or mushroom cellars, may even find some of them profitable, but it will not pay many American farmers to bother with them.



Cabbages Are Not a Novelty, but a Profitable Crop.

seed catalog with. There are a few vegetables that although requiring a long growing season that may by means of starting the plants in greenhouses, hot beds or window boxes as may be available, or by purchasing growing plants from the south, be grown with a limited degree of success in northern latitudes. Among such are the edible passifloras, the chayote, the early roselle or lemonade plant, and the French, Algerian and casaba type of muskmelons. Some plants of this class may attain to sufficient size and maturity to be of interest in the home garden but not to an extent that would justify any expectation of their being a profitable money crop. Such is the case with the ricinus, the so-called castor oil bean which, while merely an attractive ornamental plant in northern gardens where it usually but little more than reaches bearing age when cut by the frost, is in Florida a profitable crop when grown for the oil which is extracted from the seeds, and where it reaches the dimensions of a small tree and continues to grow and bear for several years. I have even read of a northern farmer who proposed to grow cotton by the simple expedient of starting an early variety under glass and transplanting to the open ground. I never heard how he

This is true of those vegetables which require considerable effort to prepare for the table, such as the Chinese sago or Mung bean. This is something like a soy bean and produces a large number of long slim pods hanging in a cluster, that are filled with very small green beans. These small beans are prepared by the Chinese by sprouting in tubs of water placed in a warm situation, an operation taking several days, after which they are cooked, sprouts and all, forming the basis of the real chop suey. Some years ago I saw in a farm paper an illustration of a Chinese farmer standing beside his tubs of American mung beans. American poultrymen may raise sprouted oats to feed their hens, but I can't imagine many busy American farmwives taking the trouble to raise sprouted beans to feed their men folks, at least, not as long as the men will eat anything else. I have grown this mung or sago bean and while I consider it without value as a garden vegetable, I do believe that it would prove to be a soiling and forage plant of the first rank, taking place with the cow pea and the soy bean.

Contrary to the common lot of vegetables are a few that do best in a cool moist climate and to whom hot weather is injurious. Such are broccoli and

the English broad, horse or Windsor beans. I have never yet succeeded in getting a single broccoli to head, although I have had fair success with cauliflower. And I have never heard of broccoli being grown commercially any place in America except in a few localities along the Pacific coast.

I have, however, had fair success with the English broad bean. This may be described as being in appearance about half way between our common beans and peas. It is an upright growing plant reaching a height of, for the tallest specimens, of nearly three feet, and bears large thick pods containing large flat green beans, which even when dry, are nearly the size of five-cent pieces. This bean is very hardy and should be planted early enough to bring the plants into bearing before the hottest weather sets in or the plants will wilt and the blossoms fail to set pods. It is claimed that breaking off the tops of the plants will cause them to set pods more freely, and that these tops are good as a boiled vegetable. The green shelled beans are cooked as are limas or other shelled beans but in every case they should first be boiled for fifteen or twenty minutes in hot salt water.

There are some vegetables that while now but little more than curiosities, have the possibilities of development by selection and hybridization, of becoming crops of some real merit. For example, martynia and the edible podded or rat-tail radish. This last, as its name indicates, is merely a variety of radish with exceptionally large and long seed pods which are used as a substitute for peppers.

As it would be but little more than a waste of time for me to attempt to compete with the catalog compiler, I will but mention those unusual vegetables and novelty varieties which I have tried and found to be of easy culture and worth growing, giving very brief notice of such facts as are necessary for an understanding of the list. Following the alphabetical order of the catalog, they are:

Blue Pod butter and Crimson Beauty dwarf shell bean; the yellow globe table beet, which is sweeter than any of the red varieties; Chinese cabbage, also known as Pe-Tsai, Bong Wog or celery cabbage, of which the true Chinese seed is to be preferred to the European strain; Vick's Lemon cucumber, which must not be confused with the garden lemon or mango melon; Panmure Long White cucumber; the Banana, Honey Dew, Bush and the casaba type of muskmelons, of which last, the Golden Beauty, is the best variety for northern localities; the small "individual" size watermelon, Baby Delight; the edible podded pea, Giant Sugar Sword, which is eaten, pods and all, like string beans; the Japanese Sakurajima radish, (I have grown these weighing ten pounds, and in Japan it is claimed that they reach a weight of over double that figure. Unlike the common winter radish, they require a long growing season. They are mild and are good cooked like a turzip); Messina or Florence fennel, a competitor of celery; scolyenus or Spanish salsify; and last, the vegetable marrow or European type of summer squash, one of the very best marrows being catalogued under the name "summer asparagus." As an afterthought, I might possibly well add the early roselle or lemonade plant, the seed pods and leaves of which are used in making a very good jelly.

Among the newer varieties of the common vegetables that are worth looking up in the catalog are the following:

The White Snap bush, Kentucky Wonder Wax pole, Ventura Wonder wax bush, Monstrous bush Lima, McCaslan pole, and the red and yellow Indian beans.

Nordheim, Seymour's Sweet Orange, Golden Evergreen, Papago, and Will's

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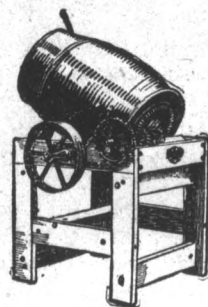
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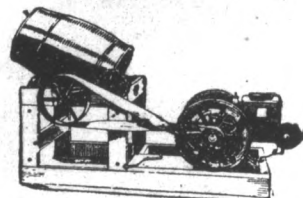
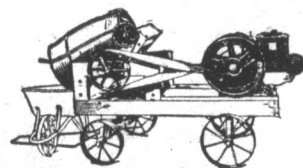
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Early June sweet corn and the Assiniboine and Mandan Indian corn, these last two varieties being the very earliest in cultivation.

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Brokway's Sport, Montreal Market, Armenian, the Bush, Salmon-tint Pollock, Page's Early and Early Knight muskmelons.

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Blue Bantam, Quite Content, Pot-latch and Perpetual peas.

Thorburn Upright Sweet Salad, Pimiento dulce, Glory, Anaheim Chili and New Yellow Cheese peppers.

Delicious, Quality, Symme's Blue Hubbard, Plymouth Rock, Acorn and Mandan squashes.

Big Dwarf, Earlibell, John Baer, the Home, San Jose Canner, Red Rock, Burpee's Dwarf Giant, and Millet's Dakota tomatoes.

As all the above are not offered by any one seed house it will be necessary to procure several catalogs from different sections of the country, and owing to unsettled conditions in the European seed growing districts, it may be impossible to secure seed of every vegetable desired. Last year I was unable to get seed of the Offham Market parsnip, which I consider to be by far the best variety in cultivation, and had to content myself with Guernsey, nor did I find any seedsmen that listed scolymus. Before the war it was quite as easy to buy seeds of a foreign house as of an American, it being only necessary to make allowance for the elapse of about a month required for the transmission of the

letter and the delivery of the package. But by procuring one or two catalogs from some of the large eastern seed houses who carry a very complete line, the catalog of a British seedsmen's American branch store, one from a house that caters to southern trade, the catalog of a representative California house, and another from a north-western company that specializes in early and hardy varieties, you can about complete your study of the gardening geography of the country and be in a position to stock your garden with as large a variety of varieties as could reasonably be desired. In packet quantities, the cost of the seed would not be large, a couple of dollars would make quite a showing.

But don't get taken in by impossible fakes. Don't buy overbearing strawberry seed, strawberry-raspberries, wonderberries, broad beans sold at excessive prices as "urgu" beans, blue Uruguay potatoes, nor don't expect to raise turnips and beets that have to be pulled with a stump puller, even if the catalog does picture them, and don't ever buy seeds, whether garden seed, seed potatoes, oats or other farm seeds, from traveling salesmen or peddlers. Standard varieties and new varieties of real merit are sold by reliable seedsmen and do not have to be peddled about the country in this way. There may be instances where reliable seeds are so sold, but I doubt it, and for the most part, the concerns who depend upon glib-tongued salesmen to market their wonderful new varieties at high prices, (varieties which are merely old sorts re-named with fancy names which are changed every year) are but swindlers who figure on catching a new batch of suckers every season.

To Shippers of Live Poultry

COMMISSION merchants would like to call attention of shippers to a few points. Shippers should see that the coops are in good condition before using, so that they are not liable to come apart while in transit, as they are roughly handled sometimes. The coops should also be high enough to allow whatever kind of poultry is shipped room enough to stand up. Low coops should not be used, it not alone being cruel, but a great deal of poultry is lost every year by suffocation. For turkeys higher coops than for chickens should be used.

Filling of Coops.—Coops may be loaded heavier in cold than in hot weather. Do not overcrowd the coops. Putting too much stock in a coop at any time is wrong, but in hot weather especially do not crowd too much stock into a coop. This should be carefully attended to in order to prevent as much shrinkage as possible. Coops often arrive with a good deal of dead stock. Do not blame the commission merchant for heavy shrinkage or poultry smothered in transit through carelessness in overcrowding coops.

In hot weather do not put more than one hundred pounds of live old hens in a regular coop; in cold weather about one hundred and twenty pounds in regular size coops. Of spring chickens, when small, about fifty to sixty pounds, and large seventy to ninety pounds.

Keep different stock separate as much as possible. If a shipper has sufficient stock to fill coops, it is best to ship the hens, spring chickens, roosters, turkeys, ducks and geese separately. Of course, if a party has not enough stock of each kind to fill a coop separately, mixed coops can be sent.

Spring chickens weighing less than one pound should not be shipped as they become a drug on the market.

Pound and one-half to two-pound chickens sell best, and later in the season over two-pound weights are preferred. In the early spring, when chickens first come in, some small chickens will sell, but as soon as chickens begin to be plentiful, then the small ones are not wanted. Later in the summer, when chickens are bought to place in freezer, one and a half-pound to two pounds are preferred, so take it the year round, two-pound stock, or as near two pounds as possible, sells the best.

Attention is also called to the fact that dark-feathered ducks are not as desirable as the white-feathered chiefly for the reason that they do not dress out as white and clean as the white-feathered stock.

Poultry should be shipped so as to arrive on the market from Tuesday to Friday. Receipts generally increased toward the end of the week, and there is enough carried over stock on hand Saturday to supply the demand. Merchants, rather than carry stock over Sunday, would sell at a sacrifice, as the stock, when in the coops, loses considerable in weight by shrinkage, and does not appear fresh and bright. Besides, Monday is usually a poor day to sell poultry.

Tags with the name of the commission merchant and the shipper should be tacked on the end of the coops. Tack two tags, one on each end, so that if one gets destroyed the other is likely to remain all right.

Never tack the tags on the top of the coops.

Be sure and write your name and address on the tag. Your name alone, or the town alone, will not be sufficient, as the commission merchant receiving your shipment could not tell to whom or where to send the pay for the stock.

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You will be particularly interested in the extra heavy laying breeds: White Leghorns inspected and certified as heavy producers by the Poultry Extension Specialist of the Agricultural College.

Cockerels—Still on hand fine Barred Rocks, White Wyandottes; R. C. Brown Leghorns.

Turkey—One White Holland Tom.

We solicit your interest in the Homestead Farm plan of Pure Breed Poultry raising.

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Barred Ply. Rocks Chicago winners. Great winter layers. 100 choice Cockerels. Eggs for hatching. Prices reasonable. Satisfaction guaranteed. 28th year. G. EARL HOOVER, R. 3, MATTHEWS, IND.

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25 choice cockerels \$3.00 each. Eggs \$2.50 per 15, \$12.00 per 100. Baby Chicks 20 cents each. Catalogue free. Lake Side Stock & Fruit Farm, Pinkney, Mich.

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BABY CHICK S. O. W. Leghorns. White, Buff Barred Rocks, S. O. R. I. Red, Anconas, White Wyandotte, Buff and Brown Leghorns, 25 for \$6.25, 50 for \$11.00 for \$20. Fenton Chicken Hatchery, Fenton, Mich. Box 244.

Chicks

Better Produced Day Old Chicks are the kind you want—17 leading breeds at reasonable prices. Our free cat. tells all about them. Send for it today.

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Baby Chicks—S. O. W. and Brown Leghorns, and S. O. Anconas. Healthy, vigorous, and from a good laying strain. We guarantee safe delivery. Order now. Seventh season. Send for price list. City Limits Hatchery and Poultry Yard, R. 5, Holland, Mich.

LITTLE THINGS ABOUT CHICKS.

SHADE and fresh water are two little things that cost nothing, but assist in growing chicks that will mature into profit-payers, and it is curious how many folks neglect them. We grew one hatch of chicks in a bare lot several years ago and found that those had been kept in the berry patch and in the orchard where shade was plentiful made the quickest and most economical gains and matured into better adults than those grown where there was no shade.

One gets into the habit of seeing the big things because they are so evident but the little things often go unnoticed and in the end cause a lot of needless disappointment and loss. A large, rather flat pan or earthenware vessel filled twice every day with cool, clean water helps the chicks grow and it is surprising how much water they will drink if it is kept before them in this manner. Where very deep vessels are the only ones available it is a good plan to lay a brick in the water, then if a chick tumbles into the water it has a chance to climb out.

Where no natural shade is available old gunny sacks, pieces of canvas or other waste material tacked over low frames keeps the chicks from the hot sun and they will usually be found under them during the heat of the day. Where a part of the orchard can be fenced off or where the chicks can have the run of the berry vines the problem of shade takes care of itself. The old hens also need this shade and plenty of water.

The early hatched chick pays and we have come to the conclusion that it is most profitable for us to quit setting hens after the last weeks of April. This brings off the last of our chicks early in May and when it is possible to do so we try to have them all hatched by the last week in April.

These chicks are kept growing. They have an open hopper of feed before them as soon as they are big enough to eat it and it is always kept filled. To the person trying this for the first time it may seem that the chicks eat too much, but we have never found that to be the case. They usually spend some time in the morning and evening around the hopper, but range as much as do those without the mash. We use ground oats, wheat bran and corn meal as a hopper feed and have fed meat scraps separately when our supply of milk was short. Such chicks mature into pullets that begin to lay early in the fall and keep it up if rightly cared for during the winter months.

We believe in getting the chicks out on the ground as early as the weather will permit and change the location of the brood coops from year to year. This keeps the youngsters on fresh ground and the death rate is lower as a consequence. All brood coops and houses are cleaned twice each week and when possible we sow a few oats so tender green food will be available. This is very easy to do when the chicks have the run of a plot of ground that will be used later for a growing crop. Last year we gave the chicks the half-acre that was to be put in late potatoes. This was first sown in oats and the chicks kept them cropped close. Later they were transferred to the edge of the corn field which supplied shade and at the same time furnished green food along the fence rows. These chicks would leave the mash hopper to follow the cultivator and pick up bugs and worms. They grew well and developed into a very profitable flock.

Men high up in poultry matters say that the next five years will be the most prosperous of all years for the poultryman and we ought to plan to get while the getting is good if that is the case. As soon as sex can be determined we like to separate the pullets

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100,000 Chix this season. Best Blooded stock ever
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Crescent White Leghorns; also, Anconas, Brown Leg-
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S. C. Black Minorcas eggs, Pape strain, the kind
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from the cockerels. This is done for two reasons. In the first place the cockerels begin to worry the pullets as they grow older, and in the next place we find that running several cockerels together allows them to run in the same breeding pen the next season and be better satisfied. As soon as the cockerels can be marketed profitably, it is a good plan to let them go, but be sure to keep enough for your needs or to sell as breeders if you have a trade in them. We try to save cockerels from our best laying hens and always keep a few extra ones. It is easier to do this than it is to find a bird that suits us sometimes in an emergency.

The chicks should have plenty of room and we use a three by six colony house even for a hen and her brood. As the chicks are weaned and grow they still have plenty of room and do not have to be changed into another house until ready to go into permanent quarters. Roosts are placed in these houses quite early and prevent crowd-
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Indiana. MRS. E. J. SMITH.

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GLADWIN county will be connected with Bay City by a complete system of hard surfaced roads, running through Beaverton, Hope, Edenville, and Midland before the close of the present year. Contracts for a large section of this road have already been let and more are to be awarded this spring.

With the completion of this road it is expected that a truck line, for both passengers and freight, will be put in operation giving the towns along the route a service which they have long needed as there is no railroad connection between Gladwin and Beaverton or with Hope, Edenville and Midland.

AGRICULTURAL SCHOOLS POPU- LAR.

OVER twelve thousand persons have attended the series of agricultural schools being held at various places in counties on the western side of the lower peninsula. Professor Lovejoy, of the university, is telling how it is possible to realize more from the woodlot in his interesting lecture on "Loafing Land and Lumber Prices." I. T. Pickford, of the M. A. C., is laying before the fruit men factors that govern in the production of fruit, while W. W. Robertson, a very successful potato grower, is helping the producers of tubers to a better understanding of the fine points in potato raising. Mrs. Zella Wigent and Miss Bertha Laws emphasize poultry raising and house-
hold economics. John I. Gibson, of the development bureau, is doing much to make the schools a success, and the cooperation of the harvester staff is generally appreciated.

RIGHT OF LESSOR ON LANDS.

I have just changed tenants, the new man buying everything in the way of stock, tools, grain and feed, and all interest except eighty acres of wheat in the ground. This we want to seed to clover in the spring. Can I have the new tenant go and disc clover seed into the wheat?—B. C.

The waygoing tenant has the right to have the crop mature without injur-
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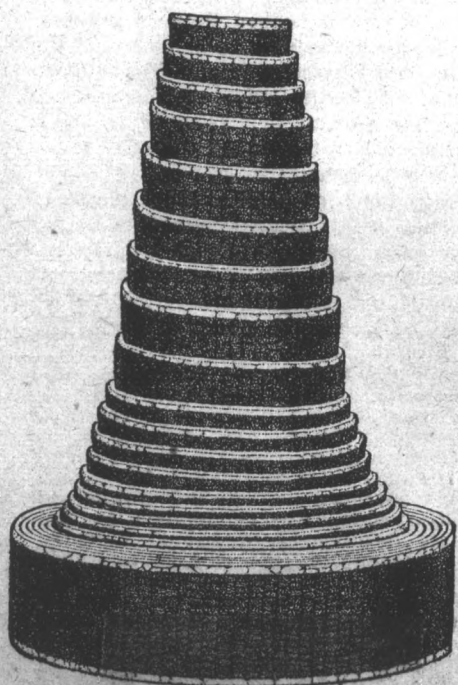
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\$3000 buys: 67 acre farm, 2 horses, 11 head cattle, all wagons and implements, 8 room house, 2 barns, 5 acres valuable timber, 10 acres pasture, balance rich, dark loam fields, nearly level, 5 springs, 1/2 mile to macadam road and Susquehanna river, 1 1/2 miles to main line railroad town, 8 miles city of Binghamton. Immediate possession, easy terms, write for spring catalogue copy free. Mintz Southern New York Farms, 216 Phelps Building, Binghamton, N. Y.

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N. Y. STATE FARMS We have them everywhere and all prices. For instance, 104 acres; 15 timber, 10-room house, new barn, orchard, team, 18 head and tools: \$8,000. Get our catalogue. HUGH R. JONES COMPANY, Inc., Jones Building, Utica, N. Y. Member State Farm Brokers' Association.

100 Acres, \$3300, 8 Cows, Horse Machinery

Real money-making farm in prosperous community; everything ready for business: machine worked fields, spring and brook watered pasture; wood, fruit trees; 12 room house; basement barn; other buildings, fine shade, near R. R. station, high school, other conveniences; quick buyer gets 8 cows, 4 yearlings, horse, wagon, machinery, tools, hay, grain; everything only \$3300, part cash. Details page 24 Strout's Spring Catalogue 33 States; copy free. STROUT FARM AGENCY, 834 B. C. Ford Bldg., Detroit, Mich.

Alabama Alfalfa Lands Demopolis Section

Embraces best portion 5 countries—the real "Argentina of America" for alfalfa, grain, grass and live stock unexcelled. New comers here from 24 states—land yet cheap. Full information, Write C. C. CLAY ALFALFA LAND COMPANY, Demopolis, Alabama.

A farm for the man who knows and cares

136 acres productive clay loam, 90 highly improved, 32 timber, balance unbroken pasture, 6 wheat, 33 meadow. Ten room oak finished house worth half price of farm, elegant barn, outbuildings. Water in house, to barn. Fine orchard. Complete farm in fine section, near school and elegant Lake Resort. Price \$15,000, third cash. Sell personal property, if wanted. Possession anytime. Holman Real Estate Agency, Lapeer, Mich.

For Sale 80 acres strictly high grade soil. Fine buildings, 17 head of Holstein cattle, team of horses, hogs, chickens and all necessary tools and equipment. Will sell at a sacrifice owing to the owners poor health. Write JOHN CONANT, Grand Haven, Mich.

Holstein Breeders Form New Organization

DESPITE the decline in condensed milk prices and the facing of many uncertainties in the dairy industry, there was not a downcast face in the delegation of Holstein breeders who recently met at M. A. C. to start the Michigan Holstein Breeders' Association on another epoch of service and prosperity which promises to eclipse not only the past record of this association, but to also set the pace for sister associations in other states.

The membership campaign has been a "surpriser." The officials set their aim high—higher than they really felt that the conditions warranted, but so generous was the response that they have already passed their goal and are still going. In his report Professor Norton, Jr., stated that the association could now boast of over one thousand five hundred members and that there were several localities in which meetings will be held soon when he anticipates that over sixteen hundred breeders of black-and-white cattle will be behind the organization, boosting.

And this boosting can start at once for the association is in splendid financial shape to carry out a full-fledged program. From the last state sale the organization realized \$2,865 which, with the \$850 odd dollars on hand, made a total of \$3,715 to their credit when the membership campaign began. Receipts from the five dollar memberships amount to about \$7,670, which gives a grand total of over \$11,000 to work out many of the things that will help to make Michigan the leading Holstein breeding state of the Union.

The important item in this new program is the employment of a field man. Some of the vital things that a field man might do were given by Hon. D. D. Aitken, of Flint. A careful survey of the Holstein cattle industry of the state is needed. This survey should cover the grades as well as the pure-breeds, giving the number of surplus animals of each kind, their condition, breeding and health. This would enable the field man to intelligently direct buyers either from this state or elsewhere to the exact farm or farms where they could find just the kind of animals wanted.

Not only would the association be in a better position to satisfy those who now have faith in the performance of the blacks and whites, but the field man could render invaluable service to the breeders in adding new converts to the faith. There is great need of revised ideas on what a real dairy cow can do and Mr. Aitken's plan is to hold demonstrations in sections of the state not yet developed in a dairy sense. And as a complement to this work in new territory much could be done to lift the standard in the better stocked districts by eliminating the poorer individuals of the breed. He feels that if one-third of the present holdings was sent to the shambles the income from the remaining two-thirds would be just as large as it is now. Supplied with this higher average graded stock Holstein men could more convincingly show the advantages of their animals, and could also bolster up the great dairy business by making it more possible to meet increased labor and feed costs.

Another service that a field man could perform is to help local men plan their sales. An expert who is acquainted with the buying field and also with men who are in need of animals would render invaluable service by getting these men out to sales where cattle of the kind wanted are offered. The result would be greater satisfaction to both seller and buyer.

The Michigan breeders of black-and-

white cattle were given a very high compliment by Mr. Pollock, of the national association, when he stated that there existed here a genuine cooperative spirit among all the Holstein men of the state. Also the percentage of the breeders who have identified themselves with the state organization is higher than in any state of the Union and is only excelled in actual numbers by the New York Association.

This sentiment was corroborated by Professor Anderson of the college, whose survey of the present situation and prophetic glimpse of things to come spread sunshine and gave reason for a feeling of optimism on the part of those dairymen who are producing milking machines of high order. In the first place, there is at present a very big demand for both purebred and grade Holstein cattle. He stated that since the opening of the membership campaign there have been inquiries for from eight to ten cars received to his office. And the business of supplying good cows is only started. One can figure how long it would take to supplant one-quarter of the mongrel dairy cows of the country with purebred stock. With our present available stock to work with, and the very best of luck in breeding the third and fourth generation of Michigan breeders will not see that day, notwithstanding the fact that we have in this country fifteen times the number of Holstein cattle that there is in Holland.

As a center for developing the highest type of animal Michigan is happily situated and for this reason it is bound to be a leader in the production of high-class stock. Three primal conditions, according to Prof. Anderson, determine largely the fitness of a locality for live stock improvement: Climate, soil, and a progressive but painstaking people. Switzerland had these and became the source of the great races of animals that stocked the hills and plains of Europe. England also contributed heavily to the world's live stock wealth by reason of suitable climate and soil and a great race of breeders. On this side of the Atlantic and for the same reasons, we find Michigan, Wisconsin, Minnesota, and portions of Ohio, New York, Massachusetts and Vermont to be the natural source of America's great herds and flocks.

One step toward the realization of this end furnished the substance of a talk by Hon. H. H. Halliday, our efficient Live Stock Commissioner, who described how the work of cleaning up animal diseases in the state was progressing. Just ahead there is a situation which promises to bring to a halt the good service of weeding out tubercular cattle, the funds appropriated to pay for animals destroyed being practically exhausted, unless the state auditors will permit the use of the emergency funds on hand to meet the situation. The breeders present thought the public health furnished a sufficient reason for the use of this money and passed the following resolution:

To the Honorable Board of State Auditors:

We the undersigned committee representing approximately 1,600 Holstein breeders organized for the purpose of improving the live stock industry of Michigan do earnestly request that ample funds be provided by your honorable board to pay all indemnities on cattle which are condemned by the state department of animal industry on account of tuberculosis, and that sufficient funds also be provided that the department may add two more inspectors to the force that the large waiting list of nearly two hundred breeders of purebred cattle may be taken care of in proper time.

(Signed by Committee)

A review of the work done in coop-

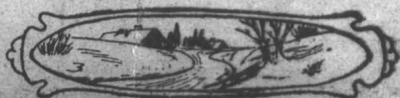
eration with the federal government in accrediting herds was made by Dr. Rich. There are now in the state three hundred and twenty-five herds under supervision and over fifty accredited herds, while nearly two hundred are on the waiting list. Dr. Rich recommended that herds not cared for officially be tested by local veterinarians.

In the business session it was decided that there should be an executive committee or board of directors consisting of seven members who will have general control of the organization work. The committee elected consisted of the following well-known Holstein breeders: A. E. Jenkins, Eagle; M. W. Wentworth, Battle Creek; Dudley E. Waters, Grand Rapids; Silas H. Munsel, Howell; R. J. Bird, Ypsilanti; Dr. T. C. Tiedebohl, Colma, and George S. Spellane, Flint. This executive committee was empowered to revise the constitution and by-laws and to elect the officers for the coming year. A resolution introduced by Mr. Aitken, and unanimously adopted, was to the effect that it was the sense of the representatives present that Horace W. Norton, Jr., be chosen as field man of the association.

LIGHT HOGS IN DEMAND.

THERE has been the greatest widening out of hog prices in the Chicago market ever known at this season of the year, due to the marked increase in average weights of the receipts. The bulk of the hogs marketed sell at a range of \$1.70 per 100 pounds, with the best light bacon hogs going highest, while the best heavy butchers sell about \$1.30 below the top quotations. Sellers believe that the future will be better than the early part of the year, hogs selling far above their lowest time, with a large shortage in the supply. Hog packing returns in the west and east show a heavy falling off in numbers compared with a year ago, and there is a large domestic consumption of both fresh and cured meats and lard at prices greatly below those paid a year ago. Recent sales were made of pork around \$10 a barrel lower than a year ago, with similar reductions in prices for lard and short ribs, but it should be remembered that during the war provisions were advanced in price enormously because of the greatly increased foreign demand. This former large outlet has been materially lowered owing to the decline in foreign exchange, and during a recent week exports from the Atlantic seaboard were reduced to 5,377,000 pounds of cured hog meats, comparing with 34,441,000 pounds of lard and 42,511,000 pounds of cured hog meats for the corresponding week last year. Hogs have followed the same course as provisions, and sales are made at much lower values than one and two years ago, while much higher than in normal years. Within a short time prime light hogs have sold up to \$16 per 100 pounds, comparing with \$19.60 one year ago, \$18.05 two years ago, \$15.05 three years ago, \$9.70 four years ago and \$6.95 five years ago. Recent hog receipts in Chicago have averaged 237 pounds, being four pounds heavier than a week earlier and eight pounds more than a year ago.—F.

Gladwin county has a farm bureau with over seven hundred members and this bureau is the owner of the largest elevator in the county and also has a very satisfactory cooperative stock shipping association, which helps to account for the fact that more live stock is shipped annually from Gladwin than from all the other stations, combined, on the Mackinaw division of the Michigan Central.



Mr. Spillane, of Flint, writes—

ELMCREST STOCK FARMS

PUREBRED HOLSTEIN-FRIESIANS

Flint, Mich., Jan. 24, 1920.

Mr. R. W. Chapin, Pres.,
Chapin & Co.,
Chicago, Ill.

Dear Sir:

You understand that we use Unicorn, not because we do not feel capable of compounding a ration that will suit our cows as well, but for the reason that we realize that we cannot hope to secure materials of the same choice quality that you can obtain if you care to take the trouble.

We have not the facilities for mixing the feeds properly after we get them together and consequently would have to weigh out and mix for each cow; also experience has taught us to open each sack of Unicorn with just as much confidence as to what we will find therein, and what it will do, as we would feel if we had sacked it ourselves.

It is honest, it is dependable and it is absolutely uniform. You doubtless are aware of these things, but it may give you some satisfaction to know that others are aware of them too.

On some occasions when our local dealer has run out of stock, we have had to use some other feed. This is almost invariably followed by a drop in milk production of three or four pounds per day, which we get back as soon as we give them Unicorn again.

I am frequently called upon to help some beginner start his testing work, and in recommending feeds for his use always advise Unicorn if they can get it. I know that it is safe for them to use, much more so than a feed in which they had tried to mix materials like bran and oats with others like cottonseed and gluten, using a shovel.

We have six cows on yearly test and two more soon to start. All are eating Unicorn both in testing and getting ready for test. We will let you know later how they come out.

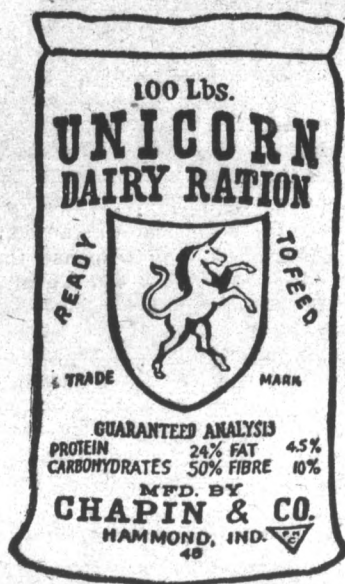
We trust you will feel at liberty to call on us at any time for any service we may be able to render your company. Our records are open to you and your representatives at all times, and if we are able to assist any other users of your feed, or if any claim that they are not getting the results that they should, we will be glad to show them how, if you will refer them to us.

Yours very truly,

G. L. SPILLANE & SON.
By H. G. Spillane.

Chapin & Co., Chicago

We use no oat-hulls or low-grade materials.



Here are four good records made by cows in the Spillane herd during the past three years:

		Lbs. Butter	Lbs. Milk
Flint Bertjusca Pauline	7 days	33.11	723.40
4 yrs. 6 mo. old	30 days	135.53	3016.80
	60 days	263.77	5549.90
	90 days	388.61	8386.70
	305 days	1007.76	21419.00
Lillie Green Hengerveld	7 days	32.19	747.50
7 years old	305 days	831.43	19021.60
Johan Pauline De Kol	7 days	30.39	550.30
6 yrs. old			
Flint Pauline	7 days	30.31	761.10
7 yrs. old	30 days	109.09	3175.10

BREEDERS' DIRECTORY

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

Wildwood Farms Angus

Home of Edgar of Dalmeny one of the world's greatest sires. He produced Erodemas, the grand champion bull at show in Perth, Scotland in Jan. 1919, and He produced Blue Bell a cross-bred heifer which was awarded the championship at the Smithfield, (Eng.) fat stock show in Dec. 1919. (The latter is England's equivalent of our Chicago International.)

Edgar is now an American Citizen, and is here for the purpose of bettering the breed in this country.

Edgar's calves are as yet too young to offer for sale but they are a promising lot and are being spoken for fast.

We have a few choice young bulls by Black Monarch III who won the Mich. State Fair Grand Championship in 1914-1915-1916, still for sale.

Our herd is under State and Federal supervision. A visit will interest you, write for particulars.

WILDWOOD FARMS ORION, MICHIGAN

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

WOODCOTE ANGUS

BREEDERS OF MANY
INTERNATIONAL WINNERS
INCLUDING THE
UNDEFEATED CALF HERD OF 1919
Write for 1920 Bull sale list.
WOODCOTE STOCK FARM IONTA, MICH.

Registered Aberdeen Angus. Seven bulls from four to twelve months old. Plenty of size, best of breeding. Prices reasonable. Come and see them. Inquire F. J. WILBER, Olio, Mich.

GUERNSEY BULL CALVES FOR SALE

\$50.00 and up. Sired by Noro's Mayking Mayrose Breeding. This is accredited herd against tuberculosis from State and Federal government. Avondale Farms, Wayne, Mich.

GUERNSEY bull calves whose sire's dam made 19,460.20 milk. 999.05 fat. Their mother's sire's dam made 15,109.10 milk. 778.30 fat. T. V. HICKS, Battle Creek, Mich.

Guernseys Federal inspected herd. Bull 2 yrs. old g. son of Imp. Spotswood Seguel, dam's A. R. record 419.34 b. f. class G. Bull calf 8 mo's. old. 4 bull calves 2 to 5 mos. old. Satisfaction guaranteed G. W. & H. G. Ray Albion, Mich.

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

Guernsey Bull Calf, Lined of Walter Phipps Farm. Born May 2-1919. \$100.00 f.o.b. Novi or Birmingham, Walter Phipps Farm, 30 Alfred St. Detroit, Mich.

Registered Guernseys We are breeding better grade of our Herd Bull to any one except the Postal Card Man. If you want better Guernseys—we have them. J. M. WILLIAMS, North Adams, Mich.

Reg. Guernsey Bulls for sale cheap from 1 to 12 months old and from good producing and tuberculin tested cows. O. E. Lambert & Sons, Linwood, Mich.

Three Reg. Guernsey heifers 9 months old. E. A. BLACK, R. No. 3, Michigan.

For Sale Registered Guernsey bulls May Rose breeding cheap if taken soon. Come or write. John Ebelis R. 2 Holland, Michigan.

Holstein-Friesian Cattle

Herd Headed by
Segis Pontiac De Nijlander

A 32-lb. grandson of Michigan's great 35-lb. champion. His dam, Oak Valley Korndyke Beats Segis Pan. 32.06. is also a Michigan prize winner. Write for calf list. Wab-be-me-me Farms, White Pigeon, Mich.

GENRIDA FARM

OFFERS
BULL CALF, BORN DEC. 26, 1919
Sire: King Flint, who combines the blood lines of 2 families of 3 generations of 30 lbs. cows and 2 generations of 1200 lb. yearly record cows. Dam: Has a 21.39 lb. 3 yr. record. Her dam is a 23.99 lb. daughter of Johan Hengerveld Lad. Walter Hill, Davison, Mich.

Bazley Stock Farm YPSILANTI, MICH.

A splendid bred Bull born Dec. 12th 1919. Sire a 25 lb. 3 year old son of King of the Pontiacs. Dam 4 20.47 daughter of Woodcrest De Kol Lad 25 A. R. O. Daughters. Sire's Dam a daughter of Berl Wayne's Paul De Kol 2nd. Nicely marked and guaranteed right in every way. Price \$125.00.

JOHN BAZLEY
319 ATKINSON AVE.
DETROIT, 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.

Two Holstein bull calves, one sired by Long Beach De Kol Korndyke 35.96, his dams record, Butter 7 days, 30.55; Butter 30, 121.35; Butter 35 days, 123 lbs. (Average per cent fat 4.50). Also one calf from another good bull, both bulls are good size from good large cows. Reasonable Prices. Box 47, Free Soil, Mich.

FOR SALE three Registered Holstein-Friesian 2-year old heifers. Will make fine cows, best of breeding, sired by a Pontiac Bull. Will sell one or the three. HENRY S. ROHLFS, Akron, Mich.

Facts in BLACK & WHITE

Greatest Dairy Cattle in the World

The scope of its labors and numerous details involved in the administration of the affairs of The Holstein-Friesian Association are best comprehended by a consideration of the fact that during the fiscal year ending April 30, 1919, \$212,257.50 was received by the Secretary's office for the registration of pedigrees and for transfers. This volume of business required 68,350 entries in the cash books and the issuance of 189,350 certificates, and this prodigious labor is demanded for the conduct of but one department of the greatest dairy cattle breeders' association in the world.

Get acquainted with Holstein facts. Send for our free booklets.

THE HOLSTEIN-FRIESIAN ASSOCIATION
164 Hudson Street
Brattleboro Vermont.

4 Nearest Dams 32.46 lbs.

Bull Born November 14, 1919

Color—nearly half and half.

Sire's Dam:—Butter 7 Days 32.32; Milk 7 Days 552.40, Average per cent Fat 4.68.

Sire's Sire's Dam:—Butter 7 Days 40.32; Milk 7 Days 610.20; Butter 30 Days 165.22; Milk 30 Days 2695.8.

Dam:—Butter 7 Days 26.61; Milk 7 Days 532.9.

Dam's Dam:—Butter 7 Days 30.59; Milk 7 Days 565.00; Butter 30 Days 124.19 Milk 30 Days 2436.6

She heads a combination of three direct generations of thirty pound cows.

Price \$750.00 f o. b. Howell.

McPherson Farms Co., Howell, Mich.
Herds under U. S. Supervision.

REGISTERED Holstein bulls sired by King Zerna R. Alcartra Pontiac, son of the \$50,000 bull; some from good A. R. O. cows. C. H. Giddings, Gobleville, Mich.

\$125 Boys Reg Holstein Bull 1 yr. old. Delivered and guaranteed O. K. High class breeding and a good individual. B. B. REAVEY, Akron, Mich.

HOLSTEIN BULL CALVES FOR SALE

From dams with good records.
BULL CALVES Sired BY 45 lb. BULL.
BULL CALVES Sired BY 34 lb. BULL.
BULL CALVES Sired BY 33 lb. BULL.
PRICES VERY REASONABLE.
Privilege of return if not satisfied.

A. W. COPLAND,
Birmingham, Michigan.
Herd under State and Federal Supervision.

CLUNY STOCK FARM

A Semi-Official Bred Bull to Head

Your Herd
Maplecrest Application Pontiac No. 132652, heads

Our Herd

His dam's record is 1344.3 lbs. butter, 23,421.2

lbs. milk in 365 days, and 35,103 lbs. butter and

515.6 lbs. milk in 7 days.

One of his sons from our good record dams will

carry these great blood lines into Your Herd.

For Pedigrees and Prices write to

R. BRUCE McPHERSON, Howell, Mich.

L. E. O'CONNELL, Fayette, Ohio.

A BULLY GOOD BULL CALF.

Born July 1919. His six nearest dams have good yearly

records. Amongst them are three world's records

Good individual, nicely marked, and worth in any

good herd all he will cost. You can't pay too much for

this kind. I have a fine four months bull, not quite

so well bred but a nice one.

L. E. O'CONNELL, Fayette, Ohio.

Winnwood Herd

—SENIOR HERD SIRE—

Flint Maplecrest Boy (166974)

4 years old and weighs 3000 lbs. We have a few

of his sons ready for service and some little fel-

lows straight as a line and priced right the daugh-

ters of Flint Maplecrest Boy are making good.

—JUNIOR HERD SIRE—

Sir Ormsby Skylark Burke (249 66)

A brother to the world champion cow over all

breeds (Duchess Skylark Ormsby) 1506 lbs. of

butter in one year. He is the best bred Ormsby

bull in Michigan his dam a daughter of King

Segis Pontiac she is a sister to King Segis Pontiac

Count and the \$50,000 bull King Segis Pontiac

Alcartra, we said get a better bull (we got ours)

one of his sons out of a daughter of Flint Maple-

crest Boy will make some herd sire.

JOHN H. WINN, (Inc.)

ROSCOMMON, MICH.

Holsteins of Quality

Five large heifers and some extra good cows bred to

a grand son of May Echo Sylvia, also calves and year-

ling heifers. All Federal tested for Tuberculosis.

E. A. HARDY, Rochester, Mich.

Please mention the Michigan Farmer

when writing to advertisers.

Money in Sheep—By Briant Sando

PRESIDENT WILSON realized the economic value of sheep raising when he recently maintained a herd on the White House lawn. This valuable little animal has long been neglected, but anybody with a little grazing land and no sheep, is overlooking a good opportunity.

While our experience has proved that there is no more profitable class of live stock, yet many flocks of sheep are kept without proper returns. This is because of lack of up-to-date methods in breeding and care. It is wrong to think that as the main purpose of sheep on agricultural lands is that of scavenger it is therefore useless to invest in well-bred animals, as any common sheep will eat weeds and other waste.

Sheep will consume and turn into gold the weeds, sprouts, and other such things on the farm that are worse than useless and which other animals would refuse to eat, but they will pay still better if fed good rations. Furthermore, as a factor in maintaining and

restoring soil fertility the sheep stands in a class by itself. This is better recognized in European countries, particularly in England, where on certain high-priced lands the landlord often stipulates that a certain number of sheep shall be kept by his tenants in order to maintain the fertility of the soil.

As the American population is rapidly increasing, and our acres of good agricultural land are not, it is important not only to maintain but to increase the producing capacity of our farms. The most successful farmers of the future will be those able to "produce two blades of grass where one grew before," and two bushels of grain where one now grows. They will raise more grain on fewer acres, will raise grasses, clovers, alfalfa and other legume on a part of the farm. There is no animal that will consume these items and make more meat therefrom than a good flock of mutton sheep, they will furnish residue in the shape of fertilizer, and in addition they will annually produce a fleece (wool) which

will nearly or quite pay for their keep. Of course, the breeding of the flock is a big factor in success or failure. It is important to select types of sheep best adapted to profit. If you start with grades, use only purebred sires of a particular breed. Do not select a ram from one breed one year and one from another the next year, and expect improvement to follow, for it will not. However, the standard of a flock can be raised very rapidly by using good sires each year and culling out the inferior ewe lambs.

For best results, lambs should be taught to eat grain as early as possible. Corn and oil cake in "pea" form make a very good ration. The lambs should be fed grain in a "creep," that is, an enclosure into which the lambs may pass but whose entrances are not large enough to admit the ewe. The first six months of the lamb's life are the most important, and even though they may have access to abundant pasture whatever one may give them in the way of grain feed will be well repaid by increased thrift and growth.

Better Barns on the Farm

By Harley M. Ward



Permanent Farm Buildings Under Construction.

A GOOD farm is worthy of good buildings, and it is truthfully said that "comfortable buildings help to make a poor farm good, and a good farm better." The strongest argument favoring good buildings on a farm is a visit to a well-managed stock farm where the general efficiency depends in no small measure on the excellence of the buildings, both large and small.

Farm buildings should be property

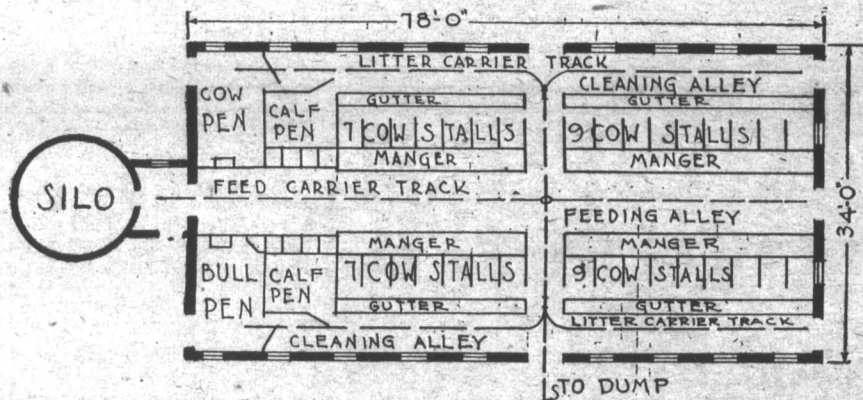
inside walls and ceiling with D. & M. flooring or wall board. This can be done very cheaply by the farm help and will save its cost the first winter in extra feed.

The profits are also seriously affected by the labor problem, for the barns and stables may be so arranged as to conserve labor or to waste labor. In building it is, therefore, important to take into consideration the matter of saving steps and time.

build the barn upon paper first. After the first sketch is worked out, lay it away for a few days and then take it out again and see if some improvement cannot be made in the arrangement. A great many times this will suggest changes that will cut down the chores. Spend a few days in visiting the best barns in your county, and talk with the owner; see if he would make any changes if he were building again. Do not be afraid to talk to men about barn plans and arrangement. If the barn is not built right—if it is not correctly planned, it may result in losing money every day. A barn once built is not easily moved or altered in size, shape or arrangement; hence the vital importance of making certain that the barn is correctly designed before it is built.

A barn should not be built just large enough to accommodate the stock on the farm at the time of its building. The barn cuts down the labor and the desire is to get more live stock; the result is that larger crops are raised and more room is needed. Therefore, the farm should be worked to its maximum capacity. The size can be determined only after a careful study of the number of acres in the farm and the quality of stock.

The proper location of a barn is the first important consideration after the



Inside Arrangement of Stable to Accommodate Herd of 35 Dairy Cattle.

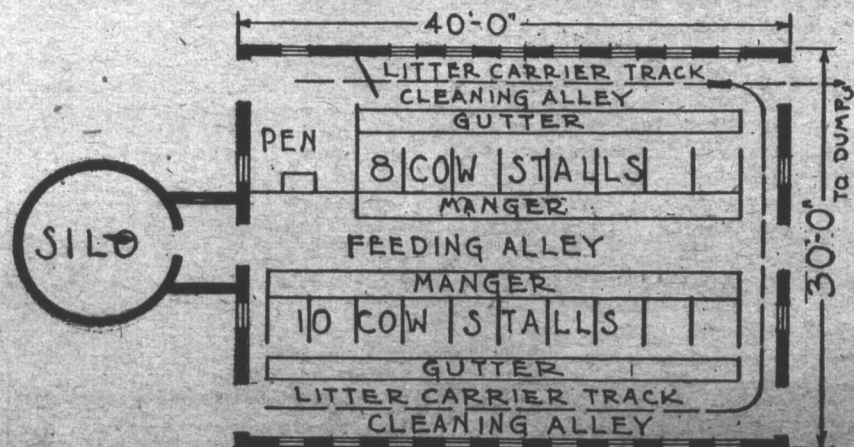
savers and savers of labor. Farm buildings may be considered, in one way, as a necessary expense, but on the other hand, they should be considered as a profitable investment.

For instance, take the barn. It is a factory. In it raw material is converted into manufactured products. In a dairy barn feed is manufactured into expensive cream and butter. It makes a great difference in the profits—whether this barn factory is so constructed that the animals may be comfortable enough to make the best possible use of the feeds given them.

The barn should, therefore, be constructed warm and tight. It is cheaper to build for warmth than to feed for it, at the present price of feed. By being properly constructed, the barn can be made to save wonderfully on the feed bills, whether you are feeding for work, meat or milk. Many a barn can be made much warmer by lining the

The interior should be so arranged as to enable the work to be done with the fewest steps—the least amount of labor—and in half the time that it formerly took. Therefore, it is best to

first important consideration after the



Inside Arrangement of Stable to Accommodate Herd of 19 Dairy Cattle.

arrangement is decided upon. Good air, good drainage, plenty of sunlight and good water are all essential features. The barn should be situated among surroundings that afford a good natural drainage. Low, damp locations are ideal for bacterial growth and sunlight is one of the best disinfectants.

The foundation walls of the barn should be built at least two feet above the ground line, so as to protect all the wood from contamination with moisture and manure.

The concrete should be mixed in the proportion of one part Portland cement to two parts of sand to four parts of crushed rock, where such material is available. Where you have a bank run, the mixture of one part of Portland cement to five or six parts of the bank run is satisfactory.

The concrete wall is to be made twelve inches thick and rests upon a footing twenty-four inches wide. After the wall is sufficiently hard the sill is bolted with anchor bolts not over ten feet apart. The studding are erected on the top of the sill, which furnish a firm bearing for them. The studding are two by six inches in size for a barn of ordinary dimensions, spaced twenty-four inches on centers and are generally twelve to eighteen feet in length, and have a doubled two by six inch plate spiked on top, which ties them together, keeping them in a straight line and forms a bearing for the rafters.

The floor joists for the haymow floor are two by tens spaced twenty-four inches on centers so that the ends of each may be spiked against the side of the studding and at the same time resting on a two by six ribbon which is notched one inch into the studding and running the full length of both side walls. The lengths of joist are required to reach from one side of the barn to the other. Each set of joist forms a continuous tie from one side wall to the other to take care of the outward thrust of the roof. These joists are supported by girders, built up out of four thicknesses of two by tens continuously from one end of the barn to the other, with as few joints as possible and all joints broken.

In framing the roof, one set of rafters is carefully laid out on the haymow floor, and, after the exact length of each piece is computed, these are used as patterns for cutting the required number of pieces. When all the rafters, braces, ties and collar beams have been cut, each set of rafters are spiked together so as to form a complete arch rib which will reach from the plate of one side wall to the plate of the other side.

This type of construction has the advantage of requiring less material and labor than the heavy timber roof, is just as strong, and forms a mow without any obstructions.

THE LAMB MARKET.

ALTHOUGH prime Colorado and other lambs are selling on the Chicago market at far above prices of past years, 1919 excepted, prices are much below those paid early in January, owing largely to the practice of the big packers in bringing in unprecedentedly large supplies from the Denver market. The increasing proportion of half-fat flocks accounts for the many sales at large discounts from prices paid readily for choice lambs, the recent top standing at \$19.35, comparing with \$20.25 one year ago, \$18.50 two years ago, \$14.90 three years ago, \$11.60 four years ago and \$10.15 five years ago. It is learned from reliable sources that the Colorado lambs will be mostly marketed by the opening of April, and probably higher prices will be paid in that month, as supplies from other sources promise to be only moderate in volume.—F.

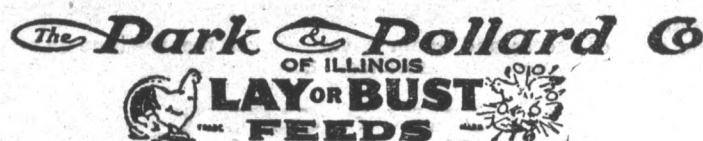


Not a Bit of Waste—and Every Bit an EGG Producer

Reliable—that is the reason why "Lay or Bust," the original dry mash, has been the choice of discriminating poultrymen for twenty years—it has *increased* egg production.

That increased egg production makes "Lay or Bust" actually the cheapest feed of all. No waste—no harmful gorging. And "Lay or Bust" makes *healthier* hens as well as *better* layers.

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THE PARK & POLLARD CO. OF ILLINOIS
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Compiled by experts—a book of great every day practical value to poultry raisers—a guide to best methods in all phases of poultry raising and egg production.

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Name _____

Address _____

AUCTION SALE

43 High Grade Holstein Cows FLINT, MICH.

Apr. 8, 1920.--Sale Starts 1 P. M.

Having sold our farm, and being forced to vacate the premises, we will sell 43 very high-grade Holstein cows to the highest bidder. This is the oldest and most prominent herd in this section of the state, having been built up using purebred sires for a great many years. These cows are in various stages of lactation, nearly one-half having freshened recently.

They have been selected with great care, and dairymen wishing to buy heavy producing, fine individuals, with very large, well-balanced udders, will make a mistake if they do not attend this sale.

The sale includes the present herd sire, Johan Pauline Lad, No. 127548, who has a 30-lb. own sister. This bull is sired by Johan Hengerveld Lad, one of the most popular bulls of the breed. Dam, Edgelake Pauline De Kol, 26.90 lbs. butter in seven days at eight years.

Some of these cows are sired by the above bull, and nearly all are bred to him. Also several young sons of the above sire, and out of registered cows, will be sold. Our farm is situated three miles west of Flint on River Road. Free transportation from end of Glenwood car line, or Phone 1005 W. Terms of Sale, 10 months time on approved bankable notes.

MORTIMORE CARTER & SONS, Prop.

To reduce my herd I am offering for sale a number of Pure Bred Holstein heifers and full age cows.
JOSEPH H. BREWER, Grand Rapids, Mich.

Reg. Holstein Bull Calf, born Feb. 1, 1920. Sires 13 dams ave. 31 lbs. Price \$100 Reg. and Del. would take Liberty bond. J. R. Hicks, R. 3 St. Johns, Mich.

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.

Bull calf born Apr. 27, '19. Sire's six nearest dams average 39.34 lbs. butter for 7 days. Dam is a 16.82 lb. 3 year old. Oscar Wallin, Unionville, Mich.

LONG DISTANCE

Holstein calves of either sex. Can spare a nicely marked heifer backed by seven dams that average above 1200 lbs. butter and 24000 lbs. milk in one year. Choice Duroc Sows. A. FLEMING, Lake, Mich.

10 mo. old bull 4-5 white. 9 nearest dams average 23.55 lb. butter, 533 lb. milk in 7 days. \$125. Terms. Also few grand daughters of Maple Crest Korn. Heng. M. L. McLAULIN, Redford, Mich.

Holstein bull calf, born Dec. 2, 1919. Dam has nearly 22 lbs. of butter in 7 days, sire's dam at 2 yr. 19.21 lbs. of butter in 7 days. 712.80 lbs. in one yr. with 18,370.40 lbs. of milk. Price \$150. Write for particulars on our \$2500 herd sire. Ridenour & Reck, St. Johns, Mich.

FOR SALE

Four Reg. Holstein Cows and a 31 lb. bull.
J. Taylor Gage, Manchester, Mich.

HARWOOD HEREFORDS

A few young bulls from 10 to 18 months, well bred, in fine condition. Special price for the next thirty days. No females for sale at present. Visitors welcome.

Jay Harwood & Son, Ionia, Mich.
Farm Six Miles South of Ionia

HEREFORDS

3 Prince Donald, 3 Farmer and one Pollard bulls from 7 to 13 months old, for sale.

ALLEN BROS.

PAW PAW, MICHIGAN

Herefords Special low price on the following for a short time. One four year old cow due in spring. Two 2 year olds with calves by side. One yearling heifer. Three bull calves, about 9 months old, one polled, two horned, all well marked and good Mark color.
COLE & GARDNER, Hudson, Mich.

Herefords. Just purchased 3 new herds, now have 150 head; we offer you anything desired either sex, horned or polled, any age. Priced reasonable.
THE McCARTYS, Bad Axe, Mich.

JERSEY BULL \$400

Sophia 19th's Tormentor 24th, dropped at Hood Farm, Lowell, Mass. April 4, 1917. A son of Sophia 19th's Tormentor, a \$7500 bull by Sophia 19th. Dam Figgis 23rd. by Poggi 9th. Fine individual tuberculin tested, gentle. Box 947, East Lansing, Mich.

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-S, Capac, Mich.

MICHIGAN JERSEYS

Michigan is an ideal place for the raising of Jersey Cattle and there are no better cattle for dairying than Jerseys. Jerseys mature early, live long, produce persistently, give the greatest amount of butter-fat obtainable from every pound of feed. They are hardy and vigorous, always on the job and the greatest mortgage-lifters that ever entered a barn.

Michigan should have more Jerseys and the Jersey breeders of the state are anxious to cooperate with anyone who is interested in successful dairy farming.

MICHIGAN JERSEY CATTLE CLUB

ALFRED HENRICKSON,
Sec'y-Treas. SHELBY, MICH.

The Pride-Price-Profit-Breed



JERSEYS

If you never owned Jerseys—you've never received "paid in full" value for your feed bills. Jerseys are the most economical cows ever bred. They feed for their udder—not beef and bone.

They produce the richest quality of milk, a butter fat average of 5.37%. They thrive in the cold Northwest or hot Texas. Jerseys are truly the investment breed because they are the most adaptable and most economical.

Ask breeders for pedigrees and prices and let us send you some interesting facts about the money-making Jersey.

The American Jersey Cattle Club
322-M West 23rd Street
New York, N. Y.

Maple Land Register of Merit Jersey Herd. Bulls ready for service out of R. of M. dams and sired by one of the best grandsons of Pegasus 99th of Hood Farm.
IRVIN FOX, Allegan, Mich.

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

FOR SALE Jersey Bulls ready for service R. of M. ancestors. Raleigh-St. Lambert breeding. Jerseys stand for economy.
Waterman & Waterman, Packard Rd. Ann Arbor, Mich.

LILLIE Farmstead Jerseys—A few heifers bred to freshen soon, heifers bred to freshen next fall, 3 cows, R. of M. bull calves. C. C. Lillie, Coopersville, Mich.

For Sale Two young Show Bulls ready for service. Oxford Lad breeding. Dams prize winners and producers. MAPLE HILL FARMS, EARDLY BROS., R. R. 6, Grand Rapids, Mich.

Bulls ready for service from our herd bull Marguerite Premier, grandson of Pegasus 99th of Hood Farm, and cows now on test for R. of M. Smith & Parker, Howell, Mich.

FOR SALE Purebred Jersey Bull (Calf six months old. Containing blood from the Hood Farms, Sophie's Agnes, B. W. PARDEE, Big Rapids, Mich.

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

For Sale Shorthorns of Quality Scotch and Scotch Topped descendants of Archers Hope, Avondale, Max Watson Sulton and White Hall Sulton. Model Type, by the Ocola Co. Shorthorn Breeders Ass. John Schmidt, Sec. Reed City, 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, reasonably priced. A roan, senior yearling, a Missie of Villager breeding, a herd bull prospect, Federal Test.

BIDWELL STOCK FARM,
Box D, Tecumseh, Michigan

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.

COMBINATION SALE

WEDNESDAY, APRIL 7TH, AT 1 O'CLOCK

Located 11 miles N.W. of Jackson, 9 miles S. E. of Springport, 1 mile N.W. of Minard Mill, on Jackson-Springport State Road.

Closing out my entire herd of grade cows. One Registered Angus bull, 2 yrs. old. Lord Elbert, No. 261720. Will also include 12 head of

REGISTERED HOLSTEINS

No. 1.—Netherland Helen Sherlock No. 401392, 2 yrs. old, due to freshen in March.

No. 2.—Violet Lilith De Kol, No. 401394, fresh. Has just made a seven-day A. R. O. of 325.0 lbs. milk, 13.098 lbs. butter at the age of 2 yrs., 3 mos., 25 days.

No. 3.—Daisy Bartenah, No. 469617, 2 yrs. old, due to freshen in April. She has an own sister, as Senior 2-yr-old with A. R. O. record of 407.5 lbs. milk, 17.63 lbs. butter in seven days.

No. 4.—Lady Bartenah Dinola No. 34110, 4 yrs old, due to freshen October 1. Own sister to heifer above.

Five Heifers and Three Bulls Sired by Colantha Coronis Papline King No. 181361, a 24-lb. grandson of Colantha Johanna Lad.

No. 1.—Herd-breed, No. 469618, his first heifer to freshen has just made an A. R. O. record at the age of 18 mos. (no days) of 240.8 lbs milk, 9.043 lbs. butter.

No. 2.—Born April 19, 1919, 100 per cent same blood as the one above.

No. 3.—Born Aug. 28, daughter of an A. R. O. cow.

No. 4.—Born Sept. 1. Two half-sisters with A. R. O. records.

No. 5.—Born Sept. 28. Own sister to heifer No. 1.

THREE BULLS

No. 1.—Born Sept. 8. His dam has an own sister with an A. R. O. Senior 2-yr-old record of 407.5 lbs. milk, 17.63 lbs. butter.

No. 2.—Born Nov. 2. His dam has an A. R. O. record of 449.9 lbs milk, 20.53 lbs. butter in seven days. She has one daughter and one grand-daughter with A. R. O. records, and she is now on Semi-Official test.

No. 3.—Born Jan. 6, 1920. Close related to bull No. 1.

Herd Tuberculin-tested under State and Federal. Will also include 22 hogs. Livery from Rives Jct. and Parma at 9:00 to 12:00 A. M.

VERNON E. CLOUGH, R. 2, Parma, Mich.

The John P. Olcott Dispersal

PERRY, MICH.

MONDAY, APRIL 12, 1920
SIXTY HEAD

The entire herds of John P. Olcott and Frank A. Hart, twelve head from V. C. Wilkinson and three from S. T. and A. B. Service.

RECORDS:—Nearly every cow has a record or is from a record dam. One is a 30 lb. jr. 4 yr. old with two daughters by the 35 lb. bull.

INDIVIDUALS:—An extra good lot of individuals much better average than is usually found in dispersals.

HEALTH:—Tuberculin tested and sold with 60 day guarantee and retest privilege.

Sale easy of access and under cover. Seven months time on approved notes. Bring your bank reference. Send for catalog.

JOHN P. OLCOTT

PERRY,

MICHIGAN

POLLED

SHORTHORNS

AND

Scotch Bred Shorthorns

AT AUCTION

Apr. 10, 1920. Mapledale Stock Farm
Edwardsburg, Mich.

27 HEAD POLLED SHORTHORNS
8 MALES 19 FEMALES

5 HEAD SCOTCH BRED SHORTHORNS
4 MALES 1 FEMALE

Herd Sires: Westfall's Prince, No. 13712-491454, Sultan Lancaster, by Intense Sultan, G. D. Imp. Ann of Lancaster 6th., Jubilee Sultan, by Imperial Sultan a grandson of White Hall Sultan.

Herd Under Federal Supervision.

SEND FOR CATALOG ELMER WESTFALL
AUCTIONS. COLS. PERRY, HUNSBERGER, RUTHERFORD

O. I. C. SOWS FOR SALE

One of the Best Herds in Michigan

Spring gilts and fall yearlings bred for March, April and May litters. I ship C. O. D., pay express and register in buyer's name. If you want a BIG TYPE sow, guaranteed right in every way, write me.

J. CARL JEWETT,

R. 5, Mason, Michigan.

Richland Stock Farms

Home of the Michigan Champions.
Shorthorn Sires in Service:

IMP. Lorne, IMP. Newton Champion, Sterling Supreme. Why not buy a young bull to head your herd that carries the blood that is making Shorthorn History. Only a few real headers left. Write your wants.

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

Royal Bruce 795521 heads our herd Three half brothers sold for \$55,000.00 one Cluny Proud Augusta going to head Wm. Duthies of Collyne's herd at \$21,000.00. One bull and a number of females for sale.
CARR BROS. & CO. Bad Axe, Mich.
Norman Carr, Secretary.

Central Mich. Shorthorn Breeders Assn. offer 40 bulls, 38 females, write for new list.
OSCAR SKINNER, Sec. Gowen, Mich.

The Kent Co. Shorthorn Assn. have males and females of quality for sale. L. H. LEONARD, Sec., Caladonia, Mich.

FOR SALE Registered Shorthorns of good milking strain. Bull Roan three years old, bull calves 2 to 6 months. Chas. Warner Jr., R. 4, Imlay City, Mich.

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

Registered Shorthorn bull of best Bates breeding five months old.
D. L. McLeese, R. 1, Sag. Co. Freeland, Mich.

Milking Shorthorn 1 bull calf of service age for sale, color red
ROSEMARY FARMS, Williamston, Mich.

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

Shorthorns Scotch and Scotch Topped, only a few left at old prices.
W. J. BELL, Rose City, Mich.

Small herd of registered Shorthorns for sale. Priced for quick sale.
SHEAR BROS. R. F. D. 5, Flint, Mich.

FOR SALE Two Registered Shorthorn bulls 14 and 15 mo. old, milking strain. Price \$135.00.
W. W. SARGENT & SON, R. 3, Linden, Mich.

HOGS

Berkshires size with quality is our specialty. Write your wants to
M. G. MOSHER & SONS, Osseo, Mich.

Duroc sows and gilts bred to Walts King 92940, 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.

Walnut Hill Durocs June farrowed boars ready for service from Ira Jackson and Brookwater stock, also bred gilts and sows of all ages for Mar. and Apr. farrow, priced right and registered in buyer's name. Write
JOHN C. DEAN, R. 1, Mason, Mich.

DUROC-JERSEYS

A few extra good bred sows and gilts for sale.
CAREY U. ELMONDS, Hastings, Mich.

DUROC JERSEYS

Bred Gilts for March and April farrow. Write at once for description or come and see them. Satisfaction guaranteed with every order.
RUSH BROS. OAKWOOD FARM, Romeo, Mich.

DUROC Jerseys. Spring gilts bred to boar whose sire took first prize at State Fair. Immune, price reasonable.
Jay C. Northrop, Cassopolis, Mich.

Michigana Farm offers some exceptional values in bred gilts. Also in tried sows. These are guaranteed to give satisfaction and they will ship on approval to responsible parties. They breed and sell good Durocs.
O. F. Porter Mgr. Pavilion, Mich.

ROYAL BRED GILTS

Dams sired by Michigan Cherry Col. Bred to Jacks Cherry Orion King, No. 169259, Son of the \$10,000 champion, Jacks Orion King 2nd, all high class stock, write for prices. The Jennings Farms, R. 1, Bailey, Mich.

DUROC JERSEYS

Gilts bred for March and April farrow. A Guarantee back of every Sow Sold.
F. J. Drott, Monroe, Mich. R. 1.

DUROC JERSEYS

E. D. HEYDENBERG, Wayland, Mich.

Duroc Jersey, Bred sows and gilts April and May farrow. Sired by or bred to my 1000 lb. herd boar
JOS. SCHUELLER, Weidman, Mich.

Duroc bred sows and gilts sired by Orion Cherry D King Col. 2nd., bred to All Col. of Sangamo 2nd. First class lot, reasonable. W. C. Taylor, Milan, Mich.

DUROC GILTS. Bred and open. Real ones at fair prices.
BOARDMAN FARMS, Jackson, Michigan.

DUROCS for Sale Bred sows and fall pigs of both sex and a car of grade draft colts.
CHAS BRAY, Okemos, Michigan.

Chester Whites, spring and fall stock for sale either sex. At Saginaw fair we won highest honors against strong competition.
F. W. ALEXANDER, Vassar, Mich.

Raise Chester Whites

Like This
the original big producers

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

O. I. C. and Chester White Swine

Strictly Big Type with quality. Spring pigs of March and April farrow. A choice lot of boars. Will only spare a few more gilts at present. Will ship C. O. D. and record them free.
Newman's Stock Farm, Marlette, Mich. R. No. 1.

O. I. C. and Chester White Swine booking orders for spring pigs from big type blood lines. Fall pigs with size and quality. I ship C. O. D. and register in buyer's name. John C. Wilk, Alma, Mich.

O. I. C.'s 2 extra choice last spring gilts. 11 last fall boars wt. 175 to 250 also fall gilts the best I ever had. Farm 3/4 mile west of Depot. Citizens Phone 124. OTTO B. SCHULZE, Nashville, Mich.

Veterinary.

CONDUCTED BY DR. W. C. FAIR.

Indigestion—Lameness.—One of my horses is unthrifty, showed lameness when first taken out of stable, but after ten days' treatment he traveled sound. I loaned him to one of my neighbors to haul gravel, and he soon went lame. Our local veterinary treated him for sweeney, but he moves stiff. How shall I treat him? F. M. G., Owosso, Mich.—Mix equal parts of ginger, gentian, red cinchona, salt and fenugreek together and give him a tablespoonful at a dose in feed three times a day. Apply equal parts of turpentine, aqua ammonia and raw linseed oil to sore or sweeney parts twice daily. Rest will do him lots of good.

Out of Condition.—Last fall our three-year-old mare ran on marsh pasture, lost flesh and, of course, was thin when I commenced to grain and stable her. The result is her hind legs stock and both hock joints are swollen and tender. What is wrong with her and is there a remedy? G. A., Lawton, Mich.—Feed her some clover, alfalfa or roots, also give her a teaspoonful of acetate of potash in drinking water daily; also give her a dessertspoonful of fluid extract of cinchona and the same quantity of Fowler's solution at a dose in feed three times a day, and she will soon pick up in flesh.

Spinal Disease.—Have a large horse that has good appetite, but he has suddenly gone wrong in both hind legs, can scarcely walk without falling down. In looking him over I find no bunches or sore spots. E. C., Bellaire, Mich.—Give him half dram of ground nux vomica, one dram of salicylate of soda at a dose in soft feed three times a day. He should be kept in a warm stable, and bowels kept open.

Stringy Milk—Infected Udder.—I have a cow due to freshen in April, which gives very stringy milk and when milking her she kicks. Last year she was in same condition, but when she came fresh seemed to be all right. A. P., Scottville, Mich.—A chronic udder ailment of this sort is not easily cured. Her milk is, of course, unfit for domestic use. Kindly understand, you should not make the common mistake that most farmers do, of discontinuing to strip all the milk and fluids which accumulate from the infected portion of udder, for if you fail to do that, look for the old ailment to return. Give her a teaspoonful of nitrate of potash daily.

Nasal Gleet.—Have a calf that commenced to cough the early part of last summer and it has never recovered. Whenever it eats or drinks some of the fluid or food returns through the nostrils. This calf had catarrh when, or soon after it was born. J. S., Marion, Mich.—Doubtless this calf was abnormal at birth and will never be well. You will find washing out the nostrils with salt and tepid water a good and inexpensive remedy and it is made by dissolving a teaspoonful of salt in each pint of water. The calf should be treated twice a day.

Chronic Catarrh in Cattle.—Is there such a disease as chronic catarrh in cattle? If so give me a remedy. C. A. B., Lapeer, Mich.—Chronic nasal catarrh is not nearly as common an ailment in cattle as in horses, but simple catarrh (cold in the head) is quite common. If the inflammation of the mucus membranes of the nostrils and upper air passages are not relieved promptly a sub-acute inflammation follows and if this condition is not remedied the ailment becomes chronic and very often incurable. Catarrh is a common disease among cattle. Often the result of sudden exposure to wet and cold after being accustomed to shelter. Illy ventilated stables where stock are obliged to breathe irritating gases and, of course, it may be due to atmospheric conditions and may assume an enzootic form. The disease is very debilitating and requires very prompt and judicious treatment. The animal should be housed in a well-ventilated place, if feverish, give a tablespoonful of nitrate of potassium in drinking water three times daily. Diffusible stimulants are beneficial in most cases, but don't forget that good nursing is most important. For chronic catarrh, give a teaspoonful of dried powdered sulphate of iron at a dose in feed three times a day. Also dissolve a teaspoonful of salt or cooking soda in one pint of tepid water and wash out nostrils twice daily. The animal should be well fed and receive good care.

HEADS ALL HERDS

In Iowa Cow Testing Associations

The Quaker Oats Company,
Chicago, Ill.

McGregor, Iowa,
Jan. 30, 1920

Gentlemen:—I am pleased to state that we have used SCHUMACHER FEED quite extensively in growing and developing our herd.

It is a great aid in promoting heavy production of milk and butter fat. We appreciate it much because of its perfect balance which makes it a safe feed to use in large quantities when feeding for heavy production.

We have fed SCHUMACHER FEED with excellent results to hogs and horses as well as to the Dairy Herd.

Yours very truly,

R. G. KINSLEY.

Note: { R. G. Kinsley's Herd has been making the best record in the McGregor Cow Testing Association, which for several months has been leading all Testing Associations in Iowa, having the best ten highest producing cows.

The Schumacher Feeding Plan

Will Help Your Cows Increase Milk Production

The Schumacher Feeding Plan consists of feeding SCHUMACHER FEED as the carbohydrate part of the ration and BIG "Q" DAIRY FEED as the protein part. These two feeds have proven with dairymen everywhere to be the ideal combination for best health conditions and maximum milk production. They simplify your ration problem—insure greater accuracy and uniformity, and require much less labor.

SCHUMACHER FEED is a finely ground, kiln dried, carbohydrate ration composed of various grain by-products that best supply the necessary maintenance for long time milk production. It affords that much needed variety of grains so essential and necessary to keep your cows in tip-top physical condition—to provide stamina and endurance to withstand the strain of long milking periods.

BIG "Q" DAIRY RATION is first, last and all the time a *quality* protein ration and a wonderful milk producer. With SCHUMACHER FEED as the maintenance part of the ration and BIG "Q" as the milk producing part, you have a ration that assures maximum production from *any* cow of *any* breed.

SCHUMACHER FEED in addition to being the acknowledged *best* carbohydrate feed for dairy cows, is also splendid for feeding all your farm stock. It puts "pep" and vigor into your horses—makes calves and hogs grow fast and produces big frames. It restores strength and vitality so dry cows assuring maximum milk production during the next lactation period.

Get a supply of SCHUMACHER and BIG "Q" from your dealer—let these feeds do for you what they are doing for thousands of other successful dairymen and farmers.

The Quaker Oats Company

Address, CHICAGO, U. S. A.

HOGS

O. I. C's Am offering a few September pigs that combine size and quality.
O. J. THOMPSON, Rockford, Mich.

O. I. C's. Big type gilts, fall yrs., tried sows, Mar. Apr. farrow. Summer and fall pigs. I pay exp., reg. free, satisfaction guaranteed. G. F. Andrews, Davison, Mich.

O. I. C. Gilts bred for March and April farrow. I pay express and register in buyers name.
H. W. MANN, Dansville, Mich.

O. I. C's Have some Choice Spring Gilts, bred for spring farrow.
THAYER BROS., R. 1, Mason, Mich.

O. I. C. Gilts bred for March and April farrow, guaranteed safe with pigs. Fall pigs and a few service boars. Herd insured by D. T. F. C. Burgess, R. 3, Mason, Mich.

O. I. C. Choice gilts bred for March, April and May farrow and fall boars. Am booking orders for spring pigs. A. J. Barker & Son, Belmont, Mich.

O. I. C's Choice bred gilts, 2 extra fine service boars, choice Sept. pigs either sex or pairs.
CLOVERLEAF STOCK FARM, R. 1, Monroe, Mich.

O. I. C. Choice gilts bred for April and May farrow.
W. B. McQUILLAN, R. 7, Howell, Mich.

LOOK B. T. P. C. We are selling at a great sacrifice for the next 10 days extra good gilts to farrow in Apr. choice fall pigs to make room for our herd sows.
W. BREWSTER & SONS, Elsie, Mich.

L. S. P. C.

2 choice spring boars and 2 nice fall boars left, a few extra nice gilts left bred for April farrow.
H. O. SWARTZ, Schoolcraft, Mich.

FOR Sale—Large Type Poland China Gilts; bred for April farrow. Inspection invited. Free livery from Manchester. A. A. Feldkamp, R. 2, Manchester, Mich.

MILLER Meadow's L. T. P. C. boars all sold. Gilts M-sired by General Jones and bred to our young boar Alaska, address CLYDE WEAVER, Ceresco, Mich.

For Sale

Two Bred Poland China Gilts
Litter mates, farrowed Apr. 3, 1919. Choice individuals and choice Big Type breeding. Weighed March 10, better than 300 lbs. not fat. Bred for Apr. 7 and Apr. 23 respectively.
WESLEY HILE, R. 6, Ionia, Mich.

Boars also sows and pigs. Real Big Type Poland Chinas. Bred big for 25 years. Sired by Mich. Buster by Giant Buster, litter 14 out of Mow's Miss Queen 2nd, some breeding, also by Butler's Big Joe by Buster's Big Joe, out of a Wonder Queen, nuf said. Write us your wants, we will treat you right, our prices are low.
J. C. BUTLER, Portland, Mich.

BIG Type Poland Chinas. Sired by Smooth Mastodon litter mate to the Ill. Grand Champion. The big boned, deep, long bodied kind at farmer's prices. Wah-be-me-me Farms, White Pigeon, Michigan

LARGE Type P. C. the largest in Mich. Spring boars now ready to ship. Boars for the breeders and boars for the farmers. Come and see the real large type with quality. Free livery from Parma furnished visitors. Look up my exhibit at the Great Jackson Co. Fair, Sept. 8th to 12th, expenses paid if not as advertised. W. E. Livingston, Parma, 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.

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.

L. T. P. C. Spring gilts ready to ship also fall pigs both sexes. F. R. ALEXANDER, R. F. D. 6, Albion, Mich., Bell phone 849F11.

T. P. C. Gilts sired by Big Giant and O's Orange. Bred to O's Orange and Col. Jack Jr. No better breeding to be had. L. L. Chamberlain, Marcellus, Mich.

LEONARD'S B. T. P. C. bred sows all sold. Orders booked for boar pigs at weaning time from Mich. Champion Herd. E. R. Leonard, R. 3, St. Louis, Mich.

U. S. FIGURES SHOW

a shortage of 2,578,000 hogs, over Jan. 1, 1919. Just figure a moment what this will mean to the farmer. Constructive breeder of Poland China Hogs.
G. A. BOONE, Blanchard, Mich.

M. R. P. C. Breeder if you want to get in the King row. Buy a Gilt bred to Big Bol Mastodon, more Grand Champion Blood in his veins than any other Boar in Michigan. C. E. Garnant, Eaton Rapids, Mich.

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

6th ANNUAL P. C. Bred Sow Sale March 13, 1920. For particulars write
W. J. HAGELSHAW, Augusta, Mich.

Large Type Poland China Stock Hogs and Bred gilts
E. H. EISELE, R. 2, Manchester, Mich.

B. T. P. C. All sold out except some Fall Gilts, Thanking my customers.
JOHN D. WILEY, Schoolcraft, Mich.

A FEW NO. 1

Fall boar pigs left. Pairs not akin. A few tried sows bred. Booking orders for spring pigs. Large type, winning blood lines. Satisfaction guaranteed.

STEBENS HAMPSHIRE FARM

R. R. 3, Angola, Ind.

Pine Grove Hampshires, "Quality First" Michigan Pine Boy, Grand Champion boar of Michigan, Bred and owned by us. Many other prize winners at Michigan State Fair 1919. Hog's for sale all ages, both sex. "Lookout Joe", a \$1000 boar heads our herd.
GEO. COUPAR & SONS, R. 1, Marlette, Mich.

Additional Stock Ads. on Page 775

LATEST MARKET REPORTS

FIRST EDITION.

The markets in this edition were revised and corrected on Tuesday afternoon, March 30.

WHEAT

Increasing export demand is having a tendency to strengthen the wheat market. The price advanced five cents last week and it was expected that this would bring in large receipts, but they failed to materialize in time to affect present quotations. The millers are going slow in buying wheat taking just enough for their immediate requirements. The flour situation is firm and quiet. Present quotations on the local market are:

No. 1 red	2.55
No. 1 mixed	2.53
No. 1 white	2.58
No. 2 red	2.52
No. 3 red	2.49

CORN

Owing to the condition of the telegraph lines between Detroit and Chicago practically no business was done on the local market Monday. A few messages got through by way of Toledo and Cleveland. The feeling in the corn market was firm but the trade rather quiet. In view of the small supplies at Chicago there is a tendency to strengthen values, but the general spirit of the situation is one of caution. Present values on the local market are as follows:

No. 3 corn	1.60
No. 3 yellow	1.65
No. 4 yellow	1.60
No. 5 yellow	1.58

OATS

Oats are in moderate demand, but scarcity of supplies holds the market firm. The general situation has been dull for the past few days. Present quotations on the local market are as follows:

No. 2 white	.99
No. 3 white	.98
No. 4 white	.97

RYE

The demand for this cereal is active and prices have advanced two cents. Foreign buyers are taking more interest in the rye deal and further advances are expected. Present quotations on the local market are \$1.80 for cash No. 2 rye.

BARLEY

There has been no material change in the situation as regards this cereal. Present values on the Detroit market are \$3@3.25 per cwt. for cash No. 2 barley.

BEANS

There is little activity in the bean deal, but prices are holding and the market is steady. Choice hand-picked pea beans are quoted at \$6.50 per cwt on the local market. At New York the market is dull and values not well defined. Imported and domestic white beans are dull. Choice hand-picked pea beans are quoted at \$7.25@7.50 per cwt. At Chicago sales are moderate and offerings free. Choice hand-picked pea beans are quoted at \$6.75@7.25 per cwt; red kidneys \$13.

SEEDS

The market for seeds is firm and the trade active. Present quotations on the local market are as follows: Prime red clover \$35.25; alsike \$36.50; timothy \$6.50.

FEEDS

The market is active for all kinds of feeds and prices are well sustained. Present values on the local market are as follows: Bran \$55; standard middlings \$57@58; fine middlings \$58@59; coarse corn meal \$69; cracked corn \$71; chop feed \$61 per ton in 100-pound sacks.

HAY

Small supplies are coming into the local market and prices are firm and demand lively. Present quotations are as follows: No. 1 timothy \$33.50@34; standard \$32.50@33; light mixed at \$32.50@33; No. 1 timothy \$31.50@32; No. 3 timothy \$27@28; No. 1 mixed at \$31.50@32; No. 1 clover \$31.50@33; rye straw \$13.50@14; wheat and oat straw \$13.50@14 per ton in carlots. At Pittsburgh receipts are light and

not enough of the good grade arriving to supply the demand. The market is strong, especially in the better grades. Present values on Pittsburgh market are as follows: No. 1 timothy \$38.50@39; standard timothy \$37.50@38; No. 2 timothy \$36@37; No. 1 clover at \$37.50@38; No. 2 clover mixed \$33@34; No. 1 clover \$37.50@38; No. 2 clover \$30@32; oat, wheat and rye straw \$14.50@16 per ton in carlots.

POTATOES

The demand and movement of potatoes on the local market is moderate, prices firm and slightly higher. Michigan U. S. Grade No. 1 round white stock in 150-pound sacks is selling to jobbers at \$8.75@9 per sack. At Cleveland the market is in an unsettled condition and the demand and movement slow. Sales to jobbers of New York round white stock in 150-pound sacks are reported mostly at \$8.75 per sack.

BUTTER

The demand for butter is comparatively light and receipts are sufficient to take care of the local demand. Quotations on the local market are as follows: Fresh creamery 65c; fresh creamery in one-pound prints 63@65c.

EGGS

Eggs are in active demand and supplies are coming in freely. The tone of the market is easy. Fresh are quoted on the local market at 44½¢ per dozen.

CHEESE

The volume of trade has increased materially and the supply of storage cheese is rapidly diminishing in consequence. Production is not sufficient to supply the prevailing demand and buyers are depending largely upon storage holdings. The high grades of 1919 make are steady and firm. A large portion of the storage stock is of imperfect quality and inferior grades are moving slowly. Foreign exchange is more favorable and there is considerable interest in the lower grades for export. Present quotations on the local market are as follows: Michigan flats 27½@28c; New York flats, June make 31½@32c; Michigan single daisies 28c; Wisconsin twins 28c pound.

POULTRY

Poultry is in active demand. Consumers want fat hens and high quality chickens and are willing to pay a premium for extra good stuff. The supply is light and the trade poorly supplied. Present quotations on the local market are as follows: Spring chickens, large 38@40c; Leghorns 36@37c; hens 43@45c; small hens 39@41c; roosters 24@25c; geese 30@35c; ducks 40@45c; turkeys 44@45c pound.

GRAND RAPIDS

Notwithstanding the light demand for flour, wheat is advancing. Friday, millers raised the paying price five cents per bushel. No. 1 red to \$2.35, and No. 1 white to \$2.33. Flours have reflected the advance from 25 to 50 cents per barrel. Spring lambs will be in market next week for Easter, dealers having made arrangements with some western Michigan growers. They will retail at 75c per pound. Maple sugar is in fair supply, retailing at 75 cents per pound. Many farmers state that, owing to help shortage, many thousands of maples will not be tapped this year. Fall-sown wheat has come through the winter in excellent condition, the best in many years, the farmers say. Potatoes are in light supply and higher at many loading stations. Government reports this week quote the Cadillac warehouse price at \$5.60@5.80 per cwt. and \$5 per cwt to the grower. Greenville price is \$5.40 per cwt. wholesale. Grand Rapids jobbers quote them at \$3.25 per bushel. Parsnips are more plentiful now that gardeners can dig them. Wholesale price is \$1.75 per bushel. Hay is lower this week at the city market at \$26@28 for loose timothy. Eggs are more plentiful this week and dealers pay producers 40 cents per dozen. Storage supply is exhausted. Pulverized sheep manure is \$3 per ton higher this week and cattle \$2.

WOOL

Attention of the wool trade is being divided between sales in the open market, the auction sales and the acquisition of staple held in the primary sources of distribution. The interest in the last item applies both to the domestic and South American clips, though particularly to the former. The profitable marketing of the home-grown territory and fleece wools is a big problem this year, but the easing

of conditions by banks in the matter of loans makes the situation more satisfactory. Shearing is said to have begun in several localities, but operations of dealers are still restricted.

NEW YORK PRODUCE MARKET.

Butter.—The market has been extremely sensitive during the greater part of the week. The principal reason for that is the fact that about two and a quarter million pounds of Danish butter are expected at this port by Monday or Tuesday of next week and dealers are somewhat worried over the prospects. All the Danish butter that has arrived of late is out of first hands, which shows that that butter is cleaning up readily. Receipts of domestic butter have been high during the week and trade has been active except for the last one or two days. A report that the Danish butter would be ready for distribution the last part of the week caused many jobbers to allow their stocks to become depleted, as they hoped to purchase the Danish butter at bargain prices. However, the boat bearing that butter fell behind its schedule and it was necessary for them to add to their stocks, which caused a more active market on Friday. The market closed strong and active on Friday, with quotations as follows: Extras 67½¢; higher scoring than extras 68½¢; firsts 63½¢@67c and seconds 59@62½¢.

Cheese.—Considerable quantities of fresh cheese are appearing on market and a quotation for such cheese has again been established. There is little activity in fresh cheese and the receipts are continually growing. Held cheese is selling readily and the prices are stationary. There is little export demand, although some low-grade skim milk cheese is being exported. Quotations on fresh cheese are: Average run 22@23c; specials 24@25c.

Eggs.—Receipts of eggs are moderate and demand fairly active. There has been very little change in the market since last week. The arrival of spring would cause one to feel that a decline in quotations would materialize in the near future. Established quotations are: Firsts 47½@49c; extra firsts 49½@50c; extras 51@52c.

Poultry.—Quotations have changed very little since last week, although there have been slight fluctuations during the week. Old roosters are scarce, as are good ducks and turkeys and as a result the market on those classes is slightly stronger. Chickens are in somewhat light supply. Quotations are: Fowls 43@44c; chickens 36@40c; old roosters 26c; turkeys at 50@55c; ducks 42@45c; geese 20@22c.

NEWS OF THE WEEK.

(Continued from page 532).

Berlin if possible.—Seamen on lake carriers will receive a \$5 bonus monthly in addition to their regular wage during the coming season.—The Japanese press is somewhat excited over the announcement by Secretary Daniels that America proposes having the largest navy in the world in a few years.—Railway engineers are asking for the same advance that the other Brotherhoods are to receive in the new adjustment of wages.

Monday, March 29.

ONE hundred and eighteen persons are known to have been killed in six states which were swept by tornadoes Sunday night. Nine of these victims were in Michigan. The death list will undoubtedly be increased. Thousands are rendered homeless, and millions of dollars worth of property is destroyed. The states suffering the worst are Georgia, Ohio, Indiana, Illinois, Wisconsin and Michigan.—The communist forces of Germany operating in the Ruhr region receive an ultimatum from the government to restore order or drastic punishment will follow refusal.—Former emperor William of Germany has begun moving from Bentinck castle to Door, Holland, which is to be his future residence.—United States revenue department captures \$600,000 of opiate in a Detroit raid.

Live Stock Market Service

DETROIT

Cattle.

Receipts 901. Bulls dull; all other grades steady. Best steers \$11.25@11.75. Best handy wt bu steers 10.25@10.75. Mixed steers and heifers 8.75@9.25. Handy light butchers 7.50@7.75. Light butchers 7.00@7.25. Best cows 8.25. Butcher cows 6.75@7.00. Cutters 5.50@6.00. Canners 4.50@5.00. Best heavy bulls 8.00@8.50. Bologna bulls 7.25@7.75. Stock bulls 7.00@7.50. Feeders 8.50@9.25. Stockers 7.00@8.25. Milkers and springers \$65@150.

Veal Calves.

Receipts 662. Market opened steady, closing lower.

Best \$20.00@21.00. Others 10.00@15.00.

Sheep and Lambs.

Receipts 760. Market steady.

Best lambs \$19.00@19.50. Fair lambs 17.50@18.50. Light to common 15.00@16.50. Fair to good sheep 12.00@13.50. Culls 6.00@8.00.

Hogs.

Receipts 2,340. Market strong. Mixed hogs \$15.75@16.25. Pigs 15.50.

CHICAGO

Hogs.

Estimated receipts today are 2,000; holdover 5,770; first sales 25@50c higher. Bulk of sales \$14.60@15.50; tops \$16; heavy 250 lbs up medium, good and choice \$14.10@15.25; medi-

um 200 to 250 lbs medium, good and choice \$14.80@16; light 150 to 200 lbs common, medium, good and choice at \$15.40@16; light lights 130 to 150 lbs common, medium, good and choice at \$15.20@15.75; heavy packing sows 250 lbs up, smooth \$13.15@13.75; packing sows 200 lbs up rough \$12.60@13.15; pigs 130 lbs down, medium, good and choice \$13.75@15.50.

Cattle.

Estimated receipts today are 1,500; beef steers and early sales of she stuff higher; bulls, packers and feeders are lower. Not sales enough to make quotations. Stock yard men are on strike.

Sheep and Lambs.

Estimated receipts today are 800, mostly direct to packers. One load of shorn lambs sold at \$18.25. Not enough sales to quote market.

BUFFALO

Cattle.

Receipts 4,000; good, steady to strong; others easier; shipping steers \$13@14.25; butchers \$9@13; yearlings \$12.50@14.25; heifers \$6@11; cows \$4@11; bulls \$7@10.25; stockers and feeders \$6@10; fresh cows and springers \$65@175.

Calves.

Receipts 3,000; \$1.25 lower at \$6@20.50.

Hogs.

Receipts 12,000; slow 10@15c higher; heavy \$15@15.75; mixed \$16.25@16.40; yorkers \$16.40@16.50; light do \$16@16.50; pigs \$15.75@16; roughs at \$13@13.50; stags \$8@10.

Sheep and Lambs.

Receipts 10,400; lambs 25c lower at \$13@20.50; others unchanged.

TO CONTROL INSECT PESTS.

BERRIEN, Allegan and Van Buren County Farm Bureaus have teamed together in employing J. W. Simonton, the entomologist who, for several years has been in charge of the government station at Benton Harbor. This action was taken in an attempt to improve culture in that district. Mr. Simonton is an expert in his line and his activities are expected to do much in mitigating the insect and fungus troubles of the fruit growers in that part of the state. For several months he has been in Illinois in charge of a government station there.

The membership campaign was completed in Berrien county in the last week, 2,007 members obtained out of 2,305 farmers solicited. Scattered returns from Clinton county shows that the membership campaign standard was maintained there in the last week. About 1,000 was the tally. In the final days of the drive the total is expected to be boosted to 1,800. The drive began this week in Calhoun county and on April 1, it will start in Cass county.

ST. JOSEPH LIVE STOCK MEN MEET.

The St. Joseph County Live Stock Improvement Association held an interesting meeting at the Court House in St. Joseph, Saturday, March 20. The general breed associations held their meetings in the morning and the general meeting in the afternoon was addressed by Mr. W. T. Langley and Mr. Donald Williams. Mr. Huchings, the new county agent, discussed the Michigan Farm Bureau and its work. Short talks were given by Dr. Haines, O. B. Graham, L. R. Sote, Charles Born and others. All persons who use purebred sires on one line of females, whether purebreds or grades, are eligible to membership. A stock census of the county is to be taken. Plans have been made to encourage a fine display of stock at the county fair this fall.

CREAMERY TO CLOSE DOWN.

THE Rosemary Creamery Company of New York has served notice on the Dairymen's League that its plant at Pennellville, New York, will close for an indefinite period. In explanation the creamery company says:

"The conditions due to the war, which now face practically all manufacturers of milk products in this country, have created a situation which makes it impossible to dispose of the output of either cheese or dry milk without increasing the heavy loss which the past several months' operation has entailed. We believe the Pennellville factory to be one of the best equipped and most modern cheese factories in the country, where cheese can be made as cheaply as elsewhere, and if our patrons can agree on a plan whereby the factory can be operated for their benefit and will confer with this office we shall co-operate to the best of our ability to give the patrons the highest possible return after deducting the reasonable operating expenses of the factory."

COMING SALES.

Holsteins, April 3, Dudley & Roice, Oberlin, Ohio.
Holsteins, April 7, Vernon E. Clough, Parma, Mich.
Holsteins, April 8, Mortimer Carter & Sons, Flint, Mich.
Holsteins, April 9, Tom McCaffery, Mt. Clemens, Mich.
Holsteins, April 12, John P. Olcott, Perry, Mich.
Shorthorns, April 10, Elmer Westfall, Edwardsburg, Mich.

While demand for condensed milk has been low, which has resulted in a comparatively small trade in that commodity, prices have not declined so markedly as one might expect. The probable reason for that is the fact that the manufacturers are principally concerns of large means and greater credit and they are holding immense quantities in storage.



What is HOME without a FIREPLACE?



ARDWICK C-503. A five-room, one-story home of Colonial type with same plan as the English and Western Houses shown in this display.

THE chimney piece pictured above will be beautiful in some home this year, and fifty years hence it will still be as charming. Visitors will chat before it; a thousand friends will enjoy it; children and grandchildren will love it; and to all it will teach unspoken lessons of taste and refinement.

And it is only one of a hundred similar things built into the attractive houses shown in our portfolios, "Better Built Homes." Doors that say "enter," stairways that invite, bookcases and china closets that make the eye linger, and other woodwork, simple, sincere, beautiful, and homelike. Such beautiful, useful woodwork as this is not a luxury, for the modest home can afford it.

You can see just how these houses look, in our portfolios of "Better Built Homes." Curtis Woodwork was designed for the Curtis Companies by Trowbridge and Ackerman, architects, of New York, who also designed many houses, ranging from cosy three-room cottages to more spacious eight-room

homes. These are illustrated in the portfolios. And whether you want a Colonial house, or one of Southern, Western, or English architectural expression, you can have your choice. Curtis Woodwork is made in standardized designs and standardized sizes, as shown in the large Curtis catalog, which your lumber dealer selling Curtis Woodwork will be glad to show you.

You can obtain free through your lumber dealer a copy of our portfolio "Better Built Homes," or by sending us the coupon with 25c in postage. Specify which portfolio you want. "Better Built Homes," Volume VI, shows exteriors, interiors, and floor plans with complete descriptions of 32 houses of three, four, and five rooms; Volume VII, of 32 houses of six, seven and eight rooms; Volume VIII, of 32 houses for farm use. If your plans for a home are still in the dream stage, and you feel it is too early to talk to a lumber dealer, then use the coupon for securing portfolios at 25c each.

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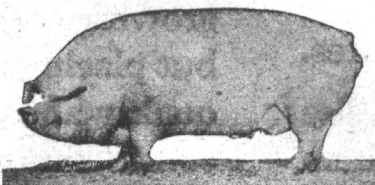
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We have the undefeated Herd of the World. Winning premier breeder and exhibitor at every fair shown in 1919-1918-1917, including the following state fairs—Ohio, Michigan, Indiana, Illinois, Missouri, Kentucky, Tennessee, Oklahoma, New York, Alabama, Tri-state fair Memphis, and the National O.I.C. twice. Stock of all ages for sale. Registered free in the O.I.C. association. Order now. We will ship any of our stock on approval allow you to keep three days before you have to pay for it. You will be your own judge on your own farm.

CRANDELL'S PRIZE HOGS, Cass City, Mich.

AUCTIONS SALE

On the premises located 1 1/4 miles north of Mt. Clemens on the River Road, on Friday, April 9, beginning at one o'clock.

35 HEAD OF REGISTERED HOLSTEIN CATTLE
POCHDECOLE STRAIN

Tom McCaffery, Prop.

Wm. Nickel, Auctioneer

Bert Chartier, Clerk

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.

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Remember! We guarantee you satisfaction with every shipment.

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HAY Ship to The Old Reliable House Daniel McCaffery's Sons, 623-625 Wabash Bldg., Pittsburg, Pa.

HOGS

Edgewood Hampshires, spring boars sired by our prize winning and Grand Champion boars. Make the right buy today and get a good one, either for Hampshire breeding or for a cross on your other sows. Depew Head, Edgewood Farm, Marion, O.

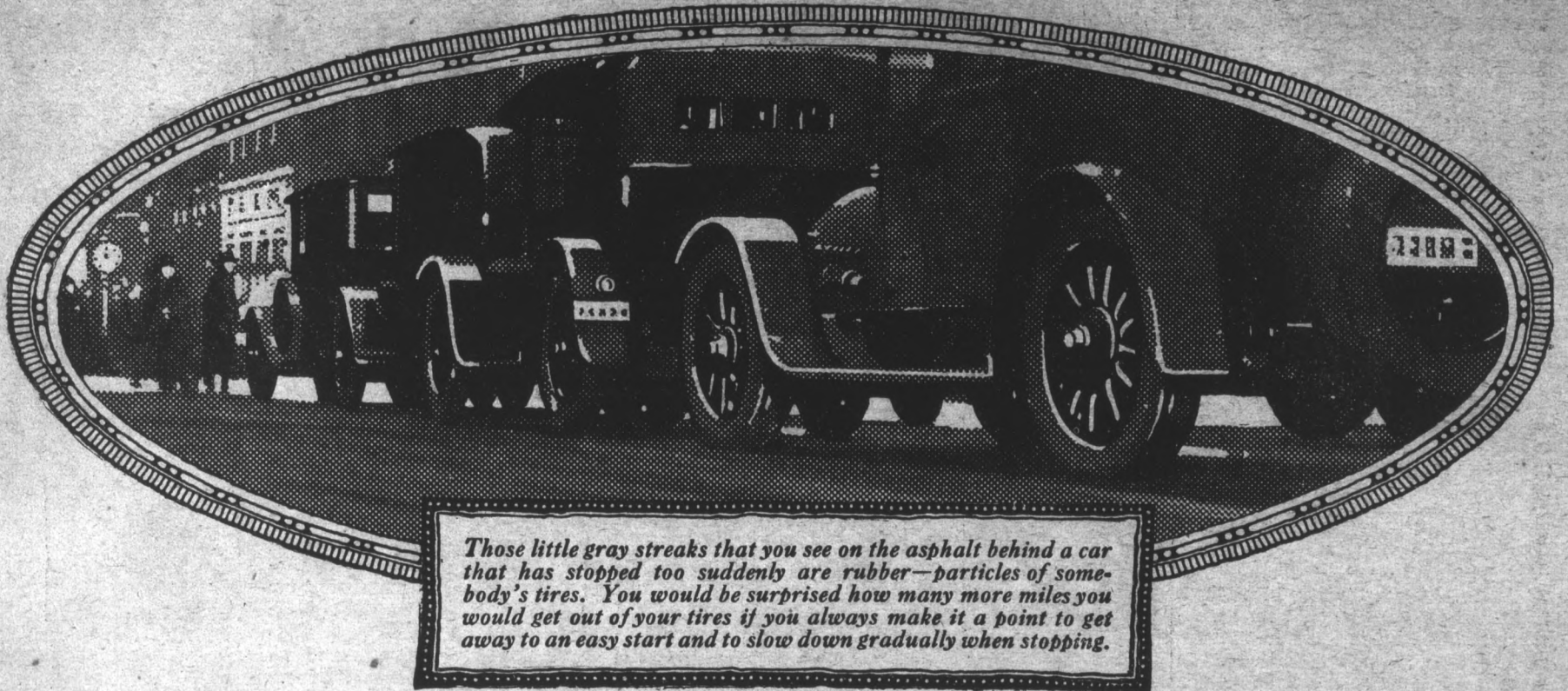
Bred Gilts all sold at present and more later. Spring pigs in season. JOHN W. SNYDER, St. Johns, Michigan.

Blue Hogs Shipments desired the coming summer should be booked at once. Now shipping spring orders. These hogs are actually blue in color. They are the largest, growthiest and most prolific breeders on earth. Write for information. Mention this paper. The Blue Hog Breeding Co., Wilmington, Mass.

Tamworths The great bacon breed. Spring pigs for sale. In pairs or trios not a kin. W. H. WARNER, Concord, Mich.

When writing to advertisers please mention the Michigan Farmer.

Tire Economy Begins with Better Tires



ONE out of every ten men you see on the street is a motor car owner.

There is not a man or woman in the country whose daily life is not affected in some way by motor transportation.

Anything that tends towards waste and extravagance is a tax on everybody.

* * *

Because of casual buying the average motorist is being compelled to pay out more and more every year for tires.

Once let Americans realize that a thing is costing them

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They are beginning to understand the high cost of poor tires and to stop accidental buying.

Going to the dealer who not only displays the sign of good tires in his window, but who recommends and sells good tires because he believes in their economy.

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The United States Rubber Company is bending every effort to keep pace with the growing demand for tires, but placing responsibility for quality ahead of every other consideration.

In the interest of better tires it produces more of its own rubber than any other rubber manufacturer in the world.

It introduced the first straight side automobile tire.

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Two of the greatest contributions to tire and motor economy ever made.

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The idea of quality in tires is just beginning to take firm hold on this country.

And the firmer the hold it takes, the smaller the tax that motorists will have to pay.

United States Tires

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