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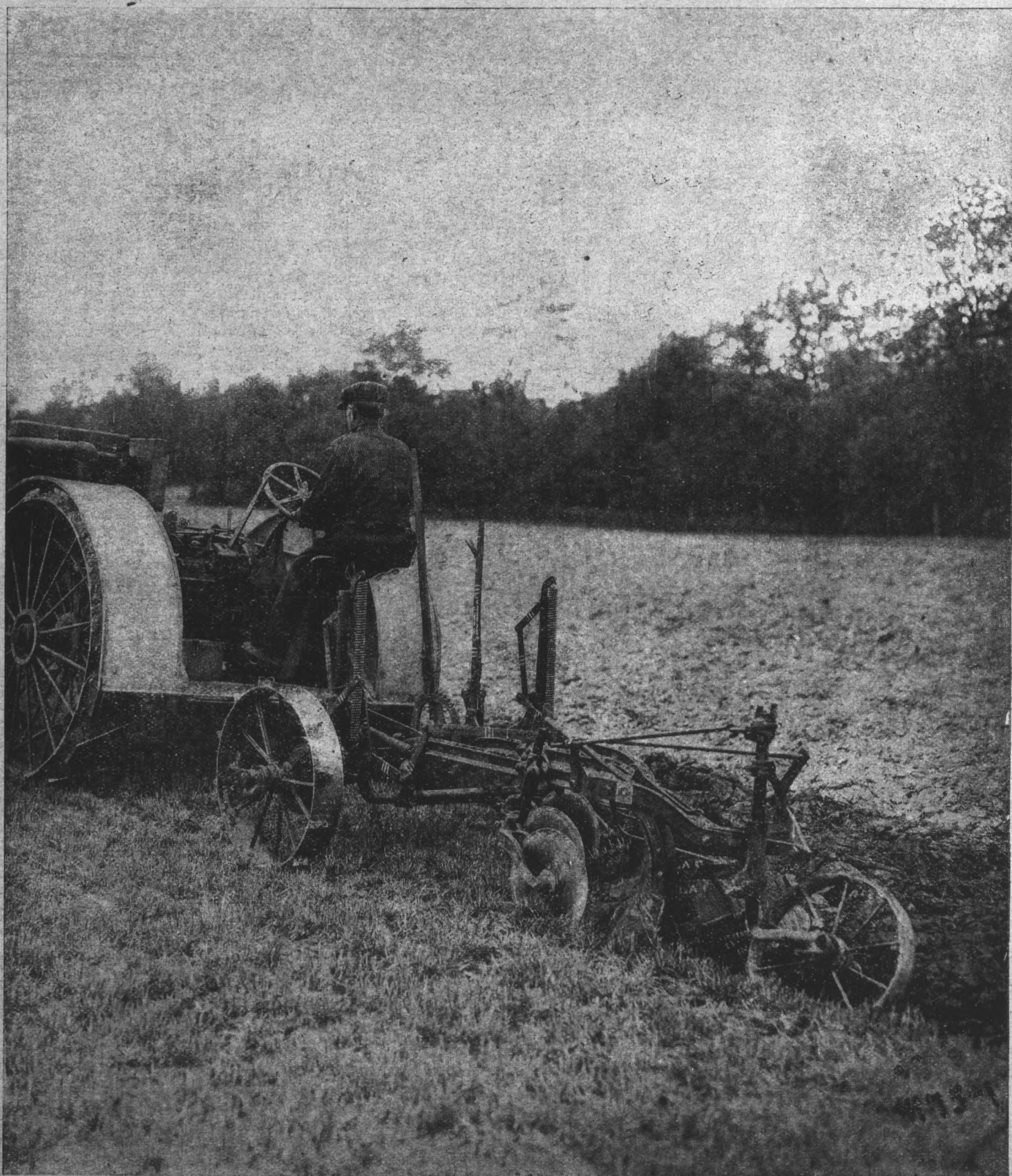
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DETROIT, MAY 3, 1919



CURRENT COMMENT

Vegetables for Canning

FARMERS and gardeners in all sections in proximity to canning factories should plan to produce a maximum acreage of tomatoes and other vegetable crops for canning purposes this season. The cold wave that swept the entire northern and central sections of the country last week has raised havoc with this year's fruit crop. To what extent the apple, peach, plum, cherry and small fruit crops have been damaged no one can tell, but one thing is certain, the losses are tremendous, and plans must be made immediately to produce substitute crops of some sort to take the place of these fruits, or our people will be short of canned foods next winter.

Throughout the great fruit belt of New York the damage is severe. From Binghamton, New York, as far north as Lake Ontario, and through the entire central and western New York fruit growing area a fall of several inches of snow and a temperature of from twenty-five to twenty-seven degrees above zero left in its wake the destruction of hundreds of thousands of dollars worth of fruit buds. Farmers in that locality are already planning to double their acreage of tomato and other vegetable crops in an effort to partly make good the season's losses, and insure the people of the country with an ample supply of canned food.

With this great shortage in the supply of canned fruit it is needless to say that our people must turn to vegetables as a source of succulent food. New York canning factory owners are doing everything possible to induce larger plantings of substitute crops and it would seem that the same advice might profitably be applied to Michigan, especially in the great fruit growing districts where we have the necessary facilities for preserving these food products. Farmers who live a considerable distance from canning factories can help the situation by growing more vegetable crops, or putting all they do raise in cans for sale next winter. Girls home-canning clubs

can also do a profitable business this summer and fall. Our present food problem is as great as at any time during the war and it is going to require some constructive work on the part of all concerned to meet the present situation. And the best part of the situation is that every can of fruit or vegetable products is sure to find a ready market at profitable prices.

Our national supply of canned goods is very low, and the tremendous demand from European countries is sure to continue for many months to come. Few growers of fruit and vegetable crops realize the tremendous export trade that is being developed in American canned goods, and it is sure to prove a serious set-back in developing this profitable trade unless we can keep these new markets supplied while an appetite in European countries is being whetted for our canned goods.

Milk Prices are Equalized

the next three months, consummating an arrangement made last December whereby it was agreed by representatives of the producers' organization that the milk producers of the Detroit Area would not insist upon compensation based upon the cost of production during the winter months, providing they could be reimbursed for the losses met by a lesser price in those months during the the spring season of cheaper production. The distributors agreed to this arrangement with the understanding that the readjustment in price would be based on the proportionate production in the spring months as compared with the winter months.

The commission has taken these mutual concessions into account in fixing the price for milk during the first four months of the present year so as to avoid the necessity of a further increase in price to Detroit consumers for the purpose of giving producers the full cost of production during those months. A careful accounting has been kept of the variation between the cost of production as shown by the field work conducted by the Agricultural College Experiment Station plus the cost of transportation and the delivered price as fixed at Detroit by the commission during the past four months. This variation amounted to thirteen cents in January, twenty-six cents in February, thirty-eight cents in March, and fifty cents in April. Figuring on the basis of production in these several months and the future months for which prices were made, as shown by records of previous years, the price differential to fully reimburse producers for the cost of production was shown to be \$1.08 per cwt., which was spread over the period for which prices were fixed at this meeting. In view of the fact that the yearly cost estimates were prepared in November, since which time feed costs and labor costs have materially advanced, a further allowance to producers of ten per cent for the ensuing three months was made by the commission in fixing prices for that period. This computation indicated that an average price of 3.25 per cwt. f. o. b. railway station at Detroit for the next three months would pay producers the full cost of production for this period and reimburse them for losses sustained during the previous four months under prices fixed by the commission for those months. The prices for the ensuing three months were then adjusted more nearly commensurate with production costs for the individual months as follows: May, \$3.25; June, \$3.10; July, \$3.40, which prices were fixed on all milk delivered from the Detroit area, the price being based on delivery at railway stations in Detroit.

At its last meeting the commission announced the intention of reducing the price on quarts to Detroit consumers from fifteen cents to fourteen cents on May 1. Changed conditions shown to exist by testimony presented to the meeting, notably the damage to pastures by the severe April freezes, and the increased cost in labor as shown by testimony presented from various sections of the Detroit area, the commission determined that this reduction could not be made and carry out in good faith the fair equalization of prices for the period covering the winter and spring months. Consequently prices on delivered milk will for the present remain as for previous months.

This action is in line with the previously announced policy of the commission to bring about a greater equality between winter and summer prices by reducing the former and increasing the latter as compared with previous price schedules. This adjustment is unique in that it is perhaps the most striking example of the application of the just principle of marketing a farm product on a large scale on the basis of a scientific determination of production cost. That this principle has operated and will operate to the great benefit of the milk producers of Detroit area no one who is at all conversant with the facts can gainsay. That it has been equally just to the consumers of milk in that it has stabilized the price, giving the consumers the benefit of a price which did not compensate producers for a considerable period of the year, and at the same time insuring an adequate supply of a most essential and necessary food stuff, is equally apparent. This adjustment will return to the milk producers of the area several hundred thousand dollars to compensate them for losses during the winter months of exceedingly high production cost and will tend to maintain production during the summer period when there is a greater demand for milk than during the winter season, and when a serious shortage is the normal condition.

Altogether the commission plan of adjusting milk prices in this area has worked to the benefit of both producers and consumers. For the first time in the history of the industry producers are compensated for the cost of production computed on a scientific basis, while consumers have been insured an adequate supply of whole-some market milk at a very reasonable price as compared with the cost of other food stuffs to which it could be compared.

Cooperative Wool Marketing

IN another column of this issue will be found the report of a sale of wool made by the Orleans County Sheep Breeders' Association, of New York. This wool was sold direct to an eastern worsted mill at the attractive price of sixty cents per pound for good grades tied with paper twine, and fifty-nine and a half cents where tied with wool twine. This was undoubtedly a better price than could have been secured had the wool been sold to a jobber or from a point with a higher freight rate, but is an indication of present mill values.

This New York experience illustrates the possibilities of cooperative wool marketing in any locality where wool is produced even in moderate quantities. Michigan Farmer readers will remember that following the live stock meeting last winter, the announcement was made that Mr. Verne Freeman, of the Extension Division of the Agricultural College, operating in cooperation with the field agent in marketing, would aid the farmers of any county who were sufficiently interested in organizing a wool association for the sale of this year's wool clip. Under this plan the wool would be graded by an expert before shipment so that the growers would gain a fair knowledge

of wool grades and sorts, which in addition to the financial benefits derived from cooperative marketing would be well worth while. The experience of this New York county wool growers' association should awaken the sheep breeders of Michigan to the beneficial possibilities of such organizations. The experience of this organization should also provide a hint for Michigan wool growers as to the superior value of paper twine for tying wool, and enable them to get a little premium on their clip if tied with paper twine even where sold to the local buyer.

Incidentally, recent auctions of government wool have continued to develop a strength in the market which has given growers in all sections greater confidence in the future of the market, and which indicates that the wool jobbers will welcome the discontinuation of government sales next month.

This strong tone is in accord with our early analysis of the wool situation, and is an indication that growers will secure a fair price for the season's clip. It is not too late for interested growers of any community to organize for the cooperative sale of their product if local buyers do not offer them a fair price.

An Income Tax Injustice

THE basic principle of the income tax is that it falls on those who are best able to pay liberally to satisfy the needs of the government. But in its operation this principle is not uniformly carried out. One striking example of this fact is to be found in its application to farmers who are engaged in the production of hazardous crops of a perishable nature which yield good profits in some seasons and are a total failure in others. Of this class Michigan fruit growers are a good example. The commercial fruit orchard may produce a big income one year and subject its owner to a heavy income tax. But the crop may be a total failure the following year, while the cost of maintenance may be increased by frost damage, which necessitates additional pruning, replacement of trees, additional fertilization and better cultivation to restore the orchard to a normal producing condition. As none of those expenses of the lean years can be written off against the good income of the better years, this cost is a handicap to the producer in financing his business. This handicap has led to the discussion of a merger between the western citrus fruit and apple growers as a means of providing more stable conditions for the growers.

Michigan fruit growers would find it difficult to provide such a remedy, but the discussion of this handicap and available remedies for it would be well worth while. Through the medium of the State Farm Bureau the united influence of the farmers of the state could be brought to bear in the matter of securing needed relief.

DETROIT AREA MILK PRICES.

At a meeting held on April 28, the Detroit Area Milk Commission fixed the price for the next three months as follows:

May, \$3.25 per hundred pounds.
June, \$3.10 per hundred pounds.
July, \$3.40 per hundred pounds.

These prices are to be paid for all milk f. o. b. Detroit, with no deductions for surplus, for 3.5 per cent milk with four cents per point differential above or below.

If you ever give your boy or girl a pig or a calf you should see that they get the money for it when it is sold. If not, their sense of justice is liable to be greatly stirred and what might have been an inducement to hold their to the farm becomes a club to drive them from it.

Getting and Keeping a Stand of Alfalfa



A Revival of Interest in Alfalfa Follows Some Recent Unsatisfactory Experiences with Other Forage Crops.

By H. L. Barnum

WHILE most farmers who have given it a trial will declare that it is simple enough to get a good catch of alfalfa, they will all agree, too, that it is another thing entirely to keep a profitable stand. Trouble with weeds the first year, winter-killing, the encroachment of June grass and a gradual yellowing and dying are familiar difficulties in the way of success. Yet these things do not present unsurmountable obstacles, as hundreds of satisfied growers can testify. Wonderfully profitable stands of alfalfa have been secured and kept without serious trouble from weeds and grass, and without winter-killing or otherwise dying out. Success in getting and keeping a profitable stand apparently depends on knowing the few simple requirements of the crop and supplying whatever is needed to make all the conditions right. This sketch is an attempt to outline the essentials for success which experienced growers of alfalfa in Michigan have discovered.

A Sweet Soil.

Alfalfa, more than other legumes, prefers a sweet soil, and it will continue to thrive year after year only when the soil is naturally sweet or has been made so by the use of lime. Practically all sandy soils and most other cultivated and well-drained soils in Michigan are sour, to a greater or less degree. Sourness is not an unusual or abnormal condition, but it is merely due to the absence of enough lime to neutralize as fast as produced the acids and acid substances found in every kind of soil. That sour soils actually contain acid substances is shown by the effect on sensitive blue litmus paper. This paper, which contains a vegetable coloring matter, will turn pink on exposure to even very weak acids like fruit juice, etc. It can, therefore, be used to test the condition of the soil. The weakness of this test is that it gives no idea of the amount of lime necessary to create an alkaline or sweet condition. However, when the need for lime is thus discovered, a composite sample of the soil in the field can be taken out and sent to the soils department of the State College, where the actual lime requirements will be determined.

While a soil may originally be well supplied with lime, it will not always continue so. Lime easily leaches away with drainage waters and is removed by growing plants, so additions to the natural supply should be made occasionally or soil acids will become so abundant that beneficial bacteria and some sensitive plants cannot thrive. Alfalfa turns yellow and dies in a markedly sour soil or in a very infertile one. Alfalfa loves lime, but in a sour soil it often goes hungry for this element because the lime is locked up in insoluble compounds. The acid

in the soil also prevents the normal development of those tiny soil organisms, called nitrogen-fixing bacteria, which stimulate a vigorous growth of legume plants by supplying them with nitrogen from the air.

Lime in abundance, in the form of marl or ground limestone, is the good medicine which should first be applied to our acid soils, for it makes them wholesome and sweet like a drink of soda water in a sour stomach. The amount to apply varies widely, though two tons to the acre is a moderate and generally safe amount. Too much does no harm, while less than enough may be useless. The unburned lime should always be applied and well worked into the soil several months before seeding if possible.

A new publication from the Michigan Experiment Station, East Lansing, Michigan, gives some general information on lime and its uses and functions in soils. Ask for special Bulletin No. 91.

A Well-drained Soil.

Alsike clover is a relatively shallow feeder and its roots seek their food in the surface layers of the soil. It, therefore, thrives where the soil is shallow and the subsoil full of water. With alfalfa this is not the case. Alfalfa roots are long, and go deep, for it is accustomed to search for its food in layers of soil untapped by the roots of other plants. It is the great subsoiler. But the roots of no plant can feed in soil which is full of water, therefore, alfalfa thrives only on well-drained soils where the water table is normally three feet or more below the surface. If surface water stands on the ground for any length of time during the year, it is wiser not to use alfalfa until better drainage is secured.

Proper Inoculation.

The normal soil is literally alive with bacteria or germs of many kinds.

Some thrive in wet, sour soils and do much damage by destroying nitrates which might otherwise be used by plants. But all sweet and well-drained soils have several varieties of bacteria which are of untold value in maintaining a fertile and productive condition. These are the nitrogen-fixing bacteria. Some species live independently in the soil, while others thrive only when they are able to colonize on the roots of clovers or other legume plants. Each legume crop has its own favorite kind of bacteria; and when this kind is not present in the soil in sufficient numbers, it is good business to inoculate the seed or the soil with the right kind. Pure cultures of the right bacteria for alfalfa may be purchased from the State College for twenty-five cents a bottle, which is enough to inoculate a bushel of seed. It is also possible to introduce the right kind of bacteria by securing soil from a field of well inoculated alfalfa or sweet clover and scattering it over the field at the rate of about four hundred pounds to the acre, then dragging it in immediately. Alfalfa which is not inoculated, unless growing on a very fertile soil, will turn yellow and often die the second year. But one must not expect pure cultures, or any other means of inoculation, to do any good unless the soil is first made sweet with lime. The bacteria may survive, but they do not thrive and do their work well in a sour soil.

Hardy Seed.

The experience of a great many alfalfa growers last winter convince us that we cannot depend on the hardiness of common alfalfa, such as is usually sold by grocery stores and local seed merchants. While no one particular variety of alfalfa is the absolute remedy for winter-killing, it is well to insist on a hardy strain of seed which has been grown under northern conditions. Grimm seed and similar varie-

ties are higher priced, but they have proven themselves cheaper in the long run. Under Michigan conditions, alfalfa is the "everlasting clover" only when grown from hardy strains of seed.

The Seed Bed.

A fertile, firm, fine seed bed, free from weeds, is very essential in getting a good catch of alfalfa. While alfalfa is sometimes grown on very poor land, it is necessary in such cases at the beginning to feed the little, tender seedlings so they can make a quick and vigorous start and get ahead of the weeds. If stable manure is used for fertilizer, it is better to grow a cultivated crop first, or summer-fallow until the last of July, so the weeds may be killed first. A complete commercial fertilizer of high grade, sown at the rate of three hundred pounds to the acre has the advantage of supplying quickly available food and being free of weed seed.

A seed bed with a firm bottom and a fine soil mulch on the surface is very important. Many failures result from sowing alfalfa on loose hastily prepared soil. Corn or potato ground which has been well manured the year before and kept clean can be easily fitted for alfalfa. It is not necessary to plow, but disk and harrow until the surface soil is finely prepared. If the soil is sour, put on the lime the first thing and work it thoroughly into the soil, delaying the seeding as long as possible. When the unburned lime is used, better results may be expected if the application is made the previous year. The commercial fertilizer need not be applied until just before seeding. If a fertilizer drill is used, the fertilizer and seed may be put in at the same time.

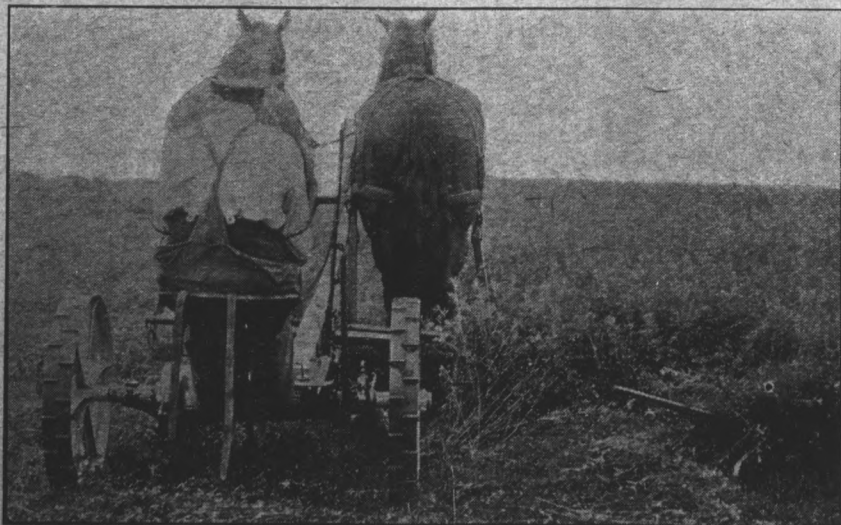
Nurse crops are not necessary with alfalfa, but some small grain crop is often used with the idea of keeping down weeds. Of the spring grains, barley is doubtlessly the best nurse crop if one is desired. If oats are used, they should be cut green for hay in case a severe drought threatens.

The rate of seeding alfalfa will vary with the quality of the seed and the condition of the soil. Formerly twenty pounds has been recommended, but eight pounds of good seed on a well-fitted seed bed has given satisfaction in many cases. Under ordinary conditions from twelve to fifteen pounds per acre should be used. A thin stand is more easily injured by weeds.

When to Cut Alfalfa.

The number of cuttings of alfalfa per year and the amount of hay secured depend on cutting the crop at the proper time. When one crop of alfalfa has made its full growth a second crop starts from the crown of the plants. The right time to cut must be judged by the progress of this second growth.

(Continued on page 710).



Two Tons Per Acre from the First Cutting.

News of the Agricultural World

IMPORTANT DRAINAGE WORK TO BE STARTED.

THREE hundred acres of wet land in St. Clair county will be drained during the next few months in the course of important demonstration work being carried out under the direction of the Farm Mechanics Department of the Michigan Agricultural College.

The college has contracted for the use of an improved "traction ditcher," which will be used to complete all the work. General shortage of labor and the lack of skilled hand ditchers necessitated the adoption of machine methods. The demonstrations which are to be carried out in St. Clair county will serve as tests of the practicability of the machine work.

Twenty acre tracts on fifteen farms scattered over the entire county are to be ditched and tiled. The work will be paid for by the owners of the land, the management being furnished by the college.

INDICTED MILK OFFICIALS TOLD TO PREPARE BILL.

SUPERIOR Judge Gridley in Chicago recently gave attorneys for the eight officials of the Milk Producers' Association under indictment for conspiracy, until Friday to confer with Assistant State's Attorney Bell and agree on a bill of particulars which will more clearly define the charges against them. On Friday a date for hearing of the case will be set. Grand jury summonses for twenty-five dairy farmers were ordered prepared by Assistant District Attorney Fred Dickinson. They will be the first of eight hundred summoned to testify before the grand jury to detail their agreements and contracts with the milk distributors.

KANSAS CREAMERY COMPANY IS SUING THE GOVERNMENT.

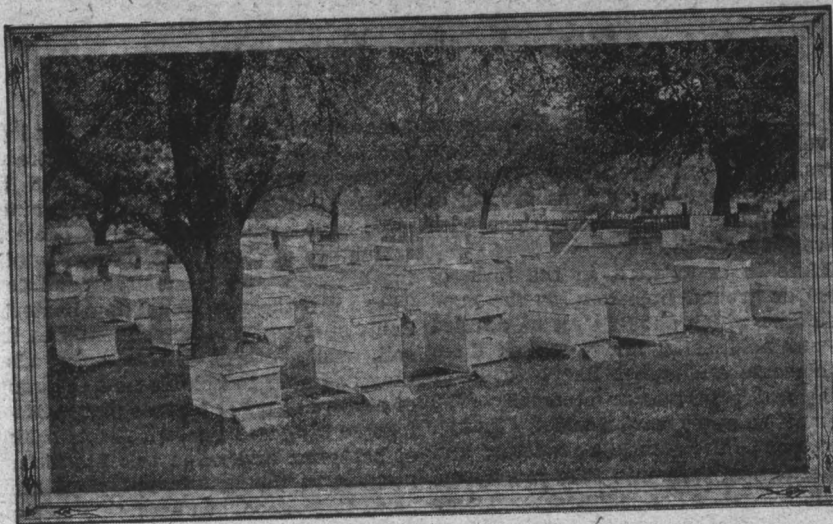
CONSIDERABLE interest in creamery butter circles has been aroused by the lawsuit recently instituted by the Belle Springs Creamery Company of Kansas, against the government to secure a refund of \$669.40 from the internal revenue collector, which is being heard by the United States District Court. The creamery was taxed for \$400 and a penalty of \$200 and costs had been assessed, on the charge that the company had made butter containing more than sixteen per cent moisture. The company con-

tends that the water in the butter is not adulteration. The government has quite a number of witnesses, butter experts, summoned from various parts of the country.

FARMERS DON'T WANT DAYLIGHT SAVING PLAN.

THE fruit growers in western New York are considerably aroused over the reported movement to make the daylight saving plan, so-called, a permanent thing. It is now said that the National Daylight Saving Association has asked James W. Gerard, former ambassador to Germany, to prepare a resolution asking President Wilson to incorporate the provision in the draft of the League of Nations. Fearful that what was primarily a war-time meas-

long as this tom-foolery is persisted in and the day curtailed as a result. One hour is not as good as another on the farm. An hour in the afternoon is worth a whole forenoon in the harvest when there is a heavy dew, yet it is that valuable hour of which farmers are robbed. When it comes to picking apples in the fall, handling of the crop is slowed down by insistence that growers trade off an hour in the afternoon for one in the early morning in which he must work at a disadvantage. So far as the grower is concerned, daylight saving is daylight wasting. The established schedule of work hours on the farm was not made arbitrarily but evolved gradually as being the limits within which farm work can be done to the best advantage. I look to see the federation take immediate action.



Bees Are One of the Most Profitable Side Lines for the Farm.

ure now be made permanent, many prominent fruit men and growers have appealed to the New York State Federation of Agriculture, according to Seth J. T. Bush, executive secretary of the organization, and former president of the Western New York Horticultural Society.

Discussing the fruit grower's attitude, Mr. Bush said in a statement to the public: "We have no desire to interfere in any way with the rights of the city man. We are perfectly willing that he get to work at five o'clock in the morning or any other o'clock that he may want to and quit when he gets ready. But we do object to his saddling his views on the whole community in the shape of a statute that makes it obligatory that everyone follow his caprice.

"As farmers we are asked to produce to the utmost, but can't do it as

The serious side of it all so far as the city man is concerned, is that the amount of food produced and available for distribution is curtailed under the 'saving' plan."

Frank Bradley, of Barkers, a former president of the New York State Fruit Growers' Association, is president of the federation.

HOOVER TO PLACE EUROPE BACK ON WAR BREAD BASIS.

A DECREASE in the milling percentage, which will virtually put the world back to a war bread basis for the next three months, is part of the program adopted by the supreme food council, under the chairmanship of Herbert C. Hoover.

The program also includes a complete plan for securing and distributing food to allied, liberated, neutral

and enemy countries until the next harvest. One object of the program is to determine the available food supply and so to distribute shipping as not to put undue pressure on any one market.

The council has arranged to supply northern and central European countries largely with rye instead of wheat and for the neutrals to look for their supply mainly in Argentina and Australia. The effect of these arrangements is to take the pressure off the wheat market in the United States. Some European countries have decided to get along for the balance of this year without any corn from the United States.

The necessity, five months after the cessation of hostilities of reestablishing the war bread regulation shows the dire straits in which European countries have been placed by the ravages of harvest lands and the killing and disabling of millions of agriculturists.

SEND EXPERTS ABROAD TO PROMOTE TRADE.

IN the government's program for the extension of American foreign trade promotion of the farmers' interests has been placed entirely in the hands of the Department of Agriculture's Bureau of Markets. This bureau has announced that several agricultural trade commissioners, as permanent representatives, will be sent abroad to report on conditions and study the marketing and distributing of American farm products.

Heretofore little has been done in a systematic way looking to promotion of the farmers' interests abroad, although before the war foreign trade in agricultural products reached a total of more than \$1,000,000,000, forty-five per cent of the country's exports.

"In view of the extensive changes in methods of distribution required during the war to meet the acute needs for food and raw materials under difficult shipping conditions, the trade in agricultural products must now undergo readjustment in its return to private channels," Charles J. Brand, chief of the markets bureau, said recently. "In some respects American exporters and foreign importers must start afresh, and as they resume business they will encounter many strange conditions. To answer numerous inquiries for information and as a means of anticipating the general demand and promoting the interests of American agriculture in the readjustment of world trade, weekly reports will be issued on foreign market subjects."

Some Emergency Hay Crops

By J. F. Cox,
Professor Farm Crops, M. A. C.

OWING to the frequent failures of clover seedings and timothy meadows, and the encroachment upon meadow and pasture lands of cultivated crops in meeting the war demand, a great interest is being taken in annual crops which can produce hay of value, or forage which will serve as a substitute for hay.

For this purpose there are several crops of proven dependability, and quite a number not so dependable which, owing to their newness attract a larger proportion of interest than is their due. Seedsmen report the possibility of a scarcity of millet seed in view of the extraordinary demand but reports better and larger stocks than usual of Sudan grass seed. The seed for corn and oats is plentiful and in excellent condition.

Corn.

Of all annual crops corn can supply in a single season the largest amount of acceptable forage, either as silage

or as fodder. Its culture is too well understood to need a discussion other than the urging of planting of varieties which will reach the dent and glaze stage of maturity for silage and fodder.

A finer textured fodder can be secured by following the old practice of drilling one or two bushels to the acre, or planting "sowed corn" broadcast.

A good corn crop should yield from ten to fifteen tons of silage, or from four to eight tons of fodder per acre.

Millet.

Millet is an annual hay crop well known in Michigan. The Golden and Common varieties are most generally grown, and most highly esteemed. The Golden Millet is a larger growing type and gives a higher yield of hay. The Common Millet gives finer stems.

Two pecks per acre should be plant-

ed, either drilled or broadcast on a well-harrowed seed-bed, prepared as for corn. The seed should be planted at a shallow depth, about one-half inch when the ground is well warmed up; a week or so after the ordinary season of planting corn.

If planted early the millet may be cut for hay in from forty to fifty days after seeding. July plantings require from sixty to seventy days. It should be cut for hay just after blooming, and before the seeds form, particularly if it is to be fed to horses, since it is safer and more palatable at that time. For cattle and sheep it may be left until the seeds are in the late milk stage.

A good field of millet should produce from two to four tons of hay per acre.

Peas and Oats.

Peas and oats should be seeded at

the rate of one bushel of field peas and one and one-half bushels of oats per acre. They should be seeded during April and early May, the earlier the better.

At our Upper Peninsula Substation 10.6 tons of oats and pea forage per acre was produced for the silo in 1917, equivalent to about three tons of dry hay. Large yields of hay are frequently reported. The peas in a peas and oats mixture give a high protein content to either the hay or silage produced.

For hay purposes the crop is cured in Michigan the same way that alfalfa hay is handled. The crop should be cut when the pods are full grown, but not yet filled, and cured in small cocks to insure thorough curing.

Oat Hay.

Oats drilled at the rate of two and one-half to three bushels per acre in the usual manner and cut when in the

(Continued on page 717).



A Member of Our Staff is Now in New York State Gathering Facts on the Milk Situation. His Findings will be Published in These Columns to Help Our Readers to a Better Understanding of General Conditions. This is the First Article of the Series.

Producers Demand Cheaper Delivery

THE dairy farmer has just about reached his limit in reducing the cost of milk production. The consumer is paying about as much per quart as he can be induced to pay and still consume a normal amount of milk. Of course, we all know that milk is one of the best of foods, but at present prices people are neglecting it right along. Milk has been such a common article of diet and the producer and consumer have been so confused by propaganda, advertising and various cost figures that they have not realized that there is another part of the business besides production and consumption.

They have not realized that the large manufacturer and distributor is the real big factor that needs other consideration than an occasional checking up by a committee of producers and consumers who have little knowledge of the underlying principles of economical processes of manufacture and distribution.

But now that both producers and consumers have been forced to the very limits of their patience and finances we have in development a nationwide milk problem, and the demands of the men who milk the cows, and the people who consume the milk have crystallized the difficulties into plainly-stated facts that now make it possible for us to know exactly where the chief trouble in the business lies. It is in the cost of getting the milk from the cow to the consumer.

The problem is a simple one—to understand. That problem is to convince the officials who have charge of the milk problem how much it should cost, under efficient management, to take the milk from the farm and put it into the consumer's home in good condition. It is not a problem of how much it is costing today in our cities, but how much it should cost under a system of fairly efficient management. Various agencies have been so busy seeking to bully and starve both producers and consumers into a state of submission that they have got the whole thing mixed up beyond the comprehension of the man on the farm and the family in the city. In other words this hocus-pocus game being played by the big milk distributors is depriving the producers of a fair price for their milk and the city families of a uniform supply of milk at a living price.

Incidentally, when facts and data are presented which prove conclusively that they are not conducting their business along sensible and approved lines they jump up at once and claim that it is nobody's business, but their own, how they conduct their business.

This is the angle from which the dairy farmers in many sections of the east are attacking the present milk problem, and the one from which they are beginning to get the most satisfactory results, both in the matter of price and in increasing the consumption of milk. The problem of taking over a system of distribution in several smaller cities, ranging in size from ten to fifty thousand population, is a comparatively easy matter, compared with breaking into the larger cities where the big distributors are strongly entrenched, both financially and politically. Here in the east, especially in New

Eastern Milk Producers are Demanding that City Dealers Cut Out Needless Duplication of Routes and Help Them Reduce the Wide Gap Between the Cow and the City Family.



York state, the producers believe that better results will come from gaining the necessary experience handling the business in the smaller cities before attempting to break into business in the larger centers of population. In other words, they are endeavoring to feel their way along, gradually learning to creep before they begin to walk. Then, too, there seems to be a closer understanding between the farmers and consumers in these small cities, where the producers have been held up as examples of profiteers and grafters by the distributors. However, the results that have been accomplished in some of these smaller cities is throwing a big scare into the camps of the big dealers in Buffalo, Rochester and New York city, and one might as well try and interview an Egyptian mummy as to get a word out of one of the big city distributors. I know, because I have tried it, and in every case, except one, have been referred to the distributors' headquarters in New York city. In the one case the writer was fortunate enough to secure an interview with one of the officials of a large distributing company in Buffalo, under the pretense of seeking employment. This interview brought out a point which I am sure will prove of interest to some of our readers.

"You probably don't know," said this official, "just what we have been up against in the matter of hired help,

especially drivers for our wagons, during the past two years. We have had everybody we could get, from foreigners to car burglars, for drivers, and as a result we have had some pretty serious losses. We cannot do business on a smaller margin until we can get honest drivers who are competent to handle our routes and look after their trade."

There is no question but that some of the big distributors have been up against serious labor problems, but so have the producers, and it seems like queer reasoning for these men to preach about robber cows, when they are employing car burglars and the like to deliver the milk and make collections. This further emphasizes the difficulties confronting any business which depends so much upon securing competent and honest help at a low scale of wages. It is simply another argument in favor of more compact milk routes, and the paying of a scale of wages that will attract good, honest men.

What has been accomplished in Philadelphia through the consolidation of routes and the paying of good wages, as mentioned by Mr. Potts in his recent article, should work out the same in any of our other big cities where conditions are so nearly identical.

Interviews with distributors and manufacturers in western New York prove conclusively that the Dairy men's



Efficient Methods Must be Adopted All Along the Line.

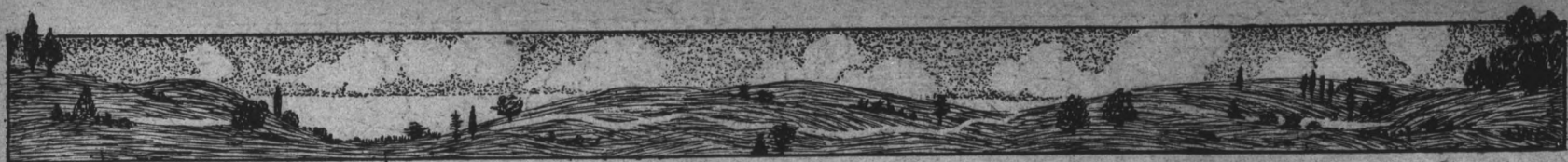
League controls the milk situation so far as regulating the milk supply of the cities is concerned, and that the distributors have a wholesome respect for the League. A representative of one of the smaller Buffalo distributors said: "The League is an established factor in the milk industry here in New York, and we are working in harmony with it at the present time. The new price-fixing arrangement, whereby the price of milk is to be based upon the price of butter and cheese, will, I think prove a more potent stabilizing factor in the business than the cost of production plus arrangement. At least, we hope it will, and we are beginning to understand each other's problems better all the time. There are many things I might say from the distributors' standpoint, but I prefer to have you write what I may say as news matter rather than quoting my opinion.

"In the first place, from what I have heard of the work of your milk commission in Michigan, I would advise your people up there to go slow about making any radical changes in your general scheme of handling your problems. These milk strikes and rows between producers, distributors and consumers are mighty expensive and have a disastrous effect upon the business in general. If your producers feel that there is too wide a margin between the producer and the consumer you should get the figures to back up your claims instead of doing a lot of talking and mud-slinging before you have made a proper analysis of the situation. I believe it is practicable and possible for us to get together and consolidate our milk routes and effect a big saving in the cost of handling milk, but we have been unable, thus far, to get the big fellows here in Buffalo to cooperate with us in this kind of work. In fact, they are doing all within their power to develop our routes and prevent us from getting in a position to cheapen our cost of distribution.

"During the past year we have made a special effort to consolidate our eight routes on this side of the city, and we have succeeded in cutting down our distribution costs more than one cent per quart. This has made it possible for us to make a better showing than some of our competitors who are loading up their wagons and driving four to six miles before peddling a quart of milk, just to break in and nab a few of our customers on this side of the city. If some of these big companies would devote one-half as much time to conducting their own business with a higher degree of efficiency as they do to destroying the business of the small dealers the consumers could get better milk at less cost than they do today.

"Another factor in this milk distributing game that I want to mention is that of how the old law of diminishing returns knocks your profits into a 'cocked hat' when you increase your overhead too rapidly. With from five to ten good, compact routes it is possible to keep up a pretty good record of the business and look after the drivers and other help, but when the business becomes too large it means too much high-priced office help and a complicated system of accounting. And a

(Continued on following page).



with big businesses of a similar nature I believe that within the next few years we are to see a big revival of the small business, efficiently managed throughout our whole industrial structure. Give us honest laws, calculated to encourage individual effort and greater efficiency, and not stifle trade, and there will be plenty of incentive for men to build up small businesses of their own, rather than become a mere part of some big organization. This seems to be the general trend in the milk distributing business here in some of our New York cities. Some of the big milk companies are already planning to cooperate with their employees in this proposition, but I doubt if they can get the same results as the smaller distributors who can give the business a close personal supervision from day to day. In many manufacturing districts the people seem to prefer to buy milk from a small company rather than patronize the big concerns who have had more or less trouble with their drivers. Once a big milk company has had a strike among its drivers you will see union labor turn a cold shoulder on its product and flock over to the small dealers, and most of these big companies have had considerable trouble with their drivers.

"Another thing that is working against the big milk companies is the fact that they have gone so far into the country for their supply of milk that they are getting the bulk of it from farms where a high degree of sanitation is not practical. In this territory the small distributors are buying the bulk of the milk produced on the big dairy farms in proximity to the city, while the big milk companies are getting their supply from various plants and creameries throughout the state. Our business demands a uniform supply from high-class dairy farms where there is a more uniform year-round production, and these farms are invariably equipped for the production of a high-grade product."

On the other hand, the Queen City Dairy Company, the largest milk distributing company in Buffalo, has two large country milk plants, one at Lime Lake and one at Lawton, N. Y., and three smaller plants. The milk is assembled at the two larger plants, put in bottles and shipped in refrigerator cars to Buffalo and distributed to the trade. In discussing the advantages of this system of handling milk, the late Smith Shedrick, at that time president of the Queen City Dairy Company, said: "Our aim in establishing these bottling plants in the country was to close the big gap between the cow and the consumer. Acting upon the idea that many of the farmers further out in the country could produce sanitary milk if an improved system of caring for it after it left their farms could be provided, we erected these two model plants where the milk could be delivered, inspected and bottled. After visiting many certified farms and studying the methods practiced in producing and handling this ideal milk, we modified and readjusted certain sanitary regulations so that we could do many things at our plants which we could not reasonably demand of the producers, and which they could not be depended upon to perform. This system has proved successful because it enables us to handle the milk from many farms as a unit, and supply our customers in Buffalo with a grade of milk corresponding very closely in character to the more expensive certified milk."

When the Queen City Dairy Company erected these plants, many dairymen nearer Buffalo were so dissatisfied

with dairy laws and regulations that they were selling their cows and going out of business. To bring order out of chaos and engender a more friendly feeling among the patrons the company offered special inducements to those who would clean up and put their premises in condition to produce better milk. A premium is paid for milk showing a low bacterial count and for putting up ice.

Each plant is equipped with a laboratory where the milk is tested for bacteria, sediment and butter-fat. If there is trouble at the plant with a patron's milk it is quickly discovered and eliminated. By keeping these records each patron knows how his milk is averaging and that neglect on his part will be reflected in the laboratory. It has been found that many farms which score the lowest are on top so far as bacteria and sediment are concerned.

It shows that many men are so careful in their methods that they can produce milk amid unfavorable surroundings that is cleaner than the careless man can under any circumstances. The man is more important than the barns and equipment.

Every morning when the dairyman comes to the plant with his load of milk he drives up to the door where his cans are discharged, his milk is weighed, and he is given a receipt for the milk delivered in good condition; he then drives to the end of the platform for his clean cans. The cans are rinsed in warm water, scalded and washed with hot water and brushes, and sterilized. They are then placed with the bottom end up in a convenient place for the dairyman to load them onto his wagon.

The milk passes from the weighing tank, by gravity, to a huge storage tank where it is heated to about eighty degrees. It then passes through a clarifier, which removes the dust, slime, and foreign matter, and from there into the pasteurizing coils and is heated to about 140 degrees F. and then into the holder and is held at that temperature thirty minutes. It then passes into cooling tubes and is cooled to

thirty-eight degrees F., and then through sanitary pipes to the storage tank above the bottling machine. When the tank is about half full the bottling machine is started. On the route through the plant the milk does not come into contact with outside air or human hands in any way.

When the cases of bottles are unloaded from the car they are assorted and wheeled into the washing room on trucks. The washing room is equipped with the Foreman system which consists of four tanks; in the first containing a strong solution of alkali, they rinse and temper the bottles so that they will not break when submerged in the next, or sterilizing tank. Both bottles and cases are submerged in the four tanks and it is absolutely impossible for them to come through the machine in any but a sanitary condition. After the bottles are cleaned they are put into cases bottom end up and wheeled into the bottling room. In this way they are not exposed to floating germ life, and the hands of employees can not come in contact with the inside of the bottles. Immediately after the bottles are filled they are sealed and put into cases and packed in sealed refrigerator cars. These cars are hauled to the city by passenger service, and are met at the depot by the company's wagons, unloaded, and delivered to the trade. On the entire route from the farmer's can to the consumer's home the milk is untouched by air or human hand.

The plants are equipped for making cheese, butter, cream and cottage cheese. This enables the company to take care of its surplus and insures the city trade with good service at all times of the year. The capacity of the plants is two carloads each day. This gives a minimum freight rate and is more profitable than shipping smaller quantities at the higher rate. This milk now retails to the Buffalo city trade at fourteen and thirteen cents a quart, for Grade A pasteurized milk, and Grade B pasteurized milk.

"Grade A pasteurized" is produced by herds that are healthy, "as disclos-

ed by an annual physical examination." This examination is made by a veterinary who does not make a tuberculin test but by external conditions determines that each cow is in good condition, healthy and free from ascertainable sickness or disease. The farms supplying milk destined to be "Grade A pasteurized" must score at least twenty-five per cent on equipment and forty-three per cent on methods. The milk and cream must not contain over two hundred thousand bacteria a cubic centimeter before pasteurization. After pasteurization the bacterial count for milk is thirty thousand a cubic centimeter and one hundred and fifty thousand for cream. Deliveries must be made within thirty-six hours, and caps or tags must be marked "Grade A pasteurized" in black type.

"Grade B pasteurized" milk and cream is produced by healthy cows, as determined by physical examination. The producing farm score must be twenty-five per cent for equipment and thirty-five per cent for methods. The bacterial limit prior to pasteurization is three hundred thousand bacteria per cubic centimeter, afterward one hundred thousand for milk and five hundred thousand for cream. The milk must be delivered within thirty-six hours and the cream within forty-eight hours after pasteurization. The caps or tags are marked "Grade B pasteurized" in bright green type.

When it is taken into consideration that a large portion of the milk consumed in Buffalo is "Grade B pasteurized," which retails at thirteen cents per quart, we see that the distributors are working on a lower margin than is the case in several other cities where conditions are almost identical, and all of this without cooperation or effort toward developing more efficient delivery service through consolidation of routes. Some of these facts, figures and explanations have been drawn out at greater length than would have been necessary had I not contemplated further discussion of the milk situation in other eastern cities. W. M. K.

AIRPLANES ON THE FARM.



Classes Farmer as Mainstay of Nation

JOHN H. KIRBY, president of the National Lumbermen's Association and a Texan, addressed the Illinois Manufacturers' Costs Association at its fourth annual dinner as follows:

"The American farmer is getting tired of having labor and capital get together, compose their differences and send the bill to him," the speaker declared. "I appeal to you as American citizens jealous of your liberty to take note of your surroundings.

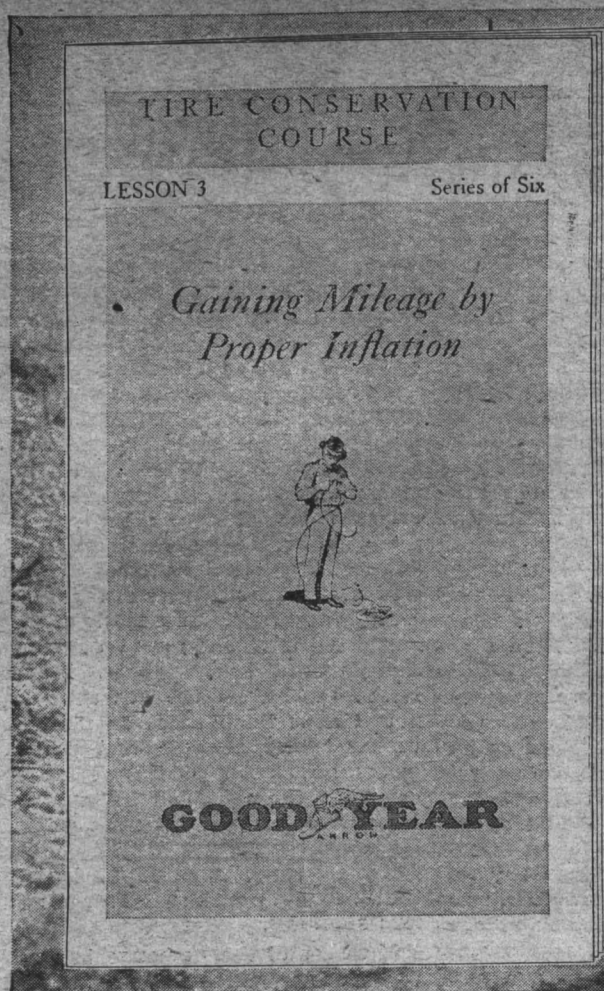
"If this country is destroyed it will be from within. If this government ever goes down and you lose your freedom it will not be by an armed force from without.

"I recommend you to the American farmer to counsel and protect you from even the shadow of conditions which imperil Russia. Will you act with him? You can trust him. He is not always informed, but you can inform him. There is peace and patriotism in the country home. There's no riot against law and no rebellion against constituted authority; no assembling in dark halls to plot to destroy the country. I commend you to the cooperation of the American farmer in this hour of national peril."

DEPARTMENT of Agriculture is finding a use for airplanes. This does not imply that the planes are hitched to a plow or harvesting machine and go back and forth in the furrow like a mule. Instead, they are used for regular scouting. Two years ago the pink boll worm was discovered in Mexico. This pest is more dangerous to cotton than the boll weevil, which also came to us from below the boundary river. Besides embargoing cotton and seed from Mexico, a dead line was established in southern Texas where no cotton was to be planted. Being told they must not plant cotton makes southern Texans more anxious to do so, and many fields were grown in out-of-the-way places, particularly in fields surrounded by heavy timber. Last season the airplane was used to locate such outlaws. The experiment worked so well that it is to be extensively used this year in an effort to keep these undesirables out of the United States.

PLANNING A "BEAN DAY."

Bean Day is a new newly proposed plan of the bean men of Oxnard, California, to call attention of the more general public to the necessity of eating more beans. It is suggested by the California Lima Bean Growers' Association of Oxnard. Plans are under way, but not completed at present.



Gaining 6,300 Miles by Proper Inflation

LONG before they had delivered the mileages everyone expects from Goodyears, two tires on a heavy eight-cylinder car blew out. The car-owner, Mr. Ralph Booth, took them to a Goodyear Service Station near his office, on West 27th Street, New York. The Service Station Dealer examined them, asked Mr. Booth to what pressures they had been inflated, and then proved that according to the inflation charts the tires should have carried at least fifteen pounds more air. Mr. Booth wasn't quite convinced, but he put on two new Goodyears and kept them properly inflated. These tires have already given 6,300 MORE miles than the under-inflated ones and look good for as many more. Ask your Goodyear Service Station, or write to Akron, for Lesson 3 of the Goodyear Conservation Course—telling how to gain mileage by proper inflation.

UNDERINFLATION shortens by thousands of miles the life of the best of tires.

Without proper air support the tire walls have to bend and flex sharply and constantly.

The extreme bending and flexing of side-walls without sufficient air-support generates excessive heat at the flexing points.

This heat acts on the rubber in and between the plies, making it lifeless and brittle.

The plies separate on the shoulder of the tire, and from chafing against each other soon lose their strength. Then the inner plies, which are most quickly affected, are fractured—the tube is pinched between the rough

edges of the break, and a blow-out follows.

♦ ♦ ♦

IN certain cases, however, where the damage is not too great and the weakened fabric carcass has not actually broken, Goodyear Service Station Dealers find that by applying a Goodyear Reliner the tire can be made to deliver a thousand and more additional miles.

But consistent attention to proper inflation would save many thousands—at no expense whatever.

Find out just what pressures your tires should carry by asking your Goodyear Service Station—or by sending to Akron—for Lesson 3 of the Goodyear Conservation Course. The Goodyear Tire & Rubber Co., Akron, O.

GOODYEAR  **AKRON**
TIRE SAVERS



A Tire With Fabric Fractures, Due to Under-Inflation.

Ask your Goodyear Service Station, or us, for Lesson 3 of the Goodyear Conservation Course—dealing with tire inflation.

Goodyear Reliner and Goodyear Patching Cement for Restoring Tires Weakened by Being Under-Inflated.



Solvay's Three Essential Plant Foods

With the introduction of U. S. Potash into the Solvay line, The Solvay Process Company now produces three elementary, essential plant foods.

Pulverized Limestone

well-known, and long established, for the neutralizing of acids in soil. Quick acting—high in lime carbonates.

So great has been the demand for this one product that our orders have shown over a 100% increase since last year.

Arcadian Sulphate of Ammonia

20.75% nitrogen. A vegetable and crop nourishment, and a stimulant to plant growth, manufactured by The Semet-Solvay Company.

"U-S" Potash

Made in America. Manufactured and distributed by the Solvay Process Co., and not through the usual middleman channels. A better potash than has been produced before—50.54% potash.

Orders for Sulphate and Potash Filled Promptly

THE SOLVAY PROCESS CO.

2091 Jefferson Avenue

Detroit, Michigan



SOLVAY'S Three Essential Plant Foods



The Hartford Idea

THE Hartford Fruit Growers' Exchange is flourishing," said one of the members recently in answer to my question as to how the exchange was progressing. "Why," he continued, "I think I would be tempted to pull out every tree if I had to go back to the old way of marketing my own fruit or depending upon some unknown agency. With the help problem as it has been, a farmer is kept busy enough with producing and harvesting his fruit without having to bother with marketing it."

A certain class of people has always maintained that farmers could not cooperate successfully. In fact they have made capital of the threadbare statement that "the farmer is too suspicious of his neighbor to cooperate successfully." They have pointed out as evidence the many newly formed cooperative ventures that have gone aground for one reason or another, and have drawn the conclusion that all cooperation of this sort was found to fail. They have overlooked the many successes in cooperative creameries, cooperative elevators, live stock associations, fruit associations, potato associations, and so on. The fact is if farmers are guided by the same principles and are governed by the same natural laws, there is no reason why they cannot as successfully cooperate as any other class of people. The Hartford Fruit Exchange, like many other ventures in this state, stands out as proof of this statement.

This association was organized in 1914 by a number of progressive farmers and fruit growers who were not satisfied with the then prevalent conditions of marketing their fruit. Articles of association were drawn up, one share of capital stock—valuation \$100—was issued to each member. The exchange was fortunate in having several members with a knowledge of law who assisted greatly in framing the constitution and in working up the necessary by-laws.

The money from the capital stock furnished the necessary funds for starting the venture. A building was bought and equipped for a packing shed and warehouse. A manager was hired to superintend the packing, sales and collection. The plan was purely cooperative; a charge of five per cent on fruit handled being charged against the member for handling his fruit. He was also required to pay for his baskets, covers, etc. The charge of five per cent was figured closely so as to just about cover the cost of the overhead expense. The fruit of non-members was handled for ten per cent. Any profit on such fruit handled or on fruit bought and sold by the exchange went into the treasury as undivided surplus. This money was used from year to year for adding onto the warehouse, buying new sorters, and other equipment as it was needed.

The first year was more or less uphill business as the name of the exchange had to be established in the market world and the young infant taught how to walk at the same time. The crisis of the first year safely passed, the exchange flourished. In 1916, which was a good peach year in this section, the exchange handled about one hundred and thirty cars of peaches. Probably one-fourth of this amount in small and ripe stock was trucked to canning factories or other local markets. In 1917 about seventy-five cars of peaches were handled and about twenty cars of apples. In 1918, which was a good apple year, the exchange handled about forty cars of apples.

The success of the exchange has

steadily increased, due to the management and policy adopted. The exchange has catered to a high class market, taking great care that every basket bearing the name of the association is a basket of which to be justly proud. As a result of this policy the fruit handled by the exchange always tops the market. By ring packing the peaches, for example, the manager found on visiting one of the big city markets, that Exchange Albertas were bringing one dollar per bushel more than Albertas of the same quality not so carefully packed by a nearby association. A market is thus always ready for Hartford fruit. This motto of "Satisfaction First" has meant dollars to the Hartford fruit growers. It has meant that while the exchange has now almost three times as much investment in warehouse and packing equipment, it has paid back in dividends to the members amounts in some cases several times the original capital stock furnished. These dividends are apportioned on the basis of the amount of stuff handled for the various members.

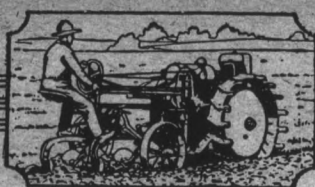
Members of the exchange buy such things as spray material, cement, flour, cattle feeds, lime and fertilizer through the exchange at wholesale prices. The financial gain represented by the saving on these necessities, the extra prices received for fruit, and the dividends received, represents a large amount of economic satisfaction and insures the permanent support of the members.

The question might very naturally arise in the mind of an outsider, "Why has this association succeeded almost phenomenally while others have failed?" The answer is to be found in the management and policy as above mentioned. The exchange has been fortunate in securing the services of a competent manager. It may surprise some readers to know that the manager of this going exchange is a woman. Miss Myrtle Conway, who had had a considerable business training in owning and operating several stores, has been able to gain the support and confidence not only of the growers but of the best buyers as well, and has successfully steered the association through the troubled waters of its experimental stage, out into the calm sea of success. The lesson that might well be learned from this organization is the recipe for successful cooperation. This might be stated as follows: First, a carefully planned, well organized association with a definite mission; second, a manager of ability who has the undivided support and confidence of all members; third, a policy at the outset which will guarantee a market for the products of the association and the confidence of all people with whom the association must deal. C. A. S.

TRACTOR DEMONSTRATIONS.

THE tractor demonstration at Ann Arbor, May 9, is the second of a series of demonstrations which will be held in the state during the next two months. The direction of the field management is being handled by the farm mechanics department at M. A. C. About a dozen makes of tractors will be used in the demonstrations, which are expected to show the practicability of gasoline power on Michigan farms.

What would you think of a man who refused to join the local cow-testing association because it would make it impossible for him to sell his poor cows to his neighbors?



Every Moline-Universal Tractor Must Give Satisfactory Service

When you buy a Moline-Universal Tractor the transaction does not end there. In addition you buy Moline Service—which is service that satisfies. This means that with intelligent operation you will be able to keep your tractor working to full capacity during its entire life.

Moline Service means exactly what it says—and we have perfected an organization which enables us to furnish Moline Service that satisfies. We can do this because:

1. Twenty-three Moline factory branches in all parts of the United States carry stocks of repairs and complete machines—in charge of an expert service department.
2. Factory branch territories are sub-divided into service territories each in charge of a resident Moline Service Supervisor—whose sole duty is to see that Moline Service is properly and promptly furnished in his territory.
3. Every Moline Tractor Dealer is required to carry Moline-Universal Tractor repairs in stock and have a competent service department to provide prompt and efficient service.
4. Tractor schools of short duration in charge of expert instructors are being held in co-operation with Moline Tractor Dealers, to instruct farmers in the care and operation of Moline-Universal Tractors. These schools will continue to be held as long as there is a demand for them.
5. With every Moline-Universal Tractor we furnish a complete instruction book, giving full information on care and operation of the tractor.
6. Moline-Universal Tractors are simple in construction, have the best materials and workmanship money can buy, and all working parts are quickly accessible.

Therefore we are prepared to back Moline Service to the limit and you are sure of getting constant and satisfactory work from your Moline-Universal Tractor.

If any Moline-Universal Tractor is not giving its owner satisfactory service we want to know about it *immediately*.

The Moline Plow Company leads the Tractor industry—first, in developing and perfecting the original two-wheel, one-man tractor which does *all farm work including cultivating*, and again in announcing a service plan which makes a “booster” of every Moline Tractor owner.

Join the throng of “Moline Boosters.” You will be able to do twice the farm work at half the expense. See your Moline Dealer now or write us for full information.

Moline Plow Company, Moline, Illinois

Factory Branches At:

Atlanta
New Orleans
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Columbus, Ohio
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Service That Satisfies



Why Ajax Tires Are Farmers' Choice

There's one big outstanding reason—greater mileage.

The man who farms is much more vitally concerned with tire service than his in-town brother. He requires topmost tire strength, for the roads his car must travel are not always sleek and smooth.

And so, sooner or later, he chooses Ajax Tires—the only tires possessing Shoulders of Strength.

Ajax Road King

Ajax Shoulders of Strength are buttresses of rubber that brace both sides of the tread. Note the picture of the Ajax Road King. See how that burly tread is buttressed. It has more rubber where it should be—more tread on the road. Shoulders of Strength are chiefly responsible for the surprising mileage records established by the Ajax Road King.

Your nearest Ajax dealer carries a complete supply of Ajax Road King tires—also Ajax Inner Tubes, and Ajax H. Q. Tire Accessories.

Ajax Tires Are Guaranteed In Writing 5000 Miles

AJAX RUBBER COMPANY, Inc.

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Factories: Trenton, N. J.

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AJAX TIRES



Troubles of a Strawberry Grower

By M. N. Edgerton

IF but half of the merits claimed for the new varieties that are introduced from season to season were unreservedly true, what a wealth of strawberry excellence we fellows at the commercial end of the line would have to select from; but, alas, out of the very great number of varieties that have been introduced with such positive assurance of superior excellence, how few, indeed, are the number that stood the practical test of the commercial market. Glowing descriptions are all right from the viewpoint of the plant grower, no doubt, but this fact is of no material assistance or satisfaction to us other fellows.

Oh, no, it is not that I would cast any reflection upon personal veracity; not at all. It is a mere matter of word juggling by the strawberry plant enthusiast that has led to hope, time and again, that a real marvelous creation had been secured.

Now, it is a pretty safe hunch that it is to the good of our pocket to let the other fellow do the experimenting with these high-priced, new creations; still, it is sure heaps of fun to try out these new sorts for one's self. There is a certain sort of pleasure, not to be secured elsewhere, in watching the growth and behavior of new sorts; for there is always greater or less variation in the color and form of foliage and fruit, and in the characteristics and habits of varieties. Then, too, one might secure something that was really worth while, and thus be enabled to put a good one over on the other fellow, don't you see. Yes, if it were not for my financial good, there is that something in the game that would lead to the trying out of every new variety as it came out.

For upwards of thirty years the Warfield has been our standby. Through every stress of adversity it has made good. For thirty years I have been searching, in hope of securing a variety that would make a worthy working mate; but I have continued to seek in vain. The object of our search appears to be as far remote as at first. At first the old Wilson, the pioneer of strawberries, was used as a pollenizer; and, by the way, I have as yet to test anything better adapted to the purpose; if I could get hold of any of the old stock, I believe I would use this variety again. I let the old Wilson go to try Wilson Improved (?) For a season or two this variety did promise well, but soon fell down on the job.

When the Dunlop was produced, hopes again ascended, only to be shattered once again. Still, I have retained this variety, partly because there was nothing better in sight, and, partly, in hopes that it might yet make good. During this period I have tested several strains of the Dunlop, in hopes that I might be able to get the results that were reported from other sections concerning its behavior; but nothing doing. In the meantime I have been testing several varieties that seemed to promise something, but with no good results. I distinctly recall our experience with two varieties, the Pride of Michigan, and the Tennessee Prolific. These varieties were highly lauded at one time by certain plant growers; but now they are not even listed. I lost money with both, by set-

ting heavily before giving them a thorough test in a small way.

In our experience with the Dunlop, there is something I don't understand. Though it has proven very unsatisfactory indeed, with us, it is still used quite largely in some sections, and listed by some plant growers well recommended. It would appear that there must be a great deal in the factor of adaptability of varieties to local soil, and other environmental conditions; much more than one might suppose possible. With us the Dunlop shows up well at the beginning of the season. Though deficient in foliage, the plant makes an abundance of bloom. Then, too, the first fruit to ripen is of good size; though the form and color is not equal to that of the Warfield. But, after making a fairly creditable beginning, directly, the plant falls down on its job. Moreover, the fruit is inclined to softness, and quickly goes down in the package. Our dealers look askance when I deliver a crate of this variety; and I have been put to the task of continually apologizing because of its inferior quality; so this variety, too, along with the many others, must be discarded as being unworthy the position of working mate to our old friend, the Warfield.

One evening, recently, my son and I were looking at some of the beautiful new creations pictured in this season's catalogs; and, reading the glowing descriptions extolling their superior merits, strawberry fever sure took a fresh hold. But, rising enthusiasm was doused considerably, by the remark, "Better stick to the old Warfield, Dad."

Stick to the Warfield? Well, I should remark. I have never entertained the slightest thought of letting this variety go. Still, as the season's catalogs come I can not but look with longing upon the beautiful pictures, and read the glowing descriptions with kindling hopes. This is an essential part of the life of the strawberry enthusiast, I suppose. Anyhow, the pastime affords a certain sort of anticipated pleasure, and with no following ill; providing, of course, one does not permit enthusiasm to get the better of reason, and judgment and knowledge acquired through experience.

Now, I am aware that the experience of many growers does not lead them to extoll the merits of the Warfield so unreservedly as does that of the writer. The Warfield, no doubt, has its faults along with its points of merit. Under less auspicious culture and environments, its weak points would no doubt stand out more prominently than with us. Be this as it may, I am positive that if I had a staminate variety of equal merit for a working mate, one strawberry grower would indeed be made joyous.

The successful farm is that one which is so organized that the land, labor, and equipment can be utilized in the most profitable manner in the production of those crops and live stock products demanded by the market. With the rapid growth of agriculture in the United States many farms have been developed without sufficient reference to the demands of the market and the best methods of handling the crops, their utilization, and the most economical methods of marketing.

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You get bigger and better crops with less expenditure of time, labor, and money, for Planet Jr. tools enable you to cultivate easier, quicker, and more thoroughly. They are time-tested tools, so careful, accurate, and substantial in construction that they last a lifetime. Fully guaranteed.

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No. 90

No. 25 Planet Jr. Combined Hill and Drill Seeder, Double and Single Wheel-Hoe, Cultivator and Plow sows all garden seeds from smallest up to peas and beans, in hills or in drills, rolls down and marks next row at one passage, and enables you to cultivate up to two acres a day all through the season. Straddles crops till 20 in. high, then works between them.

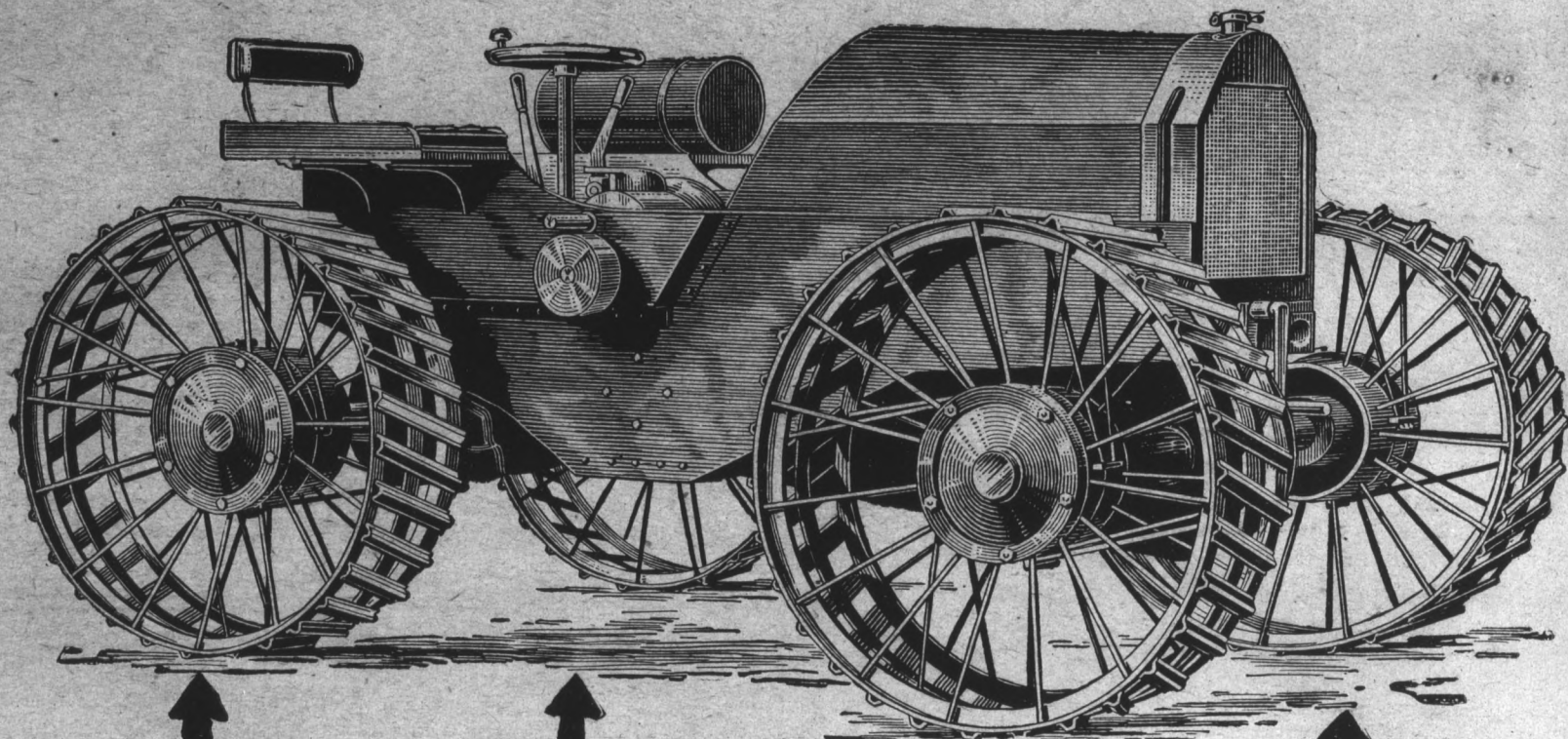
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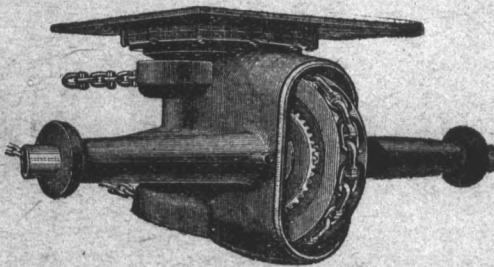
3-Plow, 15 Drawbar H. P., 24 Belt H. P.

5-Plow, 20 Drawbar H. P., 28 Belt H. P.

8-Plow, 35 Drawbar H. P., 50 Belt H. P.

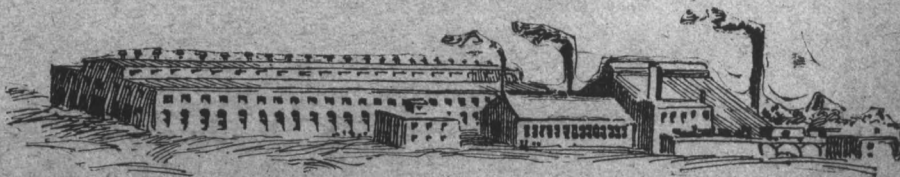
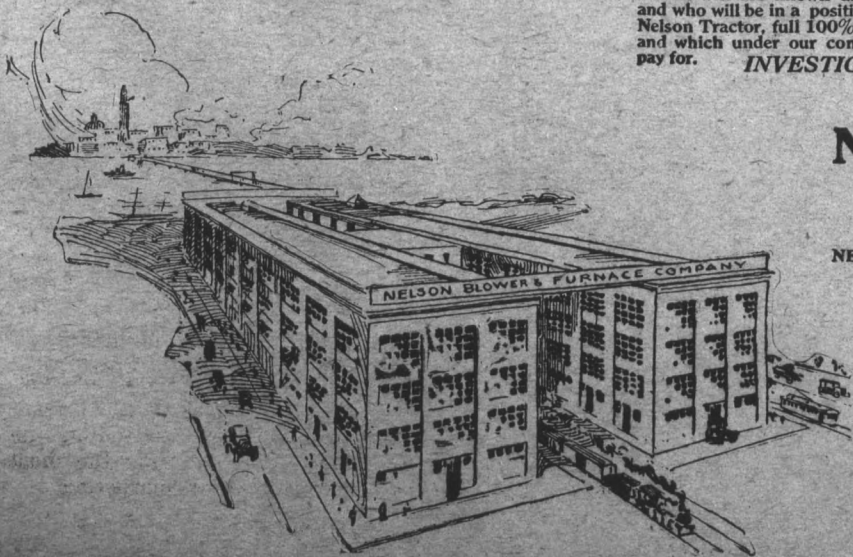
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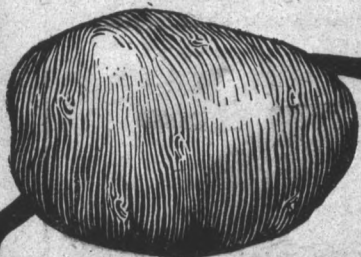
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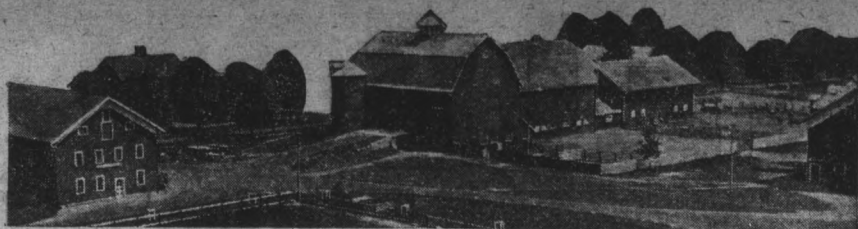
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Asparagus as a Cash Crop

By C. A. Spaulding

A CASH crop is always a popular patch and raked it clean. I then applied about forty loads of manure and it produces enough cash. A crop of this nature is doubly popular if it can be realized on in the spring or early summer when the bow of farm funds is outward and the farm exchequer is likely to be very lean. Following the line of least resistance it is usually the crop easy to raise to which the ordinary farmer turns. But it is the crop not so easy to get started, perhaps, and not so ordinary that will usually give the best return if a success can be made with it. Because it is not so widely grown and because it is not so easily raised, asparagus is proving a good cash crop to certain Michigan farmers today.

Now I suppose if all of the men who are looking for spring cash crops would turn to asparagus, the market might be over-supplied and thus the very end might be defeated. It is partly because of the fact that so few men are raising asparagus today that it is a good cash crop. For, as one successful farmer expressed it, "If you want to make a success in farming, you must stand still when nearly everybody else is running and when nearly everyone is standing still, you run."

It is because of this fact that I believe a few more farmers could profit by making use of asparagus as a sideline, that I shall attempt to tell of the experience of one farmer with this crop. The farmer has made what I consider to be a distinct success with asparagus. I shall tell his experience in as nearly his own words as possible.

"In 1910, after having heard considerable of the success that one of the farmers in this county was having with asparagus, I drove over to his farm and talked the matter over with him. As a result of this visit, I arranged to purchase enough roots from him to start one and one-third acres on my own farm. To begin with, I must say that while the soil was a good gravelly loam, it did not lay as level as it should have for the best results to be obtained. I worked the piece as free of weeds as possible and the following spring I plowed dead furrows double depth, five feet apart, in which to drop the roots. These were purchased as I have said, from a successful asparagus grower and cost me \$7.00. I set them two and a half feet apart in the row, dropping enough dirt so that they would not dry out. I did not, as ordinarily recommended, manure this piece first. I think it would have been better, perhaps, had I done so but I did not have the manure to spare. As soon as the roots started to grow I went into the field with a double cultivator and threw on dirt enough to just cover the young shoot up about half way. This I continued to do all summer at intervals of about two weeks until by fall I had my patch well levelled off. The following spring I applied about forty loads of manure to the patch and plowed it in medium depth as I would plow for any crop. During this or the second year I did not cut any of the crop for market, but continued to cultivate it in order to keep it clear and to retain the moisture. It was not until the third year that I started to receive any income from the piece. That year I sold about \$70 worth of asparagus.

"The next spring, early, I mowed the

patch and raked it clean. I then applied about forty loads of manure and plowed it as before. This has continued to be my practice with the patch. I have varied it slightly as when last year I was unable to plow it early enough and I disked it thoroughly instead. Two or three times I have burned the patch over instead of mowing it. This freed it from the dead tops and left any fertilizing element in the ashes on the patch. I have always been careful to stop cutting from about the twenty-fifth to the thirtieth of June in order not to weaken the crowns, for it is necessary for strong, healthy growth above ground if the crowns are to increase in strength.

"My income from the crop has steadily increased from the third year when, as I said, I sold about \$70 worth of asparagus. My cost for cutting was only \$25 and since my family packed all the product, the only other expense was the crates which cost me about \$12. This last year, which was the seventh year, I took off 333 crates. These brought me \$516.07, the crates cost me \$15, and my expense for cutting was \$61.25, leaving me a net profit of about \$440.00.

"I believe I could do even better than this if I could give it more attention but I can not spare the time from my orchards and other work to work the bed as much as I should. Of one thing I am sure, however. It is impossible to raise the finest quality of asparagus without large quantities of manure. I have watched the other shippers when I have been marketing my crop and I have always had more of the "fancy" grade than they. For instance, this last year over fifty per cent of my sales went as "fancy." It is this grade that makes the profit. Fewer stalks fill a crate and it costs a little less to pick it and pack it. It can only be produced, however, by applying large quantities of well-rotted manure. I would not advise anyone to begin asparagus culture unless they were sure they could have at least thirty-five or forty loads of manure per acre each year.

"I have kept a strict account of my sales and of my costs for cutting and marketing but I have never figured up the cost of producing the crop. But I should estimate the average yearly cost for manure, labor in plowing and cultivating, plus the interest on the investment would total about \$65. I have received in the last seven years a gross total of about \$2,000. This would leave me a net income of about \$120 per acre per year. This last amount is a good figure but to me the significant thing is that the net income is increasing all the time and my patch, of course, is getting more valuable each year.

"I do not claim that my methods and practices have been the ideal way to produce asparagus but I do know I have been fairly successful and when anyone says cash crop to me it calls to mind just one thing—asparagus."

Watch the feed mangers. If the cows are straining to get more, give them another handful; if they do not lick the mangers clean but act mincey, cut down the rations a little.

Treat the cow as you would a lady, and she will do her very best for you.

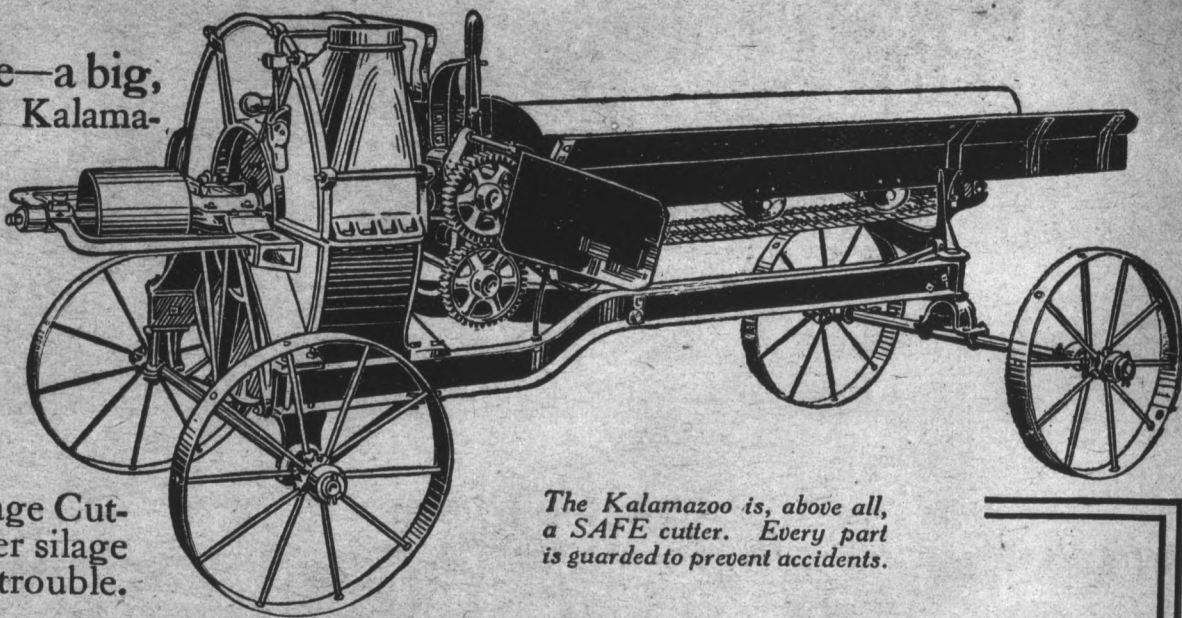
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- 8—Reversible shear bar gives four cutting edges.
- 9—Hard oil cups provide ample lubrication for every part.
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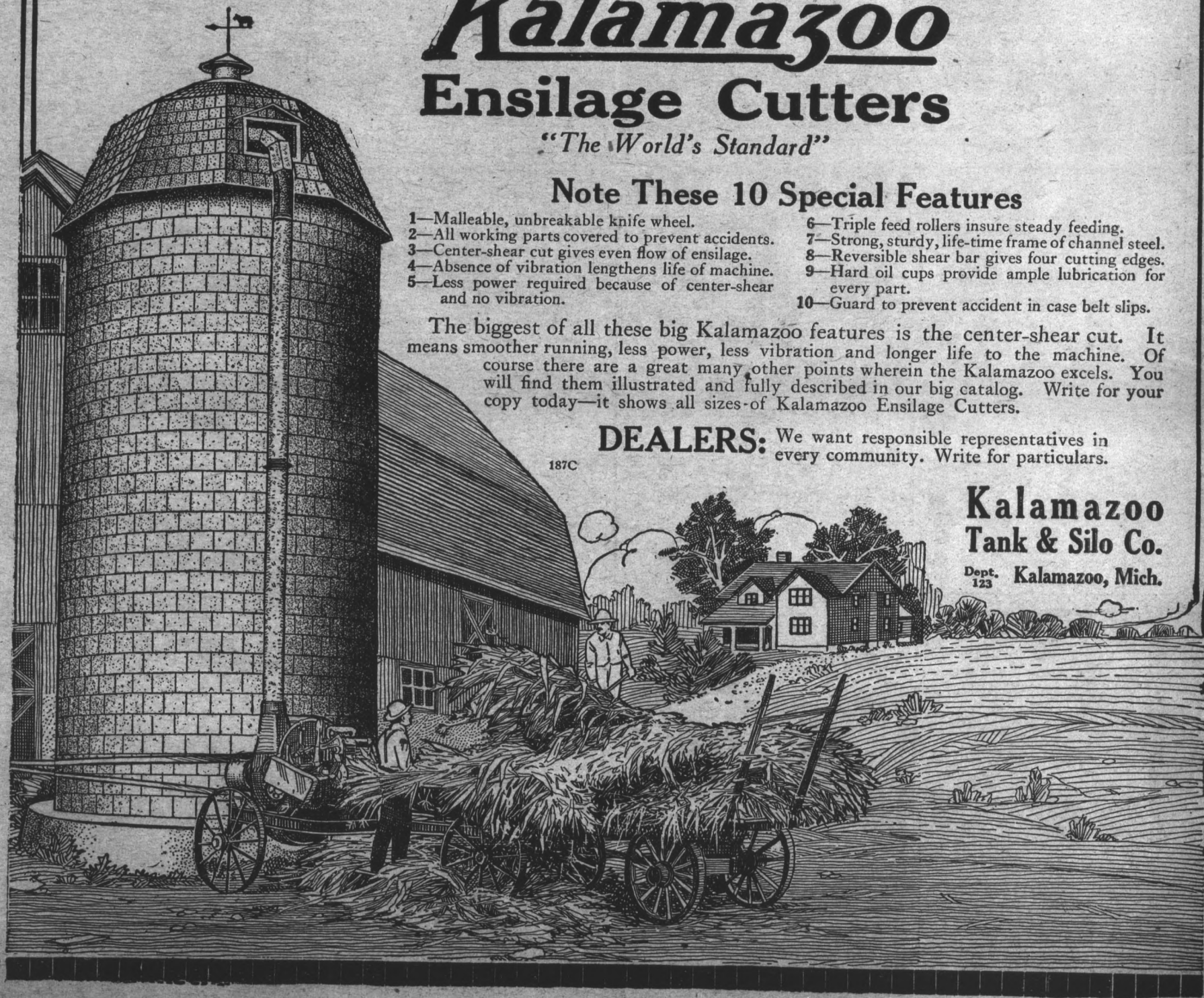
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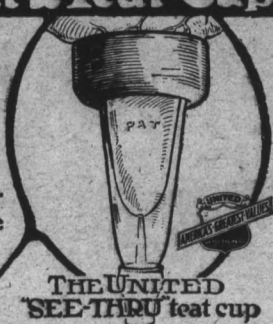
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Just like the expert hand milker—the United Relief Valve varies the vacuum for hard and easy milkers.

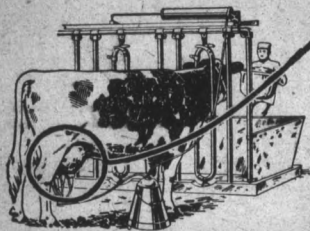
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Our Service Department

EXPLOSIVES CAN NOW BE PUR- CHASED AS BEFORE THE WAR.

Please give me whatever information you can regarding the present regulations in connection with the purchase of dynamite for farm work.

Crawford Co. H. G.

Because no longer required for the public safety the Director of the Bureau of Mines, in charge of explosives regulation, has made the following changes in the general information and rulings under the Act of October 6, 1917, (40 Stat. 385), and as amended by the Sundry Civil Act of July 1, 1918.

1. All regulations relating to the purchase, possession, and use of explosives for reclaiming of land, stump blasting, ditching, and other agricultural purposes are revoked and no further license will be required.

2. These revocations do not allow enemy aliens or subjects of a country allied with an enemy of the United States to manufacture, purchase, or sell, use or possess explosives at any time.

3. Provided that nothing in the above shall release any person who-so-ever from complying with the law in the matter of safeguarding and storing of explosives.

The railroads have been advised of this ruling, and county clerks have been advised to discontinue the issuance of licenses.—D.

ditch to such depth and width as to render it impassable for teams and vehicles going in or out of defendant's fields, they would incur no liability to defendant. It would be the performance of a public duty, and the exercise of lawful authority, from which, if defendant suffered injury, it would be damage without liability. There is no liability for doing an act which is either directed or authorized by a valid statute, if performed with reasonable care and skill. There is no law which requires the township authorities, in making or repairing roads, to construct proper or convenient passageways, to enable an adjoining land-owner to reach the traveled part of the highway. If in filling up the low places or in cutting down the hills to improve the public roads an adjoining land owner is inconvenienced, or his land made more difficult of access, it is an inconvenience or loss which he sustains for the public benefit. He has a right of access to the public street, and if necessary for him to reach the traveled part, he has the right to bridge a ditch or construct a grade for that purpose; but in doing so he has no right to obstruct such ditch or highway, his rights as a private land-owner being subordinate to the public right of constructing and keeping the highways in repair."

JOHN R. ROOD.

LIVE STOCK QUERIES.

Kindly advise as to the following: At what age, or how long after birth, should buck lambs be allowed to run with the flock? At what age should ewe lambs be bred? Will the moderate feeding of apples tend to cause a milch cow to fail in the supply of milk? About how long after spraying fruit trees can the grass in the orchard be safely used for pasturing stock?

Oakland Co. J. L. M.

Buck lambs may safely be allowed to run with ewes at from sixteen to eighteen months of age.

Ewe lambs may safely be mated when they are from eighteen to twenty months of age.

Apples are not a good milk-producing feed, although a peck a day will cause no decrease in milk flow. Too sour apples should not be fed to the dairy cows.

As a general proposition there is no danger in pasturing stock in a sprayed orchard after a good rain has washed off the trees and grass. W. M. K.

BRIDGING DRAINS TO MAKE PRI- VATE PROPERTY ACCESSI- BLE FROM HIGHWAY.

There is a county drain runs along the road in front of my place, and the bridge from the road to my land has become quite unsafe; and as it is necessary to curb the side of the ditch in order to keep the road from caving in, which is quite an expense, I desire to know whether it is not the duty of the county or township to keep the bridge in repair?

As there is no provision in the statutes for maintenance of bridges over ditches by the town or county, other than where the highway crosses them, there is no duty by the town or county to maintain any such bridges, or to build them in the first place. A quotation from a leading case in this state may be of interest in this connection. The supreme court said: "If in carrying out this object it became either necessary or expedient to dig the ditch in front of the defendant's premises and past his gateway, the commissioner, or overseer acting under his direction, had a right to do it, and if in the execution of this power, which was entirely in their discretion, they dug the

TIME TO CUT OATS AND PEAS FOR HAY.

I would like to know if there would not be more food value in it if we waited to cut oats and peas until just about when the oat started to color? I am putting in eight acres for the first time, and expect to ensilo same, and perhaps would have to run water into it to pack it, but the oats and peas would be more developed and I should think would have more food value. Why is it better for silo to cut at an earlier date?

Kent Co.

R. V. O.

If you leave this crop until the peas are developed and until the oat berry is developed, you make a mistake if you want to get first-class hay. Left until the stage you speak of, they should be left a few days longer and harvested and threshed for grain.

If you will leave any hay crop—clover, alfalfa, timothy, until it gets too mature, the plant becomes dry and woody and does not make good palatable hay. Of course, all plants can be cut too green. If they are cut too green they do not contain the maximum amount of food nutrients. Clover should be cut when in blossom and with a large crop one ought to begin cutting it when the first blossoms appear or the crop will be too woody to make good hay before you get through. Timothy should be cut when in full bloom. You don't want to wait until the seeds begin to mature; if you do the crop will be woody. Now you can make the same mistake with peas and oats. If you cut the crop when the oats are in the milk before the berry is formed, at that stage it contains all the food nutrients it ever will contain and, besides, a larger per cent of the plant is digestible and it is much more palatable. The same way with the peas. If you wait until the peas are well formed in the pods there will be enough sap in the stalk so that some of these peas will be developed hard and they will not make as digestible and palatable hay as when cut after the pods are nicely formed.

C. C. L.

Do not let ewes and lambs run on old pastures so full of parasites which will prove destructive to young lambs.

DON'T CUT OUT A Shoe Boil, Capped Hock or Bursitis

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THE E. W. ROSS CO.
114 Warder St.
Springfield, Ohio



FERTILIZER FOR CORN AND BEANS.

Would like a little information in regard to fertilizer on corn and beans. How much to the acre, what kind of proportion? I have been told it would make the corn roots bunch up, and when dry weather came they would die. I have a planter with fertilizer sower on.

R. A. S.

The question of how much fertilizer to use per acre for corn and beans depends so much upon your soil conditions that one cannot advise only in a general way. As a general rule, a complete fertilizer, that is, one made up of approximately four per cent nitrogen, eight per cent phosphoric acid and six per cent potash, should produce satisfactory results on soil containing a fair amount of natural fertility. If stable manure is used a fertilizer containing two per cent of nitrogen should produce equally as satisfactory returns. As a general farm crop proposition one can seldom afford to use more than 400 or 500 pounds of fertilizer per acre for corn, either with, or without, farm manures or green cover crops plowed under.

The same advice about using a complete fertilizer applies with equal force to the bean crop, but experienced growers recommend the use of about 300 pounds per acre as the maximum on naturally fertile land. Because beans are a legume crop many farmers believe that a cheap mineral fertilizer is sufficient, but this is not so, for beans respond to a small application of nitrogen as profitably as grain or vegetable crops.

There is no danger of fertilizer causing corn roots to bunch up and die when dry weather comes, if you mix them thoroughly in the soil before planting the corn crop. One of the first principles of using fertilizer success-

fully is to get it down into the soil so that the growth of plant roots will be kept down in the soil where they belong. The farmer who puts his fertilizer on top of the soil and encourages his crops to develop a growth of surface roots is sure to have his crops seriously injured as soon as dry weather comes and dries up this growth of roots close to the surface. Plant roots always grow in the direction of their food supply, hence the importance of getting fertilizers down into the soil deep enough so that the plants can obtain food during periods of drouth.

W. M. K.

A BINDING SURVEY.

Many years ago a survey was made of my farm, and trees blazed on the quarter line, and part of the line fence built. I have just built the remainder on the blazed line, and my neighbor says it is not on the line, because some of the timber is on my side of the line. As I see it there is no limit, as the timber grows a little further every year.

H. M.

A survey in and of itself is not binding on any persons who are not parties to the making of it, and agree to be bound thereby; but those claiming under one who was a party to the survey and agreeing to be bound by it are also bound by it. And ordinarily there is a presumption that the old survey was right; and the surveyor making a re-survey will act on that presumption, and should do so in the absence of something clearly showing that the survey was wrong. Possession up to a line, whether fence or survey, claiming that to be the true line, will ripen into title by adverse possession by the statute of limitations if held for the period of the statute. The timber line would not prove anything if it shifts.

JOHN R. ROOD.

Doctors of Sick Communities



HERE is an interesting group picture of some of the farmers and their wives of southwestern Michigan. They were attending the thirteenth annual rural life conference at the Western State Normal School at Kalamazoo recently. The sons and daughters of many of them have attended school there one or more terms and some have completed the course. This school has been a wonderful success since its start, and President D. B. Waldo and Dr. Ernest Burnham are largely to blame for it.

On the chairs in the two front rows are some of the most noted leaders in agricultural endeavor in Michigan. The senior member of the bunch is Mrs. O. J. C. Woodman, lecturer of Michigan State Grange, the third from the left end of the front row. Next sits Master J. C. Ketcham with his arms folded and legs crossed. He is contemplating as to what is the next best move to make on the state agricultural checker board in the interests of the farmers of Michigan.

The boys and girls in the clubs of the state will quickly recognize Miss Anna M. Cowles, their state leader. She presided at the conference session that afternoon. Next is Mrs. Dora H. Stockman, of Lansing, just elected to a position on the State Board of Agriculture, and State Grange Lecturer.

She gave an interesting talk on food production, using charts for illustrating the leading points presented.

Back of and between the faces of Miss Cowles and Mrs. Stockman, sits Dr. Ernest Burnham, head of the rural department of the Western State Normal. When he and the writer were kids living on farms near Climax and attending "destrick school" together, both learned quite a bunch of fundamental ideas, good and otherwise, and some have stuck closer than a brother ever since.

Next in the second row is Dr. D. B. Waldo, president of the Western State Normal. President Waldo is one of the state's most noted and successful educators. If we remember rightly, he attended M. A. C., and taught his first school in the old Harmonia school house, still standing in the center of Camp Custer.

Dr. Eben Mumford, of M. A. C., sits next to President Waldo. He gave an interesting talk on "Morale in Rural Progress." During the last few years Dr. Mumford has done a majority of the counties with county farm agents. The other speakers sitting "out in front," are C. J. Galpin, Madison, Wis.; M. S. Pittman, Oregon; W. J. Camp-Jordan, Massachusetts, and Mrs. Myra B. Jordan, Michigan University.

J. H. BROWN.

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HOGS VALUABLE PROPERTY,

FARMERS who are engaged more or less extensively in breeding and raising hogs for the market are unanimous in their firm faith in the future, and any disposition to lessen their corn acreage this year has disappeared, with rare exceptions, now that the shortage of hogs in corn districts has been demonstrated. With hogs selling at the highest average prices ever known and absolute certainty of enormous exports of lard and cured hog meats from this country for a long time ahead, it is going to be a question whether the foreign and home requirements are going to be met. It seems not unlikely, however, that the consumption of provisions will fall off in accordance with the reduction in the hog supply, with the advance in prices for bacon, hams, lard, etc., to new high levels, and similar advances in pork chops, pork roasts, spareribs, etc. The cost of living keeps going up, and there is a limit to the spending capacity of the family pocket book. Due to large marketings of hogs during the early part of the year, the aggregate receipts in the seven principal western packing centers for 1919 to late date aggregated 9,235,000 head, comparing with 8,867,000 for the corresponding period last year, but during recent weeks the receipts have fallen off materially, being much smaller than a year ago. The only unsatisfactory feature of the Chicago market is the small eastern shipping demand of late, this being due to the fact that eastern markets were relatively lower than the Chicago prices. On the other hand, far western markets have been unusually high, being higher than Chicago prices, this applying to Kansas City, St. Louis and St. Joseph. Recent Chicago receipts have averaged in weight 232 pounds, and hogs have averaged high in quality, with the bulk of the sales near top figures and sales largely within a range of twenty-five cents. The heavy butchers are the highest sellers, with light butchers selling from five to ten cents per one hundred pounds below them, rough heavy packers going at a big discount. Pigs are few on the market and bring good prices.—W. F.

TALKS WITH STOCKMEN.

"WE find," says F. S. Renick, of St. Clair county, southeastern Missouri, "that we farmers can carry along with our other farm stock and farming work, a flock of breeding ewes and greatly increase our income, this requiring but little extra labor or expense. For nine years past I have carried and raised a few sheep, my flock of breeding ewes never falling below seventy head. Last year with sixty-seven ewes lambing in the month of March, I raised seventy-six lambs which brought \$11.15 in July."

A successful farmer stockman of southeastern Iowa who is devoted to hog production, says hogs are more than mortgage lifters, while he does not raise cattle, because swine make him much more money. He markets from one hundred and fifty to two hundred hogs a year, all fed on home-grown feed. His shoats are farrowed in March and April and fed to 225 to 300 pounds. He feeds his pigs lightly until they are ready to go on grass, and he owns a fine timothy and clover pasture where they are placed. While in pasture they are fed no grain. He finds it more profitable to carry the hogs along and to full feed them shortly before shipping them to market. When the hogs go into feed lots they have plenty of growth, but little fat. This system, he claims, pays better than pushing the pigs as a rule, as it costs less to make them. With feed so high, farmers must study to make the cost of production as low as possible.

W. W. F.



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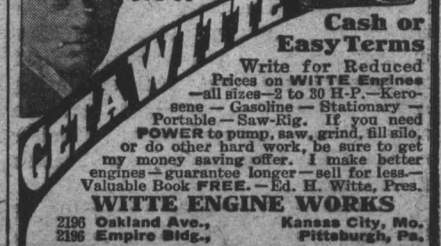
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Controlling Root Maggots

By Don B. Whalen

ONE need not divide his onion crop with the maggots. They are not necessary on the farm and with right methods can be prevented from doing much of the damage that is laid up to them.

There are three common and destructive maggots found in our gardens and preying on our field crops. They are the cabbage maggot, the bean or seed corn maggot and the imported onion maggot. The first two work in much the same manner, often working in the same crops, their work being indistinguishable from one another. The onion maggot works in the underground stem and bulb of the plant from which it gets its name. None of these



Cabbage Root Maggots at Work.

insects are native of this country, but came to us from Europe, probably in soil.

Inasmuch as all three of these pests pass through similar life-histories and, as their habits are almost identical, a description of the development of one of them will apply nicely to all three.

The cabbage maggot was first recorded in Europe during the first part of the nineteenth century and a few years later it appeared in this country, being found in Massachusetts. In Europe it has been found in the British Isles, Norway, Sweden, Finland, Holland, Germany, Switzerland and Austria. In America it has been doing much damage in Canada the northern tier of states in the United States, Pennsylvania, Ohio and the northern part of Illinois. A few cases have been reported from the more southern states, but for the most part it is a northern pest. The common root-maggot in the south is of another species. Prof. W. J. Schoene, formerly of the Geneva, New York, Experiment Station, in writing upon this insect states that no injurious outbreaks have been reported south of parallel forty in North America and parallel fifty in Europe. In North America parallel forty passes through Philadelphia, Columbus, Ohio, Springfield, Ill., and Denver, Col. also forming the boundary between Kansas and Nebraska.

Cabbage, cauliflower, radishes, turnips, and rutabagas are some of the vegetables most frequently attacked, although the maggots have been known to attack celery, beets, rape and beans. The wild mustard, white mustard and shepherd's purse also serve as breeding places. The larval or maggot stage is the only stage in the life history of this insect which is injurious to plants, the larva for the most part confining their work to the roots.

The adult of the cabbage maggot is a small two-winged fly almost one-eighth of an inch in length, dark of color with gray markings. It appears in the spring about the middle of May and after a few days begins laying its

eggs, thirty being about the average number laid. These are laid on the stems at the surface of the ground. The newly hatched larva are footless and dirty-white in color. They work their way under the surface of the ground, eating from the stem as they go. If it is a tender seedling on which they are feeding, they will consume nearly the entire root, making irregular channels and grooves. Decay often follows these attacks to which the plant would succumb if by chance it survived the attack of the maggots. After about three weeks the maggots transform into pupae, a transformation stage that lasts from two to three weeks, depending on the surrounding conditions. The second brood of flies appears from the middle of June to the last of July, while a third is present by the last of August. Winter is passed either as a pupa on the root or in the soil near the root, or as an adult in cracks, crevices or under the rubbish.

Many experiments have been tried for controlling this pest, by various stations, which have proved that most of our "home remedies" are not efficient, especially on a large scale. In the spring when the seedlings are just breaking through the soil a frame covered with cheesecloth should be placed over the seed-bed and made fly-proof. If constructed carefully enough, this will be nearly one hundred per cent efficient in keeping the adult flies from the tender plants, besides lessening the damage done by flea-beetles. Besides this a poison bait has been quite successful in destroying the adult flies when they come out to lay their eggs. The formula that has proven to be very successful and which is recommended in Michigan is as follows: In one gallon of hot water stir until dissolved, five grams of arsenite of soda and then add one-half pint of New Orleans molasses. Set shallow pans, about twenty to the acre, in the newly



Radish Attacked by Root Maggots.

planted field and into each pan pour some of this poisonous fluid. Over each pan then place a wire screen having openings of about one-eighth of an inch. This will admit the adult flies that seem to be very fond of this mixture and will not allow the bees to get at it. A slice of onion in each dish makes the bait more attractive for the onion maggots.

Tar paper disks have proven to be very effective in preventing the adult flies from laying their eggs. One should use some care in selecting the grade of tar paper. Some grades of tar paper will curl up when exposed to the hot rays of the sun. Experiments have shown that a single-ply tarred-felt roofing paper is very effective, not giving the above trouble. The disk should be

(Continued on page 698.)



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SPRAY THE TREES BUT SPARE THE BEES.

EVERY fruit grower should understand that it is not possible to grow first-class fruit without spraying the trees, but the importance of thoroughness and timeliness is not as generally recognized.

To control the insects, and especially to keep the fungous diseases in check, not only should the applications be thorough enough to cover every part of the trees, but they should be frequent enough to keep new leaves and fruits protected and provide for the renewal of the spray when it is washed off.

This means beginning spraying soon after growth starts and just before the color begins to show in the blossom buds. When the clusters of fruit buds begin to separate, thus making it possible to coat the little fruit and its stalk, is the proper time for the first regular application. One gallon of lime-sulphur solution and one pound of arsenate of lead, or arsenate of magnesium, in powder form, to forty gallons of water is a good spray for apples, but fifty gallons of water should be used for pears, cherries and plums. The spraying should be repeated just before the petals open, and a third application should be made as soon as the fruit has set. One or two more applications at intervals of ten days to two weeks can generally be made to advantage, with a late spray for winter apples about the first of August.

Where the San Jose scale has been troublesome, lime-sulphur solution diluted one to eight should be used before growth starts, and if the green or rosy aphids are present three-fourths of a pint of black leaf forty should be used with each one hundred gallons of the first spray mentioned.

Spraying while the trees are in blossom will kill the bees, which are needed to fertilize the flowers as well as to supply honey, and is forbidden by the state law. Persons who do this should be prosecuted and township inspectors and others interested should see that the law is enforced.

L. R. TAFT,
State Inspector of Orchards.

CONTROLLING ROOT MAGGOTS.

(Continued from page 697).

placed so that the plant occupies the opening in the center as soon as the plant is set out, care being taken that it is flush with the soil and not bent so that the fly can crawl underneath.

Clean culture will do much to diminish the damage a second year. Clear away the remnants of the crop, such as the stumps of cabbages or cauliflower, as soon as the crop is gathered, since these remnants serve as excellent hibernating places for pupae. From the standpoint of the entomologist the best thing would be to either plow these under in the fall, or if possible, let in sheep for a while. The writer has taken rutabagas from the field in mid-winter and placed them in cages from which many adults of the cabbage maggots have emerged. If these had either been fed early in the fall or plowed under, the number of emerging insects would have been very greatly reduced. Inasmuch as the wild mustard is a natural host-plant for this pest, sheltering it over winter, its eradication will do much toward the ultimate eradication of this insect.

Against the onion maggot one will find that a good preparation of the soil, the liberal use of commercial fertilizers and the use of the poison bait will almost completely keep them in check.

Cleveland Tractor

More work, more days in the year

H. C. Saddonis of Fort Dodge, Iowa, reports that the use of his Cleveland Tractor made it possible for him to harvest his grain last Summer in half the time required when he used horses, and with less help. In fact, his 14-year-old boy operated the tractor, pulling one binder, and accomplished as much in the same time as could have been done by two horse-pulled binders, each pulled by a four-horse team.

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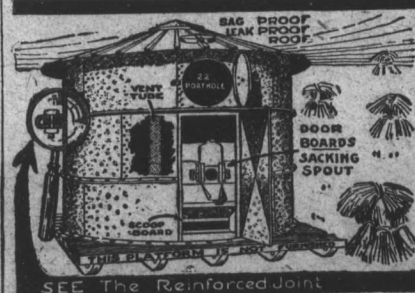
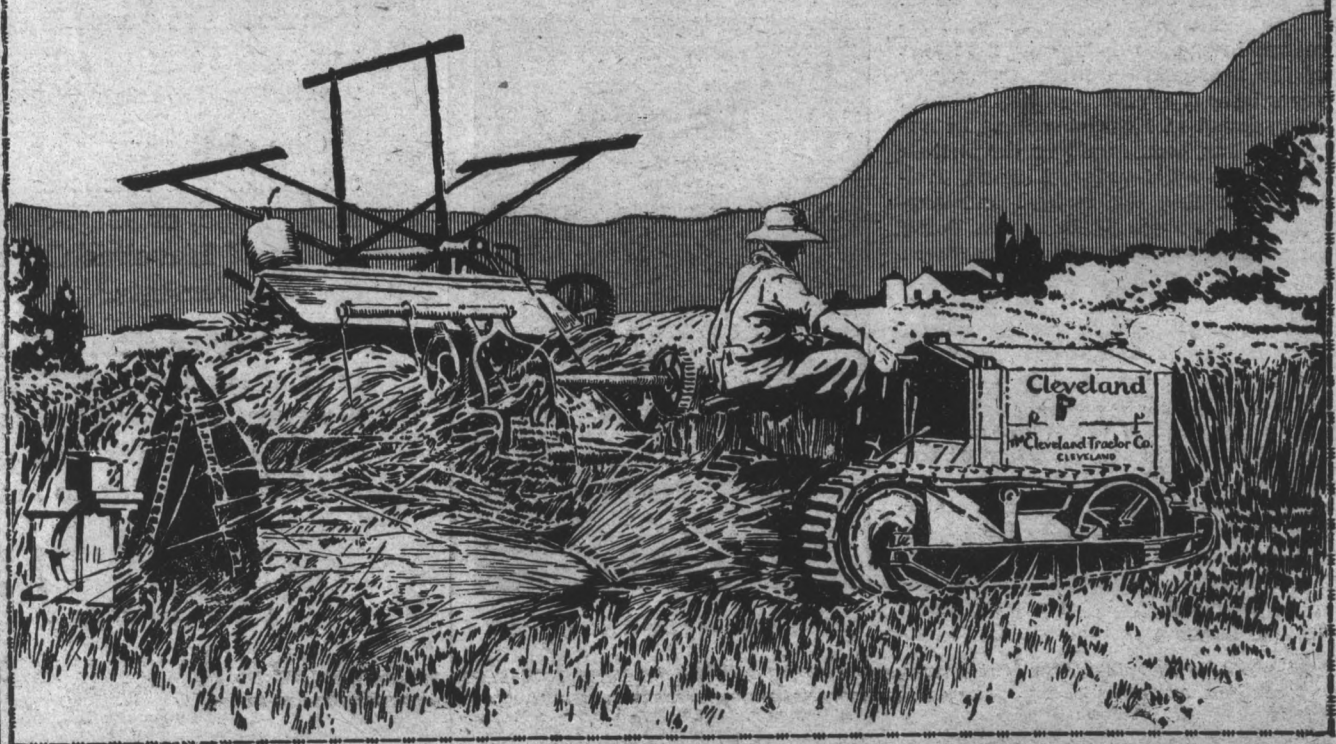
And when it comes to the preparation of the seed bed—*plowing, harrowing, seeding and planting*, the Cleveland Tractor's track-laying construction enables it to go over soft, plowed ground that causes the ordinary machine to "wallow" and "labor". And, it does the work more efficiently than can be done with mules or horses. The power of the Cleveland is used to *pull the implement* not to "dig out" the tractor itself. Its broad traction surface and light weight per square inch enables the Cleveland to "step lightly," and so it does *not pack down the soil behind it*.

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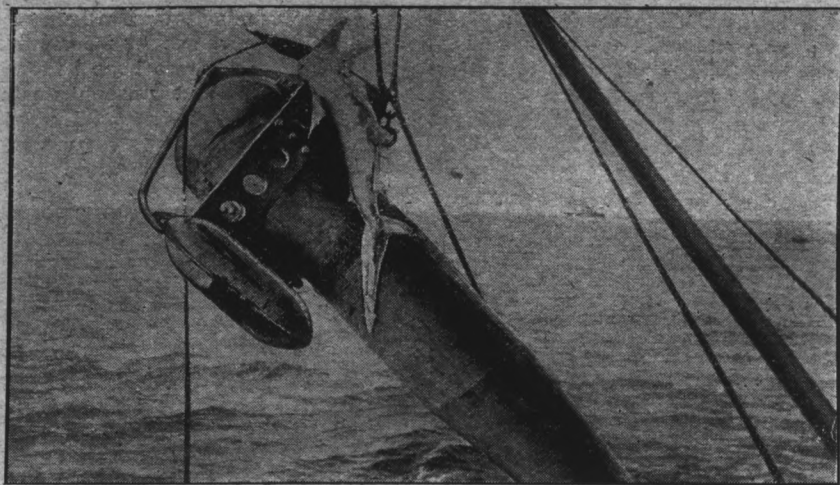
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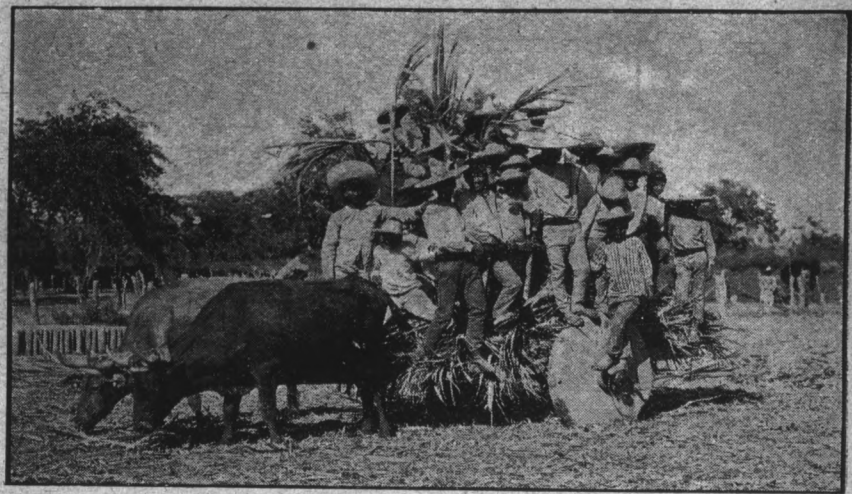
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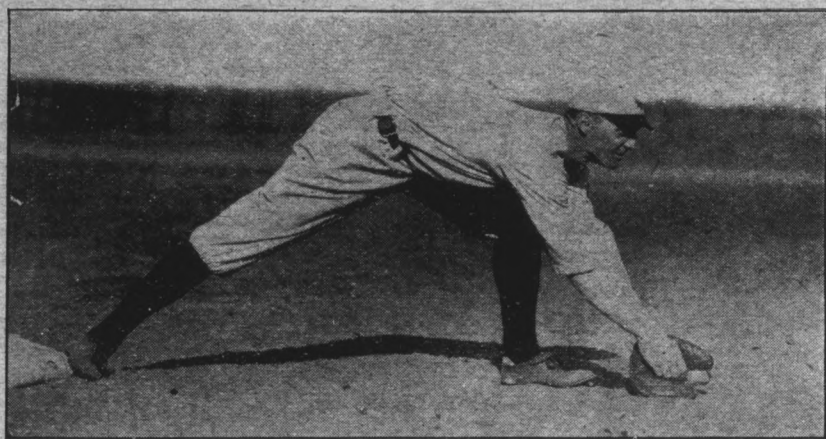
WORLD EVENTS IN PICTURES



A British War Ship, while Sweeping for Mines, Hooked this Giant Hammer-head Shark. The "Paravane" Gear is a New Mine-sweeping Device over which Great Secrecy was Evolved During the War.



In the Land of Sunshine and Revolution. The Photo Shows a Tractor Load of Farm Hands on a Mexican Hacienda Starting out for the day's work in the Fields.



The Warm Days of Spring are here, the Old Base Ball Diamond is Drying Off, and soon the sharp voice of the Umpire will Mingle with the Enthusiastic Cheering in the Grand Stand, as our Home Team Boys give the Visiting Team the First Wallop of the Season. The Photo Shows Tyrus Cobb, the World's Greatest Ball Player, in Action.



Secretary of the Treasury Carter Glass, Manages to find time to spend a few moments with his Pets, and here he is shown with two Fine Specimens. They are Owned by S. M. Kaplan, of New York.



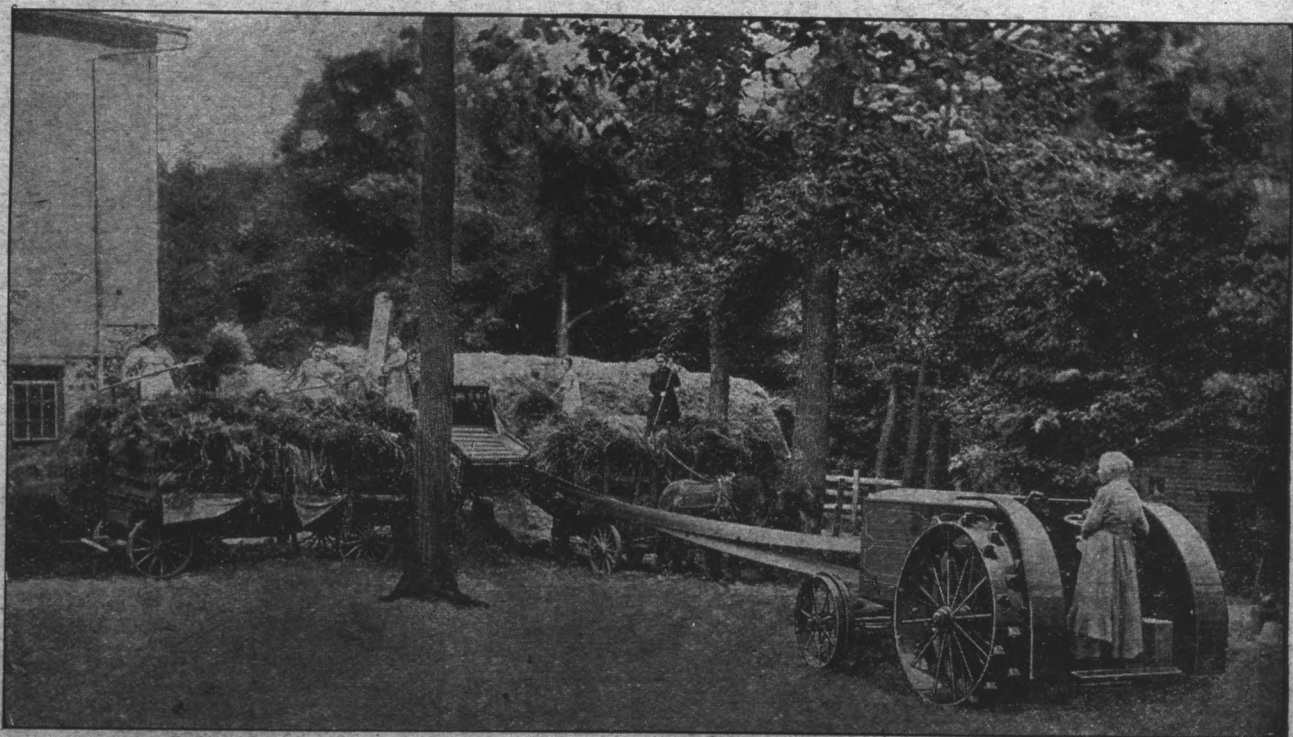
The Yankee "Wacht Am Rhein." A Yank Doughboy of the American Third Division, Army of Occupation in Germany, on Guard in Coblenz-on-the-Rhine. On the Opposite Shore Looms the Fortress of Ehrenbreitstein.



Photo of the Children of Ostend Celebrating their Liberation from the Hun. The Joy and Gladness that Filled these Little Hearts is Clearly Shown by their Smiling Faces and Cheering.



A Stunning Spring Sport Outfit. Her Costume Blends with the Forest Browns and Greens. The coat is Brown and White Checked Dovetone, with Champagne Dovetone Facing. The Skirt, Rich Plaids of Brown and Green; the Hat a Trim Sailor.



In a Quiet Way the Farmer's Wife, his Sister, his Mother, his Sweetheart, Played a Big Part in War Work and can Justly Claim now that the Smoke of Battle has Cleared away, that their Work was even more Effective than that of their Urban Sisters. When the Men were Called to the Colors, the Women had to do a Real Man's Work.

Homer Users Tell the Homer Story Best

Compare
the fuel you figure on
buying for next winter
with the fuel these
Homer users burn

"Use half as much coal as pipe furnace."
H. Baster nace, Windsor, Wn.

"Heat eight rooms on 3 1/2 tons coal."
C. F. Gillian, Avilla, Ind.

"Heat my house for less than \$30."
H. Clausenius, Portland, Ore.

"I heat seven rooms on \$28 worth of fuel."
J. Craman, Huntington, Ind.

"We heat nine rooms with 4 1/2 tons coal."
Mrs. B. Linhart, Bloomdale, O.

"I have not used over 4 tons coal any winter."
J. Russell, Bloomdale, O.

"I have used the Homer Furnace for two years. I have ten rooms and bath and I have no trouble in keeping the temperature at 70 or 75 in every room in the house the coldest or zero weather."
"I had one of the largest size furnaces in my basement, but could not heat my house with it, but it would keep the basement so hot that I could not keep my fruit or vegetables in the basement. So I had it taken out and a Homer Furnace put in. My basement is cool and I have all the heat in the house we want. As to fuel, it takes less, almost half, to what I used in my other furnace. I have never seen a pipe furnace yet that is half as clean as the Homer Pipeless Furnace."
-Dr. T. M. MINNIS, 1219 Upper 8th St., Evansville, Ind.

THE Homer Furnace is warranted to give you healthful, even heat in every room of your house from the one register—it assures perfect ventilation—it eliminates useless, heat-wasting expensive piping necessary in ordinary furnaces.

The Homer Pipeless Furnace can be installed in the smallest cottages and the largest houses—in stores, halls and churches, with the results that have made 35,000 enthusiastic users.

It is specially adapted for houses already built—eliminates tearing them up for pipe furnace installation.

Heats better and for less than two or three stoves. Burns hard and soft coal, coke, wood, cobs—in fact, any kind of fuel.

Get the Facts, Now
35,000 users are saving money with Homer Pipeless Furnaces. Learn what they say about it. A stamp and envelope enclosing the coupon below may save you many dollars in the cost of your heating plant and in its operation by bringing you convincing information written by users of Homer Furnaces. Write NOW so you can know how much coal to order for the winter.

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THE ORIGINAL PATENTED PIPELESS FURNACE

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Street or R.F.D. _____

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Box 315 Owensboro, Ky.

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The Snakes of the Farm

By G. W. Tuttle

IN my boyhood days snakes and boys were sworn enemies. Many boys are now taught—and all should be—not to kill harmless snakes. Antipathy, enmity to even harmless snakes, in the innocent and unsophisticated days of youth, that they really grew from a hair—possibly we figured that some man had started the tribe during a fit of delirium-tremens.

We had only one venomous snake. Up among the Blue Hills, where the cock partridges stalked and drummed—sweet music to my boyish ears—and the blackberries grew in profusion, were a few copperheads. Chunkheads they were in the country vernacular. Short, chunky, slow, repulsive creatures they were, with no warning rattle to say, "Beware!"

Friends of ours who lived in a farm house under the mountains, found a fine specimen upstairs, under the bed, on one eventful day. He was a live number when he crawled slyly into the house, but he was as dead as a coffin nail when he came out—that is, all but the harmless end, the tail, which the old farmer stoutly declared would not die until sunset. How fortunate, if this belief prove true, that the snake is more like the auto than the mule—dangerous in the front instead of the rear.

While I am never guilty of killing a harmless snake in these present days of gray hair and California sunshine, when I make trips in the mountain I dispatch every rattlesnake who angrily disputes my right-of-way to the mountain trails. Many a fine set of rattles I have brought home—five sets on one trip. And yet I confess that I only kill rattlesnakes because I must. There is a lurking feeling of sympathy for the poor snake who only uses his fangs for self-defense, after giving us fair warning.

A very peculiar incident occurred on one fishing trip. I discovered a rattlesnake on the gravel by the stream—or rather he discovered me. He could not have made more noise if he had discovered an army. He would rattle, then retreat, keeping a weather eye on the bushes in his rear, and then coil and rattle again. As I could not find a stick I attacked him with stones. A luckless shot nearly severed his rattles from his body. Unable longer to rattle he escaped to the brush, a really dangerous snake, as he could no longer give warning to any trespasser upon his stamping ground.

When we think of snakes we are reminded of the legend of St. Patrick's disposal of the snakes of Ould Ireland. At last there was only one snake left; a huge, cunning old fellow. St. Patrick kept his wits working overtime—this was before the days of labor unions—and at last he had a very bright idea. He made a nice little chest; then he said, "See, my darlint, what a nice home I have made for you."

This evidence of saintly good-will and friendship was the snake's undoing; he crept in until only the tip of his tail remained outside. "Look out for your tail!" said the overjoyed saint as he slammed down the lid, then carried the chest down and threw it into the sea.

"Let me out! let me out!" frantically called the poor, deceived remnant of the noble order of Irish snakes.

"I'll let you out tomorrow," said St. Patrick.

It is currently reported that sailors today—Irish sailors—occasionally sail over that spot, and they always hear the poor, seasick serpent lifting up his voice and saying eagerly, "Is tomorrow come yet? is tomorrow come yet?"



"By the Way"

A CLASS PAPER.

When the late Bill Nye was planning to start his weekly paper, a friend one day propounded this question:

"Bill, is your paper intended to reach any special class?"

"You bet," replied the bald-headed humorist, "the class that has \$2.00."

CONSIDERATE.

"My boy," said the millionaire, lecturing his son on the importance of economy, "when I was your age I carried water for a gang of bricklayers."

"I'm proud of you Father," answered his offspring; "if it hadn't been for your pluck and perseverance, I might have had to do something of that sort myself."

SPEAKING OF BIRDS.

Just as the village "cut-up" tilted back in his chair on the veranda of the small-town hotel an old horse moved slowly past.

"Say, sonny," shouted the "cut-up" to the boy astride the animal, "how long has that horse been dead?"

Quick as a flash the boy replied: "Three days but you're the first crow that has noticed it."

COULD HE DODGE IT?

The inspector was visiting a country school. He was asking some of the children questions. After a while he said to a junior class:

"Now I want some of you to ask me a question that I can't answer."

After a few vain attempts a small boy said: "Please, sir, if you were stuck in a pool of mud up to your neck and a brick was thrown at your head, would you duck?"

THE DOG CAME BACK.

A bird dog belonging to a man in Mulvane disappeared, and the owner suspected it had been stolen. So he put this ad in the paper and insisted that it be printed exactly as he had written it:

"Lost or run away.—One liver colored burd dog, called Jim. Will show signs of hyderfobby in about three days."


The dog came home the following day.

IF HE WERE RIP VAN WINKLE.

Out in the yard on a hot day the foreman found a laborer fast asleep under the lee of a lumber pile.

With a stern smile the boss said: "Slape on an' be darned, ye terrier. While ye slape ye've got a job. When ye wake up ye're out of wurruk."

Today's Riddle

I WERE 2 CU
RIDING ON A
**, WHAT FRUIT**
SHOULD I BE RE-
MINDED OF?
(Answer)



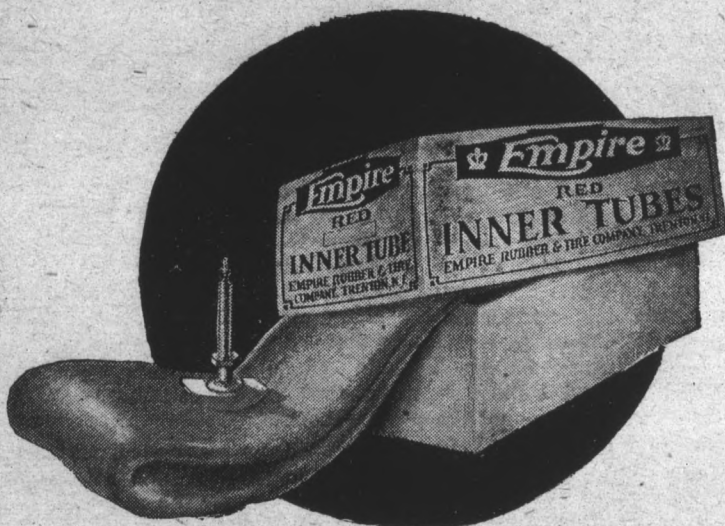
Empire Red Tubes Last as Long as the Average Car Itself

Sometimes there is such a thing as "the best"

Many men set "the best" as their goal. They seek out worthy materials for their work. They gather skilled craftsmen and hold before them high ideals. By sincerity and painstaking they climb near—often very near—to "the best"

He who attains the final "best" however, is he who, having all that the others have—integrity, skill, courage—has over and above these, a hidden advantage all his own. A formula, a method, a device, a knack maybe, which fate has given him and denied to the rest.

So the old master of painting had a



30x3	\$4.00
30x3 1/2	4.45
32x3 1/2	4.75
33x4	6.50
34x4	6.65

secret of mixing his colors that has made his canvases endure through centuries, while those of his contemporaries are faded and forgotten.

So, too, Modern Industry has its examples.

Many manufacturers have earnestly tried to make the best inner tubes. All have had access to the same rubber markets, the same equipment, the same workmanship. And good tubes are being made in many factories.

But one maker has had the good fortune to possess that knack, which the seeker after "the best" must have if he is to attain his ideal.

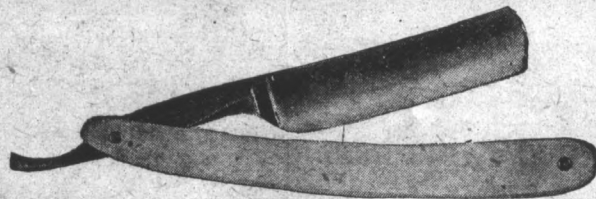
Rubber is in itself a short lived material. For years it has baffled the skill of scientists. The problem of the tube maker has always been to lend to the completed product longer life than the crude material possesses. It is just this which is accomplished by the process which was put in use at the Empire factories in Trenton, N. J., twelve years ago. For twelve years the now famous Empire Red Tubes have been made by this exclusive process.

Today, therefore, the service of an inner tube is no longer measured in terms of mileage, but in terms of years, for the Empire process has produced tubes which resist not merely friction and strain, but also the deterioration of time itself—tubes which last as long as the average car itself.

The Empire Tire Dealer

Empire Red Tubes

An Extra Quality Razor



Made of the best steel, white ivory handle, hollow ground concave blade, honed and stropped ready for use. Guaranteed to give entire satisfaction.

This is an extra good razor, made specially for us, which has given satisfaction to many of our subscribers. They were bought at pre-war prices, otherwise we could not offer them as below. If you want a good razor do not fail to take advantage of this offer.

Sent postpaid for two subscriptions, or for one subscription and 75 cents additional.

SHRP-SHAVR Safety Razor



A thoroughly tested, guaranteed razor. The frame is constructed at the forty-five degree angle, which insures a clean, close cut. This razor will do all any safety razor will do. Easy to take apart and clean. Made in durable silver finish. Extra blades can be purchased at a nominal price. One of the most simple and efficient safety razors made.

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Doubling the crops from your present acreage will give you more profits than doubling your acreage.

U. S. Government bulletins show that tiling often increases the yield from 25 to 100%.

American Vitriified Salt-Glazed Tile

is durable and lasting, far beyond the life of softer tiles.

Investigate today—ask us for prices and details.

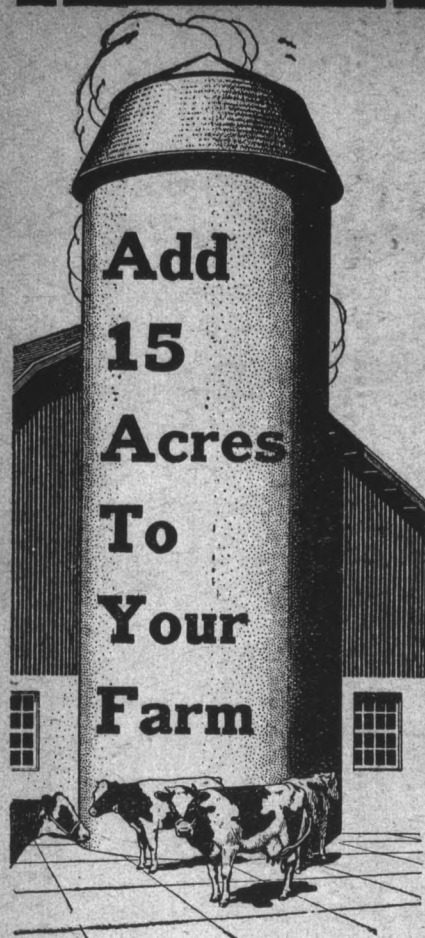


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Concrete for Permanence

"Beyond the Frontier"

By RANDALL PARRISH

"There is no use, Madame," he said, coldly enough, although his voice shook. "You only invite insult when you deal with such curs. They represent their master, and have made verdict already—let us go."

De Baugis, Cassion, De La Durantaye were upon their feet, but the dragon first found voice.

"Were those word addressed to me, M. de Tonty?"

"Ay, and why not! You are no more than La Barre's dog. Listen to me, all three of you. 'Twas Sieur de la Salle's orders that I open the gates of this fort to your entrance, and that I treat you courteously. I have done so, although you took my kindness to be sign of weakness, and have lorded it mightily since you came. But this is the end; from now on it is war between us, Messieurs, and we will fight in the open. Convict Rene de Artigny from the lies of these hirelings, and you pay the reckoning at the point of my sword. I make no threat, but this is the pledged word of Henri de Tonty. Make passage, there. Come, Madame."

No one stopped us; no voice answered him. Almost before I realized the action, we were outside in the sunlight, and he was smiling into my face, his dark eyes full of cheer.

"It will make them pause and think—what I said," he exclaimed, "yet will not change the result."

"They will convict?"

"Beyond doubt, Madame. They are La Barre's men, and hold commission only at his pleasure. With M. de la Durantaye it is different, for he was a soldier of Frontenac's, yet I have no hope he will dare stand out against the rest. We must find another way to save the lad, but when I leave you at the door yonder I am out of it."

"You, Monsieur? What can I hope to accomplish without your aid?"

"Far more than with it, especially if I furnish a good substitute. I shall be watched now, every step I take. 'Tis like enough De Baugis will send me challenge, though the danger that Cassion would do so is slight. It is the latter who will have me watched. No, Madame, Boisrondet is the lad who must find a way out for the prisoner; they will never suspicion him, and the boy will enjoy the trick. Tonight, when the fort becomes quiet, he will find a way to explain his plans. Have your room dark, and the window open."

"There is but one, Monsieur, outward above the precipice."

"That will be his choice; he can reach you thus unseen. 'Tis quite possible a guard may be placed at your door."

He left me and walked straight across the parade to his own quarters, an erect, manly figure in the sun, his long black hair falling to his shoulders. I drew a chair beside the door, which I left partially open, so that I might view the scene without. There was no firing now, although soldiers were grouped along the western stockade, keeping guard over the gate. I sat there for perhaps an hour, my thoughts sad enough, yet unconsciously gaining courage and hope from the memory of De Tonty's words of confidence. He was not a man to fail in any deed of daring, and I had already seen enough of his exploits, to feel implicit trust in his plans of rescue. Occasionally a soldier of the garrison, or a courier du bois, of La Salle's company, passed, glancing at me curiously, yet I recognized no familiar face, and made no attempt to speak, lest the man might prove an enemy. I could see the door of the guardhouse, and, at last, those in attendance at the trial emerged, talking

gravely, as they scattered in various directions. The three officers came forth together, proceeding directly across toward De Tonty's office, evidently with some purpose in view. No doubt, angered at his words, they sought satisfaction. I watched until they disappeared within the distant doorway, De Baugis the first to enter. A moment later one of the soldiers who had accompanied us from Quebec, a rather pleasant-faced lad, whose injured hand I had dressed at St. Ignace, approached where I sat, and lifted his hand in salute.

"A moment, Jules," I said swiftly. "You were at the trial?"

"Yes, Madame."

"And the result?"

"The Sieur de Artigny was held guilty, Madame," he said regretfully, glancing about as though to assure himself alone. "The three officers agreed on the verdict, although I know some of the witnesses lied."

"You know—who?"

"My own mate for one—Georges Descartes; he swore to seeing De Artigny follow Chevet from the boats, and that was not true, for we were together all that day. I would have said so, but the court bade me be still."

"Ay, they were not seeking such testimony. No matter what you said, Jules, De Artigny would have been condemned—it was La Barre's orders."

"Yes, Madame, so I thought."

"Did the Sieur de Artigny speak?"

"A few words, Madame, until M. Cassion ordered him to remain still. Then M. de Baugis pronounced sentence—it was that he be shot tomorrow."

"The hour?"

"I heard none mentioned, Madame."

"And a purpose in that also to my mind. This gives them twenty-four hours in which to consummate murder. They fear De Tonty and his men may attempt rescue; 'tis to find out the three have gone now to his quarters. That is all, Jules; you had best not be seen talking here with me."

I closed the door, and dropped the bar securely into place. I knew the worst now, and felt sick and faint. Tears would not come to relieve, yet it seemed as though my brain ceased working, as if I had lost all physical and mental power. I know not how long I sat there, dazed, incompetent to even express the vague thoughts which flashed through my brain. A rapping on the door aroused me. The noise, the insistent raps awoke me as from sleep.

"Who wishes entrance?"

"I—Cassion; I demand speech with you."

"For what purpose, Monsieur?"

"Mon Dieu! Does a man have to give excuse for desiring to speak with his own wife? Open the door, or I'll have it broken in. Have you not yet learned I am master here?"

I drew the bar, no longer with any sense of fear, but impelled by a desire to hear the man's message. I stepped back, taking refuge behind the table, as the door opened, and he strode in, glancing first at me, then suspiciously about the apartment.

"You are alone?"

"Assuredly, Monsieur; did you suspect others to be present?"

"Hell's fire! How did I know; you have time enough to spare for others, although I have had no word with you since you came. I come now only to tell you the news."

"If it be the condemnation of Sieur de Artigny, you may spare your words."

"You know that! Who brought you the message?"

"What difference, Monsieur? I would know the result without messenger. You have done your master's will. What said De Tonty when you told him?"

Cassion laughed, as though the memory was pleasant.

"Faith, Madame, if you base your hopes there on rescue you'll scarce meet with great result. De Tonty is all bark. Mon Dieu! I went in to hold him to account for his insult, and the fellow met us with such gracious speech that the four of us drank together like old comrades. The others are there yet, but I had a proposition to make you—so I left them."

"A proposition, Monsieur?"

"Ay, a declaration of peace, if you will. Listen Adele, for this is the last time I speak you thus fairly. I have this De Artigny just where I want him now. His life is in my hands. I can squeeze it out like that; or I can open my fingers, and let him go. Now you are to decide which it is to be. Here is where you choose, between that forest brat and me."

"Choose between you? Monsieur, you must make your meaning more clear."

"Mon Dieu, is it not clear already? Then I will make it so. You are my wife by law of Holy Church. Never have you loved me, yet I can pass that by, if you grant me a husband's right. This De Artigny has come between us, and now his life is in my hands. I know not that you love the brat, yet you have that interest in him which would prevent forgiveness of me if I show no mercy. So now I come and offer you his life, if you consent to be my wife in truth. Is that fair?"

"It may so sound," I answered calmly, "yet the sacrifice is all mine. How would you save the man?"

"By affording him opportunity to escape during the night; first accepting his pledge never to see you again."

"Think you he would give such a pledge?"

Cassion laughed sarcastically.

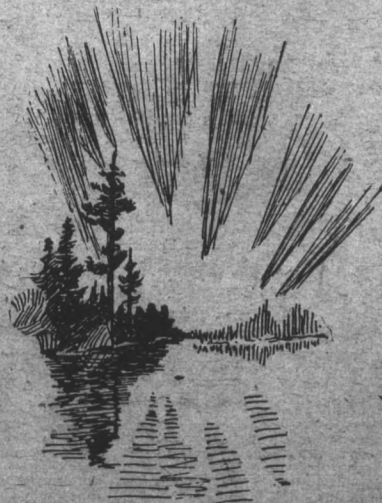
"Bah, what man would not to save his life. It is for you to speak the word."

I stood silent, hesitating to give the final answer. Had I truly believed De Artigny's case hopeless I might have yielded, and made pledge. But as I gazed into Cassion's face, smiling with assurance of victory, all my dislike of the man returned, and I shrank back in horror. The sacrifice was too much, too terrible; besides I had faith in the promises of De Tonty, in the daring of Boisrondet. I would trust them, ay, and myself, to find some other way of rescue.

"Monsieur," I said firmly, "I understand your proposition, and refuse it. I will make no pledge."

"You leave him to die?"

"If it be God's will. I cannot dishon-



or myself, even to save life. You have my answer. I bid you go."

Never did I see such a look of beastly rage in the face of any man. He had lost power of speech, but his fingers clutched as though he had my throat in their grip. Frightened, I stepped back, and Chevet's pistol gleamed in my hand.

"You hear me, Monsieur—go—"

CHAPTER XXX.

I Choose My Future.

HE backed out the door, growling and threatening. I caught little of what he said, nor did I in the least care. All I asked, or desired, was to be alone, to be free of his presence. I swung the door in his very face, and fastened the bar. Through the thick wood his voice still penetrated in words of hatred. Then it ceased and I was alone in the silence, sinking down nerveless beside the table, my face buried in my hands.

I had done right; I knew I had done right, yet the reaction left me weak and pulseless. I saw now clearly what must be done. Never could I live with this Cassion. Right or wrong, whatever the Church might do, or the world might say, I had come to the parting of the ways; here and now I must choose my own life, obey the dictates of my own conscience. I had been wedded by fraud to a man I despised; my hatred had grown until now I knew that I would rather be dead than live in his presence.

If this state of mind was sin, it was beyond my power to rid myself of the curse; if I was already condemned of Holy Church because of failure to abide by her decree, then there was naught left but for me to seek my own happiness, and the happiness of the man I loved.

I lifted my head, strengthened by the very thought, the red blood tingling through my veins. The truth was mine; I felt no inclination to obscure it. The time had come for rejoicing, and action. I loved Rene de Artigny, and, although he had never spoken the word, I knew he loved me. Tomorrow he would be in exile, a wanderer of the woods, an escaped prisoner, under condemnation of death, never again safe within reach of French authority. Ay, but he should not go alone; in the depths of those forests, beyond the arm of the law, beyond even the grasp of the Church, we should go together. In our own hearts love would justify. Without a qualm of conscience, without even a lingering doubt, I made the choice, the final decision.

I know not how long it took me to think this all out, until I had accepted fate; but I do know that the decision brought happiness and courage. Food was brought me by a strange Indian, apparently unable to speak French; nor would he even enter the room, silently handing me the platter through the open door. Two sentries stood just without—soldiers of De Baugis, I guessed, as their features were unfamiliar. They gazed at me curiously, as I stood in the doorway, but without changing their attitudes. Plainly I was held prisoner also; M. Cassion's threat was being put into execution. This knowledge merely served to strengthen my decision, and I closed, and barred the door again, smiling as I did so.

It grew dusk while I made almost vain effort to eat, and at last, pushing the plate away, I crossed over, and cautiously opened the wooden shutter of the window. The red light of the sunset still illumined the western sky, and found glorious reflection along the surface of the river. It was a dizzy drop to the bed of the stream below, but Indians were on the opposite bank, beyond rifle shot, in considerable force, a half-dozen canoes drawn up on the sandy shore, and several fires burning. They were too far away for me to judge their tribe, yet a number among them sported war bonnets, and I had no doubt they were Iroquois.

So far as I could perceive elsewhere

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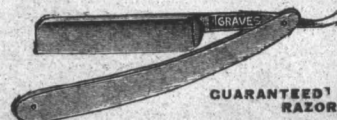
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there was no movement, as my eyes traveled the half circle, over a wide vista of hill and dale, green valley and dark woods, although to the left I could occasionally hear the sharp report of a rifle, in evidence that besieging savages were still watchful of the fort entrance. I could not lean out far enough to see in that direction, yet as the night grew darker the vicious spits of fire became visible. Above me the solid log walls arose but a few feet—a tall man might stand upon the window ledge, and find grip of the roof; but below was the sheer drop to the river—perchance two hundred feet beneath. Already darkness shrouded the water as the broad valley faded into the gloom of the night.

There was naught for me to do but sit and wait. The guard which M. Cassion had stationed at the door prevented my leaving the room, but its more probable purpose was to keep others from communicating with me. De Tonty had evidently resorted to diplomacy, and instead of quarreling with the three officers when they approached him, had greeted them all so genially as to leave the impression that he was disposed to permit matters to take their natural course. He might be watched of course, yet was no longer suspected as likely to help rescue the prisoner. All their fear now was centered upon me, and my possible influence.

If I could be kept from any further communication with either De Artigny or De Tonty, it was scarcely probable that any of the garrison would make serious effort to interfere with their plans. De Tonty's apparent indifference, and his sudden friendliness with De Baugis and Cassion, did not worry me greatly. I realized his purpose in thus diverting suspicion. His pledge of assistance had been given me, and his was the word of a soldier and gentleman. In some manner, and soon—before midnight certainly—I would receive message from Boisrondet.

Yet my heart failed me more than once as I waited. How long the time seemed, and how deadly silent was the night. Crouched close beside the door I could barely hear the muttered conversation of the soldiers on guard; and when I crossed to the open window I looked out upon a black void, utterly soundless. Not even the distant crack of a rifle now broke the solemn stillness, and the only spot of color visible was the dull red glow of a campfire on the opposite bank of the river. I had no way of computing time, and the lagging hours seemed centuries long, as terrifying doubts assailed me.

Every new thought became an agony of suspense. Had the plans failed? Had Boisrondet discovered the prisoner so closely guarded as to make rescue impossible? Had his nerve, his daring, vanished before the real danger of the venture? Had De Artigny refused to accept the chance? What had happened; what was happening out there in the mystery?

All I could do was pray, and wait. Perhaps no word would be given me—the escape might already be accomplished, and I left here to my fate. Boisrondet knew nothing of my decision to accompany De Artigny in his exile. If the way was difficult and dangerous, he might not consider it essential to communicate with me at all. De Tonty had promised, to be sure, yet he might have failed to so instruct the younger man. I clung to the window, the agony of this possibility driving me wild.

Mon Dieu! was that a noise overhead? I could see nothing, yet, as I leaned further out, a cord touched my face. I grasped it, and drew the dangling end in. It was weighted with a bit of wood. A single coal glowed in the fireplace, and from this I ignited a splinter, barely yielding me light enough to decipher the few words traced on the white surface: "Safe so far; have you any word?"

My veins throbbed; I could have screamed in delight, or sobbed in sudden joy and relief. I fairly crept to the window on hands and knees, animated now with but one thought, one hope—the desire not to be left here behind, alone. I hung far out, my face upturned, staring into the darkness. The distance was not great, only a few feet to the roof above, yet so black was the night that the edge above me blended imperceptibly against the sky. I could perceive no movement, no outline. Could they have already gone? Was it possible that they merely dropped this brief message, and instantly vanished? No, the cord still dangled; somewhere in that dense gloom, the two men peered over the roof edge waiting my response.

"Monsieur," I called up softly, unable to restrain my eagerness.

"Yes, Madame," it was De Artigny's voice, although a mere whisper. "You have some word for me?"

"Ay, listen; is there any way by which I can join you?"

"Join me—here?" astonishment at my request made him incoherent. "Why, Madame, the risk is great—"

"Never mind that; my reason is worthy, nor have we time now to discuss the matter. Monsieur Boisrondet is there a way?"

I heard them speak to each other, a mere murmur of sound; then another voice reached my ears clearly.

"We have a strong grass rope, Madame, which will safely bear your weight. The risk will not be great. I have made a noose, and will lower it."

I reached it with my hand, but felt a doubt as my fingers clasped it.

"Tis very small, Monsieur."

"But strong enough for double your weight, as 'twas Indian woven. Put foot in the noose, and hold tight. There are two of us holding it above."

The memory of the depth below frightened me, yet I crept forth on the narrow sill, clinging desperately to the taut rope, until I felt my foot safely pressed into the noose, which tightened firmly about it.

"Now," I said, barely able to make my lips speak. "I am ready."

"Then swing clear, Madame; we'll hold you safe."

I doubt if it was a full minute in which I swung out over that gulf amid the black night. My heart seemed to stop beating, and I retained no sense other than to cling desperately to the swaying, cord which alone held me from being dashed to death on the jagged rocks below. Inch by inch they drew me up, the continuous jerks yielding a sickening sensation, but the distance was so short, I could scarcely realize the full danger, before De Artigny grasped me with his hands, and drew me in beside him on the roof. I stood upon my feet, trembling from excitement, yet encouraged in my purpose, by his first words of welcome.

"Adele," he exclaimed, forgetful of the presence of his comrade. "Surely you had serious cause for joining us here."

"Am I welcome, Monsieur?"

"Can you doubt it? Yet surely it was not merely to say farewell that you assumed such risk?"

"No, Monsieur, it was not to say farewell. I would accompany you in your flight. Do not start like that at my words; I cannot see your face—perhaps if I could I should lose courage. I have made my choice, Monsieur. I will not remain the slave of M. Cassion. Whether for good or evil I give you my faith."

"You—you," his hands grasped mine. "You mean you will go with me into the woods?"

"Yes, Monsieur."

"But do you realize what it all means? I am a fugitive, a hunted man; never again can I venture within French civilization. I must live among savages. No, no, Adele, the sacrifice is too great. I cannot accept of it."

(Continued next week.)

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Shall Land Owners Pay all Taxes?

MR. JUDSON GRENNELL has taken exception to several statements in my article on the above title, and reply to these criticisms, as published in the Michigan Farmer of March 15, 1919, is hereby made:

1. Mr. Grenell says my date of the origin of the single tax idea is too late by nearly one hundred years. I do not recognize the specie in the notions of 1750 to which he refers, but stand corrected. Be it so.

2. Next he says: "Nor is Mr. Rood any nearer being right when he states that single taxers desire to abolish private ownership of land, and that the best way is to tax it out of existence."

My error in this regard was due to a careful perusal of the standard works on single tax. Perhaps, yes, without question, the two most noted single-taxers in America to date are Henry George and Joseph Fels. George furnished the words, Fels the money to publish them. One of the most circulated pamphlets on the subject is the speech of Henry George, delivered at the Burlington, Iowa, Opera House, April 1, 1885, and published by the Joseph Fels fund. I quote from page 33: "The utter absurdity of this thing of private property in land! I defy anyone to show me any good from it, look where you please. Go out to the new lands, where my attention was first called to it, or go to the heart of the capital of the world—London. Everywhere, when your eyes are once opened, you will see its inequality and its absurdity. * * * Now, suppose we should abolish all other taxes, direct and indirect, substituting for them a tax upon land values, what would be the effect? In the first place, it would be to kill speculative values."

Now turning to the great bible, Progress and Poverty, after reviewing and arguing the causes of poverty, the au-

thor says in beginning chapter three of book VII: "The truth is, and from this truth there can be no escape, that there is and can be no just title to an exclusive possession of the soil, and that private property in land is a bold, bare, enormous wrong, like that of chattel slavery." For this evil the author finds a remedy which he states in his Book VIII. I quote: "We have seen that there is no possible remedy for these evils but the abolition of their cause; we have seen that private property in land has no warrant in justice, but stands condemned as the denial of natural right. We have weighed every objection, and seen that neither on the ground of equity or expediency is there anything to deter us from making land common property by confiscating rent. But the question of method remains. How shall we do it? We already take some rent in taxation. We have only to make some changes in our modes of taxation to take it all. * * * Let the individuals who now hold it still retain, if they want to, possession of what they are pleased to call their land. Let them continue to call it their land. Let them buy and sell, and bequeath and devise it. We may safely leave them the shell if we take the kernel."

It is these and the like sayings repeated and enlarged upon in many pages and chapters that led me into the error, if error it be, of saying that the single taxer's program was the abolition of private ownership by taxation. Why not call a spade a spade? If these sayings do not amount to what I have said they do, I cannot understand the meaning at all.

3. As to the answer that the revenue from single tax is elastic. Mr. Grenell

Mr. Rood Answers Mr. Grenell

also differs from the orthodox single taxpayer. For the supporters of this plan generally admit that the tax is not elastic.

4. My notion that the "land-owner" would pass the tax on is not due to anything said by Adam Smith, John Stuart Mill, nor any of the rest; and it is not necessary to go to Adam or anywhere else to see that the man who "owns" a piece of land avowedly taxed for all there is in it will not own it. Caring for property is not such a joy that men will do it for nothing. If they cannot make as much profit by putting their capital into land as by making paper dolls, or something else, they will do the something else. In the end the consumer must pay the price. "Jones he pays the freight," and don't you forget it. And no system of philosophy will induce men to improve property and pay taxes on it if denied the hope of any return for their money. If they are not to have any profit from the investment they will let someone else make the improvements or sleep in the open. It is foolish to argue the contrary.

5. Again, when Mr. Grenell says that by taking all the taxes off from personal property and putting all onto land the tax on land will be less, I am unable to follow the argument.

JOHN R. ROOD.

THE LUXURY TAX.

THE tax on "luxuries," which became effective on May 1, may or may not be onerous—it depends upon the pocketbook of the individual. Fifteen dollar hats, ten dollar shoes, and wearing apparel in proportion have been common even among wage earn-

ers of the more ordinary classes. The imposition of the new tax will probably have the effect of reducing the sale of the higher-priced articles. The retail shop-keeper will have either to reduce his profits or deal in cheaper priced goods.

It is true, theoretically, that the consumer will pay the tax, but in the end the loss will fall upon the dealer. Of course, there are many stores whose customers care nothing for an added ten or twenty dollars to their monthly accounts—which is why the impost is called a "luxury tax."

A RELIEF EXPEDITION.

FRANCE saw, and Germany felt, the vigor and punch of the American soldier. As soon as he got into his work he established a reputation for being the hardest hitter in the world, likewise, the fastest. France wanted to know why. The reason is simple. Food and athletics. America has 23,000,000 dairy cows—enough to give every child a quart of milk a day, and still leave fifty per cent of the product for butter, cheese and ice cream. She even furnished nearly 2,000,000,000 pounds to Europe last year. France wants to make sturdy men and has sent a commission here to secure some of those American foster-mothers for French infants. A colony of them is now on the way—one hundred and four Holstein cows. They did not stop to view the sights of New York, but merely permitted a short newspaper interview, then hurried their specially prepared transport and sailed for France. They will go to the devastated portion and, cooperating with other humanitarian and relief expeditions, do their best to provide a milky way over which the French children can find a road to blooming health.



Wednesday, April 23.

PRESIDENT WILSON remains firm in his position on Italy's annexation of Fiume. The Soviet government in Budapest is overthrown. Roumanians invading Hungary capture all of the Szatmar country and are advancing on Budapest. Australia is facing a big coal shortage. A revolution has broken out in Turkey and a Soviet government is declared. Governor Sleeper signs a bill forbidding the use of the red flag in Michigan under penalty of five years' imprisonment, or \$1,000 fine. Reports on the Liberty Loan Drive in Michigan show that the state has already oversubscribed its quota by nearly \$14,000,000.

Thursday, April 24.

BOLSHEVIST troops are reported to be deserting the Lenin government and volunteering to fight the Russian Reds. The Italian delegation decides to leave Paris, following President Wilson's emphatic declaration that he will not yield on the Adriatic question. Germany instructs Argentine to deliver interned German steamers to the United States. A meeting of the Democratic National Committee is called for May 28-29 in Chicago. The war party of the Japanese cabinet agrees to recognize the Omsk government of Siberia. United States credits to the Allied government now total \$9,188,829,000. It is announced that after July 1 there will be no governmental agency to regulate the flow of food stuffs, other than wheat, from the United States. Over 120,000 men from the overseas army are now at sea en route to the United States.

Friday, April 25.

PREMIER ORLANDO of Italy, openly attacks Wilson's policy on the Adriatic question. Herbert Hoover of the inter-allied relief organization

warns Germany against allowing any strikes and disorders, as they endanger a continuation of the food supply. An influenza epidemic in Congo Africa claims 500,000 victims. Francisco Villa and a small army capture the city of Parral in the state of Chihuahua. The dock strike in Liverpool is at an end. The department of justice announces that the government proposes the enforcement of the war-time prohibition act, including a ban on all beers and wines, whether or not they are intoxicating.

Saturday, April 26.

GERMAN envoys to the Peace Conference are empowered to sign the peace treaty on the spot. The Polish advance on Lemberg is halted. Hungarian Reds are being opposed by 180,000 Czech-Slovak troops. Six transports deliver 22,922 soldiers at the port of New York; among these are five hundred Michigan Men. The regents of the University of Michigan fail to come to a decision on the selection of a successor to President Hutchins. The British admiralty lifts restrictions on the use of wireless telegraphy. Governor Sleeper summons representatives of the trainmen of the Michigan Railway and of the company to meet in Lansing in an effort to avert a strike if possible. Michigan legislature closes after enacting 445 new laws and adopting five constitutional amendments, two of which were voted upon at the April 7 election and three others to come up for approval in November, 1920.

Sunday, April 27.

JAPAN intimates that unless she is allowed a free hand in the Orient and is recognized on an equality with other races, she will leave the Peace Conference and refuse to join the League of Nations. No change is not-

ed in the Italian situation, but the support of Lloyd-George and Premier Clemenceau to Wilson's position is confirmed. An American seaplane completes a twenty-hour flight covering a distance of 1,250 miles. The British army of occupation is moving heavy artillery to Cologne to be prepared for any attack by Spartacan troops. The Ukrainian government will send delegates to Paris to begin negotiations for a preliminary peace with the Poles. Announcement is made of a proposed world peace exposition to be held in Detroit in 1922 or 1923.

Monday, April 28.

THE revised covenant of the League of Nations goes before a plenary session of the Peace Conference for final action. Japan, France and Belgium reserve the right to demand changes in the text while the Monroe doctrine clause hinges on the question of French military security being properly adjusted. The government of Olonetz to the north of Petrograd re-

volts against the Bolsheviks. Japan has promised to punish those responsible for recent outrages in Korea. Fully 300,000 persons in Poland are ill from typhus. The recent disturbances in Egypt came to an end when the British protectorate was recognized by America.

Tuesday, April 29.

THE covenant of the League of Nations in revised form is adopted by the peace conference without a dissenting vote. The covenant will be incorporated in the peace treaty. German delegates arrive at Versailles to sign the peace documents. Geneva reports that the president of Switzerland goes to Paris as arbitrator in the dispute over the Adriatic question. The revolt in Hamburg is suppressed and the plundering of food stores has ended. The French government confers awards upon 178 United States officers. The Swiss army system is to be tested in New York state. A fire sweeps Yokohama, Japan, destroying 2,000 buildings.

Boys' and Girls' Club Notes

THE Board of Supervisors of Branch service. The executive committee of county, at their recent session, ap- the Washtenaw County Farm Bureau, propriated funds for the continuing of together with the banks of the county Boys' and Girls' Club work in Branch cooperated in the employment of Mr. Lyons.

Osborn, of Coldwater, is County Club Leader.

Gogebic county has assured us of the continuation of the excellent work done in connection with Boys' and Girls' Club work because of the action of the board of supervisors providing funds for this work during the coming year.

Mr. Ernest F. Lyons is the new County Club Leader for Washtenaw county. Mr. Lyons is a graduate of M. A. C., has taught agriculture in the high school at Plainwell and has recently been discharged from military projects.

On April 12, club leaders and rural teachers of Saginaw county met in conference at the Trade School in Saginaw. Miss Cowles and Mt. Kettunen of the State Staff of Club Leaders attended this meeting. One of the interesting features was a demonstration in the dyeing of cloth by the girls of the Otto School Garment-making Club. Miss Theresa McDonald is Saginaw County Club Leader.

On May 3 occurs the achievement day for the Saginaw county clubs which have been carrying on winter projects.



Woman's Interests

Transforming a Living Room



WELL, well!" exclaimed the visitor, as she stepped into the big living-room. "You've been getting new furniture, I see. And new rugs, too," she added as her bright eyes glanced from one object to another. In answer to the swift denial of her hostess she expostulated, "but I never saw that chair before, nor the table and rugs. How I wished I could get some new things for the house this year. But every cent above living expenses has gone into bonds and war relief. So I'll just have to wait a while," she said resignedly.

"You need wait no longer, if you care to re-furnish your house the way we have done," said her hostess.

"Then tell me how you did it," was the quick reply.

Her hostess laughed in sympathy with the eagerness. "There is nothing new in this room except some of the pillow covers and the tapestry on the big chair. We are just going through a period of reconstruction, you know. And it extends all the way from the big interests to our homes. Really, the thrift habit we have acquired is doing wonders for us. We are just beginning to realize what an abundance of everything we have, and how to use it to the best advantage."

"That is true—in a general way. But how—"

"How did we apply it to this room? Well, to begin with, all our furniture looked shabby and worn, and we did so long for new. There were many things we really needed, but as you say, there were no available funds. It all began with that chair."

The speaker indicated a large easy rocker. "I went to a furniture store which was selling out, determined to buy a new one. Either the reports of bargains were exaggerated or the best things were gone. At any rate, I came home without a chair. As father had always declared that chair to be the most comfortable in the house, we decided to reupholster it. Don't you remember how it looked? It was covered with black leather, very much scarred and worn. The springs of the seat and back were all saggy and loose."

"I never would have thought it the same chair," declared the visitor. "How did you do such splendid work?"

"In the first place we took off the old cover and used it as a pattern to cut the new. In this way we could figure on the exact amount to buy and had nothing left over. In taking off the cover, we did it very carefully, taking particular notice of how it had been put on. Then we tightened the springs, not an easy job, I'll admit. We tacked strips of stout canvas from one side of the frame to the other, one of us holding the springs in place while the other stretched the canvas. Under the seat we used strips of thin wood slipped under the frame to hold the springs until the canvas was securely tacked. We tacked a square of canvas over the entire under side of the seat to catch the bits of excelsior which these old chairs seem to shed. One reason you did not recognize the chair was because we have covered and padded the wooden fronts to the arms and the "open-work" panel below the seat."

"The other chairs look new. What did you do to them?" asked her friend, who had been paying close attention.

"They were badly scratched, so we took off the varnish with ammonia, and sandpapered them smooth. They are walnut, you see, so all the finish they needed was a coat of paraffine oil, well rubbed in with a rag. All these tasks were finished before we put on the new tapestry. We took particular pains in selecting the pattern, and I think the combination of browns and greens harmonizes very nicely with the other furnishings. You see how we cut the material so that the back and seat would come lengthwise of the material. By stretching each piece and pinning it to the stuffing before tacking the edges, it was not difficult to do neat work."

"It looks as if an expert had done it," said her visitor admiringly. "Now tell me about that table. I know you did not make that over."

"Yes, but we did. It was light oak, and never matched anything in the

"Apply ordinary household ammonia with a paint brush. This softens the varnish, which may then be scraped off with a piece of glass. It is a sticky job, but well worth while. You may have to apply the ammonia more than once if the old varnish is very thick. When you have removed all you can in this way, use fine sandpaper to finish off. Always rub with the grain of the wood, unless there are very rough places to be smoothed off. Now apply the stain as evenly as possible with a wide flat brush, following the grain again, then wipe it off lightly with a rag. Wipe with the grain. This prevents too heavy a coat, which would look like paint. The next day the table will be dry and you can rub it down with paraffine or linseed oil and pumice stone. Dip your rag first in the oil and then in the powdered pumice. Go over the entire surface with this and then with oil alone, and the table is

cases at one end of the room. Moving the dining-table farther into the room made this possible, and I am more than pleased with the change."

The hostess paused, then began again as she saw her visitor looking at the rugs. "They do look like new, but they, too, are made over. We learned of a firm who makes them out of old carpet, even using old 'fluff' rugs and woolen pieces of all kinds of material. They dye them any shade you wish. We like that moss-green. It is warm and rich looking. However, it seemed so very 'green' that it was necessary to add more of the same color in the other furnishings in order to keep the rugs from 'coming up and hitting you in the face,' as someone expressed it. Consequently, we made a green cushion for the little black chair, and covered the two stools with the same. With the green tints in the couch cover repeated in the cushions of the willow chair and tapestry of the easy chair, there is now enough to bind the room together."

"So much brown and green made the furnishings a little dark. Notice what we have done to lighten the effect. Over one book case is a water-color drawing in a wide gold mat and frame. On top of the case is a gold-framed photograph and a low flower bowl of yellow pottery. On the other book case are two brass candle-sticks in front of an oil painting in dull colors which is framed in gilt. And I must tell you about those gold frames," the hostess interrupted herself. "The one on the water-color was especially black and dingy. So we washed it and then applied a coat of gold enamel. There is another in the hall which has been rejuvenated."

"I thought it was a new frame," said the guest in astonishment.

"Then you see how well the tall green jar looks on the dining-table with the copper nut bowl beside it," continued her hostess. "There are the brass andirons, and on the lintel against the reddish-brown bricks of the chimney is a copper tray with brass handles, and two small brass bowls. You see how each of these catch the light and reflect it. They help to make the room lighter on dark days and at night."

The visitor drew a long breath and nodded her head approvingly. "I see what you mean. And I know I can rearrange my possessions to better advantage after having seen this. Even if I don't happen to have so much brass as you have, I can use the lighter colored articles to better advantage. You have done wonders by using just what you had."

"It was not all accomplished in a day. You must live with things and make many changes before seeing their possibilities and arrange them to the best advantage. However, it is wonderful how much more livable some rooms can be made by a new arrangement of furniture, and a little stain and polish, backed up by a happy thought."

"I never had thought this room needed any improvement. It is so nice to have plenty of windows. Are you going to buy new curtains?" asked the visitor, noticing their absence.

(Continued on page 708)



room. You see the piano, music cabinet and two chairs are mahogany, the book cases, couch and library table are cherry, and the woodwork is as near like both woods as we could get it. We had this furniture when the house was built and have tried to keep to harmonious colors. As you know, we use the one end of the room for a dining-room, and the light oak table never looked well. Besides we had to keep a cloth on it because the top had long since lost its polish. Our success with the chair inspired us to refinish the table. We found it possible to apply an oil stain (matching the woodwork in color) to the legs of the table without removing the varnish. What little varnish there was left on the top, was removed with ammonia."

"Just how did you do that?" interrupted the visitor. "I may want to make over my table."

ready for use. If you rub it well with an oiled rag every week for a while, you will soon have a fine finish."

"Isn't the table smaller?" queried the visitor.

Her hostess laughed. "The fact of the matter is that the white cloth always made the table look larger. And it seemed to take up so much room that we pushed it as far back as possible to make it less conspicuous. Now that we can use a runner or doily, it looks less like a dining-table so we pulled it out farther into the room and left space by the window for a rocking chair."

The visitor's interest encouraged the hostess to proceed. "You remember that one book case has always stood beside the dining-table and the other one at the far end of the room opposite the piano. For some time I have had a vague notion that I would like both

Women and the Farm Bureau

I WAS glad to note in the Michigan Farmer the heading, "Women Join Farm Bureau." Just as surely as there is a place for women in farm homes, there should be a place for them in the Farm Bureau organization. That the women of Michigan are ready to take their place and do their part is evidenced every day.

In times of war women learned to find time to work for a common cause. Now that the pressure of the war call is lessening, they are looking for other avenues for study and action. This can be seen by the early responses to the announcement that Michigan has an Home Economics Department in its new State Farm Bureau. This bureau has been organized only two months but already letters are beginning to come to me testifying to the readiness



Miss Flora Buell, Head of Home Economics Work of State Farm Bureau.

of farm women to turn their energies to the needs of their own homes and neighborhoods.

A woman from my own county expressed this desire to use an emergency organization for home welfare work when she wrote me recently: "We have a society called the 'Willing Workers,' composed mostly of farm women. For the past fifteen months we have devoted most of our time to Red Cross work, and feel now we could use more time for our program. Will you come and talk to us at our next meeting?"

From another section a woman writes: "We are all feeling our way. I am, and always have been very much interested in the farm home problems everywhere, but it has seemed almost impossible to find a place to take hold of the work and really do something to help. I sincerely hope the Farm Bureau is our opportunity."

Another, the wife of a director of a Farm Bureau, writes: "I am very much interested in the Home Economics work and hope to see much of it this year. I wish sometimes when you have some special meetings or conferences that you would let me go with you. There surely cannot be too many workers, and if I could know more about what others are doing I could help more."

The following extracts out of a letter from a young mother of five little children, show how intensely she is living and thinking as she goes about her manifold duties inside and outside of the farm home, and also points to some of the fundamental reasons why we farm people have great need to organize and work together.

"I am coming to you for advice and information. It seems we are in the same business for I see that you are our Chairman of Home Economics of the State Farm Bureau, and I am—

(Continued on page 709).

The Taste Is the Test

The flavor of food decides whether you like it or not.

No matter how nicely the table is decorated if the food doesn't taste good the meal is a disappointment.

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No. 2619—A Splendid "All Through the Day" Dress. Cut in seven sizes, 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 4½ yards of 44-inch material. Width of skirt at lower edge is about 2½ yards. To make collar and skirt of contrasting material 44 inches wide, will require 2½ yards. Price 10 cents.



No. 2779—Ladies' House Dress. Cut in seven sizes, 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 will require 5½ yards of 36-inch material. Width at lower edge is about 2½ yards. Price 10 cents.

No. 2800—A Comfortable Breakfast Costume. Cut in seven sizes, 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 5½ yards of 38-inch material. Width of skirt at lower edge is about two yards. Price 10 cents.

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Machine Made Buttonholes

CAN you make good buttonholes? Stitch in position on the garment. Probably not, for good buttonhole making is like good spelling—you must be born with the art. If you are not it can only be acquired by the sweat of your brow, and that after years and years of laborious practice.

If you are not expert, then, at buttonhole making, why not try making them on the sewing machine for your wash garments? These machine-made buttonholes are neat and durable, and two or three hours' practice with the

row of binding will conceal the stitching. A row of stitching down the outer edge will hold pieces firmly together for binding. Then you bind both edges of the buttonholes and your work is completed. Fig. 4-A shows how binding is applied, and Fig. 4 gives you the finished product.

These plain buttonholes will do very well for the children's clothes or for house dresses and other plain garments. For fine blouses and little girls' party frocks hem the strip with the foot hemmer instead of binding, then finish the buttonhole as for the bound one. A trimming of lace down either edge gives a dainty finish, as in Fig. 5.

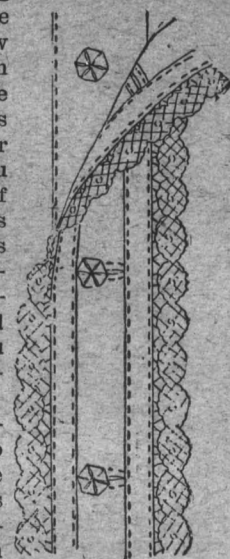


FIG 5

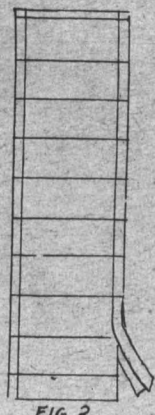


FIG 2

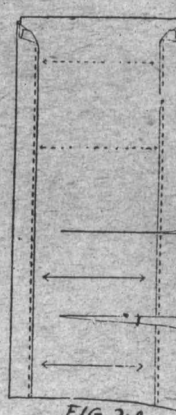


FIG 2-A

binder will enable you to make them readily. Study the illustrations carefully, then the printed direction, then the two together, and save yourself much future work and mental anguish.

To make the strip of buttonholes, take a strip of cloth as wide as you

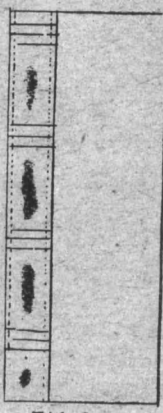


FIG 3

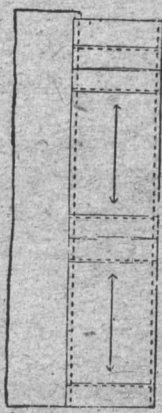


FIG 3-A

want your buttonholes apart. That is, if you want the buttonholes two inches apart take a strip of cloth two inches wide; if they are to be only an inch and a half apart, have the strip that width; if three inches apart, take a strip three inches wide, etc.

Bind both sides of this strip with straight binding about an inch in width.

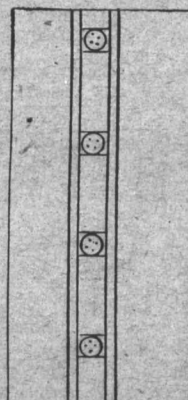


FIG 4

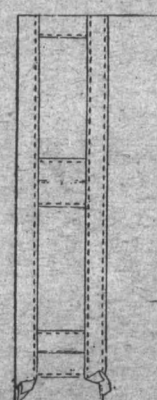


FIG 4-A

Next, measure the diameter of your button and cut this strip across into sections one-half inch wider than the diameter of your button. Figs. 2 and 2-A show the strip marked for cutting up, and the cutting started.

Take these sections and place down the side of the garment where the buttonholes are to be, with the bound edges just meeting. Figs. 3 and 3-A will move. A drop of oil in the door show the arrangement, the arrows in Fig. 3-A pointing to the bound edges.

TRANSFORMING A LIVING-ROOM.

(Continued from page 706).

"That is another of my convictions that I mean to live up to hereafter," declared her hostess. "I am tired of washing curtains, and I want to see out. I don't care what the neighbors say about the bare windows. See that nut-hatch helping himself to suet on the maple tree? From the middle of this room we saw the first blue birds last Sunday. We could not have seen them if lace curtains had hung there."

The visitor looked at her a bit curiously, and then at the tree again, where a downy wood-pecker had joined the nut-hatch. There was a clear whistle from the sumach bush and a flash of red as a cardinal flew past the window. "I never see the birds around our house," she said thoughtfully. "Perhaps—" She turned back to the room. "At any rate I'm going to recover Pa's arm chair and make over my dining-table. I don't know about the curtains."

FOR HOUSECLEANING TIME.

When buying stair carpets it is a good plan to buy an extra yard and fold it under at each end. When taken up to be cleaned it can be put down again so that the wear will come in a different place on the carpet, which will last about twice as long.—E. I. L.

When washing white enameled woodwork or any light painted wood, use half milk and half water, adding to this a teaspoonful of baking soda to one quart of the milk and water. It will make the woodwork look like new.—Mrs. J. J. O'C.

An article I find handy in my home is a long broom handle with a strong hook in the end. It saves me from climbing up and down from a chair every time I hang a picture or dust the molding or the picture frames. A stout hook can be purchased at any hardware store for a few cents, and it takes only a moment or two to insert it in the end of an old broom handle.—M. B. G.

When you are cleaning house do not overlook the value of the oil can. Carefully oil all castors on beds, dressers and tables and you will be astonished at the greater ease with which these articles that you have been tugging at edges just meeting. Figs. 3 and 3-A will move. A drop of oil in the door hinges or on an obdurate lock will work wonders.—Mrs. J. J. O'C.

WOMEN AND THE FARM BUREAU.

(Continued from page 707).

please don't be amused—in charge of the same line of work in our county. "I have some ideas of my own about this work, but I wish to get all the help I possibly can from every other available source. What suggestions can you give me for main lines of endeavor in home welfare improvement work, as they call it here? I want to do something for my county that will be of real and lasting value.

"We farmers and farmers' wives are wisely tired of too much "hot air," or, should I say "piping?" If a plumber did nothing but pipe and did nothing to make it possible for anything of value to be conveyed through the "piping," the home-keeper would be disgusted that his house was marred and cluttered up with pipes which alone were valueless; he would want a furnace at one end, and fuel to put in the furnace, and a system of dampers, drafts, etc., by which he could control his plant. Then he could rightly expect, if he did his part, to obtain warmth enough to maintain health and comfort. The Farm Bureau may be likened to a great furnace; those active in the voicing of the bureaucratic affairs, the "piping," the funds, the "fuel," the farmers and their wives, the "home-keeper."

"With the energy and funds the farmers put into the "furnace" they ought to be able to expect a good return. But the farmer must have a very good guarantee that it is worth while. We are busy people and are peaceably inclined, but we refuse to follow any more will-o-the-wisps. So many promises have been made and broken, or manipulated by politicians, that we are incredulous. Now this is the great obstacle to be overcome—this incredulity. We who believe in the Farm Bureau must prove at home in our own communities the workableness of co-operative methods.

"It seems to me that it is the wisest to start with things within our means and power to accomplish—a co-operative market, for example. This must be by the farmers. The business interests have bucked up against the farmer for time immemorial; they have lived off from us; and now the business men have edged their way into the Farm Bureau under the pretense of helping us.

"Now we are paying for too much "piping" in our government affairs. We must do something and at once. Farmers are taxed to death. Our time is taken up so completely working for a mere pittance that we must be brief and to the point in all we do. Agriculture is in distress. I love my country, I love my dear old Michigan, I love my county, and I love my home and family. It stands to reason that if I love my family I must love my home well enough to make it fit for my family. When America was in danger did our fine boys say, "I am not going to waste my good red blood in something so hazardous?" Some did, and we called them "slackers." Some did not—God bless those men! They are the ones who saved us. But, look here, did we knowingly put any slackers into the command of forces or in any way allow them to get an upper hand? We did not. They were made to do their part. Now, how foolish to allow "any freeholder or resident" to have a voice in our individual affairs. I say it's the farmer's business to look after his bureaucratic affairs.

"Oh, I'm so in haste, I've so much to do that I am probably not making myself clear to you. You see, we farmers have let things go at loose ends so long that we have not the time nor training to be oily, smooth-tongued orators that the predatory class have. Serious difficulties are going to arise if we do not watch out. Many times farmers say: "Let us get out and into some more profitable business," and we have of-

ten seriously considered doing so. But always I have thought it would be like deserting an old friend that's down and out. It would be like tearing my heart out to take my four boys and my little daughter from the clean, simple, country life. I guess I've lived it too long to change without paying dearly for it. But we must—we who care and know about true living—we must make life livable for agricultural people or quit. I don't want to quit. Maybe you think I am extreme, I'm not. It is just this fear of what people would think that makes so many lock their protests in their hearts and pray for better times. I believe in praying but in swinging my hammer too, I cannot live up to my ideals without acting the truth as well as thinking it. A New England conscience is a mighty uncomfortable thing to have, but "what does it profit a man to gain the whole world if he lose his own soul?" How can we be true christians or true citizens of America if we lose sight of our ideals or barter them?"

CONTRIBUTED RECIPES.

Carrot Soup.

- 1 pint milk
- 1 cup cooked carrot pressed through collander
- 2 tablespoons butter
- 1 tablespoon onion juice
- 1 tablespoon minced parsley, celery or celery salt.

Heat the milk, combine the other ingredients, add to milk and allow the vegetables to become thoroughly blended with the milk. The addition of a small amount of flour will make the soup the consistency of thin cream.

Raisin and Nut Loaf.

- ½ cup halved raisins
- ½ cup coarsely chopped walnuts
- ¾ cup sugar
- 2 eggs
- 2 cups milk
- 4 cups flour
- 4 teaspoons baking powder
- 1 teaspoon salt

Mix together the dry ingredients and sift four times. Add the nuts and raisins, mixing them well with the flour. Beat the eggs, combine with the milk and pour the liquid into the flour mixture. Put in a large, well-oiled bread tin, let stand twenty minutes, then bake fifty minutes in a moderate oven.

Vegetable Chowder.

- ½ pound dried lima beans
- 2 cups diced carrots
- 1 sliced onion
- 2 tablespoons fat
- 2 teaspoons salt
- ½ cup milk
- 1 tablespoon flour.

Soak the lima beans over night, then cook in that water until tender. Melt the fat, brown the onion in this and add it and the carrots to the beans. Cook slowly about half an hour, or until all the vegetables are very tender. Blend the flour with the milk and add ten minutes before the chowder is to be served.

Peanut Butter Pudding.

- 2 cups milk
- 4 tablespoons sugar
- 3 tablespoons peanut butter
- 4 tablespoons cornstarch
- ½ teaspoon salt.

Scald milk, add sugar, cornstarch, peanut butter and salt mixed together. Stir all until smooth, cover and cook for twenty minutes in a double boiler. Turn into individual molds or cups which have been wet with cold water. When cold turn out and serve with cream or fruit juice.

A paper hanger once suggested that I write on the back of some article of furniture in each room the number of rolls of paper required for papering that room. In the bedrooms I write this information on the back of the dresser, in the dining-room on the back of the buffet, etc. I have found this a great convenience.—Mrs. J. J. O'C.



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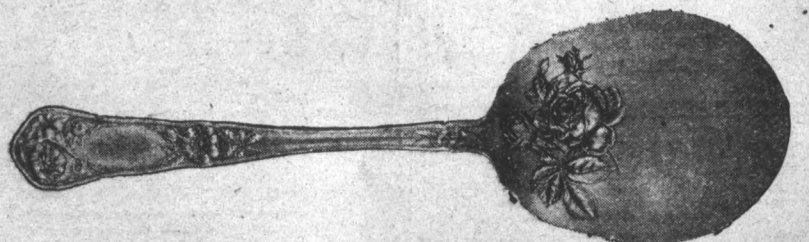
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Michigan Farmer	\$1.00	Michigan Farmer, 1 yr., wk.....	\$1.00
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Reid's Yellow Dent; Leaming; Pride of the North; White Cap Yellow Dent and Early Butler. Write for Price List.

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SEED CORN FOR SALE

Golden Dent long grown and acclimated in Michigan. Deep kernels, large ear and stalk. A heavy cropper. In ear 70 lbs. \$5.00 Shelled per bu. \$4.00. C. B. COOK, R. 1, Owosso, Mich.

Seed Corn for sale. Mich. Yellow Dent; this corn been grown on my farm for the last 25 years and will mature at \$4.00 a bu. including bags and also Plymouth Rock eggs at \$1.00 per setting of 13. JOHN LOHMAN, R. 3, Hamilton, Mich.

Seed Corn for sale. White dent, large ear and stock, heavy cropper and very early. Planted on bottom land the past season June, 15th and matured before frost stuck it. \$3.50 bushel. I. R. NEHER, Ross, Mich.

SEED CORN. Old reliable Mich. Yellow Dent. Home grown, fire-dried and tested. Also regenerated Swedish Select and Scottish Chief Oats. Circular and samples on request. F. A. BYWATER, Memphis, Mich.

Northern Grown Choice Michigan Pea Bean Seed for sale. These beans yielded 34 bus. per acre for last season. It pays to plant the best. Only \$5 per bushel. Order early. J. P. SEILER, East Jordan, Mich.

MICHIGAN GROWN SEEDS for Michigan growers. Ask for catalog. Harry E. Saier, Seedsman, 115-119 E. Ottawa St., Lansing, Michigan.

Seed Corn carefully selected; very early white dent also yellow dent; germination over 97%. CHAS. SCHNEIERLA, R. 2, Clinton, Mich.

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Buy & Sell CARLOADS CORN-WHEAT-RYE-OATS Bran Middlings FEEDS BATTLE CREEK, MICHIGAN



Perfect Drainage Increases Crop Yield and Land Value

THERE is nothing that so quickly improves the condition of soil like good drainage. Take a water-soaked field, put in a good system of open ditches, and with a covering of stable manure and fertilizer or lime added—depending on the nature of the soil—a year or two hence you will not recognize that same piece of ground. Why? Because drainage has got in its good work.

Without drainage the full benefits of lime, fertilizer or manure cannot be realized. A wet soil prevents the assimilation by the crops of the various food ingredients. The advantage to be derived from deep plowing, soil rotation or fertilizer will be small indeed if the soil is too wet during the growing season.

Proper drainage is the basis of any rational method of soil improvement. It raises the temperature of the soil to a remarkable degree, causing the seed to germinate much quicker and adds from two to three weeks to the growing season. Think what that means. It means very often the difference between crop success and crop failure. In addition to this, drained land is much more porous and open, permitting the plant roots to penetrate much deeper than they do in a tight water-soaked soil and letting in light and warmth.

In well drained land the effects of drouths will be much less disastrous, because the land is open and porous, allowing the water to creep up through the subsoil and feed the roots of the plants. In other words, a drained soil breathes and lives like a human being; whereas when covered over with a blanket of water the life is gradually smothered out of it.

Land should be properly drained before putting in a crop. The trouble with most farmers is they farm backward. No farmer can hope or expect anything like a fair return for his time, money, labor and seed unless he first drains his farm. What is the use of plowing, seeding, cultivating, and all the other hard work entailed in growing a crop and then let a heavy rain come along and drown it out? Where a good drainage system is in use, the water quickly runs off or is held in the ditches until it can sink away through the subsoil.

On account of its high cost, not every farmer can see his way clear to put in tiling. But with the advent of the latest improved ditching devices on the market, ditching is no longer a drudgery. So there is no longer an excuse for poorly drained land, as ditches can be thrown out as fast as a horse can walk.

Good drainage not only improves the condition of the soil and increases the crop yield, but also increases the value of the land. In many instances land which, before being drained was valued at \$15 to \$20 per acre has since drainage increased in value from \$50 to \$100 per acre.

There are many low sags, swamps and other waste places that ought to be drained and put under cultivation. The level and low land should also be drained. Every possible ounce of food stuff is needed to help feed the hungry people of Europe. This is the farmer's opportunity. Every farmer should drain before seeding. There is no method of soil improvement that pays such a ready dividend as does perfect drainage.—M.

Getting and Keeping a Stand of Alfalfa

(Continued from page 683).

Do not go by the percentage of blossoms present, but cut when the young shoots at the base of the plants are from one to two inches long. If cut before the first shoots start, one loses growth on the first crop; but if the little shoots are high enough to be clipped off by the mower, one obtains no more hay and he retards growth of the next crop.

The Value of Harrowing.

Alfalfa needs cultivation just as corn does, and for the same reasons, to retain moisture and kill the weeds and grasses. Do not harrow the first year as the seedlings may be torn out. If weeds are present, they may be clipped off with the mower. The second year, after the hay has been taken off, a spring-tooth harrow should be run over the field both ways, lightly the first time over, more deeply the second. This will tear out the June grass and weeds, produce a soil mulch, but it will not injure the alfalfa plants. Successful growers of this crop tell of harrowing the fields until no sign of alfalfa can be seen, yet the stand is uninjured. When one remembers that plowing and a year's cultivation are often insufficient to kill out well-established plants, it is not hard to believe that alfalfa will stand such severe treatment.

Pasturing and Top-Dressing.

Eight or ten inches of the late

growth of alfalfa should be left to protect the crop during the winter. This seems to protect the base of the plant holds the snow, and prevents to some extent the alternate freezing and thawing which often leaves the roots exposed. A top-dressing of coarse manure in the late fall will often save a crop on exposed ridges during a severe winter. The manure alone, or manure and phosphate, are important also in maintaining profitable yields. For the sake of the protection the late growth should not be pastured off. At its best alfalfa is not a pasture plant. Its manner of growth does not adapt it for grazing, except possibly for swine, which do it the least damage. Sheep are especially severe on it. Alfalfa is too valuable a crop for hay alone to risk losing it by heavy pasturing.

Summarizing briefly we may say that any fertile, sweet, and well-drained soil is adapted to alfalfa. Only hardy northern grown seed should be used and this should be inoculated with the proper bacteria. After a stand is secured, it should be protected from weeds and grass by frequent harrowing. Pasturing should be avoided, especially on the late growth. When put in right, four or five acres of alfalfa will yield, after the first year, as much feed as ten acres of average clover and it will be a continual source of superior hay so long as it is given the little extra attention it deserves.



BETWEEN GRASS AND HAY—THE SILO.

THE seasons known to stock keepers as "between grass and hay" come in spring and fall. They are trying seasons for the feeder. This is the time when dairy animals shrink in milk and the feeders of beef cattle know there will be a shrink in flesh. They are discouraging periods and are always accompanied with a loss unless they can be bridged by either liberal feeding of good hay and grain until there is good grass, or with good silage for the silo really makes these seasons of little consequence to the stockman.

In the spring of the year when hay gives out and the grass is just starting many men turn their cows on pasture and the result is likely to be a loss in milk production. The grass at this time is watery and thin, it looks fine and green from a distance and the animal is led on to every corner of the pasture. Like a mirage in the desert the lake of grass is always ahead. This spring the season between grass and hay is the most serious I have ever seen. Hay in this country is forty dollars a ton and pastures are just starting. Few men have hay and they have turned their stock on pasture. They really should not be turned on the grass for another three weeks in order to get the best grass and the best production from the animals. Those who have silos have grass all the time for silage is grass-like and is a substitute for pasture so there is no season between grass and hay with the silo owner.

I have found by experience in feeding dairy cows during the spring season, it is important to have a good supply of silage at the time when the cows are turned on the grass. It is better to conserve silage even at the expense of cutting out its feeding during the month of March than to force the animals to go without it during April. The feeding of silage should continue for several days after the cows are on the pasture for the grass lacks body and is very light in nutriment at this time.

Good feeding was never so important as now. Stock are exceedingly high and feed is high, therefore, the investment is great and it requires skill and knowledge to make a profit with such expensive foods. Certainly times are ripe for the silo. Some of our states have started silo drives. Utah, Colorado, Missouri and Virginia are all now urging more such buildings. This work is being conducted by county agents, agricultural colleges, and special committees. There is no excuse for forty dollar hay if we would but save the feed we have at hand. The consuming public have a right to complain if we do not use the best known methods of economic production. Make this between grass and hay season a thing of the past and cheapen your production and increase your profit. This means a silo.

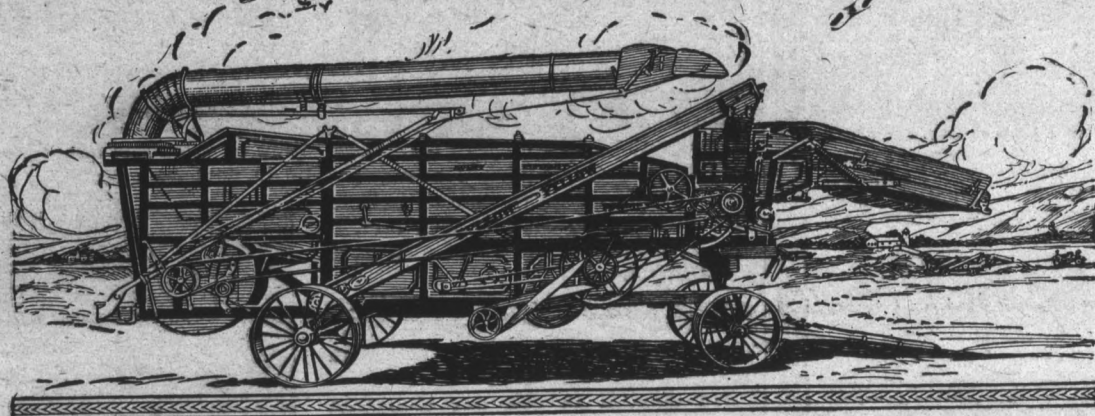
A. L. HAECKER.

DEVICE FOR DRENCHING STOCK.

WE have frequently had occasion to drench cattle, horses and pigs with medicine under the direction of the veterinary. The greatest obstacle we have yet encountered was the danger of the animal breaking off the neck of the bottle. To overcome this danger, we have wrapped our drenching bottle tightly about the neck with old rags, thus giving the animal opportunity to bite all it pleases, but without damage to the bottle. The rags keep the teeth from the neck of the bottle, and the danger is greatly lessened, if not totally removed.—W. E. Farver.

HYATT

ROLLER BEARINGS For Threshers



Standard After Years of Test

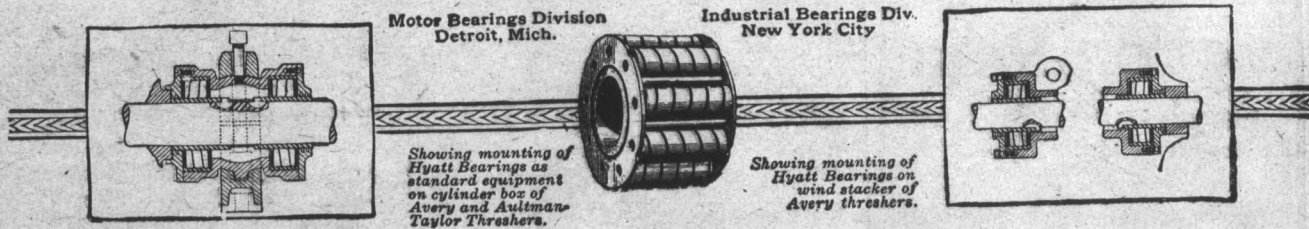
Many years ago experiments were conducted to find an anti-friction bearing suitable for use in threshers. But because of the extremely severe operating conditions, the effort was abandoned.

Three years ago these experiments were repeated, using Hyatt Roller Bearings. And after three years' testing by actual use at the hands of practical threshermen, Hyatt Roller Bearings have been adopted as standard equipment on the cylinder and wind stacker shafts of Avery threshers and are also

in the cylinder boxes of Aultman-Taylor threshers. Hyatt Bearings add reliability and durability, make it possible to operate the thresher with less power, save much valuable time in oiling, keep the job running steadily and effect a substantial saving in the upkeep expense.

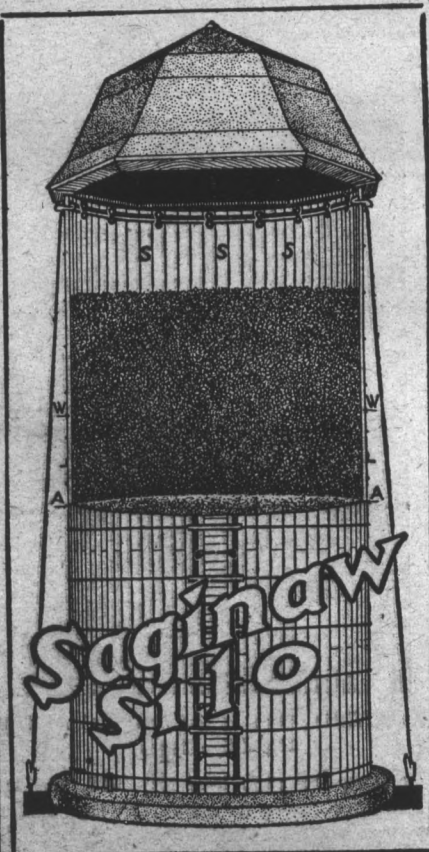
Know the value of Hyatt Bearings in your tractor, thresher, grain binder, plows and other farm machinery—write for the Hyatt booklet that explains these advantages in detail.

HYATT ROLLER BEARING COMPANY
Tractor Bearings Division, Chicago



A Saginaw Silo Makes Better Silage

Is More Convenient, Will Last Longer and Will Give Superior Service at Less Cost, Because it is Built by a Thoroughly Experienced, Progressive Silo Manufacturer



The Following Essentials Are Vital in Making Silage Properly

Smooth, regular, even silo walls which assist the silage to slip down and pack tightly. See S-S-S of illustration—(as far down as A-A, front half of silo and silage removed.)

Walls to be made of wood—a material non-conducting to heat. (See W-W.) Heat is necessary during the silage fermentation, making non-conducting wood walls necessary. There is less freezing next to wood.

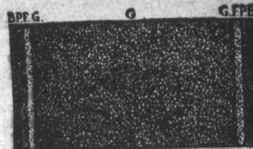
Walls of the silo must be airtight. Each union between the ends of staves is joined and locked by a steel plate (Spline-Dowel), and is sealed tightly by a special binding cement for wood (Silo-seal.)

Walls must be impervious to moisture. No silo wall should be used that would soak up the moisture of the silage or permit it to ooze away through the wall.

Six inches around the walls of a 14x30 silo represents more than one-eighth the entire tonnage. The six inches around the walls of a Saginaw Silo is exactly the same quality as the silage in the center of the silo.

You will find all of these four vital essentials in the Saginaw Steel-Built—the Saginaw Liberty with Cross-Truss—the Saginaw Leader—or in the Saginaw Tile Silo (if it is lined with wood.)

Let us give you more silo facts. Write today to Dept. 370



This represents silage taken from a silo which lacked one or several of the vital essentials.

Note dark layer of silage—B—"black"—bad silage. Usually is covered with mould and is foul smelling.

Next layer—P—"poor" silage, which may be of the same color as normal silage but the odor indicates poor quality.

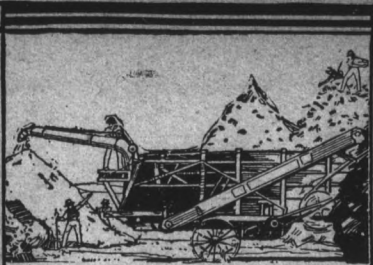
Next layer—F—"fair" silage. This is nearly the color of the normal silage—G—the odor is nearly the same but it lacks in food value.

THE McCLURE COMPANY
Cairo, Illinois Saginaw, Mich.

SAGINAW SILOS

Wood Steel-Built—Wood Stave—Wood Hollow-Wall—Masonry

BUILD NOW
CONSTRUCTION ADDS TO THE
PERMANENT WEALTH OF THE
COUNTRY AND THE INDIVIDUAL
U. S. DEPT. OF LABOR W. B. WILSON
Secretary



Let Your Repair Man Go

You won't need him with a Red River Special threshing outfit. Red River Special construction stays in good condition year after year. It's the threshing outfit that saves grain for the farmer and makes money for its owner. It has made a reputation for itself wherever grain is threshed. Get a

RED RIVER SPECIAL

and get the cream of the thresher business in your territory. You don't see owners of Red River Special machines losing business. It's because they don't lose the farmers' grain. Their threshers thresh clean. The big cylinder and the "Man Behind the Gun" beat out the grain and save it. Other makes wait for the grain to drop out.

It Saves the Farmers' Thresh Bill

If you want a thresher for your own use, ask about our Red River Special Junior.

The Nichols & Shepard Co. steam and gas traction engines are the strongest and most substantial built today. They are built for service. For the man who buys or makes an investment they will pay him big returns.

Nichols & Shepard Co.

In Continuous Business Since 1848
Builders exclusively of Red River Special Threshers, Wind Stackers, Feeders, Steam and Oil-Gas Traction Engines
Battle Creek Michigan

Let'er Rain



FISH BRAND SLICKERS

will keep you dry as nothing else will

POMMELS
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DEALERS EVERYWHERE
A. J. TOWER CO. — BOSTON. 219

Cheapest Way to Go is on a Bicycle



MEAD CYCLE COMPANY
DEPT. P-77 CHICAGO

THE SELF-OILING WINDMILL

has become so popular in its first four years that thousands have been called for to replace, on their old towers, other makes of mills, and to replace, at small cost, the gearing of the earlier Aermotors, making them self-oiling. Its enclosed motor keeps in the oil and keeps out dust and rain. The Splash Oiling System constantly floods every bearing with oil, preventing wear and enabling the mill to pump in the lightest breeze. The oil supply is renewed once a year. Double Gears are used, each carrying half the load. We make Gasoline Engines, Pumps, Tanks, Water Supply Goods and Steel Frame Saws. Write AERMOTOR CO., 2500 Twelfth St., Chicago

Mention The Michigan Farmer When Writing Advertisers

Our Boys' and Girls' Department

Some Michigan Club Champions

HOW I GREW MY CROP OF BEANS.

DURING the season of 1917 we had organized at Kent City a boys' farm accounting club.

We thought there was not enough active work in this form of club work, so that when our club leaders, Mr. Smith and Mr. Stuart, came up to Kent City shortly before Christmas, 1917, it was decided that we would also have a bean club.

The object of this club was to introduce better seed beans into the community, as beans are one of the main crops in this community.

We decided to call our club The Kent City Junior Seed Growers' Club.

It was decided that we should all raise Early Wonder beans if possible. I bought my seed beans from a nearby farmer, paying \$7.50 a bushel. I bought about half a bushel.

I picked them by hand, taking out all imperfect beans so as to plant only the most perfect seed.

For my plot I selected upland that had good drainage. The soil was a

If I raise beans next year I think I can overcome the drought by a couple more cultivations. This would tend to hold the moisture.

In spite of the drought the yield turned out to be good and the beans were of extra fine quality, which made up in part for quantity.



Eva L. Stephens, and Her Prize Pig.

After threshing I found I had exactly sixteen bushels of beans. I sold fifteen immediately to the local market, receiving \$5.10 per bushel. The total income from the acre would be \$81.60 and my total expenses came to \$20.90, leaving a profit of \$60.70 on one acre. It cost \$1.30 to raise a bushel of beans and a profit of \$3.79 per bushel.

HENRY B. BJORK,
Kent City, Michigan.

HOW I RAISED MY PIG.

I AM a member of the Rainbow Pig Club, organized last spring through the efforts of Mr. Spaulding, Mr. S. S. Smith, our county agent, and Mrs. H. P. Peters, secretary of the Davison Agriculture and Horticulture Society. There are nine members in the club.

I am a Pig Club member because I like outdoor work, so thought I would like to raise a pig and help feed the soldiers.

I obtained my pig through the Davison Agriculture and Horticulture Society. Mr. Smith and Mr. Peters deliv-



Rae White, One of the Original Albion Pig Club Boys.

ered us our pigs May 29, 1918, and as I did not have any pen for my pig, I put it in the sheep shed. The next morning one of the neighbors called up over the telephone and said there was a nice little, red pig over there. I went over and with the help of the neighbors and my parents, we got the pig home.

My pig weighed thirty-three pounds May 29, 1918, and fifty-four pounds on



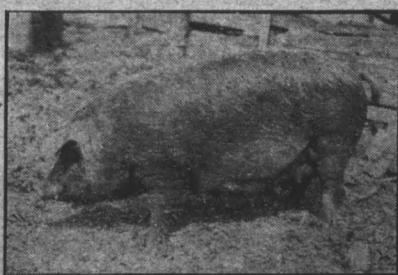
Henry B. Bjork, Bean Club Champion.

dark clay loam. I plowed under a heavy sod about two weeks before planting time so as to lessen the danger of the bean maggot. This would also give the soil a chance to settle. I harrowed it once after plowing and twice just before planting, disking it only once.

I planted the beans with a corn planter in rows fourteen inches apart in rows and thirty inches between the rows.

As soon as the beans were up I cultivated them with a fine-tooth cultivator so as to throw the soil under the leaves next to the stem so as to smother all the small weeds in the row. I cultivated them twice later in growing season.

The main trouble last season was the drought as that hit the beans pretty hard. But as a compensation for this there was very little disease. I did not notice any in my patch.



Rae White's Brood Sow.

June 15, the beginning of the contest. The pigs of this club are Duroc Jerseys. We decided on this breed so as to have one breed in the community.

My pig is registered and her name is "Model Girl B, 2nd," but my pet name for her is "Moxie." I always liked this name for a pet.

Pasture and green crops are good for pigs, because it gives them a place for exercise and a variety of feeds.

I fed my pig mostly barley, oil meal and skim-milk. At one time I fed my pig oats and corn with the other feeds. I always try to keep clean water in the trough between feeding periods.

I fed my pig four times a day, until September, and then I fed her three times a day. I spent my time with my pig, petting her, combing her, and carrying water for her to wallow in. My pig certainly enjoyed the wallowing place in hot weather. I think that she gained more by having a place to wallow in.

My pig became a great pet. I did not think that a pig could be such a



Wallace Kreiger, Potato Club Champion.

pet, or that I could like one as well as I do Moxie.

I weighed my pig every two weeks at first and then every week.

Mr. Smith, the county agent, and Mr. Edwards, from the M. A. C., gave me a few suggestions in regard to the feeding of my pig.

I exhibited my pig at the Davison Fair. I won first prize on a Duroc Jersey female, over three and under six months of age, in a class of twelve pigs. In special prizes offered to Pig Club members I won first prize offered for the prize pig of Genesee county, and first prize for the best Duroc Jersey female under seven months of age, and also grand champion Duroc Jersey female.

I found out that well-bred pigs are better than scrubs, because it does not cost as much to raise them and they bring more money in the end.

EVA L. STEPHENS,
Davison, Michigan.

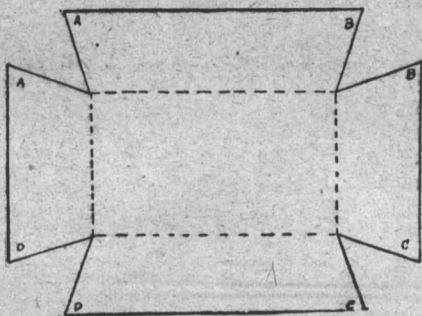


A Fine Bunch of Pigs.

Handicraft for Our Girls

HAVE I been neglecting the girls on this page? I didn't realize it until the other evening a certain little brown eyed girl climbed upon my knee and said: "Daddy, why don't you ever put anything in the paper for girls to make?" I replied that I would do so at once, and here we have it—a work basket, and not at all difficult to make.

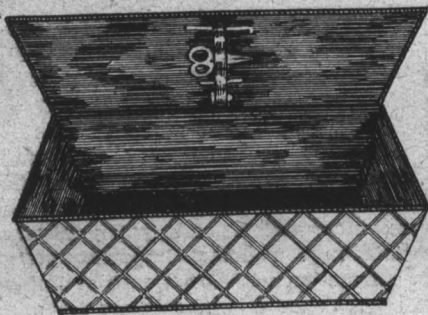
Take a piece of heavy cardboard and on this draw a pattern similar to the picture, and cut out. Bend the four side pieces along the dotted lines, taking care to follow the lines carefully so that the bottom of the box will be quite even. Straighten the cardboard again, and using it for a pattern cut two pieces of cretonne about a quarter of an inch larger than the pattern. Then glue (or overcast) the cloth on the cardboard back and front, careful-



ly turning in the edges all around. When this is done, let it dry for one day.

Then bend your cardboard sides into position and join the corners, A-A, B-B, C-C, and D-D, by sewing the cloth on the two sides with over-and-over stitches, using a strong thread.

Now we have the work-box covered



and lined and if we sew a piece of cord round the bottom it will make a neat finish and slightly raise the box. To make the cover, cut a piece of cardboard to exactly fit the top of the work-box, put a layer of cotton padding on both sides and cover with cretonne. Sew a strip of the material on the inside of the cover, caught at intervals, to hold scissors, thimble and other things. Slip two small pieces of material under the cover and back of the work-box and fasten firmly, to act as hinges. Sew a piece of the cord round the cover edge and the work-box is finished.

Little Boy's Wild Friends

By Orpha B. Roe

ONCE there was a little Boy who loved all the wild things; the birds, the spiders, the caterpillars, the butterflies, the tadpoles, and even the little green snakes.

He knew where the meadow lark made her nest in the grass; he was the first to find the tree where the baby robins were being fed; he sat for hours watching the queer looking spiders weaving their webs in the bushes, and once brought home a big gray spider in a box, which he kept for a long time hoping it would show him what kind of a web it could weave. When it wouldn't weave he said the spider was homesick and he put it out on the vines around the porch.

He gathered the little brown houses the caterpillars make when they get tired of being caterpillars and want to be butterflies, and watched them crawl out of their houses and unfold their pretty wings to fly away.

When Little Boy's mother was sweeping one morning, she found a lot of brown and yellow fuzzy things crawling round on the carpet, on the couch, and on the lace curtains. She said:

"Little Boy, where did all these caterpillars come from?"

"Oh, mamma," said Little Boy, "I was so sorry for the little caterpillars last night when they crawled round trying to find a warm place to sleep that I brought them in and put them in the big vase; please don't throw them out, mamma."

Little Boy brought home tiny minnows and tadpoles from the pond; he put them in a great glass jar, and took much delight in feeding them. One day he told a boy at school that tadpoles grew to be frogs, and this boy said, "Aw, I don't believe that, frogs don't have tails," so Little Boy took his friend home with him to see the tads grow, until he was convinced that little tads grew into big frogs.

One cold morning in winter Little Boy ran to his mother crying, "Oh, mamma, all my fish are froze!"

Sure enough Jack Frost had iced the water so that the fish could not swim and Little Boy thought they were all dead. But mother put the glass jar

near the stove and while he watched, the warm air melted the ice and they soon began to wiggle as lively as ever.

One day Little Boy came home from a walk in the woods with a green snake in his pocket. He scared little sister by making snake open his mouth and wiggle his tongue at her. He didn't mean to scare her, for he wasn't afraid of snakes and didn't see why she should be; he thought it was just funny to see the little tongue wiggle. When Little Boy's papa said something about killing the green snake, Little Boy ran out into the bushes and when he came back he said:

"I told snake to run along home to his mamma, she might be worried about him if he stayed any longer."

Best letters on "How I Earned my First Dollar," published next week.

Our Prize Contest

TO the boy or girl writing the best letter, of less than 250 words on each of the following subjects, the Michigan Farmer will give a cash prize of \$1.00.

(Subject of letter to be mailed by May 12):

"The worst bargain I ever made."

(Subject of letter to be mailed May 19):

"The best teacher I ever had."

Subject of letter to be mailed by May 26:

"Why I joined our Boys' or Girls' Club."

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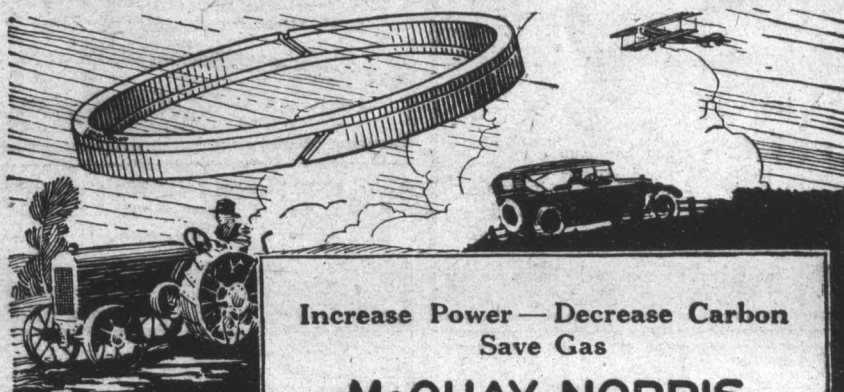
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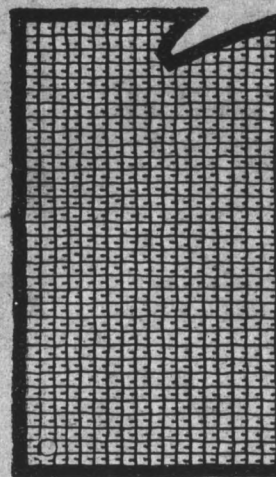
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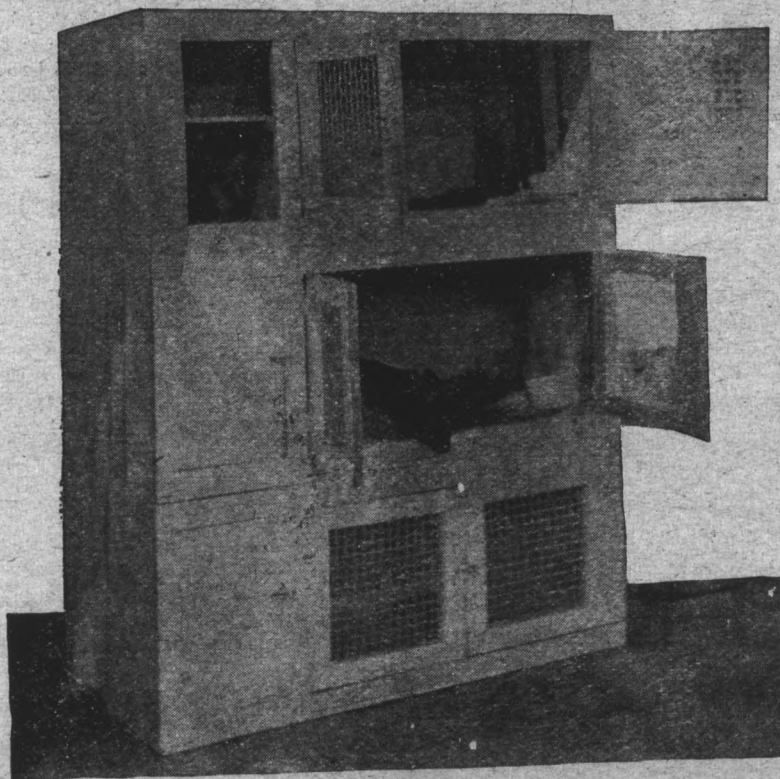
Houses, Hutches and Yards

By E. I. Farrington

IT is quite possible to keep rabbits in yards out of doors, and when the Belgian hare boom was at its height some years ago, many of the leading breeders constructed houses with yards attached, very similar to poultry houses. As a rule, though, rabbit keepers now days confine their animals to hutches. Of course, it is a simple matter to make a hutch from a drygoods box, or to make a series of hutches by the use of second-hand lumber, or perhaps boxes from the grocery store. The hutches may be very inexpensive, and yet perfectly satisfactory. The most important point in connection with any house or hutch is that it should be absolutely dry and free from drafts. It should be reasonably roomy, too, because rabbits suffer if confined to very narrow limits. Of course, it is not necessary to have as large hutches for rabbits like the Himalayans and the Polish as for Belgian hares and New Zealand Reds, while Flemish Giants need larger hutches than any of the breeds mentioned.

The hutch must contain a nest box unless it is to be given over wholly to the use of bucks or young animals. This is simply a smaller box placed in one corner. This box should be about eighteen inches square and about a foot high. The box should have no top, but should be inverted on the floor of the hutch. At one end an opening large enough to admit the doe readily should be made, but this opening should be placed if possible away from strong light.

There are several ways of arranging for the easy cleaning of an improvised hutch. One plan is to have double wire doors. Another and less expensive method calls for a wire-covered frame which fits tightly against the front of the box and contains a small door. When the hutch is to be cleaned the entire front can be taken off. Another way is to have a board about six inches high placed across the front of the hutch and resting on the floor, being held in place with a button or a hook at each end. The rest of the space may be covered with wire. At cleaning time this board may be re-



As a Rule Rabbit Keepers Confine the Animals to Hutches.

saves labor as well as space, yet it has its disadvantages. The fundamental essential in the rearing of rabbits is cleanliness, and it is more difficult to attain complete sanitation when the hutches are stacked than when each hutch stands by itself. A method which has been adopted by some successful breeders is to have each hutch constructed with sloping roof, a block being placed so as to elevate the floors of the upper hutches to the proper height. Then liquids coming through the floors of the hutches are drained away instead of soaking through into the hutch beneath. It is desirable to have the roof of each hutch covered with heavy roofing paper, or better still, with tin. The so-called self-cleaning hutch, often used in warm sections of the country, has the floor made of heavy wire netting or hardware cloth. Very little litter is used in such a hutch, and the droppings fall through, being gathered up from the ground or from a box underneath. In more elaborate hutches light drawers are arranged under the wire floors to receive the droppings, a plan which makes cleaning very easy. The average rabbit keeper, especially the amateur, is satisfied with a tight floor covered with sawdust or some other absorbent. It is best, of course, to have the floor made of matched boards and with as few cracks as possible.

moved and a scraper used to pull out the litter.

If the rabbit raiser is to keep his animals in the open air all the year round he will need some kind of roof or shelter which will project a foot or more over the front of the hutch or stack of hutches to exclude both rain and a certain amount of direct sunshine. There is no better disinfectant than sunlight, and most rabbits like to bask in it. At the same time it is exceedingly injurious in midsummer when the weather is very hot. Moreover, exposure to direct sunlight fades the coats of several breeds. It is not wise, however, to keep rabbits in semi-darkness. Even though their coats may be benefited slightly from this treatment, their health is pretty certain to suffer out of all proportion to the advantage gained.

It is always advisable in northern parts of the country and in Canada to have some kind of shed or other building for housing the rabbits in midwinter. At the same time, this is not necessary, and it is better, as a matter of fact, to have the animals in outside hutches than to keep them in any building which is damp and gloomy. When outside quarters are to be adopted, the rabbit keeper must provide an extra amount of straw or hay for the rabbits to burrow in. It will also be for their comfort to construct a board shutter to be placed at the front of the



hutch at night, a small opening at the top providing ventilation. In lieu of such a shutter, canvas, oiled muslin or even heavy burlap may be used. With these substitutes, though, ventilating openings should be bored at the ends of each hutch.

Now that rabbit keeping has come to be a recognized commercial industry, more attention is being given to the construction of rabbit houses. Several leading breeders have long buildings, with a series of alleys running through them, and with two tiers of hutches opening upon each alley. On the Pacific coast some of the rabbitries have open sides all around, but are covered with a broad roof to exclude the rain and hot sun. The hutches, usually of the self-cleaning type, are arranged in long rows under this roof, usually back to back, so as to face on parallel alleys.

It is an excellent plan to have an outside run in connection with hutch. This may be made of wire netting and mounted on legs, or it may rest on the ground. Even in the latter case it should have a floor either of boards or wire. Too much emphasis cannot be placed upon the necessity of having such a run, or in fact any kind of outside hutches, made very strong. Otherwise, the rabbit keeper is likely to have his stock wiped out by the depredations of dogs, which often become a serious menace, and must be taken into account when the rabbitry is being planned. It is usually advisable to cover hutches with wire of a close enough mesh to exclude rats and mice which are likely to gather wherever grain is to be found.

The question is often asked why rabbits cannot be kept in large enclosures having tight wire fences. This plan was tried out more or less extensively at the time of the Belgian hare boom already mentioned. It was thought then that by fencing in several acres the rabbits could be turned loose and allowed to multiply without let of hindrance, the expectation being that in a few years a very large number would have been accumulated at almost no expense for feeding or care. This alluring proposition, however, failed to work out. Domesticated rabbits, being made breeds are not adapted to even a semi-wild life. If turned out to shift for themselves they are soon entirely exterminated. Like cows or sheep, or any other of the farmer's live stock, they need man's protection and care.

It is possible, though, to keep rabbits in a small yard or court if the number is not large. A paved court or one with a board floor can be handled in much the same way as a hutch except on a larger scale, and will accommodate a considerable number of young animals. Wire netting may also be used to cover the bottom of an enclosed yard. It is an advantage to have it an inch or two under the surface. Unless prevented by some kind of barrier the rabbits will dig holes all through the ground, and some of these holes will very likely lead outside the fence to liberty. Unless such a yard is connected with an inside hutch, there should be boxes into which the animals can retreat when alarmed. A rabbit fence should be firmly made of heavy poultry netting five or six feet wide, and having one-inch mesh.

If the yards can be used for one season and then shifted, or if the ground can be kept sanitary by sowing one-half of it to rye or some other green crop at intervals, this plan may be followed successfully in rearing rabbits out of doors. There is always danger,

though, that the ground will become foul and the animals become affected with internal parasites, known as coccidiosis, which are introduced by unsanitary conditions. Moreover, much more space must be used for a limited number of rabbits than when the hutch system is adopted.

LOSES SIXTY HENS.

Please tell me what ails my hens, also a remedy and amount to be given. They refuse to eat, look pale and stupid and get poor and lame. Sometimes liver is enlarged, intestines are shriveled, and droppings discolored and thin. Some have different symptoms than others. I have lost sixty in the past year. One now eats well but refuses to walk. I have tried many things and never cured one yet.

St. Joseph Co.

Mrs. J. E. O.

The emaciation of the birds and the lameness would indicate tuberculosis. Birds that show any signs of this disease should at once be killed and burned because it can spread through an entire flock and cause serious losses. The fact that sixty birds have shown the described symptoms during the past year would indicate that the disease has a good start in the flock and nothing will be gained by trying to doctor them. It will pay best to kill all of the birds and obtain hatching eggs from a vigorous bred-to-lay flock and start over in the poultry business after thoroughly disinfecting the poultry house and plowing up the yard about the poultry house so that the new stock can have the advantages of clean soil. If you have a large flock of poultry and only a small per cent have shown disease it will be best to have an experienced poultryman in the community to examine the flock or hire a veterinarian as it is difficult to accurately diagnose all poultry troubles without examining the afflicted birds.

G. K. R.

LEG WEAKNESS IN FOWLS.

I have one hundred pure-bred Plymouth Rock hens. I feed oats, corn and wheat, and they have free range, running to barley stack. They have oyster shells and some milk. Every week one or two lost the use of right leg, sometimes both, and soon die. They are young pullets and old hens, eat good and have red combs, are not over fat. I wish someone would tell me what to do.

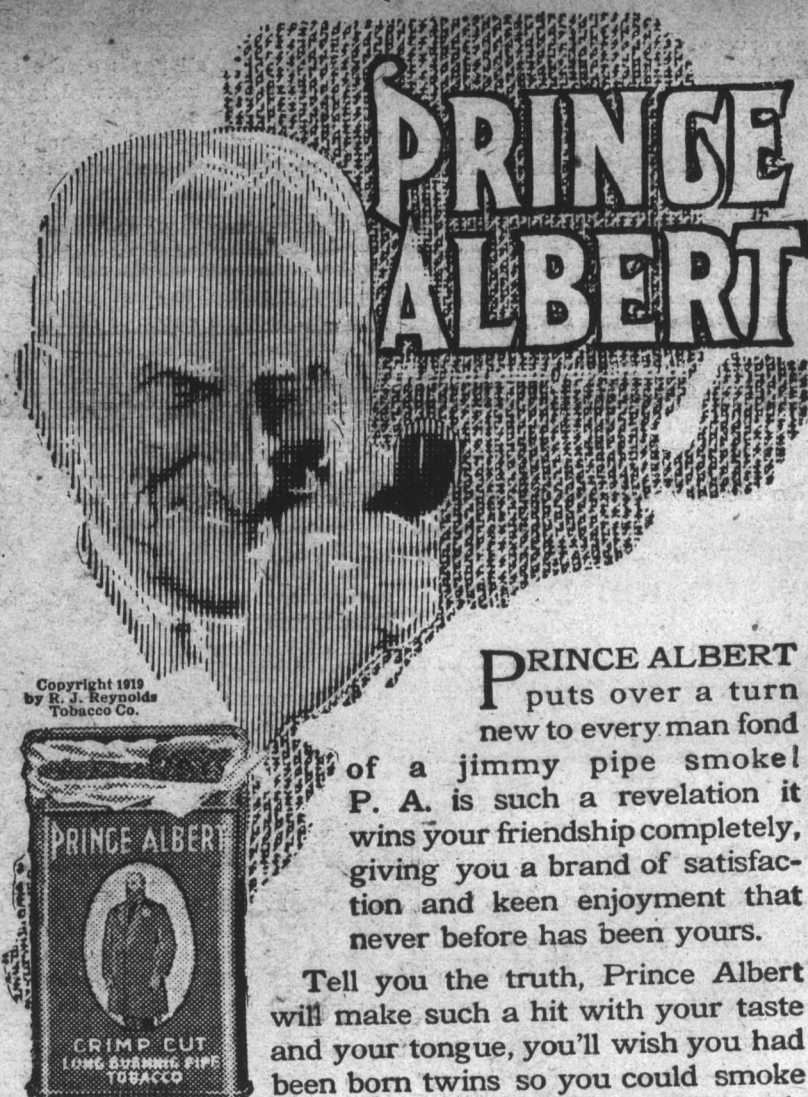
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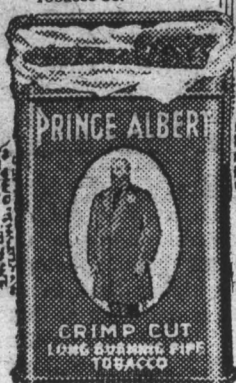
In leg weakness of adult fowls there is no inflammation and swelling of the joints as is the case with joint trouble and the lameness does not go and return as in the case of rheumatism. Diarrhea is usually present and sometimes the bird loses its appetite while in other cases the bird will be hungry although it will have great difficulty in eating with the flock because of losing the use of one or both legs. As the disease progresses the bird becomes more devitalized and emaciated and dies while lying helpless without any use of its legs.

According to the best authorities on poultry diseases, they have been unable to isolate any germ that causes leg weakness, and have not been able to reproduce the trouble in healthy birds. This trouble seems to be largely prevented by keeping the birds on good rations in a dry, well ventilated house. A damp house or damp dirty litter seems to be one of the causes of leg weakness. Afflicted birds can be isolated in a dry house and doped with castor oil and good feed. Cases of leg weakness occur in the best managed flocks. Usually it is best to kill the sick birds immediately and try to keep up the vigor of the remainder of the flock.

K.



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We have a few females with calves at foot and re-bred to "Edgar of Dalmeny" that Mr. Scripps has consented to sell to reduce the fast growing herd.

Write To

WILDWOOD FARMS

ORION, MICHIGAN

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

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

WOODCOTE ANGUS

Established in 1900.

TRAJAN-ERICAS and BLACKBIRDS (Blackcaps). Breeders and feeders of many International winners.

Write For 1919 Bull Sale Catalogue

WOODCOTE STOCK FARM, Ionia, Mich.

Cloverly Angus Bred cows, heifers and bull calves of good breeding. GEO. HATHAWAY & SON, Ovid, Mich.

Purebred Angus bull, fifteen months old, extra good prospect; also will sell my herd bull Blackcap Model No. 216132. F. J. LYON, Homer, Mich.

Registered Guernseys

Bulls, and Bull Calves, good enough for any breeding at prices you can pay. J. M. WILLIAMS, North Adams, Mich.

Guernseys Grade Heifer Calves Registered Bull Calves; write your requirements. WALTER PHIPPS FARM, 80 Alfred St., Detroit, Mich.

REGISTERED

GUERNSEYS

Just two young yearling bulls left, ready for service. Come and look them over quick, or write. They are the good ones. Priced to sell.

AVONDALE STOCK FARM, WAYNE, MICH.

GUERNSEYS must reduce herd, so offer a few choice females of Glenwood breeding also bulls, all stock of A. R. breeding, herd tuberculin tested. T. V. HICKS, Battle Creek, Mich.

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



Holstein Cows
Most Profitable.

In all tests conducted by experiment stations to find out the relative profits in heavyweight and lightweight cows, the big Holstein wins. A test at the Wisconsin station between five Holsteins and five medium-weight Jerseys showed that in one year the Jerseys earned \$50.01 and the Holsteins \$95.31 per head.

If interested in

HOLSTEIN CATTLE

Send for our booklets—they contain much valuable information.

HOLSTEIN FRIESIAN ASSOCIATION OF AMERICA, Box 164, Brattleboro, Vt.

"Top-Notch" HOLSTEINS

The young bulls we have for sale are backed up by many generations of large producers. Buy one of these bulls, and give your herd a "push". Full descriptions, prices, etc. on request.

McPherson Farms Co., Howell, 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.

BREEDING EWES WANTED.

FARMERS in all parts of the country are showing renewed interest in the sheep growing industry, and there is a wide-spread demand for good breeding ewes and bucks. Michigan and Wisconsin farmers are showing especial interest, and the Michigan upper peninsula farmers are wide awake, numerous shipments of breeders being made to that part of the state, where the cut-over districts are so admirably adapted to sheep growing. Feeding lambs also are wanted by many of these farmers, and some good-sized shipments have been made from Wyoming. A similar awakening is taking place in the western Canadian provinces, and the governments of these provinces are doing much to encourage sheep breeding in Saskatchewan, Alberta and Manitoba. Quite recently the government of Saskatchewan has imported into that province from the state of Washington a valuable lot of pure-bred Rambouillets. This is described as one of the most valuable importations ever made, and the government is reselling them to the farmers at cost, giving highly favorable terms. There are about two million sheep in these western provinces. At the present time sheep growing districts are marketing little in the way of live muttons except lambs, and the other day the Chicago market received its first carload of California lambs for the season, \$20 per 100 pounds being paid. Lambs sell far higher than in normal times. No longer ago than at this time in 1916 the best lambs sold on the Chicago market at \$11.90. Not long ago a sale was made in the Chicago market of 655 head of woolled ewes from Colorado weighing on an average 94 pounds at \$15.75 per 100 pounds, which was a high record price. On the same day there was a sale of 519 head of 79-pound woolled lambs at \$20.50. The two unpleasant features of the Chicago sheep and lamb market are too generous shipments of poorly fed western and native-fed lambs and the habit of many years standing on the part of the big packing firms of making heavy purchases of lambs in Denver and other far western markets for shipment direct to their Chicago plants for the purpose of holding down prices in their home market. It is perhaps needless to remark that marketing thin lambs or sheep is bad business policy, as the killers insist on knocking off prices to an extent that leaves little, if any, profit to owners. W. W. F.

RESTOCKING PASTURES WITH CATTLE.

THE time is here for restocking the pastures with cattle, and desirable lots of feeders have undergone steady advances in prices for several weeks, placing values for the better class at the highest figures on record. While it is impossible to forecast the future, it may be said that in the light of past experience, there is danger of paying too high prices, although some farmers are in the habit of buying expensive feeders and coming out well ahead. With high priced feed, most stockmen study how best to keep the cost of fattening their cattle within moderate bounds, and there are many who go to the extreme of feeding so sparingly that when their cattle are marketed, good profits are lacking. Heavy beefs have gone completely out of fashion, and the few such shipments are sold at a generous premium over prices for good cattle of light weight. Of course, cattle must have something besides grass if they are to be made choice in quality, and corn, silage, cottonseed meal all come in for use, as well as clover hay and molasses feed, in addition to grazing.—W. W. F.

A success is some one who has done something better than a careless or indifferent person would have done it.

Great Dispersion Sale

Of The Entire Herd of 55 Head Owned By
MARK H. PIPER

And 22 Head of Similar Breeding From The Herds of
L. C. KETZLER and Floyd Pierson

77 Choice Registered Holsteins 77 Flint, Mich. May 13, 1919

The sale includes the two herd sires—

ADMIRAL RAG APPLE, 234267, a yearling son of Rag Apple Korn-dyke 8th. His dam, at 4 yrs., and sire's dam average 35.26 lbs. butter and 612.7 lbs. milk in 7 days. A remarkably bred young sire and a fine individual.

FLINT HENGVELD LAD, 124989, senior herd sire, a son of the former World's Champion, Flint Bertjusca Pauline. His dam, at 4 yrs. and sire's dam average 32.7 lbs. butter 735 lbs. milk in 7 days. A show bull with a remarkable pedigree. 17 daughters of this great sire will be included in the sale.

53 cows and heifers in calf to these two great herd sires, including 11 A. R. O. heifers ranging from 17-lb. yearling to 27.8-lb. Jr. 3 yr. old records. A 31.5 lb. cow and a 34.8-lb. cow and 11 others from 22.5 to 29.5 lbs.

A few choice bull calves from high record cows.

Tuberculin-tested by approved veterinarians.

MICHIGAN'S GREATEST OPPORTUNITY

Sale held under cover at the Piper Farm, 1 mile north of Flint, starting promptly at 12:30 P. M. Tues. May 13th.

Sale Headquarters Hotel Bryant, Flint.

Write for a Catalog to

MARK H. PIPER, Flint, Mich.

Registered Holstein Bull calves from A. R. O. cows up to 29.32 lbs. butter in 7 days, grandsons of the \$50,000 bull. C. H. GIDDINGS, Gobleville, Mich.

CLUNY STOCK FARM

100--REGISTERED HOLSTEINS--100 When you need a herd sire remember that we have one of the best herds in Michigan, kept under strict sanitary conditions. Every individual over 6 mos. old regularly tuberculin tested. We have size, quality, and production records backed by the best strains of breeding.

Write us your wants.

R. BRUCE McPHERSON, Howell, Mich.

"Winwood Herd"

REGISTERED
Holstein-Friesian Cattle

Sire in Service
FLINT MAPLECREST BOY

His sire is Maplecrest Korndyke Hengerveld. His three nearest dams each over 30 lbs. of butter in 7 days. His dam and granddam both made over 1232 lbs. of butter in one year. It is the yearly cow we are looking for to deliver the goods. Flint Maplecrest Boy's Dam is Gluck Vassar Bull, 30.57 lbs. of butter in 7 days and 121 lbs. in 30 days. Her butter fat test is 5.27. This looks about right to the man who goes to the creamery. We have bull calves from 2 weeks to 12 months old. From A. R. O. dams and sired by Flint Maplecrest Boy, which we will sell at a dairy farmers price breeding considered. Just think 40 more cows to freshen which means more bull calves. Let us know your wants. We will make terms on approved notes.

JOHN H. WINN, Inc.
Lock Box 249, Roscommon Mich.
Reference Roscommon State Bank.

BULL CALVES

Sired by Mapleside Korndyke No. 112849. The sire's dam at 2½ years, granddam at 3½ years, and great granddam have semi-official records averaging 642 lb. butter in 1 year. Dams of calves have A. R. O. records up to 19.23 lb. butter in 7 days. Write for breeding and prices.

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

THE HOLSTEINS

At Maple Avenue Stock Farm are under Government supervision. The entire herd have just been tuberculin tested and not one reactor. A good place to buy that bull you are looking for, and I have two very fine, richly bred, and splendid individuals ready for any amount of service. I want to answer any question you may ask about them.

L. E. CONNELL, Fayette, Ohio

For sale A fine registered Holstein bull calf from large producing ancestors, born Dec. 18, 1918. Would make a fine sire for improving a grade herd. Price reasonable. A. F. LOOMIS, Owosso, Mich.

Bulls All Sold have two Reg. Oxford ewes at \$50.00 each. Due to lamb soon. J. ROBERT HICKS, 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.

WANTED a Reg. Holstein Bull dam better than 30 lb. PARHAM'S PEDIGREE STOCK FARM, Bronson, Mich.

JERSEY BULLS

Ready for service FOR SALE WATERMAN & WATERMAN, Ann Arbor, Mich.

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

Maple Lane R. of M. Jersey herd. Bull and heifer calves sired by a nephew, the new World's Champion, Sophie's Agnes. Also R. C. Red eggs and chicks. IRVIN FOX, Allegan, Mich.

LILLIE Farmstead Jerseys. Young bulls ready for service from R. of M. cows. A few bred heifers and cows. COLON C. LILLIE, Coopersville, Mich.

For Sale Jersey Bull, Goldie Foxhall Lad No. 170446, Sire Regis Foxhall No. 12649 Dam Goldie Sophia No. 332783, this bull is solid color, black tongue and switch, dropped Mar. 10th, 1918, an extra fine individual, good enough that I will ship him C. O. D. Also a few bull calves. Address NEWMAN'S STOCK FARM, R. 1, Marlette, Mich.

The Wildwood Jersey Farm. Bulls for sale by Majesty's Oxford Fox 134214 and Emment Lad's Majesty 150934, and out of R. of M. Majesty dams. ALVIN BALDEN, Capac, Mich.

For Sale Registered Jersey bulls ready for service and bull calves. SMITH & PARKER, R. 4, Howell, Mich.

HEREFORDS

Both sexes and all ages for sale also horned and polled. Bulls in service. Governor by Prince Donald by Prime Lad 9th, Militant Farmer by Imported Farmer, Fairfax Farmer by Militant Farmer, Dam by Perfection Fairfax.

ALLEN BROS., Paw Paw, Mich.

Harwood's White Faces

KEEP ON 508019
A Ton Bull Heads the Herd
The beef cattle of the day. Only 2 yearling bulls left. My 1918 crop of bulls ready for sale. Will spare a few females. You can not make a better investment. I wish to thank my customers for past favors.

JAY HARWOOD, --- Ionia, Mich.

Herefords Polled and Horned blood lines embrace Fairfax, Polled Perfection and Prime Lad 9th breeding. Prices reasonable. COLE & GARDNER, Hudson, Mich.

Herefords Bob Fairfax 49427 at head of herd. Stock for sale, either sex, polled or horned, any age. Priced right. EARL C. McCARTY, Sec'y, H. B. Ass'n, Bad Axe, Mich.

BIDWELL SHORTHORNS

For Beef and Milk.
Registered bulls, cows and heifers—Good Scotch and Scotch-Topped for sale. In prime condition. Modern sanitary equipment. Farm 10 minutes from N. Y. C. depot, 1 hour from Toledo, Ohio. Automobile meets all trains. Write

BIDWELL STOCK FARM,
Box B, Tecumseh, Mich.

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

Richland Stock Farm

SHORTHORNS
HOME OF THE MICH. CHAMPIONS
We offer for sale a few good dual purpose cows with calves at foot. Also two three year old bulls suitable for range purposes. We invite inspection. C. H. PRESCOTT & SONS,
Office at Tawas City, Mich. Herds at Prescott, Mich.

Shorthorns Scotch and Scotch Topped cows and heifers, priced right. Come and see them or write W. B. McQUILLAN, R. 7, Howell, Mich.

SOME EMERGENCY HAY CROPS.

(Continued from page 684).

milk stage furnish a very useful hay crop. In the late milk or early dough stage is the best time to cut, considering both palatability and the highest feeding value.

A yield of from one and a half to two and a half tons per acre should result from oats utilized for this purpose on adapted soil.

Sorghum.

Sorghum may be used for either silage, fodder or hay purposes. For silage it is handled in the same way that corn is handled, but may be planted at a considerably later date. The best planting time is about one to two weeks after ordinary corn planting season, when the ground is well warmed up. For silage sorghum should be planted in rows thirty-two to thirty-eight inches apart, using eight pounds of seed per acre. Sorghum will yield about as well as corn and make almost as good a silage.

For hay or fodder sorghum is seeded with ordinary grain drill at the rate of forty pounds per acre. It is cut when the seeds are in the early dough stage, using the ordinary mower, and curing in small cocks. Yields of three to five tons of dry forage may be expected on good land from sorghum. The Early Amber Variety is the best for Michigan. Sorghum is a heavy surface feeder and its effect on the land is often noted the following seasons on other crops.

Sudan Grass.

Sudan grass is one of the recently introduced forage crops. Experience with this crop in Michigan has given a divergence of opinions.

If Sudan grass is planted on land fertile enough to produce a good crop of corn at a fairly early date in late May or early June, it will produce an excellent crop of hay of somewhat better quality than millet hay. As yet this crop has not supplanted millet, owing chiefly to the comparatively high price of Sudan grass seed and to the fact that it is often allowed to become too coarse and woody before harvesting.

It may be planted with the ordinary grain drill, or broadcasted, using from twenty to thirty pounds of seed per acre. From one and a half to three tons of hay should result from this crop, according to seasonal conditions. One crop per season is produced in Michigan, though in southern states two or three are harvested.

Soy Beans.

Soy beans can be employed as a useful emergency crop where the clover crop has failed. They should be planted in late May or early June on ground prepared as for field beans drilled with grain drill or broadcasted, using from one and a half to two bushels of seed per acre.

The varieties recommended for hay are the Early Brown, Ito San, Medium Yellow, and Medium Green; and in northern counties early strains of Ito San, Early Black and Ogemaw.

The harvesting is done with the mower after the pods form and start to fill. The hay is made with difficulty, particularly during rainy weather. The stems take considerable time to dry out. By practicing care in curing in the cocks a good quality of hay can be made from the soy bean crop. From one to two tons of high protein hay, comparable to clover hay, should result from soy beans.

On land where this crop has not been previously grown, inoculation is necessary. Culture can be secured from the Department of Bacteriology, M. A. C., East Lansing, Michigan; or better yet, in the case of this crop, soil from a field where soy beans have been successfully grown the year previous should be employed to successfully inoculate the seed.

Exportations of beans and peas have been heavy the past few weeks.

**Heal Sores Quickly**

Dust the sore or cut with Dr. LeGear's Antiseptic Healing Powder. In handy sifter top can, easy to use. Forms a coating that stays on—protects from insects and infection. Heals quickly. Guaranteed to do all I claim, or dealer will refund your money. This is my personal prescription for collar and saddle sores, barb wire cuts, chafed spots, open sores, etc.

Get FREE Sample Can from your dealer.

Just ask your dealer for free sample can. If your dealer hasn't samples, write me, enclosing 3c postage, and I will send you sample can, with my 64-page reference book on stock and poultry.

Dr. LeGear's Lice Killer. Dr. LeGear's Poultry Prescription. Dr. LeGear's Stock Powders. Dr. L. D. LeGear Medicine Co., 712 Howard St., St. Louis, Mo.

Dr. LeGear's Antiseptic Healing Powder

Guarantee Quality Sale

Seventy head of High-Class Registered Holstein Cattle, mostly from Herds under Government and State Supervision.

Carefully Tuberculin-Tested by Government or State accredited veterinarians, and Guaranteed to be Breeders if of Breeding Age.

What can the buyer ask more? Just note the Quality of the cattle consigned to this Sale.

Two 26-lb. cows and a 24-lb. cow bred to Glen Alex King De Kol, a 43-lb. Bull with a 42-lb. Grand Dam.

A daughter of a 30-lb. cow out of a 38-lb. Sire.

Six good young cows and heifers nearly ready to freshen, and in calf to the Mighty Ragapple, a \$10,000 Son of Ragapple Korndyke 8th, and the 38-lb. cow, Ormsby Jane Piebe Segis.

A 26-lb. three-year-old, a 23-lb. Senior two-year-old, a 23-lb. three-year-old, a 28-lb. four-year-old, and a son of a 26-lb. cow, and a High Record Sire from the noted Traverse City State Hospital Herd.

A number of good A. R. O. cows safe in Calf to Bulls from Dams with records from 30 lbs. to 43 lbs.

Good A. R. O. Cows and choice Heifers that will be fresh at time of Sale, or soon due to freshen and bred to Sires from High Record Dams.

Choice yearling heifers and heifer calves from well-bred Dams and high-class Sires.

Five choice heifer calves, all from one 32-lb. Sire and their Dams, all from one 32-lb. Sire.

A few choice bull calves of excellent breeding.

This is the Buyer's opportunity to purchase healthy cattle of good type and breeding.

Remember the date and place of this Sale, Wednesday, May 14th, 1919, at the West Michigan State Fair Grounds, Grand Rapids, Michigan.

If interested, write me for a Sale Catalog.

Buyers of Holstein Cattle from other States should note that this Sale follows The Mark Piper Dispersal Sale which will be held at Flint, Michigan, on Tuesday, May 13th, 1919, and where 77 head of High-Class Holstein Cattle will be sold.

Plan to attend both of these Sales where Good Healthy Holstein Cattle can be bought in car-load lots, and easily shipped to destination by purchaser.

W. R. HARPER, Sale Manager

D. L. PERRY, Auctioneer

MIDDLEVILLE, MICHIGAN

CATTLE

Fairland Shorthorns. Bred for beef and milk. Three young bulls ready for service also bull calves for sale sired by General Claymore and Walgrove Star. Price \$100 to \$200. JOHN J. FOSTER & SONS, R. 5, Niles, Mich.

Milking Shorthorns Clay bred young bulls 3 to 10 months old. DAVIDSON & HALL, Tecumseh, Mich.

Rosemary Farms, Williamston, Mich. young bulls ready for service. Shorthorns bred for milk & beef. Herd estab. by Prof. C.H. Burgess, Mich. Agri. College.

The Fifth Annual Sale Of

The Livingston County Breeder's Sale Co.

will be held at

Howell, Mich. Wed., May 21st 1919.

At 12.30 o'clock P. M.

70 head of High Class Registered Holsteins will be offered

A large percentage of the offerings either have A.R.O. records or are from record dams.

Among the lot are three daughters of 32 lb. cows and a 25 lb. 3 year old daughter of a 28 lb. cow.

A few high class young bulls will be included.

Many of the females are bred to bulls whose dams have records from 30 to 35 lbs.

Col. J. E Mack, Auctioneer.

(Catalogs ready May 10th).

P. M. TAFT, Secretary,

10AK GROVE, MICH.

For Sale Shorthorns of Quality Scotch and Scotch Topped descendants of Archibald Hope, Avondale, Maxwailon Sulton and White Hall Sulton by the Oscola Co. Shorthorn Breeders Ass. JOHN SCHMIDT, Sec. Reed City, Mich.

Shorthorns Central Mich. Shorthorn Breeders Ass. offer 37 bulls all ages. 17 females for sale Write Oscar Skinner, Sec., Gowen, Mich.

Shorthorn Breeder No stock for sale at present. CHAS. WARNER, Jr. Imlay City, Mich.

Shorthorns 100 head to select from. Write me your wants, price reasonable. Wm. J. BELL, Rose City, Mich.

Shorthorn Scotch bull 2 years old, 3 good bull calves 7 mos. old for sale. W. C. OSIUS, Hillsdale, Mich.

The Kent Co. Shorthorn Breeders have both males and females for sale. Ask about them. L. H. LEONARD Sec., Caledonia, Mich.

Milking Shorthorns of best Bates breeding and O. I. C. swine. Bulls for sale 1 mo. to 1 year old. E. H. KURTZ, Mason, Mich.

Roan Yearling Scotch Topped Short-horn bull for sale. V. E. MORRISH, R. 5, Flint, Mich.

Something Extra May Rose Bull Calf. Sired by St. Austell Dreadnought 34671, by Don Diavolo of Linda Vista, 2345, and from Miss Bess of Yellowdale, A. R. 585 lbs. B. F. and average record for three years of 510 lb. B. F. and a calf. Price \$200. Also several fine A. R. bulls of serviceable age. BALLARD BROS., R. 4, Niles, Mich.

Breeders of Registered Aberdeen Angus cattle. Several choice bulls for sale. LANG BROS., Davison, Mich.

615 lb. milk 26.97 lb. butter 7 days aver. for 2 nearest dams of 4 mo. 1/2 white bull calf. Gddam 831 lb. butter 1922 lb. milk 10 mos. Also heifers bred to 26 lb. son Atkin's Maplecrest, M. L. McLaulin, Redford, Mich.

\$100 buys registered Holstein bull, large enough for service. 30 lb. breeding. Light in color. Good individual. B. B. REAVES, Akron, Mich.

HOGS

Duroc Opportunity

What would the earning capacity of a Brookwater Boar be in your herd? A mid-west breeder states that the Brookwater boar he used added from \$75 to \$100 to every gilt bred to him. It paid this man to use one of our boars it will pay you.

We have several that we are offering at prices which appeal to the small breeder who must of necessity be a conservative buyer. We have a few that are good enough to be used in high class herds at prices in keeping with their individuality and breeding. Money invested in a good herd boar very speedily increases the value not only of what you sell but what you keep. Send for price list or better, visit the farm.

BROOKWATER FARM, Ann Arbor, Mich. HERBERT W. MUMFORD, owner. J. BRUCE HENDERSON, Manager.

OAKWOOD FARM

Nothing for sale at present booking orders for spring pigs (Durocs). Tax Payer and Gold Medal breeding. RUSH BROS., Romeo, Mich.

FOR Sale Duroc Jerseys of the big boned type fall pigs of either sex and taking orders for spring pigs. CHAS. BRAY, Okemos, Mich.

DUROC JERSEYS

Fall pigs either sex also spring pigs pairs not akin. Sired by the Grand Champion and Junior Champion boars. F. J. DRODT, R. 1, Monroe, Mich.

Registered Duroc Gilt

Descendants of the leading strains: Cherry King, Defender, King of Col's, The Professor, all bred to Col. Defender the 25th. No. 12705, his sire, Pal's Premier Col. T. No. 81021. Dam, Royal Defender No. 23158, one of the most promising herd boars in Michigan. Prices reasonable. Write for prices and further information. THE JENNINGS FARMS, R. 1, Bailey, Mich.

SEVERAL GOOD

Duroc sows bred to Orion's Fancy King. Boar pigs ready for service. NEWTON BARNHART, St. Johns, Mich.

DUROC-JERSEYS

E. D. HEYDENBERK, Wayland, Mich.

Additional Stock Ads on Page 719

LATEST MARKET REPORTS

SECOND EDITION.

The markets in this edition were revised and corrected on Thursday afternoon, May 1.

WHEAT.

The wheat trade now occupies a very strong position and there is little chance for change in the opposite direction before the new crop is available. Millers are active buyers and have a strong demand for all the flour they can produce. Feeds are also in good demand with some grades quoted at higher values. Hoover's recent announcement that Europe would have to be put on wheat rations until the new crop is harvested did not prevent a bearish disturbance in grain markets on Tuesday. Crop conditions continue promising. One year ago wheat sold on the local market at \$2.17 per bushel. Present Detroit prices are:

No. 2 red	\$2.70
No. 2 mixed	2.68
No. 2 white	2.68

CORN.

Announcement by the Food Administration that it would release seaboard stocks of flour formerly intended for export, at a cut in prevailing prices was partly responsible for a violent break in the corn market Tuesday. Belgian relief also ceased May 1. Improved weather in the west and a gradually increased volume of receipts from farms, together with a resumption of business in Argentine aided in forcing the break. There was some recovery from the bottom. The head of the Food Administration warns the dealers that any attempt to force the prices of corn and oats to an unreasonable level would be frowned upon by the Food Administration. One year ago No. 2 corn was quoted here at \$1.50 per bushel. Present quotations are:

No. 3 corn	\$1.60
No. 3 yellow	1.63
No. 4 yellow	1.60
No. 5 yellow	1.57
No. 3 white	1.63

There was fairly active trading in Chicago with prices fluctuating over a fairly wide range. Quotations there are: No. 3 yellow \$1.57@1.59; No. 4 yellow \$1.56@1.57½; July \$1.56; September \$1.52.

OATS.

Quotations in the leading markets have followed closely the course of the corn trading. Delayed seeding has been a bullish argument in the market as there is no doubt that recent unfavorable weather cut down the acreage for this year. The demand has weakened, however, the past few days. One year ago standard oats were selling on the local market at 87c per bushel. Present prices here are:

Standard	73½
No. 3 white	73
No. 4 white	72

RYE.

The call for rye has let up and prices show a decline of three cents. Cash No. 2 is now quoted at \$1.73 on the local market.

BARLEY.

Prices take another jump. Exporters are after this grain to aid in feeding Europe. On the Detroit market cash No. 3 has advanced to \$2.30@2.40 per cwt.

BEANS.

Our New York report states that the exportation of beans has been exceptionally heavy during the past few weeks. Markets have shown but little change over the country, although the tone has generally been firm to strong. At Detroit sales to wholesalers have been on a basis of \$7.75@8 per hundred. The Chicago trade is having a freer movement and a better demand, with the market occupying a stronger position. Michigan pea beans, choice hand-picked are quoted there at \$7.90@8.10 per cwt. Moderate receipts are reported at New York with the demand fair and market steady at \$7.50@7.75 for the best Michigan pea beans, red kidneys \$11@12.25, and the white marrows \$10.50@11.75. Both demand and movement are good at Philadelphia with choice hand-picked Michigan pea beans at \$7.50@7.75 per cwt.

SEEDS.

There is very little doing in the

seed market, with prime red clover at \$29.50; October \$19.25; alsike at \$26; timothy seed \$5.25 on the Detroit market.

FEEDS.

Prices in 100-lb. sacks to jobbers are as follows: Bran \$45; standard middlings \$47@48; fine middlings \$52; coarse corn meal \$64; cracked corn at \$65; corn and oat chop \$52@53 a ton.

HAY.

Supplies are not adequate to meet requirements with prices advanced as follows: No. 1 timothy at \$36.50@37; standard timothy and light mixed at \$35.50@36; No. 2 timothy and No. 1 mixed \$34.50@35; No. 3 timothy \$30@32; No. 1 clover \$32.50@33.

Pittsburgh.—Receipts of hay are exceptionally small and prices are advancing rapidly. All grades are disposed of at top prices. Quotations are: No. 1 timothy \$39@39.50; No. 1 light mixed \$37.50@38.50; No. 1 clover mixed \$37@37.50; No. 1 clover \$36@36.50.

POTATOES.

A weaker tone prevails in most of the markets. At Detroit the trading is easier and prices lower, with the Michigan whites U. S. No. 1 selling at \$3.25@3.35 per 150-lb. sack. The same grade sells in Cleveland at \$3.50@3.60; New York \$3.65@3.85; in Pittsburgh \$3.50@3.60 per 150-lb. sack; in

Buffalo at \$2.30@2.45 per cwt; in Cincinnati \$2.40 per cwt. Michigan growers are receiving \$1.85@2 per cwt. in bulk at warehouse. Haulings are light.

BUTTER.

Prices are generally a little lower and the tone is easier than a week ago. On the Detroit market fresh creamery stock from Michigan is 57½@58½c per pound. At Chicago the range is from 53@60½c. A weaker tone prevails in New York at 59½@62c for creameries. At Philadelphia the trade is lower with western creamery extra at 63½c.

CHEESE.

Not much change since last week with the hope of increased production making dealers feel a little easier. At Detroit Michigan flats are now quoted at 30c and daisies at 30½c. In New York the trade is easier with current make special at 32@32½c, and average run at 31½c. Philadelphia trade is steady, with full milk, new at 32@32½c; do old at 35@38c.

EGGS.

Dealers have given up the idea of securing cheap eggs this spring. During the past week prices showed an advance. Practically all the northern markets are in a strong position. Fresh firsts are now quoted on the Detroit market at 43c, extra firsts in new cases at 44c, storage packed firsts and

extras in new cases 44@45c. Higher prices prevail at Chicago with firsts at 42@42½c; ordinary firsts 39½@40½c; storage packed firsts and extras 43½@44½c. At New York trading is firm, with western stock at 44@51c. The Philadelphia trade has advanced quotations to \$13.05@13.35 per case for western firsts and extra firsts.

DETROIT CITY MARKET

An active demand for potatoes developed at the city markets and a number of truck loads were cleaned up at \$1.30@1.40 per bushel for good stock. Eggs sold at 45c in case lots, 48c at retail. Pork brought 23@25c; country butter 65c.

GRAND RAPIDS

Some fruit growers report the freeze last Thursday night, when ice formed half an inch thick, killed the early cherries in blossom in some localities. Other fruit buds not being far advanced, they believe were not injured except possibly in very exposed places. A live stock market has been established, opening next Friday, at the city market. It will be open twice a week, Tuesdays and Fridays. Potatoes sold on the city market during the week at \$1.10@1.20. At some shipping points in western Michigan they advanced to \$2@2.25 per cwt. Local United States assistant in market surveys reports the range in price in general at \$1.67@2.10 per cwt., according to variety and quality. Last year's prices were 70@90c. Hay is now \$35 per ton on the city market, and scarce. Market superintendent predicts \$40 a ton. Dealers in hay are of the opinion it will be \$50 per ton before the next crop is harvested.

Live Stock Market Service

Reports for Thursday, May 1st

BUFFALO.

On today's market pigs sold at \$19 and other hogs at \$20.75@20.85. Lambs brought \$16.75@17; calves \$16.50. Cattle trading was dull.

DETROIT

Cattle.

Receipts 2,665. Feeding culls, stockers and feeders were steady; all other grades dull at 75c@1 lower than last week's close.

Best heavy steers	\$14.00@15.75
Best handy wt bu steers	13.25@13.50
Mixed steers and heifers	12.50@13.00
Handy light butchers	10.50@11.50
Light butchers	8.50@10.00
Best cows	10.00@11.50
Butcher cows	9.50@10.00
Cutters	7.50@8.25
Canners	6.25@6.50
Best heavy bulls	10.00@11.00
Bologna bulls	9.00@9.50
Stock bulls	8.50@8.75
Feeders	10.50@11.50
Stockers	8.50@10.00
Milkers and springers	\$85@165

Veal Calves.

Receipts 2,376. Good grades steady. Common kinds dull. Best \$14.00@14.50. Others 9.00@11.00.

Sheep and Lambs.

Receipts 2,150. Market dull.	
Best wool lambs	\$15.50@15.75
Fair lambs	14.00@15.00
Light to common	11.00@13.00
Fair to good sheep	12.00@12.75
Culls	7.00@8.50

Hogs.

Receipts 8,222. Market dull at 75c lower than last week. Pigs \$18.50. Mixed 19.80.

CHICAGO.

Hogs.

Estimated receipts today are 23,000; holdover 12,611. Opening trade strong but market weakening and mostly 10@15c lower. Bulk of sales \$20@20.40; Heavy 250 lbs up, medium, good and choice \$20.40@20.55; medium 200 to 250 lbs, medium, good and choice \$20@20.45; light 150 to 200 lbs, common, medium, good and choice \$19.65@20.30; light lights, 130 to 150 lbs, common, medium, good and choice \$18.25@19.85; heavy packing sows 250 lbs up, smooth \$19.50@19.85; packing sows 200 lbs up, rough \$18.25@19.50; pigs 130 lbs down, medium, good and choice \$17.25@18.50.

Cattle.

Estimated receipts today are 8,500. Best beef steers steady; others strong to 25c higher. She stock 15@25c higher. Calves slow and about steady.

Beef steers, medium and heavy weight, 1100 lbs up, choice and prime \$17.75@20; do medium and good \$13.90@18; do common \$11.25@14.25; light weight 1100 lbs down, good and choice \$14.75@17.85; do common and medium, at \$10.25@15.25; butcher cattle, heifers, common, medium, good and choice at \$7.25@15; cows, common, medium, good and choice \$7.50@14.75; bulls, bologna and beef \$9@12.85; canners and cutters, cows and heifers \$6@7.50; do canner steers \$7.50@10.25; veal calves, light and handyweight, medium, good and choice \$12@13.25; feeder steers, common, medium, good and choice \$10.25@15.50; stocker steers, common, medium, good and choice at \$8.50@13.75; stocker cows and heifers, common, medium, good and choice at \$8.25@11; stocker calves common, medium, good and choice \$7.75@13.25.

Sheep and Lambs.

Estimated receipts today are 14,000; market steady for sheep; lambs held higher. Prime shorn lambs at \$16.10; lambs 84 lbs down, medium, good, choice and prime \$17.75@19.60; do 85 lbs up, medium, good, choice and prime \$17.25@19.50; do culls and common at \$13@17; spring lambs, medium, good, choice and prime \$18.50@21; yearling wethers, medium, good, choice \$15.50@17.75; ewes, medium, good and choice \$11.75@15.50; ewes, dull and common \$6@11.75.

BUFFALO.

Cattle.

Wednesday, April 30, 1919. Receipts 40 cars. Market is dull. Prime heavy steers \$17@18; best shipping steers \$15@15.50; medium shipping steers \$13@13.50; best yearlings \$9.50@10; lambs \$15@16; light yearlings, good quality \$14.50@15; best handy steers \$14@15; fair to good kind \$12@13; handy steers and heifers mixed \$12.50@13; western heifers at \$13.50@14.50; best fat cows \$11@12; butcher cows \$9@10; cutters \$7@7.50; canners \$5@5.50; fancy bulls \$11@11.50; butcher bulls \$9@10; common bulls \$7.50@8.50; best feeding steers \$9@10; lambs \$11@12.50; medium feeders \$10@11; stockers \$10@10.50; light common \$8@9; best milkers and springers \$65@150.

Hogs.

Receipts ten cars; market is lower. Heavy \$20.90@21; yorkers at \$20.75@20.95; pigs and lights \$19.

Sheep and Lambs.

Receipts 10 cars. Market is steady. Wool lambs \$20.25@20.50; clipped \$17@17.25; yearlings \$14.50@15.50; wethers \$13.50@14; ewes \$12@13.

Calves.

Market steady at \$8@16.50.

THE NEW YORK PRODUCE MARKET.

Butter.—The butter market has been irregular and excitable again this week, a condition that will undoubtedly continue until full grass butter becomes available. Receipts have been somewhat lighter because of less stock shipped from inland points for export, and because of fewer double shipments. Advance notices however, indicate a decided increase in production and without doubt the coming week will witness a marked increase in receipts. Export demand has not been strong during the week as buyers are looking for a decline in prices and there is insufficient shipping space available in ocean going vessels to care for large shipments abroad. There are however, rumors of a strong export demand that will develop later, and it is generally felt that we will have a strong market and high prices throughout the season. During the first part of the week the price declined about three cents and there was a tendency among jobbers and retailers to purchase as little butter as possible. The last two days have shown a quickened demand and values have recovered about 1½c. At the close yesterday established quotations were as follows: Extras 64c; higher scoring than extras 64½@65c; firsts 62½@63½c; seconds 60@62c per pound.

Cheese.—The cheese market has been irregular during the week. There has been a decline in the price of white cheese but colored has been in good demand because of a considerable buying for export trade.

Eggs.—There is a less buoyant feeling in the egg market now that the Easter holidays have passed. However, a strong export demand has caused the market to strengthen during the week and values have increased about one to two cents. Storage accumulations are about the same as for last year at this season and have no bearing on the general situation. Reports indicate that receipts will be heavy during the coming week. Quotations are as follows: Extra firsts 45½@46c; firsts, 44½@45c; extras 47@47½c. Prime nearby gathered whites are selling at a range of 46@50c.

Poultry.—Receipts during the week have been extremely light, barely enough to supply the demand. While the demand has lessened because of the passing of the Jewish holidays it continues fair. Quotations are as follows: Fowls 40c; old roosters 24c; ducks 30c; geese 20@21c.

THE WOOL SITUATION.

THE fourth sale of the current series of auctions of wool at Boston last week was a big one and the price level was fully maintained. Information reaching the wool trade in Boston tends to show that the government auctions there are having a decidedly reassuring effect among the growers in the west. This has acted to keep prices tending upward. The situation is, perhaps, not wholly to the liking of the buyers and commission houses, although they do not, of course, care to see anything like a real depression in the growing sections with the resultant curtailment of supplies. Dealers would welcome the end of federal auctions.

Improved Demand for Cloth.

The cloth market shows a better tone, and the industry is fast getting away from the dull period which prevailed but a few weeks ago. In several instances mills are sold up on production to carry them over a period of about three months, while others are finding that business is being placed more freely. The fall seasons seems to be improving as time goes on.

At Bedford, England, prices continue at high levels. At last week's sales record prices were paid for both merinos and cross-bred wools. There seems to be no limit to the ability of certain members of the trade to pay. They need the wool; otherwise they could not have paid the prices. It speaks well for the inherent strength of the wool position, and without doubt one must recognize that conditions are at work which were never expected.

The Michigan producers are getting about ten cents more for their clip than they expected to receive earlier in the year, and this has had a reassuring effect upon their attitude toward the sheep business. Six weeks ago many were considering the question of sending their flocks to the block, but the revival in prices as seen in the strong tone of the federal auctions, has resulted in a change of heart.

Sheep Breeders Sell 80,364 Pounds of Wool.

A New York Sheep Breeders' Association, with Mr. B. W. Brace, president, has made its first shipment of over 80,000 pounds of wool, which brought over \$45,000. Wool was taken in at Fancher, Albion and Medina. Two hundred and four association members sold through their organization and obtained from five to ten cents more per pound for their wool.

About half of the wool taken in was tied with paper twine which the association purchased for its members at cost. Mr. Dawson, buyer for Jamestown Worsted Mills, who graded all the association wool, greatly preferred fleeces tied with the paper twine. He stated that the wool taken in this year was a fine lot and much better than he expected to find. Mr. Dawson has graded Orleans county wools sold the Jamestown Mills by local buyers, for several years.

The Sheep reeders' Association expect to make their second shipment of wool, which has already been sold at the same prices as the first shipment, about the first week in May. Sixty cents per pound will be paid for good grade wool if tied with paper twine and fifty-nine and a half cents when done up with wool twine. Men who desire to sell through the organization should pledge their wool as it is sheared with either Mr. R. C. Oglander, of Knowlesville, or the Farm Bureau Office at Albion.

FOR SALE

ONE International 8-16 Tractor equipped with clutch pulley and extension steel lugs. Also two thoroughbred Holstein bulls ready for service.

P. B. GLASPIE, Cheboygan, Mich.

50 Belgian Hares, all ages, good utility stock. Some selected breeders, cheap. W. E. LECKY, Holmesville, Ohio.

OF INTEREST TO ALL DAIRYMEN

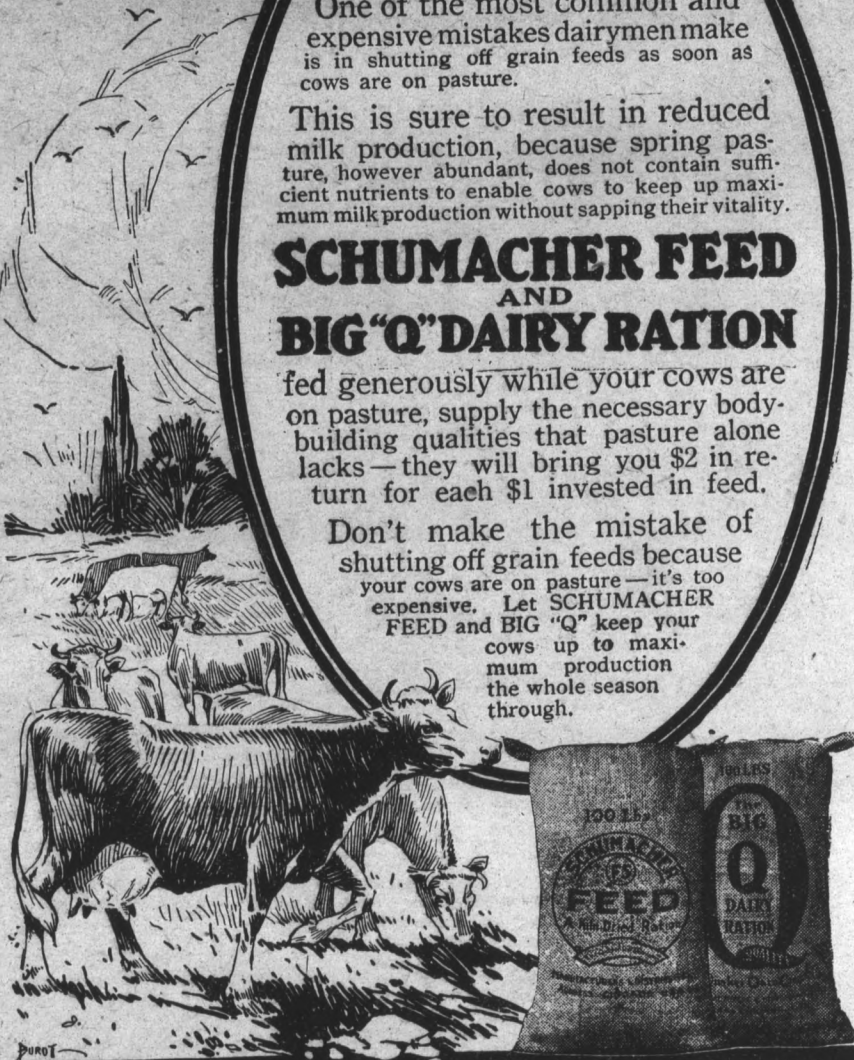
One of the most common and expensive mistakes dairymen make is in shutting off grain feeds as soon as cows are on pasture.

This is sure to result in reduced milk production, because spring pasture, however abundant, does not contain sufficient nutrients to enable cows to keep up maximum milk production without sapping their vitality.

SCHUMACHER FEED AND BIG "Q" DAIRY RATION

fed generously while your cows are on pasture, supply the necessary body-building qualities that pasture alone lacks—they will bring you \$2 in return for each \$1 invested in feed.

Don't make the mistake of shutting off grain feeds because your cows are on pasture—it's too expensive. Let SCHUMACHER FEED and BIG "Q" keep your cows up to maximum production the whole season through.



The Quaker Oats Company ADDRESS CHICAGO, U.S.A.

U. S. Shearing Tests

Tests conducted by the U.S. Bureau of Animal Industry at Laramie, Wyoming, demonstrated that sheep sheared with a machine not only produce more wool the first season, but grow more wool every successive year. Wool commands high prices. Get a Stewart No. 9 Ball Bearing Shearing Machine and make more money. Price \$14. Send \$2—pay balance on arrival. Write for catalog. CHICAGO FLEXIBLE SHAFT COMPANY, Dept. B127, 12th St. and Central Ave., Chicago, Ill.

CULOTTA & JULL Eastern Market, Detroit, Mich.

We need your shipments of Poultry, Veal, Dressed Hogs, Live Roasting Pigs, Eggs, Live Rabbits and Game. Highest prices possible obtained on arrival. We can handle your Potatoes, Onions, Apples, Cabbage and root crops, carlots or less. Your shipments will be appreciated and have our best care and attention, and you don't have to wait for your money. Reference Peninsular State Bank.

Mr. POULTRY FARMER:

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

GEO. R. ELDRIDGE CO. 494-18th Street, Detroit, Mich. Remember! We guarantee you satisfaction with every shipment.

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

Holmes, Stuve Co., 445 Riopelle St.

Commission Merchants. Dressed Beef, Hogs, calves, Poultry, Live & Dressed, Provisions, etc. Correspondence Solicited. Ref. Wayne County & Home Savings Bank, Bradstreet. Detroit, Mich. Cad. 2378.

Wanted: Michigan 90 to 125 pound healthy pigs in car lots. We buy them all year. Write Danville Stock Hog Co. Danville, Illinois.

BLUE RIDGE ENSILAGE CORN

Earliest maturing heavy yielding variety, genuine Eureka, Old Virginia and Red Cob. Prices reasonable.

THE HOLMES-LEATHERMAN SEED COMPANY, Box F, Canton, Ohio.

Greatest Hog Feed On the Market. We have several tons on hand for a reasonable price. Write or call for samples and prices. ROYAL CONE CO. 535-543 Franklin St., Detroit, Michigan.

HOGS.

Duroc Jerseys. A few choice gilts bred to Brookwater King Special 111467. (A full brother to Brookwater Lass D, the grand champion sow at the 1918 International). Carey U. Edmonds, Hastings, Mich.

DUROC Jersey's—A few extra good fall boars sired by Orion Cherry King Col. 2nd. Bred sows all sold. W. C. TAYLOR, Milan, Mich.

Hampshires Bred gilts and spring boars pigs for sale now. JOHN W. SNYDER, R. 4, St. Johns, Mich.

THE WORLD'S CHAMPION big type O.I.C.'s. Stock of all ages for sale. Herd headed by Calloway Edd, the World's Champion O. I. C. boar assisted by C. O. Schoolmaster, Grand Champion boar of Michigan, New York and Tennessee state fairs. Also, O. C. Giant Buster, undefeated Senior boar pig wherever shown and Grand Champion of Oklahoma state fair. Get our catalogue of Grandell's prize hogs, Cass City, Michigan.

Shadowland Farm

O. I. C.'s

Bred Gilts 200 to 300 lbs. from prize winning stock. A few fall yearlings and 2 yr. old sows, big type, growthy boars of all ages, guaranteed as breeders. Everything shipped C. O. D. Express, paid and registered in buyer's name. J. CARL JEWETT, Mason, 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. S. S. BENJAMIN, R. F. D. 10, Portland, Michigan.

Originators of the Famous O. I. C. Hogs

Breed The Best THE WORLD NEEDS LARGE FAT HOGS

Why lose money breeding and feeding scrub hogs? Two of our O. I. C. Hogs Weighed 2806 Pounds.

We are the most extensive breeders and shippers of pure bred hogs in the world. Write today for the true story of the real O. I. C. Hogs. All foreign shipments

U. S. Government Inspected We have bred the O. I. C. Hogs since 1863 and have never lost a hog with cholera or any other contagious disease.

WRITE TODAY—FOR FREE BOOK "The Hog from Birth to Sale" THE L. B. SILVER CO. 196 Heights Temple Bldg. CLEVELAND, OHIO

Chesters, March and April pigs in winning stock prices reasonable satisfaction guaranteed. F. W. ALEXANDER, Vassar, Mich.

O. I. C.'s Serviceable boars of last summer and fall farrow. G. P. ANDREWS, Dansville, Mich.

O. I. C. Bred Gilts All Sold. H. W. MANN, Dansville, Mich.

O. I. C. Gilts bred for summer farrow and a few fall boar pigs any of them good enough to ship. C. O. D. F. C. BURGESS, R. 3, Mason, Mich.

O. I. C.'s 2 Choice Yearlings Boars and Clover Leaf Stock Farm, R. 1, Monroe, Mich.

O. I. C.'s One very good yearling boar, a few last Sept. gilts, and this spring pigs to offer, registered free. 1/2 mile west of Depot, Citizens Phone 124. OTTO B. SCHULZE, Nashville, Mich.

O. I. C.'s One August boar and a few March pigs single or pairs not related. C. J. THOMPSON, Rockford, Mich.

FRANCISCO FARMS

SHORTHORNS—POLAND CHINAS. Three choice heifers and a few young cows to offer. Also fine good gilts bred for late spring farrow. Prices are attractive. P. P. POPE, Mt. Pleasant, Mich.

For 25 Years We have been breeding Big Type Poland Chinas. Our new herd boar "Michigan Buster" is a mighty good son of the great "Giant Buster", dam "Mow's Miss Queen 2". Some breeding! We are all sold out except a few fall pigs. J. C. BUTLER, Portland, Mich.

Big Type Poland Chinas

Am offering a choice gilt, registered and cholera immune, with her ten pigs farrowed Apr. 1. Also best boar pig of April farrow raised last year; absolutely right, priced at \$75. Wesley Hile, R. 6, Ionia, Mich.

P.C. bred gilts sold. For sale herd boar prospect 17 mo. old, wt. 60 lb. with quality, sire Buster Giant, 269.93, dam Nemo L. 54940 an 800 lb. sow in flesh. Sire sold for \$1500, priced reasonable. Free! Livestock from Parma. W. E. LIVINGSTON, Parma, Mich.

Big Poland Chinas with quality. For sale, summer and fall gilts, open or bred. G. A. BAUMGARDNER, R. 2, Middleville, Mich.

L. S. P. C. Bred sows all sold, 2 boars ready for service also 1 fall boar, and fall gilts to breed for fall farrow. H. O. SWARTZ, R. 1, Schoolcraft, Mich.

Big Type Poland-Chinas pigs, sired by C. A. King Joe B 29081, by King Joe B 21257, Monster Big Bob B 27623, by Luken's Big Bob B 27777, Buster Half Ton B 28225, by Great Big Half Ton B 21243. Out of sows, whose pedigree, individuality and quality are of equal merit as my herd boars. Can furnish pairs and trios, not akin. C. A. BOONE, Blanchard, Mich.

MICH. Champion herd of Big Type P.C. Nothing for sale but fall pigs; orders booked for spring pigs. E. R. LEONARD, St. Louis, Mich.

Big type P. C. fall boars the big prolific kind, their breeding traces to the best herd in Ill. Iowa, & N.Y. C. E. GARNANT, Eaton Rapids, Mich.

Large Type P.C. Nothing for sale now. Will be in market with better than ever this fall. If herd stuff counts. W. J. HAGELSHAW, Augusta, Mich.

Big Type P. C. boar and bred gilts. Choice Aug. pigs at 3 bargains. A. A. WOOD & SON, Saline, Mich.

Big Type P. C. Choice bred sows from Iowa's greatest herds, the big bone prolific kind with size and quality. E. J. MATHEWSON, Burr Oak, Mich.

Big Type Poland's all sold out, nothing for sale at present. Booking orders for spring pigs. Thanking my customers. L. L. Chamberlain, Marcellus, Mich.

Mammoth Poland Chinas all sold. General Jones No. 317249, son of Gerstale Jones heads our herd. Clyde Weaver, Ceresco, Mich.

Big Type P. C. Will have better males than ever for fall trade, gilts in season. JOHN D. WILEY, Schoolcraft, Mich.

HORSES

Pure Bred

Belgian Draft Horses

We have some extra good Belgian Stallions for sale, coming three and four years old. They are heavy, of good conformation and sound. You can see their sires and dams. They are raised in Michigan and acclimated. We have no agents on the road for which you or we would have to pay. You cannot buy them any better nor cheaper in the world. Our studs and mares carry the best blood Belgium has produced. We prove this by their pedigrees. We invite you to see our stock before buying. You can see them any day of the week except Sunday. Write for particulars and catalog to the OWOSO SUGAR COMPANY, Prairie Farm, Alicia, Mich.

For Sale The pure bred Percheron stallion and Blue Ribbon Champion "John D", registry number 92549 six years old, weighs 1900 lbs. An excellent individual with a good pedigree. At \$500.00, the best bargain of the season. J. H. BREWER, Grand Rapids, Mich.

Percherons, Holsteins, Angus, Shropshires, Durocs DORR D. BUELL, Elmira, Michigan.

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

SHEEP

MORE to the Kids of Mich: I have sold all the ewes that I care to sell, but judging from the many inquiries I have received there are many of you kids who still want to get started in registered ewes. Now then, here is a new proposition: I have selected one beautiful Shropshire ewe, she will lamb in the course of the next month; she is worth at least \$50.00. I will give this ewe, absolutely free, to the boy or girl who gives me, in my opinion, the best reasons why they should be the one to get her. I may give away more than one. S. L. WING, Kope-Kon Farms, Coldwater, Mich.

SHROPSHIRE SHEEP

We have about 50 ewes in lamb for sale, of best breeding. HARRY E. SAIER, Seedsman, Lansing, Mich.

100-111 E. Ottawa St.,

BUY A SHEEP

Wait a minute, buy Hampshire. The American Hampshire Sheep Association wants to send you a dandy little booklet with list of breeders. Some near you. Write COMFORT A. TYLER, Secretary, 22 Woodland Ave., Detroit, Mich.

For Sale Bred Reg. Shrop. Ewes at a reasonable price also ewe lambs. H. F. MOUSER, E. 6, Ithaca, Mich.

Shropshire Sheep Nothing to offer before June 1-1919. ARMSTRONG BROS. R 3 Fowlerville, Mich.



SAVING MICE-GNAWED FRUIT

If fruit trees have been seriously injured by mice or rabbits eating the bark and sapwood at the surface of the ground, they can be saved by bridge grafting. First trim off the gnawed parts of the bark with a sharp knife, leaving the edges smooth. Then take from the tree a twig of last summer's growth about as thick as a lead pencil and long enough to extend an inch and one-half above and below the gnawed part. Both above and below the gnawed part cut out a strip of bark an inch and one-half long and as wide as the twig or graft is thick. Trim both ends of the graft on the same side by paring it down to about half its thickness for a length of about two inches and then fit the prepared ends into the bark cuts above and below the injury. Fasten each end of the graft to the tree by driving in a very fine tack or brad not much thicker than a pin. Cover the ends of the graft and all cut surfaces with grafting wax. A union between the graft and tree will then take place and thus the gnawed part will be bridged over. In very bad cases of injury it may be necessary to fasten the lower end of the graft into one of the tree roots. Place a graft every two inches across the injured part.

CONTROL TOMATO DISEASES.

A KNOWLEDGE of precautionary measures to avoid crop diseases is highly important to tomato growers. Tomatoes are subject to many diseases any one of which may be sufficiently serious to ruin the entire crop, or at least to preclude the possibility of making a profit on the season's work. Use the best seed obtainable; free from disease, if possible.

Choose a seed-bed soil not previously used for growing tomatoes or related crops; or, better still, a soil sterilized with steam or formalin.

Spray plants in the seed-bed and in the field with a good fungicide, such as Bordeaux mixture. Apply thoroughly about every ten days. For spraying in the seed-bed use the 3-4-50 Bordeaux formula, increasing the strength to 4-4-30 or 5-5-50 for field spraying. The stronger field concentration is preferable only in controlling early blight or rust. Spraying in the field may not be necessary during periods of drought.

Keep in check the various insects at work on the plants. This may be done by adding to every fifty gallons of Bordeaux mixture a half pint of Black Leaf "40" and one pound of zinc arsenite or lead arsenate. If spraying is not practiced, dust the plants with a mixture of tobacco dust, zinc arsenite or lead arsenate, and flowers of sulphur.

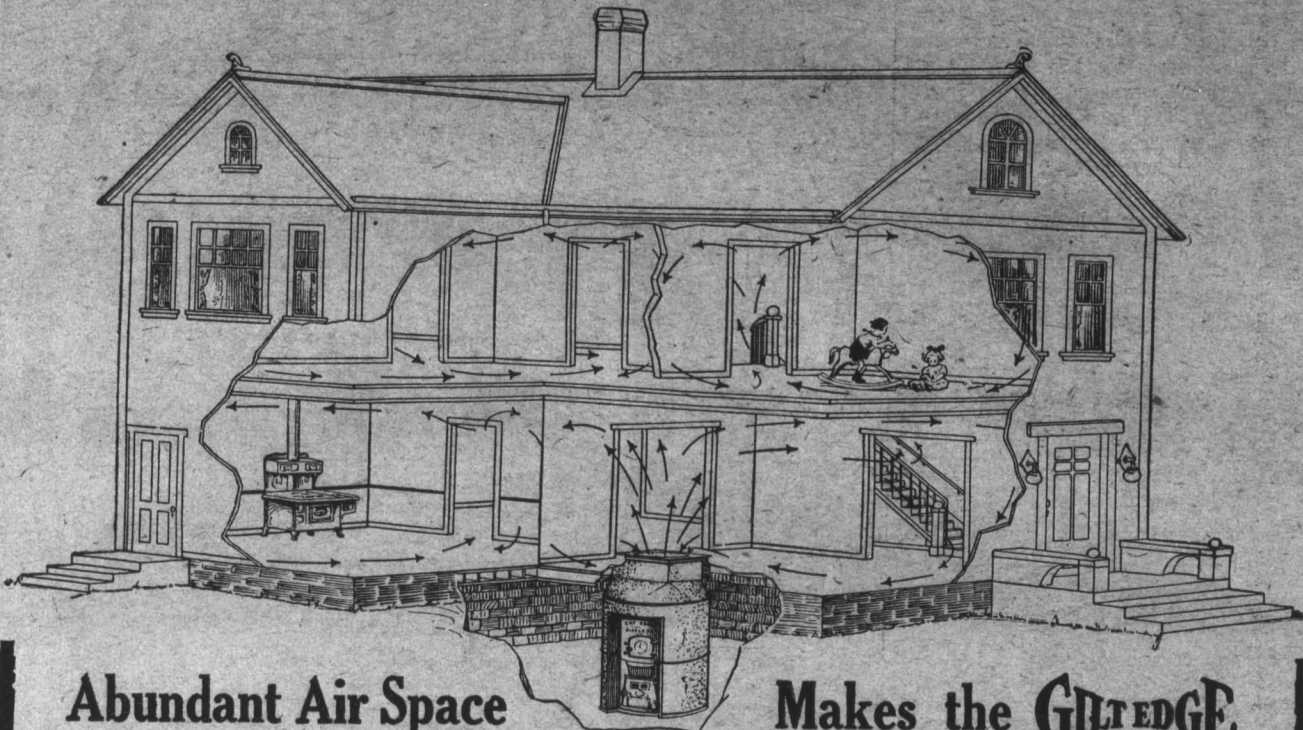
Where plants are likely to suffer by drought some means for irrigating should be provided. If this is impracticable, plant and cultivate in the best way to conserve soil moisture.

Nitrate of soda is preferable to other forms of nitrogen (ammonia) for fertilizing tomatoes. Avoid a heavy application of stable manure. Do not use potassium chloride, nor manure or compost containing old tomato vines.

Keep the field in a sanitary condition. Examine it regularly and remove all rotted fruit and sickly plants and destroy them by burning or burying. If buried, they should be covered with a disinfectant, such as lime.

Practice crop rotation. The less often tomatoes follow tomatoes or related crops, the less likely is the crop to become diseased.

While the observance of these precautions will not guarantee a crop free from disease, it will go far in that direction.



Abundant Air Space Pipeless Furnace Heat Properly Without Wasting Fuel

YOU know that the furnace-heated home is more comfortable, cleaner and healthier to live in than the stove-heated one. You wouldn't hesitate a minute about putting in a furnace if you were sure that it wouldn't be too expensive to install and operate or too difficult to "run". But when you think of heating your home with a furnace, some big questions come up that you want answered right.

1.—Is it necessary to have warm air pipes running to all the rooms we want to heat? Emphatically No! The Gilt Edge Pipeless Furnace will heat your living rooms to a comfortable living temperature (70 degrees) and your sleeping rooms to a comfortable sleeping temperature (65 degrees) from one central register.

You don't have to rip your floors and walls to pieces to put in warm air pipes. You simply locate the furnace at the most convenient place in your cellar, run the casings up to the floor register and let nature's laws do the rest. Cutting one floor opening for the register is all the "Carpenter Work" necessary.

Because the space between the heating surfaces and the inside casing is large there's room for a big volume of air to be heated and flood the rooms above. The warm air which comes up through the register will circulate evenly throughout all the rooms of the house by simply leaving your inside doors open. Because the inner casing is a thoroughly insulated triple wall, heat can't be absorbed at the sides, but must go up where it heats the rooms. And because the space between inner and outer casings is also large, the cold air returning from the rooms descends freely without binding and insures the perfect circulation necessary for proper ventilation. There's a constant circulation of pure, clean air of the right temperature through the house—no heat is wasted for it all goes up into the rooms instead of out, through the casings. These big air spaces put the Gilt Edge Pipeless in a class by itself for solid comfort at low fuel cost.

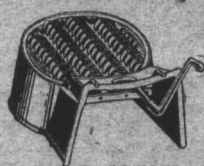
2.—Will not furnace heating increase my fuel bills? Again No!—if it's a Gilt Edge the cost will be much less than you can secure the same degree of temperature throughout the house for, by the use of several stoves, and no greater than fuel cost for a single base burner and a kitchen range.

3.—Isn't a furnace hard to run?—Decidedly not!—if it's a Gilt Edge. The Gilt Edge Pipeless furnace is so simple that a 12 year old boy can operate it. It's regulated from the living rooms and requires no attention except putting in fuel and removing ashes. It will burn hard coal, soft coal, coke or wood.

4.—Won't a furnace heat up my cellar so that foodstuffs will spoil? The Gilt Edge Pipeless furnace won't, for there are no warm air pipes running through the cellar, and because the triple insulated inner casing and the large cold air space between casings keeps the outer jacket cool at all times.

A Real Furnace Made by Experienced Furnace Builders

The Gilt Edge Pipeless is a real furnace—in every essential heating feature the same as the Gilt Edge Pipe Furnaces, which have for many years been recognized by architects, builders, heating engineers and home owners as emphatically superior in heating efficiency, durability and fuel saving. It has the same long fire travel, the same large heating surfaces, the same trouble-proof anti-clinker grates, and other exclusive improvements which have made thousands of friends for Gilt Edge furnaces. The Gilt Edge will do all any other pipeless furnace will do—and more.



The Gilt Edge Anti-clinker grate clears fire from ashes evenly and easily. Clinkers can't catch. Live coals can't be dumped accidentally. One of several Gilt Edge features you'll enjoy.

Write Us for Our Booklet on Pipeless Heating

Without expense or obligation on your part we will be glad to tell you what can reasonably be expected of a pipeless furnace in heating your home and what it will cost you to put in the Gilt Edge Pipeless.

REMEMBER THE NAME GILTEDGE
—The Pipeless furnace with abundant air space, sold by responsible dealers and heating contractors and made only by

R. J. Schwab & Sons Co.
297 Clinton Street Milwaukee, Wis.

In Business Continually Since 1876



Cut Out View of Gilt Edge Pipeless Furnace

- (a) Firepot where heat is produced by burning fuel.
- (b) Radiator which heats the air for the rooms.
- (c) Insulated Inner Casing—with triple walls preventing heat from escaping at sides. The free air space inside this casing is much larger than in other Pipeless Furnaces, which makes it produce more heat for the fuel burned.
- (d) Outer Casing—Separated from inner casing by a 5 inch free air space—providing ample room for returning air.
- (e) Register. Note that this is divided into two sections. Through the inner, heated air flows into the rooms above, and through the outer, the cooled air from the rooms returns for re-heating.