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DETROIT, FEBRUARY 9, 1918



CURRENT COMMENT.

The Food Production Problem.

In his message to farmers who had assembled to hear him at Urbana, Ill., last week, President Wilson again emphasized the fact that maximum food production is a most essential factor in the winning of the war and made an eloquent and inspiring appeal to the patriotism of the farmers of the country to do their utmost toward producing the necessary food stuffs this year.

This the farmers of all America, as well as the farmers of Michigan, will undoubtedly do. There is no more loyal or patriotic class of people in America than the farmers of the country. Once aroused to the necessity of doing their utmost for the good of the country, as they are now aroused to that necessity, they will do their utmost. But if the result of their efforts is to be all that might be desired they must have help—help which only the government can give them—the same kind of help which it has given to other essential industries to speed up needed production.

Thousands of patriotic business men in other lines of production have tendered their services and their facilities for production to the government in the present emergency. But by way of assuring the needed production the government has helped them to solve the business problems involved by guaranteeing the cost of production plus a small profit for their output. In the case of the railroads, where the business problems involved could apparently be solved in no other way, the government has guaranteed reasonable earnings on the invested capital and taken the difficult problems of operation into its own hands. The government has thus virtually become a business partner in these essential lines of industry, and there can be no doubt of the fact that the results which are being attained are more satisfactory than would have been the case if patriotism alone had been depended upon to get them.

To a very limited degree the government has also attempted to stimulate production of food stuffs by similar methods. The guarantee of \$2.00 per bushel for this year's wheat crop and

the price guarantee for the 1918 hog crop, based on the price of the corn used in its production, were along this line and will undoubtedly have the effect of stimulating production of these essentials.

Attempts are also being made by the government to aid in the solution of the farm labor problem by mobilizing boy labor and such other labor as may be secured from other sources. While this will be helpful it will not solve the farm labor problem. Indeed, its only possible solution would seem to lie in placing food producers in a position to compete with less essential industries in the employment of labor by government guarantee of prices in other needed lines of food production which would make this a sound business proposition.

In no other way, except by one man doing two men's work, by making added investments in labor-saving equipment so far as same can be secured and by adding to the already too heavy duties of the farm women of the country by calling them to further aid in the food production program can the optimum of production be assured. While a measure of this high patriotism will undoubtedly be exhibited by the farmers of Michigan and the country, further government aid in the solution of the business problems involved is most desirable.

Undoubtedly the government's position in maintaining an equitable price balance on food stuffs as between producers and consumers is a delicate one. But the necessities of war are stern, and an adequate production of food is a primary essential in the present emergency, hence the desirability of placing food production on the soundest possible business basis. And food production is a business, just like manufacturing, except that it is not so generally profitable, else it would attract a portion of the capital which is engaged in that business. It is an exception to other lines of business at the present time in that it involves problems more difficult of present solution if its output is to be increased or even maintained. For this reason the farmers of the country are in especial need of government aid in the solution of their business problems at the present time.

But the government has a big job on hand, of which stimulating food production is only one factor. And while we hope for government aid in the solution of the vexed problems surrounding our business, the fact remains that it will still be a profitable investment for each and every one of us to do our utmost in producing food the coming year, even if we are not fully assured of adequate remuneration for our efforts. President Wilson has well said that unless we win the war neither our business nor our future business prospects will be worth anything. His belief "that the farmers of America will willingly and conspicuously stand by to win the war" is well founded. We should, however, continue to bring our difficult business problems and our need of aid in their solution to the attention of our responsible government heads, to the end that the outcome may not depend upon patriotism alone.

Potato Prospects.

The future of the potato market is a matter of grave concern to very many farmers who responded to the call for increased production last year and have been unable to market their crop up to the present time at a compensatory price. The car shortage, which prevented a normal movement of the Michigan crop at and immediately after the potato harvest season, is now more pronounced than ever, because refrigerator cars are needed to move potatoes at prevailing temperatures and refrigerator cars are not available in sufficient numbers to empty the storehouses on the stronger market now prevailing

and make room for a heavier movement from the farms. Michigan shippers claim that this state is not receiving her proper share of the refrigerator equipment for the moving of her potato crop, a condition from which it should be possible to get relief under government operation of all railroads if every agency interested will cooperate to that end.

On account of the small early movement, no substantial stocks were accumulated in consuming centers, and under the severe weather conditions which have prevailed for the last month, making it exceedingly difficult to move potatoes at all, the big markets have been almost bare of potatoes, and prices for such as were obtainable have been nearly if not quite double the price obtainable by growers at shipping points. Present movements are confined almost entirely to limited shipments from dealers' warehouses of potatoes which were bought earlier in the season, but which could not be shipped out because of car shortage.

There is no doubt but that consumption is being restricted by this lack of proper distribution of available supplies. It is also certain that there is a large volume of potatoes still in the growers' hands in this state, and that these must be moved with more than normal rapidity when weather conditions again become favorable, to avoid a surplus next spring. This fact has prompted the Department of Agriculture to urge a free movement of potatoes by growers, shippers and retailers with a quick turn-over of stocks at small profits to stimulate consumption.

While it is unquestionably true that the statistical position of potato growers is not strong when viewed from the standpoint of estimates of production and records of the crop movement by rail, which are the basis of government estimates, yet there are other factors strongly in the grower's favor which should not be overlooked. Owing to the car shortage, there have been much heavier movements by electric freight and by auto truck than ever before. If figures were available, the total volume of this movement would be a matter for surprise in many quarters. Frost losses were unusually heavy last fall and have been continuous since that time, both to potatoes in transit and in storage. The extent of this loss will not be fully determined before next spring.

The necessary restrictions in the consumption of wheat will also tend to stimulate consumption of potatoes, the best available substitute for wheat under present conditions. Exceedingly cold weather throughout the country will undoubtedly delay the starting of the early potato crop in the south, thus lengthening the season for marketing old potatoes. Under these conditions, any accurate predictions with regard to the future potato market are, of course, impossible. Every grower will have to decide for himself the best course to follow when weather conditions again favor the movement of the crop.

As previously noted, under present market conditions growers should receive a compensatory price for present sales. When suitable weather comes the potato crop should commence to move in volume, which movement should greatly reduce the spread between prices to growers and those to consumers.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—It has been definitely announced that the American troops are now occupying a sector in the Lorraine district on the western front. Their position is near the German fortress of Metz, and a portion of the line is on German soil. There has been very little fighting on the Lorraine sector since the battle of Verdun. The past few days, however, has seen a slight renewal of artillery activity with the result that some Americans have been killed and wounded. On the

other hand, the American guns destroyed a number of enemy dug-outs, making them untenable. The French repulsed raids in the Aisne sector and also in the region of Four de Paris. The British bombed an airbase in Belgium last Saturday.—There was moderate artillery activity on the Italian front along the Piave river, and patrol encounters took place on the hills northeast of Monte Grappa.—The allies are reported to be more active in the Saloniki theatre.—British forces have advanced their lines in the Palestine campaign following an attempt by the enemy to break through.—The Red Guard of Russia are reported as having captured Odessa and gained control of a large portion of the Russian Black Sea fleet and shipping on that body of water. The Bolsheviki government is also having trouble with the newly established government of Finland and clashes between their forces have resulted in bloodshed along the frontier.—Strikes occurred in different cities of Germany last week where the workers are demanding that the government make an immediate move. These reports came from widely different sources and are generally believed to be true. The number of strikers has been variously estimated from 150,000 to 750,000. The latest word is that the war party has issued an ultimatum declaring that every person who fails to return to work on Monday of this week will be shot.

The supreme war council of the allies which met at Versailles, France early in February has rejected the terms of peace submitted by the German chancellor Hertling and Austria-Hungary's foreign minister, Czernin. The council decided to continue vigorous prosecution of the war.

London, Ont., is without water. The bursting of water mains due to cold weather and pumps going out of commission have caused the supply to be shut off. The city also faces a fuel famine.

On February 1 the first year of German's unrestricted submarine warfare closed, with the weekly number of sinkings less than before she threw aside all restraint.

National.

The first of America's draft armies will be completed February 15. The final quotas from those states which have not furnished their full strength will be sent to camp on that date. Equipment is now being assembled at the camps and cantonments to care for the additional men.

Floods have resulted from the melting of snow along the tributaries of the Ohio river, and already much damage has been done to property abutting that stream. This condition promises to add to the fuel difficulties of the north by preventing the transportation of coal from the Kentucky and West Virginia coal fields, where a large part of the soft coal used in this region is obtained.

New records for cold weather have been established in Michigan. According to the weather bureau station at Lansing, the average temperature for December and January was the lowest for those two months during the fifty-four years that records have been kept at that station. During January there were twelve days with the thermometer below zero, and at no time during the month did the thermometer register above freezing point. At Baldwin, Mich., it is reported that the thermometer dropped to fifty-five below zero on February 1.

Fire of an unknown origin destroyed the properties of a large lumber concern at Baltimore, Md., entailing a loss of \$200,000. The concern recently began work on a government ship contract.

The lower house of congress has passed the \$27,000,000 agricultural appropriation bill.

TWO-DAY AGRICULTURAL SCHOOLS.

The following two-day agricultural schools will be held during the ensuing week at the places and dates named. These schools are held under the auspices of the Extension Department of the Michigan Agricultural College, and will prove both interesting and instructive to both old and young in every farm family in the localities in which they are held.

- Feb. 8-9, Butterfield, Missaukee Co.
- Feb. 12-13, Cranston, Oceana Co.
- Feb. 14-15, Claybanks, Oceana Co.
- Feb. 12-13, Ludington, Mason Co.
- Feb. 14-15, Victory Twp, Mason Co.
- Feb. 14-15, Sandusky, Sanilac Co.
- Feb. 11-12, Farwell, Clare Co.
- Feb. 13-14, Harrison, Clare Co.
- Feb. 12-13, Cadmus, Lenawee Co.
- Feb. 14-15, Britton, Lenawee Co.
- Feb. 12-13, China Twp, St. Clair Co.
- Feb. 14-15, Cottreville, St. Clair Co.
- Feb. 12-13, Big Prairie, Newaygo Co.
- Feb. 15, Parkinson, Isabella Co.
- Feb. 16, Pleasant Valley, Isabella Co.

Fuel From Pine Stumps

By C. A. FARNAM

CONSERVATION appears to be the watchword in every avenue of life these times. Save everything and waste nothing, and in addition practice economy in the use of the waste. People are learning that in the pinches there is plenty, where in the past there appeared to be scarcity.

The fuel problem, while pinching, and even worrying, has inaugurated one of the biggest clean-up campaigns of several decades. Many a farm, and a thousand yards, will look clean and be cleaner when spring comes. The scraps of old lumber and wood refuse, neglected stump bottoms, even the dead wood in orchards and from shade trees, will all be turned to feed the furnace and the stoves.

I am relating the experience of a friend who recently told me that he was surprised to find that in the waste about his home he has saved at least \$30 of his fuel bill for this winter. In the past that \$30 would have remained simply waste. One of the greatest things about this is that we are saving this waste, not because we have less income but because we are not able to get these things readily as formerly, and must use the waste—now a saving—or suffer from cold. Necessity certainly is a great friend.

Only a few days ago I heard a neighbor remark that he would give one hundred dollars for the pine stump

used. We have at times "buzzed" as high as fifty cords of this wood in one day.

The Yield of Wood.

There is often an extravagant statement made as to the number of cords of wood that can be cut from stumps and which misleads users into a false sense of security when they plan on the winter's fuel supply. It is our observation from several years' experience that it is a good-sized stump, at least three feet in diameter, with all of the roots that will cut more than four ranks of eighteen-inch wood, and this number of ranks will be obtained from stumps that are sound and without decay. In most fences at the present time the stumps are more or less rotten and this makes some waste. In December we cut, or had cut, ten rods of stump fence into eighteen-inch wood consisting of stumps that ranged in diameter from two feet to four feet. There were secured twenty-four ranks of wood, which gives a little better than two ranks to the rod. The stumps numbered from two to four to the rod. It should be noted that these stumps are trimmed free of all bottom roots and of some of the side roots. If the stumps were whole and with all roots, the cordage would be about one-third more. The cost of splitting and cutting of this wood was \$1.00 per rank,

and \$2.00 per rank for the pine wood is all in favor of the pine wood. There is, of course, a disadvantage in the case of the wood that it will not keep fire over night and requires more attention.

Save the Wasting Wood.

We are permitting no destruction of the waste wood on the farm. In the fall after the fields are frozen hard enough to hold up a team and wagon, all rubbish, old stump bottoms, all broken fruit trees, waste from shade trees, and dead timber in the woods, and in fact, all wood waste of every kind is collected and piled in the wood house or on the wood lot for future use. The waste saved in this way pays for a large per cent of the fuel bills for the year. Look after the waste woods of every kind. The present high prices of this kind of necessity makes the care of this waste a valuable asset.

TOP-DRESSING WHEAT.

I have eight acres of wheat that was sown in good time but didn't get a very big top. Would it be advisable to top-dress with manure on the snow? Now, I am going to seed this field in the spring and I thought of getting some kind of fertilizer, then seed with the disk drill, running the disks light, and sowing the fertilizer at the same time. If you think this would be all right, would you advise sowing the same way the wheat is sowed, or go cross-ways?

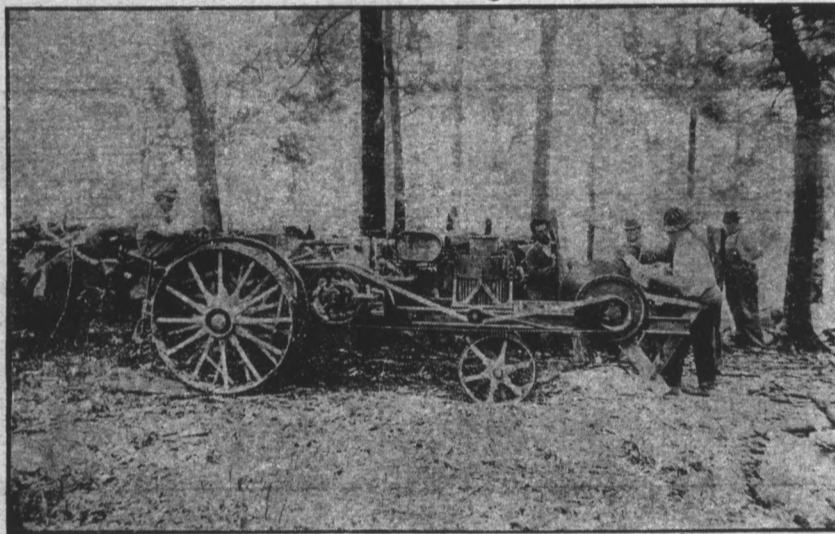
Missaukee Co. F. C.

Some quite satisfactory results have been obtained by top-dressing a weak stand of wheat in the spring with commercial fertilizers. Yet, ordinarily, I would not expect to get anywhere near the benefit from an application of fertilizers on top of the ground in the spring that I would if the fertilizer had been drilled in with the wheat the fall before. Fertilizer must be mixed with the soil and dissolved in the soil moisture before it becomes available as a plant food.

If you apply the fertilizer with a disc drill in the spring just as early as you can get onto the ground, of course, quite a per cent of it would be mixed with the soil. However, if the season happens to be dry, it would be a question whether very much of this fertilizer would be used by the plant or not. But where the ground is seeded to clover, I think it would be perfectly safe to assume that if the wheat plant didn't get the fertilizer the clover would, so that it would be a safe investment to top-dress where the wheat ground is to be seeded to clover.

There is one thing that I am absolutely sure of, and that is that all this wheat you can top-dress with stable manure would be greatly benefited and I don't think this comes so much from the fact that you give the wheat extra plant food as it is from the mulch effect that the manure has. It gives protection, it holds the moisture, protects it against the hot sun and keeps the land from drying out, and there probably can be no better use made of stable manure than to have a moderate amount of it evenly distributed over growing wheat. Of course, wheat that got a good growth last fall (very little of it did) would not need the fertilizer mulch as much as wheat that made only a meager growth. It is this wheat that needs protection and I am sure that stable manure would be much more beneficial to this crop of wheat than fertilizer, although the fertilizer will help the crop.

There is another thing to consider, however. If you top-dress the wheat this winter with coarse straw manure it might interfere with your disc drill in the spring. If this straw would prevent the disc from cutting in you wouldn't get your seed covered. I am quite positive that if you top-dress with the manure and then sow the seed on broadcast in March, that you would get a catch, at least, I never fail to do so. Of course, if the stable manure will not prevent the proper working of your disc drill your idea would be all right.



A Buzz Saw Rig Works up Stumps Most Economically.

fence that he wantonly burned up three years ago. It is only one of the regrets that will be heard this winter over the neglected wastes.

Ten Years of Experience.

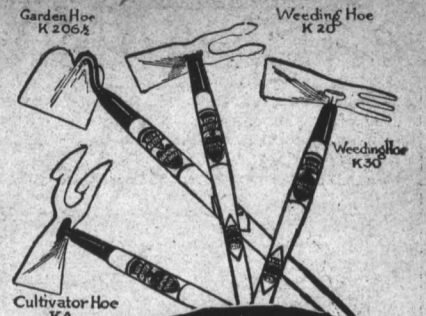
We began to cut up stumps out of the pine stump fence in 1908 and at that time paid fifty cents per rank for the splitting of the stump, cutting into wood lengths and piling. Some of the wood was sold at that time for seventy-five cents per rank, the buyer coming from the village one-half mile distant, for it. At that time it was an easy matter to secure labor for this kind of work, and in fact, much of this wood was cut at that time in order to give some work in the winter time. The difference in the labor conditions at the present time only emphasizes the need of fuel conservation in the highest degree.

The stump has usually been split in the fence, and at other times has been pulled out into the open. The splitting is usually done with wooden and steel wedges and a maul, often with the aid of a small jack screw, or by means of a pole-lever to pry the roots apart. Sometimes dynamite is used where the stump is large and rather solid. However, the fences have reached an age and a state of partial decay so that they are usually easily split. After the stumps are split, a cross-cut saw or a "buzz" rig for cutting wood is used to cut the stumps into wood lengths. The "buzz" rig is the most satisfactory and

some difference from the earlier days. We have been offered \$2.00 per rank for the wood. It is seen that a rod of this fence for wood has a value of from \$4.00 to \$5.00, with a clean net profit of one-half of that amount. An average pine stump fence will bring a value that will pay for the cutting and sale of the wood and also pay for and erect the best wire fence in its place.

Stump Wood vs. Coal.

There has been cut on this farm about 500 ranks of this pine wood from fences and there are still stumps in the fence that will give several hundred additional cords. This amount has a large value if one will carefully look into the returns given as a fuel. Many people believe that these pine roots, and snags, as they call them, have little fuel value, and it is frequently remarked by these persons that they would not cut pine wood for it. We have kept a careful note on the comparative fuel value of this kind of wood and of that of the coals. We are paying \$10 per ton for soft coal at this point this winter and at that the coal is none too good. One ton of this coal in the past has given ample fuel for from one week to ten days. In the severest weather of the past months of December and January of this winter, and under the same furnace conditions and heat requirements it has required not more than four ranks of this pine wood. The cost of fuel under the present prices of \$10 per ton for the coal



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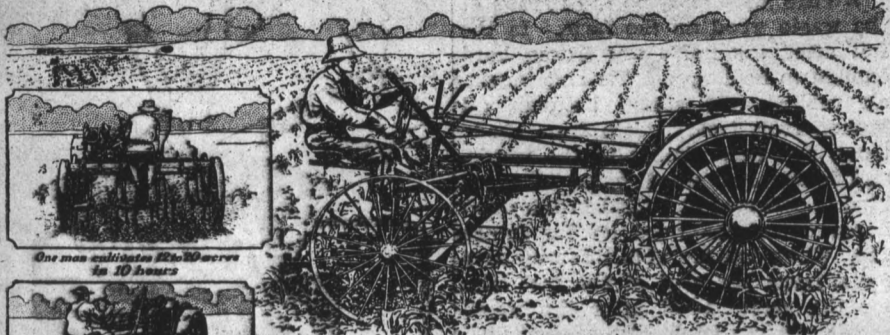
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But cultivation is only one of the farm operations which the Moline Universal can do. It is light, but has more than enough power to pull two 14-in. plow bottoms, because all its weight is available for traction.

The Moline Universal isn't the kind of a tractor that will do your plowing and seed bed preparation and then rest while your horses do the planting, cultivating and harvesting. It works to full capacity throughout the entire year with the greatest speed and economy.

Your Moline Universal is ready now. Write today for further information and name of your nearest Moline dealer.

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WHAT THE FARMER SHOULD KNOW.

Now let us take a backward glance at the mistakes of the year just passed, in order to steer clear of them the coming year. How much money did you make the past year? Few farmers could answer that question to the dollar, but a large proportion of them know that they have only made a bare living or run in debt. In such an uncomfortable contingency a carefully kept expense account would aid materially in finding the big leaks.

Perhaps you are running a dairy farm and sell your milk to the milk factories. How much profit are you making out of the enterprise? Do you know whether you are making any money or not? It is a capital idea to keep a bank account with each cow, that you may know how many unprofitable ones there are in the herd.

In these days of small profits and close competition a man can no more farm profitably without keeping books in some form, than a large manufacturer can get along without his salaried accountant. We would say to those that have never tried this method, begin at once, and keep a record of everything in your farm transactions the coming year. Set down the cost of every new tool, seed, fertilizer, amount paid out for labor, transportation, etc., and do not forget to add in your taxes and all other expenses. Be able to tell to a cent the money received from the sale of stock and other products, and at the end of the year see if you have made anything more than day wages and a bare living for your family.

If you have accomplished nothing else, when Christmas comes you will have acquired valuable pointers for next year's operations. Many farmers at the end of the year count up the cash on hand and say, "I have made so much," and yet they cannot exactly tell whether every dollar has cost them four to obtain it, as if they have made that much profit over and above interest on capital invested. But some will say, "I have not the time or education to keep books." To them I would say, such a man has no more business to engage in farming, expecting to make a profit on capital invested, than he would to fill a college professorship or the office of a bank president. In these days of high and advancing prices the farmer must and should know where he "is at," just as surely as the most strenuous business man or manufacturer, or sooner or later he will find himself a prey to the money shark or the land grabber, and in these days of widely diffused and easily obtained education the average farmer has no right to be a back number in the business world and have dealings with shrewd business men and speculators who seek, and do, in many cases, increase their wealth at the expense of the too often careless farmer.

Shiawassee Co. D. H. M.

ORDER SEEDS AND FERTILIZERS EARLY.

Now that the winter months are here it gives us some time to think about next year's crops and preparations.

One of the first things we should consider is the question of seeds, and chief among these will come the oats, corn and barley. A good many of us have our seed oats now, but we should ask whether the yield of the seed we have will warrant the sowing of it for another year or not.

The experiment stations throughout the country have not been idle along the line of oats in the last few years and as a result have given us some high producing varieties, among them being the Worthy, Alexander and Michigan Wonder varieties, which have given good results in our state. Tested

varieties of proven value are always to be preferred.

We cannot afford to wait too long before placing our order as the supply is very liable to be much less than the demand, neither can we afford to miss an opportunity of securing good standard pedigreed seed. Nearly every man in the state produces some oats and every man who is contemplating the purchase of seed oats next spring should place his order now so that he will be reasonably sure of getting in line for better seed.

If we could have looked ahead last fall before the frost cut our corn crop and made plans for a heavy acreage of winter barley, what a saving we could have made ourselves.

Barley as a feed stands next to corn and many feeders plan on the utilization of the winter and spring barleys to carry them through the summer feeding of cows and hogs.

The pedigreed barleys yield from fifty to sixty-five bushels per acre and under proper fertilization will do even better, and since the corn crop is so short the problem of feeding next summer and fall will probably be more acute than it is at the present time.

Although there are many adverse comments concerning the handling of barley at harvest time, the fact that it comes at a time when the oat bin is low and the corn gone; that it yields well per acre and compares very favorably in analysis with corn; that it makes a palatable feed, and one that will lay on rapid and economical gains, puts it where every man should use it rather than avoid it. There has often been comment as to its adaptability to soils but it has been proven that it has a wide range of soils giving the greatest yields on rich, well-drained silt loams. However, that does not mean that it cannot be grown on many of the lighter soils, for results from experiments show that under proper fertilization, light sandy soils give heavy yields.

Seed corn is another one of the seed crops that will touch the high water mark of prices next spring. One of the ways that you can avoid that high price is to order your seed from reliable sources at the present time.

We cannot afford to put off some of these fundamental things until next spring. The time for planning is here and we should take advantage of it.

Take up the matter of fertilizers with your local fertilizer men, order through your Granges and Farmers' Clubs, or several men club together and order in carload lots. There is only one safe method and that is in immediate action.

Van Buren Co. H. V. KITTLE.

GROWING BEANS WITH SMALL COST.

Plowed the ground early and worked it several times both ways so as to make it level. I planted with two-row corn drill, twenty-eight inches apart, and dropped a bean every ten inches in the row. I worked them with a two-row cultivator and hoed them once. Harvested them, eighteen acres, in one day, with two bean pullers and a side-delivery rake. Had two men follow the rake to pick up any scattered beans. We let them dry a few days and then threshed them from the field. Had 329 bushels of beans that picked two pounds.

One must have his land in the best of shape to raise beans. My land was tilled, another essential thing to save the bean crop.

Midland Co. T. A. HOPKINS.

The United States Food Administration wishes to place the Irish potato every day in the year on every table in America. Potatoes furnish nourishment, bulk, mineral salts and a corrective alkalinity in the diet. They are plentiful this year and reasonably cheap.

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One man can cultivate 3 to 6 times the usual acreage with Planet Jr implements. They are so designed and constructed that with greatest ease they do thorough, rapid cultivation. You save time, labor, money, cut down living expenses, and increase the food supply.

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Farm Notes

Seeding and Inoculating Alfalfa.

Please advise me if the culture for inoculating alfalfa sold in bottles is a success. What kind of alfalfa seed should I sow, Grimm or common alfalfa? I have fairly good ground, sandy in character. Is it all right to sow with oats in the spring?

Berrien Co.

C. F. H.

The pure cultures for inoculating alfalfa are successful if they are fresh or reasonably so, and care is taken in their use. Directions should be followed in applying them, and the seed should be sown without undue exposure to bright sunlight which is destructive to the inoculating germs.

Success in getting a good inoculation of the alfalfa plants depends, however, as much upon the adaptability of the soil to the growth of the germs as upon inoculation itself. If your soil is low in its lime content, you will find it necessary to apply lime before profitable stands of alfalfa can be secured, even with inoculation of the seed. If it is at all difficult to get good seedings of clover on this soil, lime should be applied before an attempt is made to seed to alfalfa.

Alfalfa can be successfully seeded with a thin seeding of oats, provided the soil is in good condition for the crop. A good way to do when alfalfa has not been previously grown on the land is to sow it with common clover, then if a good stand of alfalfa is not secured, the clover will help make a good stand. Not more than a bushel of oats should be sown for best results where this method of seeding is being practiced.

Vetch for Hay.

I would like to learn the value of spring vetch. Can it be sown with peas and oats, the same to be cut for hay? How much freezing will it stand?

Oakland Co.

H. M. S.

The only variety of vetch which has been successfully grown as a forage crop in this state is a winter vetch which is sown with rye in late August or early September, and under favorable conditions pastured in the fall and used as a hay crop the following spring. On land suitable for peas and oats no other seed which could be used in the combination could add to the value of the forage crop.

SOWING WINTER RYE IN SPRING.

We have a field which raised a crop of beans this year, it being sod last spring. Owing to the lateness of the beans ripening we were not able to get it all sowed to rye. It was well fitted and we got part of it drilled to Rosen rye. The seed came from a field that yielded about thirty bushels per acre; we sowed at the rate of one and one-eighth bushel per acre. We have the seed for the field all cleaned and in bags. The same field several years ago, so we were told by the man who worked it, was put into rye so late that it did not come up until the next spring and made a fair yield. This field's soil is on the sandy order with some clay and is underlaid with subsoil, and in turn is underlaid with a sheet of gravel; it is warm soil. I am informed of several instances of rye being put in so late that it did not come up until the next spring, and doing well; one was last fall between Marshall and Tekonsha, a piece of Rosen rye, and yielded about thirty bushels per acre. There is a large acreage around here that did not get up this fall. Do you know of instances of rye being sowed early in the spring, (winter rye), and it yielding successfully? How much seed would you recommend to sow per acre in the spring? How deep would you drill it?

Calhoun Co.

E. R. H.

I could not advise anyone to sow a winter variety of rye in the spring. In fact, I would advise against it. You can't change the habits of plants so quickly. A plant that has been, by careful selection, changed in its growth so that it will germinate in the fall and live through the winter and produce a crop the next year, cannot be suddenly changed back so that it will produce a crop if sown in the spring that same year. You might get some of it to mature and then by selecting these grains

and planting them again the next year and succeeding years, after a time you would get a spring variety of rye, but I think it would be unwise to sow a winter variety in the spring.

You say you know instances where rye was sown so late that it didn't come up in the fall and yet this rye produced a good crop the next year. I have known of such instances myself and some even with wheat, which is less hardy than rye. But this late-sown grain, even though it barely gets up in some instances where it is not noticed above the ground in the fall, and yet survives the winter, has a big start over spring sown grain. It undoubtedly germinated the fall before but the warmth of the soil is not sufficient to develop the growth and it remains in that sort of condition until the warmth of spring starts it into fresh growth. This would be long before one could prepare the land and sow the seed in the spring. By the time one could prepare the land and sow the seed in the spring, this late sown rye would be nicely started; in fact, its root system has been developing all winter slowly, especially if the ground wasn't frozen, and it probably would be two months ahead of the spring sown rye. I certainly wouldn't sow a whole field. If I wanted to find out definitely, I would sow a very small amount and see how it worked. It would be much better to get a spring variety of rye to sow, or spring wheat, than to sow this seed of the winter variety.

I have sown winter rye in the spring as a cover crop for alfalfa but, of course, in the middle of the summer we clipped the alfalfa. This kept back the rye and it lived and survived the following winter, and the next year made a wonderful growth, with great, long, well-developed heads. I cannot say for certain that if we had not clipped this alfalfa and this rye that it wouldn't have headed out and perhaps produced some seed, but it certainly wouldn't have matured before August or September.

In seeding land to spring rye, I would use a trifle more seed because it wouldn't have the chance to stool that winter sown variety would, but on well prepared land it need not be sown to a greater depth than usual.

COLON C. LILLIE.

ROAD BUILDING IN MICHIGAN.

Ottawa county has let three contracts to build six miles of concrete road, work to begin in early spring, as follows: Frank Oosting and Nicholas Hofsteen will build a mile and a half of sixteen-foot road from Central Park to Virginia Park, near Holland; Kleine & Boulens, of Grand Haven, will build three miles of concrete from Agnew north; Oosting & Hofsteen, of Holland, will build a mile and a half of sixteen-foot road from east limits of Holland to concrete highway on the Zeeland road, giving an improved road from Holland to Zeeland.

Fourteen miles of gravel road will be built in eastern Calhoun county this season and plans are made to sell as many of the road bonds as possible to farmers along the routes. The bonds yield four and a half per cent interest.

Saginaw county proposes to build three new roads this season as follows: Road to county home, \$7,700; Lawndale and Tittabawassee, \$23,500; East street road, \$4,500. A complete patrol system of repairs on the county roads will be established.

Muskegon county has taken the first steps toward a system of concrete roads by asking for bids on one mile of such road, selecting a main traveled highway leading into the city of Muskegon. The supervisors have endorsed the plans of the government to establish motor truck lines throughout the country and asks for such lines between Muskegon, Ludington, Manistee and intermediate points.



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Market the Surplus Wood

It is more than likely that wood fuel will again become an important item of commerce with us. The fact that this fuel can be produced over a wide area makes the above statement more probable.

The American farmer has not been trained to think of securing an annual crop of wood from his woodlot. In the past wood has been a by-product in getting the land cleared for agricultural purposes. At present, however, the acute fuel situation shows the need of again relying upon wood as a source of heat. Consequently the farmer must so care for the trees in his woodlot that they will yield an annual supply of wood to care for his own wants and possibly to furnish a surplus for nearby markets.

Turn Waste Into Money.

There is every indication that the fuel shortage will be with us, at least, another year. Authorities are already warning the public of this fact, for the demands of our large cities are far from being satisfied, and as soon as coal production is increased these cities will quickly absorb the increase. This will leave smaller towns, villages and rural communities dependent almost entirely upon the surplus wood fuel from the farms of the state.

By reason of the fact that farmers have not been cutting wood to any extent for a number of years back, there may be found on most farms an accumulation of timber, not only in the woodlot but scattered elsewhere over the premises, which could be easily converted into fuel. About the buildings there are broken boards and pieces of timber that can be collected. Old fence posts and rails, and in some of our newer sections, stumps are available to cut up into a considerable pile of firewood. Then in most of the woodlots the conserver of wood will find old tree tops, dead timber, and trees that need to be thinned out in order that others may have a better chance to properly develop. Besides, there are what foresters term "ripe" trees that should be harvested. The farmer no doubt may have other uses for the bodies of these trees, but the tops and waste material should be carefully cut up for use in the stoves and furnaces.

The woodlots will be greatly benefited by this cleaning up. Many young trees will become stunted if not given a chance to grow. By removing many defective trees, and ripe ones, the growth of those remaining will be very greatly stimulated.

Work Should be Done Before Spring.

This is the time of year to do this work. Later on attention will have to be given to the production of crops. Of course, it is difficult to work in the woods when the ground is covered with so much snow, yet even with this handicap, a great deal of wood can be collected at the present time, especially such wood as can be worked up by the use of a buzz saw. Later on, if the snow should go some time before actual spring work opens, it will give our farmers an opportunity to collect scattered wood and work it up.

Farmers are urged to do this work now, not only for the very good reason that it will place them in a position to realize the biggest money from the wood, but also because by so doing they will be assisting in actually decreasing the amount of suffering in our centers of population, due to the lack of fuel. Already many cities of the state are contemplating the establishment of municipal fuel yards, looking toward the handling of wood with the greatest possible economy. The fact that dealers are to be watched and not allowed to take a wide margin of profit in the handling of wood should encourage farmers to do all they can to increase the supply. While there probably will be a more or less regular

market hereafter, conditions would indicate that the best prices will probably obtain during the remainder of the present winter and that of 1918-1919. To take advantage of these good prices wood ought to be cut this season before the spring work is here. It will then be well dried out for the next fall and winter's trade.

TO PREVENT SPECULATION IN FEED.

To prevent hoarding of concentrated and mixed feeding stuffs by speculators, the United States Food Administration has deemed it advisable to license manufacturers and dealers in commercial feeds for live stock, cattle and hogs. President Wilson has issued a proclamation placing the industry under license control on and after February 15. The Food Administration declares that hoarding of stock feeds has been more or less prevalent since the beginning of the war, and has resulted in extraordinarily high prices during the period of scant production. It believes that licensing will also prevent the hoarding of hay, which has been practiced in some sections of the country as a result of unusual demands for the army.

The Food Administration hopes to stabilize the price of dairy and stock feeds; without the license requirements it was powerless to prevent many evils which tended to encourage increased prices, especially near the large centers of population, where the dairymen depend almost entirely upon concentrated feeds for milk production.

It was upon the advice of the leading men in the trade that the Food Administration asked for the authority granted by the President's proclamation, under power given him by the Food Control Act of Congress. Representatives of the feeding stuff industry recently met in Washington and passed a resolution asking the Food Administration to place all straight and mixed feeding stuffs under license, protecting the fair and honest dealers against the operations of a few unscrupulous manipulators.

Every manufacturer, importer, dealer, handler or storer of about fifty of the principal ingredients used extensively in making commercial mixed feeds is included in the license requirements. This covers baled hay, shell and ear corn and many other ingredients in mixed feeds. The only exceptions are for millers manufacturing bran, and dealers in coarse grains, who have already been placed under Food Administration licenses.

BLIZZARD CONGEST LIVE STOCK RECEIPTS AND CHANGES PRICES.

Railroad service has been slow in overcoming the obstacles caused by the recent blizzards and snow blockades, but at last trains are making fair time, and some liberal supplies of cattle and hogs have reached the Chicago stock yards. On a recent Monday the Chicago receipts mounted up to 20,562 cattle, 42,182 hogs and 22,138 sheep, while on the following day receipts in round numbers aggregated 20,000 cattle, 50,000 hogs and 22,000 sheep. Large supplies of live stock of all kinds had been delayed in the country by the inability to make shipments on account of the cold and stormy weather, and this helped to swell the later receipts to liberal proportions. A great many cattle and hogs succumbed to the cold weather in transit, many trains getting in many hours after schedule time, and one stockman had forty hogs freeze to death in a single carload, while another shipper lost forty-five hogs out of a consignment of three carloads.



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The N. Y. Apple Grading Law

By ROY L. CADMUS

MOST horticulturists are undoubtedly familiar with the New York state apple grading law, which in its present form, went into effect in May, 1917. However, for the benefit of those who are not, the following rather brief summary will give all the more important provisions of the law.

The law names and defines five standard grades for apples grown in the state and provides that all apples packed in closed packages and offered for sale shall be marked with the name and address of the packer, the name of the variety and the grade. The grades in order are as follows: 1. New York standard fancy grade; 2. New York standard A grade; 3. New York standard B grade; 4. New York standard C grade; 5. unclassified. The law allows a certain per cent of bruising, disease, insect or fungus injury in each grade. In the fancy grade five per cent is allowed, ten per cent in A grade and fifteen per cent in the B grade.

The requirements of the standard C grade are that the apples be the same in quality throughout the barrel and that the barrel be marked with the minimum size of the fruit it contains. Any quality of fruit may be put in this grade. The fifth class, i. e., unclassified, constitutes a dumping ground for any apples not coming under the other classes, and as one shipper puts it, "everything goes." The only restriction is that the minimum size of the fruit be marked on the barrel.

The person who buys a barrel of apples marked "unclassified" is not necessarily getting a barrel of culls or poor apples. I have observed a few farmers who were putting up apples of A grade quality and yet were marking them unclassified, standing in fear of the arm of the law. Some who are packing good quality apples mark them unclassified for this reason.

The effectiveness of the law depends on its enforcement and to properly enforce it a large force of inspectors is necessary. The state is enforcing the law and inspectors have been operating at all important apple shipping points in the state. The most of the inspectors have been men familiar with apples and know a Baldwin from a Ben Davis and a good apple from a poor one. It is told by a Hudson valley shipper, however, that one of the men criticized his Greenings for being of "poor color." The inspectors usually travel in groups of three, it being necessary to have witnesses of any violations which they encounter. They visit the shipping points as often as they deem it necessary, which is usually about once a week. If any violation of the law is encountered it is included in the inspector's report, which he sends in to headquarters.

The law names the minimum size of the letters to be used in branding and states that any other brand used shall not be inconsistent with or larger than the required brand. The law also provides that no false or misleading statement shall be made on the package. A shipper whom I met was packing apples and marking them New York standard A grade in strict accordance with the law. Upon the head of the barrel in letters larger than those of the required brand he was stamping the word "Fancy." This word fancy is much overworked among men placing fruit on the market. It connotes much to Mr. Casual Buyer, but actually denotes nothing. This marking was misleading as the buyer on seeing the word "Fancy" would think them of New York standard fancy grade and would look no further at the branding. This was remedied when the inspectors appeared and the packer was not allowed to mark the fruit as "Fancy."

Another interesting point in the law lies in the provision that apples packed under the United States law of 1912 shall be exempt from the provisions of the act. The United States law provides for a United States standard grade similar to the New York A grade. One shipper, wishing to evade the law, packed his apples under the United States law, thinking them safe from inspection. The inspectors, with no regard for his feelings, opened several barrels of his apples and found them below the United States grade. On inquiring as to their right to open barrels marked thus, the inspectors stated that the New York courts had held that a violation of the United States law was also a violation of the New York law and hence it was their duty to inspect them, which closed up this apparent loop hole.

The effect of the law has been to establish standard grades for New York apples and actually force the packing of apples under these grades. Instead of each shipper or grower having a separate standard of his own which varied between rather wide limits, they now have a common standard whose limits are narrowed and definite and do not vary with the market, quality of the crop or honesty of the packer, as was formerly the case. It is radical in requiring that closed packages offered for sale must be branded as prescribed. Without this provision the law would be of little value and would be in the same class as the peach grading law of that state.

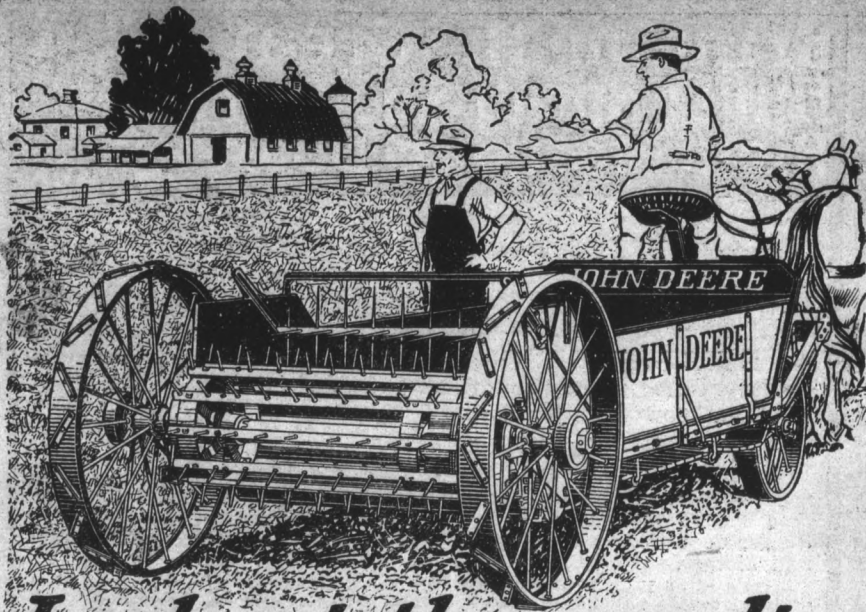
The peach grading law defines two grades of peaches but does not force the marking of the package. During the peach season of 1917 the writer was in Niagara county, western New York, in the heart of the peach belt, and observed the loading of several hundred cars of peaches by different shippers and at several different loading points and observed only an occasional car packed and branded under the law. The peaches are not graded under the law enough to warrant the thorough inspection used in enforcing the apple law, hence it may be broken with impunity or evaded by not branding. The apple law is accomplishing results which the peach law is not, simply because it says the apples must be branded.

The apple law was passed to further the best interests of the apple growers and aid them in competing with the standardized western apples. Other states may in time establish a law similar to this and it is to be hoped that the grades established throughout these states will be uniform and the A grade of one state will not equal the B grade of another. A federal law, with an adequate inspection force, modeled after the New York law would be even more desirable and it is to be hoped that we may some time have such a law.

EGGS KEEP IN WATERGLASS.

In tests made at the Utah Experiment Station twelve dozen eggs were placed in a crock and covered with a ten per cent solution of waterglass on April 1. During the following winter some of these eggs were tested and found to be in very good condition. Some of them were kept in the solution until the latter part of June of the following year, when most of the eggs retained a fairly fresh appearance as far as ordinary observation could determine. There was no change in the size of the air cell.

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I have to spray.....

Starting the Farm Garden

By I. J. MATHEWS

At the time of the last census, it was estimated that only one out of every five farms was supplied with a garden. The events of last season, however, have made it very necessary that every farmer keep a garden this year even though he has never kept one before. The garden spot is a profitable one; a boy I know, on a garden of a sixteenth of an acre, netted \$52.20, crediting the material taken from the garden at market prices and deducting all labor of hoeing and plowing, as well as the price paid out for seeds. Not only this, but the fact that the stuff was at hand ready to be put on the table rather than having to be sent for from the store, was another added convenience that cannot be assigned any money value, but which contributed greatly to the convenience of the mother and the good disposition of all concerned.

Order Seeds Early.

The seeds for the farm garden should be picked out now. Any farmer knows as well now as he will know later about what quantity of seeds of the various sorts of vegetables will be needed. Why delay? "He who hesitates is lost." The stock is short. On account of the high price paid for the great bulk of farm crops, seedsmen last year raised the crops themselves for immediate sale rather than for seed and it has been revealed by a comprehensive inquiry that seedsmen are generally quite low on many garden seeds. Onion seed, for example, will not be available to supply all those who contemplate the growing of onions and the seedsmen have said, "first come, first served."

This season, more than ever before, the family will want to have a large assortment of vegetables. While heretofore we have discouraged the planting of vegetables which were not especially desired by members of the whole household, it has become a well established fact that one's eating is somewhat a matter of habit rather than a matter of taste entirely and it has been proven rather conclusively that a person can get to relish any vegetable that grows in the garden. It is not advised, though, to grow any large supply of material whose value is more or less a conjecture and whose seed is very high.

Selecting Varieties.

In looking through seed catalogs, it is a good rule to vary the size of the order in proportion to the gaudiness of the advertising matter. Old established sorts do not need any lengthy word picture; neither do they need to be advertised through many colored plates. A safe rule to go by is, "the greater the amount of advertising on a given seed, the less of it should be bought." Generally, the gaudy plates advertise a product that is but little known and very often of little value. It should be said in passing, moreover, that while a few of these vegetables that have been greatly exploited at first have come into rather general use at present, hundreds have come and gone where a single one has survived. It is quite natural to order a large quantity of these highly advertised seeds, but just the reverse should obtain. The old varieties are well advertised through their merits and when the gardener comes to put his product on the market, if he has any surplus, he will not have to do any extra advertising. For example, everybody knows what onions are and they are anxious to buy them as soon as "onionolas" are offered for sale, then a taste must be created for these and this, of course, adds onto the selling price.

Peculiarities of Some Vegetables.

In every garden there are some spots that are more or less suited to certain

varieties of vegetables while other spots are fitted for other kinds. Likewise, there are some gardens that have low and high spots and it is a mistake to plant vegetables in such a garden regardless of whether or not they are adapted to the wet or dry conditions. It is well enough to learn that onions, celery, cabbages, cauliflower, brussels sprouts, etc., thrive where it is wet and they may be put on the portions of the garden that have the most moisture or may at times be flooded. Quite to the contrary, it is well to remember that beans do not thrive upon a wet soil, hence they ought to be planted on the highest part of the garden. Other vegetables in the same class with beans in this respect are peas, squashes, cucumbers, and the like; where possible, these plants should be placed in a dry location.

With regard to the soil requirements of the various garden crops, it should be borne in mind that sugar beets require a soil that is alkaline. Since at this time it seems to be necessary for families to grow sugar beets in order to insure sufficient sweets for the next year, ground where these roots are to be grown should, by all means, be treated with lime, either as ground limestone or in the hydrated form. Again, the root crops, such as beets, carrots, parsnips, salsify, turnips, potatoes and ruta bagas, require for maximum growth a ground well supplied with potash. To this end, where the garden is not too great a distance from the kitchen, the portion that is to grow these root crops the coming year should be coated with wood ashes. Wood ashes contain an appreciable amount of potash, yet if the garden is small it may be necessary to refrain from using too many of them. On a commercial scale, it has been found that wood ashes may be applied at the rate of four tons per acre without any harm resulting.

Garden Rotation Desirable.

Where it is at all possible, it is very desirable to rotate the garden onto a different spot at least every third year. One of the most successful gardens that I have seen has been kept free from attacks of fungous diseases and injurious insects by being rotated first from one side of the house to the other. On this farm, there are two gardens, one a fruit garden and the other a vegetable garden. The vegetable garden is kept in the same lot for three years and then gradually it is shifted to the other lot, while the fruit garden is shifted to the one that was occupied by the vegetables. This makes it possible to keep down diseases that are very destructive unless otherwise controlled. Diseases that may be looked for in old gardens are club root of cabbage, wilt of cucumbers, maggots in onions, anthracnose and leaf spot of beans, etc.

Rotation is also necessary to keep insect enemies in check. If there ever was a time when it did not pay every farmer to make a garden, that time has passed, for the farmers who kept gardens this year increased their labor incomes a great deal thereby. One should, however, in planning the garden make use of all the information now available concerning the soils and situations best suited to the vegetables to be planted. This increases the yield at no increased cost and makes it possible to work among the vegetables when otherwise there might be a loss of time. In this connection it is a good scheme to put the plan of the garden on paper and to know exactly how many rows of different vegetables are to be planted. By so doing, it will be possible to order the correct quantity of seed at once thereby insuring an adequate seed supply as well as one whose price is within reach of the grower.

NIAGARA DUSTERS Save Labor, Time and Material and Insure Better Fruit,

they combine efficiency with simplicity, durability and lightness of weight—operated by any three-horse-power engine. They apply the dust so rapidly that frequent applications can be made over large acreage at critical times.

Capacity "40 acres a day" in 40 year old apple orchard.

Dust Apples, Peaches, Cherries, Plums, etc.

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This Is Important To You This Year

Every user of Niagara Dusting Machines is assured a supply of Niagara Dust Mixture. We have purchased enough raw material in advance to supply you.

WRITE FOR Free Book on Dusting

which describes our various hand and power models. Tells the size of your orchard, and the kind of fruit. Let us show you how to make your orchard pay better.

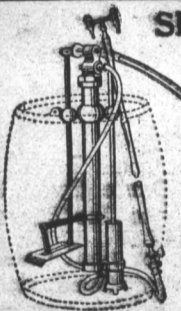
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Model D-1



Shown complete in every detail (no extra—Niagara Dusters are shipped ready to run). This is the largest size duster and requires a 3-horse-power gas engine shown here mounted on special wagon adapted for apple orchard work. Also shipped on skids with or without engine (New Way air-cooled).



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THE FIRST SUCCESSFUL SPRAY PUMP MANUFACTURED

For 28 years we have been supplying fruit growers with spraying utensils. One of our largest customers is the U. S. Government. Could there be a better endorsement? Send for our free literature and get our special proposition—a liberal one.

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First in the Field with a Successful Spray Pump

Don't apply more lime than needed. Save work, time, money by using Simplex Soil Tester. Guaranteed accurate. Takes five minutes to test. Costs one-half cent per field.

IT PAYS TO TEST SOIL AT HOME

Simplex soil tester automatically registers amount of lime and ground limestone required. Write for literature. Simplex Mfg. Co., Dept. 2565, Benton Harbor, Mich.

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has become so popular in its first three 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

Powder Harrows Do... Write C. H. Powder, Sta. 137 Fort Atkinson, Wis.

PEAR PSYLLA AND APPLE SCAB.

In a talk at the recent New York fruit growers' meeting, L. Strickland said: "Pyslla is one of the most difficult pests for the fruit grower to fight. The sticky foliage and fruit makes it a common disgust and complaint among the growers. Not only is this true in Niagara county, but it is true in all pear sections of the state."

"The art of controlling psylla lies in delaying the semi-dormant spray until the clusters are about to break on the Keifer and until they have broken on the Bartlett, and then spray with the lime-sulphur solution, thirty-two degrees, Baume, one gallon to eight of water. All the spray must be directed upward to the under sides of the fruit spurs and small branches, and an abundance of material used."

Apple Scab.

Prof. Whetzel, of Cornell University, told the fruit growers how to control apple scab. He said: "When the apples have been affected with the scab, plow under the leaves, which contain the spore of the scab, early in spring. These spores, if leaves are left, are shot out under conditions of warmth and moisture. The spores lodge in the buds as the leaves begin to unfold. These new leaves catch the spores. Thorough spraying at this time, especially on the underside of the leaves, with lime-sulphur or Bordeaux mixture and arsenate, will prevent nearly all infection. This must be done in addition to powing under leaves, because you will not get them all under. The dust mixture is as effective as a spray mixture in controlling scab."

Fertilizing the Orchard.

"Twenty Years of Fertilizer in an Apple Orchard," was the subject of an address by R. D. Anthony, of the State Experiment Station, Geneva. His general conclusions were that many of the most successful fruit growers do not now, after experiments, consider it as profitable to apply fertilizer to mature orchards, yet believe it is advisable to apply to growing trees, and in such cases, usually nitrate of soda, dried blood, and stable manure. In the experiments we have made, heavy applications of these materials have not increased growth as much as the contributions of phosphoric acid and potash. We have had a slight increase from the use of complete fertilizers, and to our own surprise nearly as good results when the nitrogen was omitted, and only phosphoric acid and potash were used, but the increase was not sufficient to pay the cost of the fertilizers at present prices. The orchard cited is but a link in a chain of evidence that shows a similar result in New York orchards. The New York Experiment Station has been conducting experiments for years in most parts of the state. We had no profitable returns from the applications of fertilizers, other than cover crops, to mature orchards."

Other Fruit Pointers.

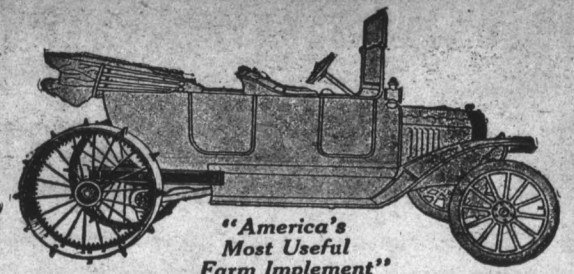
Spray cherries to prevent loss of foliage after mid-summer, with Bordeaux mixture or solution of lime-sulphur, at strength of 1-40. Spray when shuck falls, and after fruit colors and after it is picked. Dusting the trees has given good results. Where there is no scale Dr. Parrot did not advise the dormant spray except under special conditions. Some varieties seem immune to scale. If there has been scale in a vicinity, spray varieties susceptible to scale with dormant lime-sulphur.

Bartlett pears need other varieties near them to polonize them, said Prof. Chandler, most varieties of fruit set better when different varieties are in the orchard. Keifer will pollenate the Bartlett pears. Bees in a pear orchard may carry blight, said one grower.

The tractor, it was the consensus of opinion, has come on the farm to stay. It is satisfactory and a good proposition for the farmer doing a large business.



GET BUSY



"America's Most Useful Farm Implement"

Enlist Your Ford Your Country Needs It

Increased food production is the crying need of the country. More corn, wheat, oats, rye barley—more land under cultivation—more productive labor from horses, machinery and the men on the farms. Efficiency and greater output are not only patriotic duties, but they insure increased profits. And the

STAUDE Mak-a-Tractor

(Trademark Mak-a Reg. U. S. Pat. Office and Principal Foreign Countries) Price \$225 F. O. B. St. Paul

stands today as the farmers first and strongest ally in the battle for food supremacy. Put that Ford to work. Remember you have two-thirds of a tractor already in your car. A Staupe completes the job and does double the work. It releases 20 acres for food for men that otherwise go to feed that four-horse team.

Making Good With 7,000 Farmers

The triumph of the Staupe Mak-a-Tractor has been so tremendous that any possible doubts of its efficiency have been swept away by the tidal wave of popular approval. The enthusiastic praise from users everywhere is the most convincing evidence that it has more than justified every prediction made for it. Thousands of farmers can testify that the Staupe has stood up well under the most grueling test in all kinds of farm work and heavy hauling.

More Work—Less Cost

It does continuously—24 hours a day if necessary—the work of four horses at the cost of feeding one. It plows an acre with less than two gallons of gasoline—is easy to attach and operate—can be used on Fords, Overlands, Chevrolets and other cars—is detached in 20 minutes, permitting the use of your car on the road—nothing to get out of order or require adjustment.

Master of All the Farm Work

Attached in a few minutes to your automobile, the Staupe Mak-a-Tractor will do your plowing, seeding, reaping, binding and hauling. Equipped with the Belt Power Attachment, it does your sawing, grinding, shelling, feed chopping, pumping and any other work that an 8-10 H. P. farm engine could do.

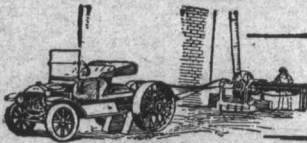
We are co-operating with the U.S. Government in the increased food production through greater acreage and increased yield per acre. The Staupe Mak-a-Tractor will help you solve these problems.

Let Us Prove What We Say

Get ready to meet the shortage in farm help and horses. Put your farm on an increased production and efficiency basis. Fill out the coupon and get our two free books by return mail. Read the statements of some of the thousands of Mak-a-Tractor owners. Find out how YOU can increase output and profits and decrease cost of production.

Sign and mail the coupon today—NOW—while it's before you.

The E. G. Staupe Mfg. Company
2595 W. University Ave., ST. PAUL, MINN.



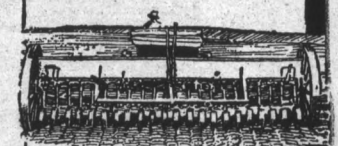
I have got my Staupe Mak-a-Tractor belt power attachment at work and it sure is great for sawing wood and grinding feed. Sawed our 40 cords in one day, some as large as 14 inches in diameter and all three men could lift. I say it is great.
Glenn C. Wood, Lima, Ohio.



I plowed 190 acres with my Staupe at a cost of less than 50 cents an acre. My car is just as good as ever and the engine don't heat. I used about one quart of water a day. I plowed 2 acres a day, where I could only plow 5 acres with 6 horses on the gang. It does the work of six horses and not four.
J. S. Welter, Grafton, N. D.



I cut all my wheat, 450 acres, with a Staupe Mak-a-Tractor and am plowing 10 acres a day at the present time with a 14 inch gang, and don't have any trouble with it heating and it doesn't damage the car as much as running on the road.
A. Christopherson, Flaxville, Mont.



My Staupe Mak-a-Tractor pulled a 14-inch grain drill over 200 acres of newly broken prairie sod, pulled a 3-section harrow over 200 acres and the same drill over 450 acres more land—all newly broken sod. I averaged 2 1/2 acres per hour with the drill. It has proven absolutely satisfactory.
Carl F. Erbe, Garden City, Kan.



I have pulled two 16-inch plows in sod for five hours and 4 tons on the road for eight miles with my Staupe Mak-a-Tractor and the engine never boiled. I don't see that it hurts the car and it will do all the company claims.
C. F. HARRIS, Orange Lake, N. Y.

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2595 W. University Ave., St. Paul, Minn.
Please send me your two books and prove to me that I can profitably use a Staupe Mak-a-Tractor with my car.

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Name and Model of My Car.....

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tells you how to make the biggest and quickest profits from strawberries. It explains every detail of strawberry growing in a plain and practical manner and tells how

You can make \$500 to \$1200 per Acre

Beginners, as well as experienced growers make these big and quick profits right along.

Here's proof: J. W. Rowe of California made \$1677.88 from one acre.

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30 STRAWBERRY RECIPES Our Free Book gives the women folks 30 choice ways to prepare strawberry dainties for both summer and winter and tells them how to supply their families with strawberries without cost. Big cash prizes offered to boys and girls.

Kellogg Everbearing Strawberries and Kellogg Strawberry Gardens pictured and fully described. The book is free and post-paid. Write for your copy today. A postal will do.

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at wholesale prices, direct from Nursery to planter. Healthy acclimated, high grade, true to name fruit trees, berries ornamentals. The nation needs more fruit. He who plants this spring serves his country. A postal today will bring prices and descriptions.

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Not a solution but a perfectly atomized-Super spray that guarantees maximum fruit yields. Wonderful story of FRUIT-FOG, Spraying Guide and big Sprayer catalog FREE. Send postal today. No obligation.

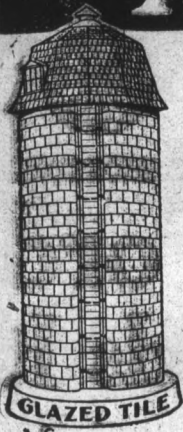
Hayes Pump & Planter Co., Dept. D, Galva, Ill.

Peach, Apple, Pear and Plum Trees, special prices for 30 days. Send us your want list to price. Catalog free. **ALLENS NURSERIES**, Geneva, Ohio.

For Sale "Francis" fall bearing strawberry plants \$1.50 per 100. \$10.00 per 1000. **W. F. TINDALL**, Boyne City, Mich.

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A silo is a permanent investment, therefore purchasing a silo is not a question of paying a few dollars more or a few dollars less, but of getting a silo that is right—in design, in material, in construction.

"Kalamazoo" is the answer. For more than twenty-seven years thousands of successful farmers in all parts of America have put their faith in

Kalamazoo TILE AND WOOD SILOS

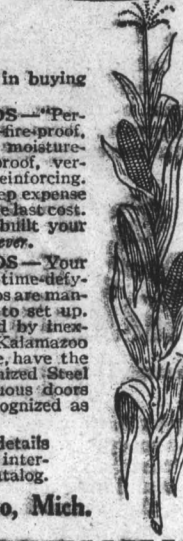
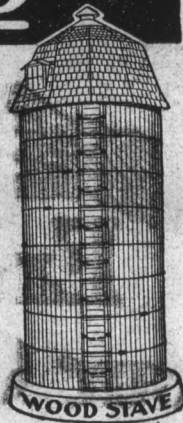
"The World's Standard"

Last year alone upwards of six thousand new purchasers of silos unanimously decided in favor of the Kalamazoo. And those who bought twenty or more years ago still swear by the Kalamazoo because time and experience have proven conclusively that Kalamazoo silos are right, from every standpoint. There's a big dollar's worth of value in every dollar of the cost whether you buy a glazed tile or a wood stave Kalamazoo.

They're built to meet the needs of farmers who know and appreciate the feeding value of ensilage and know how a silo should be built to make and preserve ensilage right. Kalamazoo silos excel in design, material and workmanship—combining every desirable feature a silo should have and embodying the knowledge acquired through long experience in silo building.

Write Today for our free descriptive booklet and details of our easy payment plan. If interested in an Ensilage Cutter, ask for Kalamazoo Cutter Catalog.

KALAMAZOO TANK & SILO CO. DEPT. 275 Kalamazoo, Mich.



Dairymen Would Improve Markets

AMONG the breed associations represented in the convention the dairymen were most active. Some complaint was heard about the difficulty of procuring feed owing to high prices and transportation difficulties, but for the most part the dairymen expressed satisfaction—especially in the matter of prices, for condensaries and city dealers in almost every section of the state have within the past year come to see the necessity for paying something like equitable prices for milk products.

In this connection, a development reported by C. P. Reed, field secretary for the Michigan Milk Producers' Association was not without interest. He informed the dairymen that since the new schedule has become operative in Detroit sales of milk have fallen off, so that a surplus is accumulating. This he attributed for the most part to habits of thrift that city dwellers seem to be taking on since the war opened. He suggested that producers get in touch with him before increasing their shipments to this market.

Commissioner Fred L. Woodworth, of the Michigan Dairy and Food Department, pressed home the fact that a wider and more economical use of milk products must be brought about if a maximum of success is to be attained in the future by the dairy business of the country.

"There is a waste in the dairy business," he declared, "that would ruin almost any industry. In Michigan, fifty-eight per cent of the milk is used in butter-making. Butter contains considerably less than one-half the food elements in the whole milk. This skim-milk represents about one-fourth the food elements in the milk produced in Michigan, and is almost totally lost, both as a source of revenue for the farmer and as a source of food for the human race.

"It is up to us to see to it that some way is worked out to present to the people of our land every food element in the milk in some appetizing and convenient form. This is, to my mind, the greatest problem confronting Michigan dairying.

"The dairy department of the state is seeking a solution of this problem, and is preparing data to present to bakers of the community in an effort to get them to use more skim-milk in bread-making in place of the water now used. This would provide a channel by which vast quantities of this product could be used to advantage—118 pounds of skim-milk could be used to a barrel of flour (196 pounds), or 416 pounds to a loaf of bread.

"Estimating the cost of skim-milk for a bakery at \$1.65 per hundred, the gross increased cost per loaf would equal \$.0068. Taking credit for the saving of sugar, the net increased cost per loaf would be \$.0043. Increased calories per pound loaf would be 70.7, and the consumer would obtain the same amount of food value at about one-sixteenth the cost that he would obtain it in beef steak, and the same amount of protein at one-fourth the cost of beef steak."

A number of important resolutions were adopted by the members of the Michigan Holstein-Friesian Association. Conformance with the plan proposed by the Michigan Live Stock Sanitary Commission and the Bureau of Animal Industry, for the establishment of accredited herds was recommended, an arbitration committee suggested, and the practice of paying bonuses to herdsmen condemned.

These last two resolutions follow: "Resolved, that there shall annually be appointed by the members of this association a committee of three men, which shall be known as the arbitration committee. It shall be the duty of this committee to hear all matters of dispute which may arise between seller and buyer of registered Holstein-

Friesian cattle in the state of Michigan. This committee shall possess the full authority of this association, and we as members of the association agree to be governed by the findings of the said committee.

"Be it also resolved that this association recommends to the National Holstein-Friesian Association, that it take such steps as shall lead to the discontinuance of the practice of paying to herdsmen a bonus for records made, in addition to their regular salary."

The champions of the black and white breed wound up their proceedings with a gift of \$100 to the Red Cross and the army branch of the Y. M. C. A.

Action similar to that of the Holstein-Friesian men was taken by members of the Michigan Guernsey Cattle Club in the matter of arbitration committees. The Guernsey breeders were particularly spurred to action by an incident in Schoolcraft county, where members of a bull association are having trouble in securing the pedigree of their sire from the breeder who sold the animal to them. The arbitration committee is expected to settle all such misunderstandings in the future.

A fine increase in the number of registered Guernseys in the country was reported to this association by E. A. Onsrud, of the American Guernsey Cattle Club.

Very few members of the Michigan Jersey Cattle Club and the Michigan Red Poll Breeders' Association were in attendance at the convention, due to transportation conditions which prevented most of the members from reaching East Lansing. The Holstein and Guernsey breeders were a little more conveniently situated.

MOLDY SILAGE.

I have some silage that has white and green spots in. Now, if the cattle eat it and it makes them sick, what is the best remedy to give? What makes these green and white spots in the silage?

St. Clair Co. W. S. These white and green spots to be found in the silage are simply different forms of what is ordinarily called mold. It is moldy silage. It was caused no doubt from not having sufficient moisture in the corn when it was put into the silo. Corn that is frosted, corn that is over-ripe, or corn that has been cut and allowed to stand for a considerable length of time, rarely has a sufficient amount of moisture so that when it is put into the silo it will generate the proper degree of heat and settle into a sufficiently compact mass to exclude the air and prevent it from molding.

Now, I cannot tell whether the cows will be injured by eating this moldy silage or not. Very much of the mold in cornstalks and in silage doesn't seem to be dangerous at all to cattle. Mold is simply bacterial growth which is the beginning of decay in silage. Many of the bacteria which produce decay are not injurious. For instance, the bacteria which turn milk sour, known as lactic acid bacteria, are not injurious. Many claim that they are beneficial and that it is healthy to eat sour milk, and people have fed moldy cornstalks and moldy silage repeatedly with apparently no injury to the cows.

The trouble is that we cannot tell just what kind of bacteria produce this mold and it may be that some of it would be injurious. If there is very much of it, especially of the greenish color, I would hesitate about feeding it. The white mold I don't believe would be injurious and yet I can tell nothing about it. This would be a case where it would not be absolutely safe about the matter. The kind of bacteria should be determined by a bacteriologist to find out whether they would be injurious or not. But most of us don't go this far. We simply take the chance.

Only \$2 DOWN and One Year To Pay

THINK of it! For only \$2 down you can now get any size of the New Butterfly Cream Separator direct from our factory on a plan whereby it will earn its own cost and more before you pay. You won't feel the cost. For only \$29 you can have the No. 2 Junior—a light running, easy cleaning, close skimming, durable, guaranteed separator. Skims 35 quarts per hour. We also make five other sizes of the

NEW BUTTERFLY

30 DAYS' FREE TRIAL

You can have 30 days' FREE trial and see for yourself how easily one of these popular machines will earn its own cost and more before you pay. Try it alongside of any separator you wish. Keep it if pleased. If not you can return it at our expense and we will refund your \$2 deposit and pay the freight charges both ways. You won't be out one penny. You take no risk. Postal Fringe Free Catalog Folder and direct from factory offer. Buy direct and save money. Write today.

ALBAUGH-DOVER COMPANY, 2165 Marshall Blvd., Chicago, Ill.

More Beautiful - More Durable

and gives you better silage

Vitrified tile—the ideal silo material—lasts for generations. No upkeep cost—no painting—no hoops to tighten. Write for catalog.

Lansing Vitrified Tile Silo

with the "ship lap" blocks. Ends overlap—adds strength. Notches in ends prevent mortar from slipping. Extended shoulders top and bottom—less mortar exposed—silage settles better. More beautiful wall—blocks all same shade. Steel hip roof—extra space inside—steel stave—fireproof—continuous doorway. Write for Catalog and Prices.

J. M. Preston Co. Dept. 339, Lansing, Mich. Also get our offer on Chimney Silos and Birdwell Thrashers.

Wanted: solicitor and collector among farmers and city people for a general lumber and coal business. A man especially adapted for selling lumber, silos, etc., to farmers. Address: Box R 29, care of Michigan Farmer, Detroit, Mich.

When writing to advertisers please mention The Michigan Farmer.

Free Catalog in colors explains money on Farm Truck or Road Wagons, also steel or wood wheels for any running gear. Send for it today. Electric Wheel Co. 35 Elm St., Detroit, Mich.

ARE WELL-DEVELOPED EARS NECESSARY ON SILAGE CORN?

Last summer Mr. Lillie made a statement that corn (grain, I mean), in silage had no feeding value. Now, we have had eleven years' experience with silos and I cannot agree with him. We have always been able to see the difference in the cattle when our corn did not mature. The statement of Mr. Lillie was the subject of a good deal of discussion last fall at silo filling time. Will you have Mr. Lillie explain this?
Sanilac Co. J. E. C.

I am very glad to have this question brought up again. I did not intend to say that ears on silage corn had no food value. We all know that wouldn't be true. You take a well developed corn plant, one that has got plenty of room so that it grows and develops a good ear of corn, and sixty per cent of the entire food value of the plant is in the ear, only forty per cent in the stalk and leaves, so you see, I couldn't have said that the ears on the corn plant had no food value, because they certainly do. But the idea that I tried to bring out was this—that if we plant the ensilage corn thicker so that only a few small ears would be developed, that we would get more tons of ensilage per acre and that it would be just as good ensilage, ton for ton, as though we planted the corn thin and allowed the normal development of ears, and I still believe that to be true.

Then, again, I am satisfied that for best results you don't want corn to get ripe to put it into the silo. It ought not to be beyond the glazing period; I wouldn't care if some of it didn't get to the glazing stage, yet it will make ensilage that is more digestible and more palatable than it will if you allow the corn to get ripe.

The corn plant belongs to the same botanical family as timothy hay. Corn is a branch of the grass family; in analysis it is quite similar to timothy hay. Now, we know that we don't get good results in feeding timothy hay when we allow this hay to get ripe before it is cut. You may have just as many tons of hay; it may possibly go farther because animals won't eat as much of it. But this is because they don't like it. The principal thing is, there isn't as large a per cent of it digestible. Much of the starch in the plant is turned into cellulose, weedy fiber, in the process of ripening and the analysis shows that there is a larger percentage of crude fiber that cannot be digested; consequently, ripe timothy hay is not as valuable as when cut before the plant gets ripe.

Now, the same thing is true with the corn plant. You let the corn plant get dead ripe, the ear is more nutritious than it ever was before, but what you have gained in that ear you have lost in the stalk and in the leaves. The balance of it isn't so digestible, nor it isn't so palatable; cattle won't eat it with as much relish nor they won't eat it as well if the corn silage is ripe as they will if the silage is made out of plants that are in the dough or glazing condition. You want a plant beyond the milk stage; what we would call the dough stage in wheat. Chemical analysis shows that plants at that stage of ripening contain the largest percentage of digestible nutrients and that is when you want to preserve it.

Now, if you plant ensilage corn so that only a few nubbins will develop you can get more tons of silage to the acre. There isn't any question about that. The only question is whether these plants that don't contain ears have as much digestible food as plants containing ears. Now, my theory is that the plant contains the food which later should go into and develop the ear but this starch and sugar and protein that would go into the big ear remains in the stalk and in the leaves largely and that stalks enough to make the same weight as a fully developed ear will contain as much food, and just as good food as the plant with the big ear.

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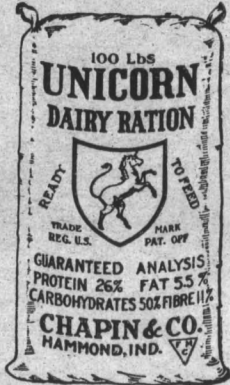
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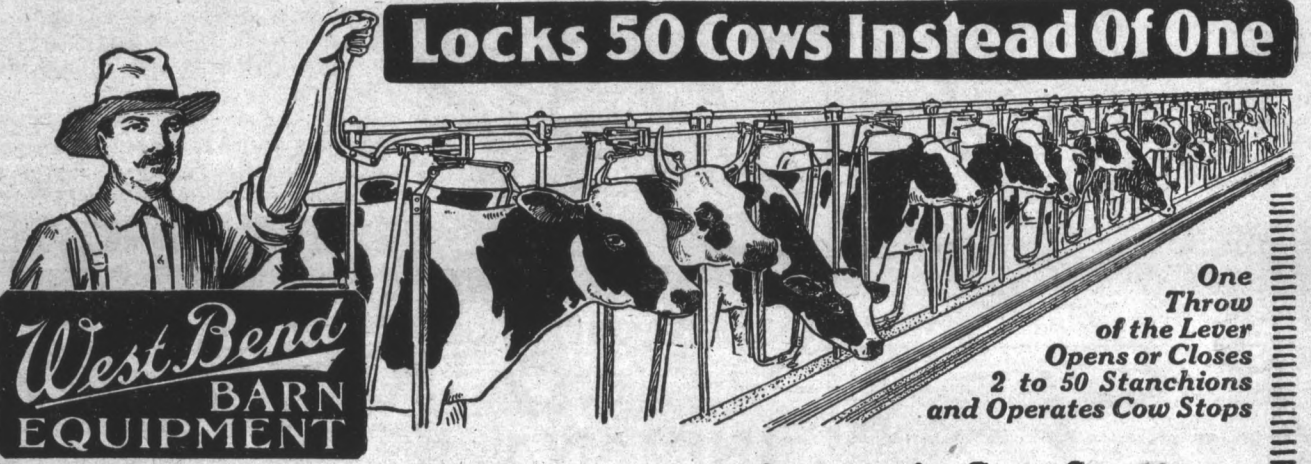
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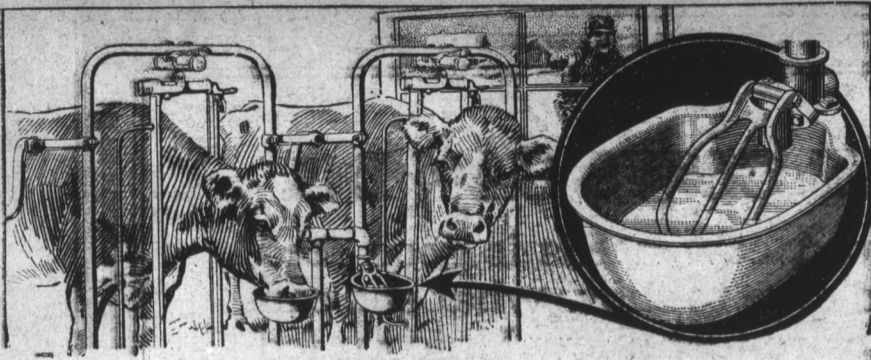
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Curing Meats on the Farm

By N. A. CLAPP

MY business has taken me among the farmers of different parts of this state and other states during the last fifteen years, and it has given me an opportunity to observe the usual practices which prevail in most farm communities. "Butchering days," which were set aside in former years for dressing hogs for pork to use in the family, or dressing a beef for family use, seem to be a thing of the past. But a very few of the younger members of the family seem to know anything about new "pig's liver fried," "tenderloin," "sweet-bread," "spare-rib," "pork souse," "pickled pigs' feet," "home-made sausage," or any of the old-fashioned dishes which were once considered not only dainties but luxuries on the farm in the good old days on the farm fifty and sixty years ago. It has become the prevailing custom to sell the animals raised on the farm to the drovers and butchers and buy meats from the shops in small quantities, paying, very often, three and four times the prices realized when the animals were sold. Such practices savor of poor economy, and carried out in actual practice, tends to diminish, greatly, the amount of meat allowed the farmers family while the actual cost of living is greatly increased.

The Kind of Hogs to Kill for Home Use.

We take it for granted that the farmer's family is entitled to first-choice of the herds. Only the best and healthiest ones should be kept for home use. The fat barrows and young sows make the best pork. If well fattened on common feeds they can be "hardened" for killing if fed on corn or corn meal about three weeks before killing time.

Dressing the Hogs.

The man who bosses the job of killing the hogs should understand just how to do it. He should be able to stick (or bleed) the hog properly. He should also know how to temper the water so as to get a good scald every time. The water for scalding should be just coming to the boiling point when the hog is immersed in it; a little hotter on a very cold day than when the temperature is moderate. Keep the hog in the water only just long enough to cause the hair to start readily. After being well scalded the hog should be scraped, shaved and hung up as soon as convenient. After taking the inwards and internal organs out, rinse out thoroughly with cold water and let hang until cool, but do not let the meat freeze if it is to be salted soon. If the dressed hogs happen to get frozen, thaw out before cutting and salting.

Cutting and Salting.

Hogs that are dressed in the fore part of the day are pretty likely to be ready for cutting up in the evening. Those that are killed in the latter part of the day may be cut up the next morning.

When cutting the hog for salting lay it on the back on a good plank. Cut the head off by cutting around from sticking place to the neck joint just back of the ears. If the right place in the spine is hit there will be no need of using an ax in removing the head as it can be removed with a knife. Cut off the snout and ears to put in with the souse, remove the eyes, split the head lengthwise in halves, remove the brains and soak the blood out of the head pieces and lay by to make head cheese.

Split the carcass lengthwise through the back bone, remove the leaf lard, the ribs and the chine bone of the back. Cut off the belly strips for sausage meat. Cut out the shoulders, cutting off the frying strip at the top, and cut out the ham and cut off the legs, remove the feet and leave the shanks to salt with the hams, and the feet to pickle by themselves. The sides should

be cut in strips about four inches wide for salting in the barrel.

The side pork can be salted at once by putting in the bottom of a barrel a layer of rock salt and then pack the side strips on edge as closely as possible, the rind side outward, until a layer is completed and then a liberal sprinkling of salt, another layer of meat, etc., until all is salted. For every one hundred pounds of pork, dissolve as much salt as will dissolve in four gallons of water and pour on to the pork for brine and weight it down to keep it under the brine. A large crock is a good receptacle in which to salt pork, if only a limited quantity is to be salted.

The hams and shoulders can be salted before smoking, in the following sweet pickle: For one hundred pounds of meat, eight pounds of salt, two and a half pounds of brown sugar, or three pints of molasses, two ounces of saltpeter, two ounces of saleratas. Put the above in four gallons of water, heat to near the boiling point, skim, cool and after the hams and shoulders have been packed in a barrel, apply and allow them to remain for three weeks before smoking. All of the odd pieces, like ribs, top of shoulders, and hams can be kept fresh for some time by packing in snow or keeping in cold storage.

Corned Beef.

But few farmers have ever experienced the luxury of having good corned beef at hand three-fourths of the year. It is one of the cheapest and most reliable forms in which good, wholesome, palatable and nutritious meat can be had at hand during the larger portion of the year. It is both sustaining and healthful. No after bad effects experienced with corned beef which often follow the use of fresh meats.

There are those who contend that they can not afford home-cured corn beef and at the same time will pay two and a half times as much per pound for fresh cuts of no better quality than can be had with the home-cured meat. At the present time we are paying from twenty-five to thirty-five cents a pound for choice cuts of fresh beef, which makes us feel the pinch of the high cost of living. At the present time there is going out from the farmer's yards dry young cows that have gone farrow the last season, which sell to the drovers around five cents per pound. At that price the beef from these cows ought to be worth ten and eleven cents per pound by the side, which is not an extravagant price for that class of meat.

If two or three farmers would work together and each take a part of the meat from one of those cows, they could well afford to put down the meat for use during the winter, spring and summer.

After hanging and cooling the meat can be cut into small chunks which will weigh four, five or six pounds each. Put them in a tub of clean water and allow them to soak for twenty-four hours to take the blood out of the meat. Afterwards pile the chunks over a screen or on an inclined board to allow them to drain off nearly dry. Then pack closely in a barrel which has been set in the cellar where it can remain while the meat is being used.

Put the wash boiler on the stove over a moderate fire and put into it four or five gallons of water for every one hundred pounds of meat. Put into the water eight pounds of salt, two quarts of molasses, two ounces of saltpeter and two ounces of saleratus. Heat to near the boiling point and skim. Pour this brine on the meat while hot. Weight the meat down to hold the pieces under the brine. I have kept beef corned in this manner in the winter to near the end of summer.



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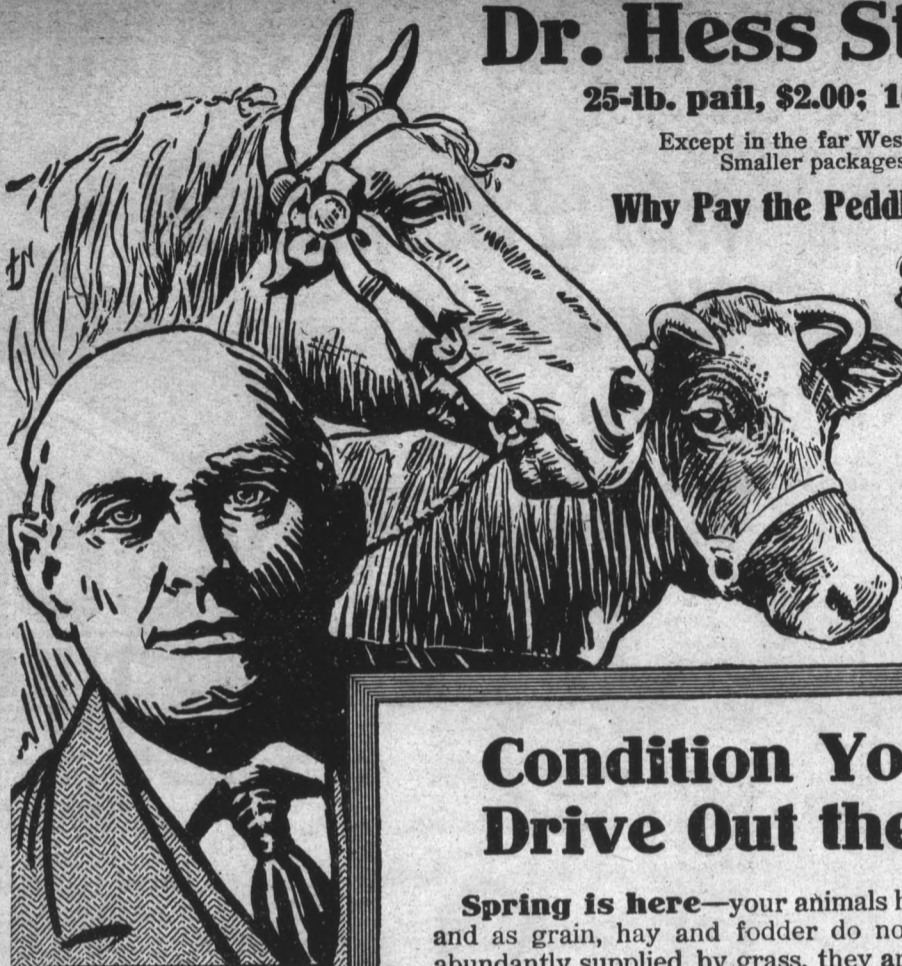
THE FEEDING VALUE OF POTATOES.

The papers are beginning to talk about Michigan's surplus of potatoes and to urge that the government shall use its efforts to help market them. It may be that more potatoes will be in evidence in the spring than are needed for human consumption. Quite a quantity of small potatoes were grown last year. A new system of grading sorted the product a little closer and gave the farmer a larger proportion of culls. The question is, what is the value of potatoes for feeding purposes when measured by market prices of other feed stuffs. First, let us consider them in the light of the findings of the chemist. Potatoes are about two-thirds water to begin with, one and eight-tenths per cent protein, fourteen and seven-tenths carbohydrates, one-tenth fat, and eight-tenths per cent ash. Much is being written of late about a larger use of potatoes in bread-making. In this connection it might be interesting to compare the food value of potatoes with that of wheat flour. A fair analysis of which would be: Protein, eleven per cent; carbohydrates, seventy-five per cent; fat, one per cent, and ash, 0.5. It is safe to say, therefore, that it will require more than five pounds of potatoes to equal in nutritive value one pound of wheat flour in all save the mineral properties. However, it is not safe to assume that the relative values of potatoes and flour can be determined by the chemist alone.

For Pigs.

In the feeding of pigs it has been found that five and one-half parts of raw potatoes are required to equal one part of grain, but if the potatoes are cooked three and a half to four pounds are equal in value to a pound of grain. The starch in the potato is probably more digestible than that in the grain and the presence of a larger proportion of mineral in the potato is a point decidedly in its favor. In the early periods in the lives of all our farm animals, lime and phosphorus are most important. The writer marketed a bunch of pigs this fall on which he would have lost money had he not had a quantity of cheap feed to use in fattening them. The loss in growth was occasioned by a lack of mineral matter in the ration, but to get back to the potato, it is safe to say, that if the potatoes are cooked from three and a half to four bushels of the tubers will equal sixty pounds of grain in feeding value, therefore, when grain is worth \$50 a ton, potatoes may be figured for feeding purposes at from thirty-five to forty cents per bushel, less the expense and trouble of cooking them. This is not a very long price for potatoes, but it opens the way to dispose of a lot of small ones and in cases where the crop must be drawn a long way to market and the prices are very low it makes for the farmer a way out of his dilemma. Potatoes are of less value when fed to cows, providing ensilage is available on the farm, but in cases where there is no ensilage they may be fed in small quantities with profit.

From fifteen to twenty pounds of potatoes per day will answer very well with plenty of dry roughage. Coming back again to the discussion of potatoes as a food for the human animal, their liberal use should be encouraged in every practical way. We very much wish that some positive work relative to the consumption of potatoes might be included in the negative program of food conservation. Candor compels us to say that we shall probably save no money by the use of a larger amount of potatoes in bread, but we shall save flour. If the material used in bread-making were twenty per cent potatoes we should be just as well off in the end and the saving of flour would be very considerable. If we are favored with a good corn crop next year and if that crop shall be well ripened, then corn will help greatly in the conservation of



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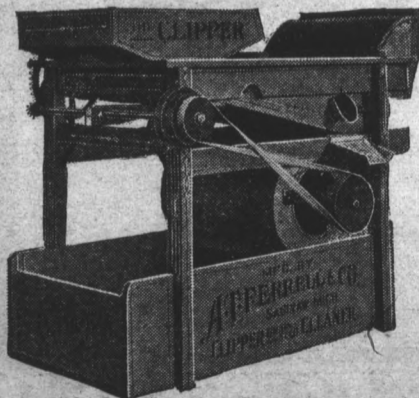
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wheat, but corn is very scarce this year. Rye is also limited in amount and potatoes are plentiful. If, therefore, more potatoes may be used in bread-making, if the small potatoes are cooked and fed to pigs in grain mixtures of some kind, not only will wheat products be saved and the sum of pork products increased but these cull potatoes will become a source of profit, their feeding value will be more correctly and more widely understood, and in future years it may be that larger varieties of potatoes will be grown in some parts of the country and dried, as they now are in Germany, for stock feeding purposes.

Cull Beans.

Cull beans, well cooked, are valuable pig feed when mixed with cooked potatoes. It was found by our own experiment station that cull beans and corn meal made excellent feed and that pigs were grown in the proportion of a pound of live weight to approximately four pounds of the mixture. If three or four pounds of potatoes are fed for each pound of cull beans, and if both are well cooked, results should be equally good. If the trouble and expense of cooking is not too great, and if the cull beans can be obtained at not to exceed thirty to thirty-five dollars per ton, then forty cents per bushel would be a fair value to place upon the potatoes. Considering the great scarcity of corn and the difficulty of obtaining other grains suitable for hog feeding, Michigan's cull beans and potatoes would seem like a Godsend in these days of food scarcity.

Oceana Co. W. F. TAYLOR.

USING BY-PRODUCTS AT HOG-KILLING TIME.

The following recipes for use of odds and ends at hog-killing time are selected from Extension Circular No. 42, of the Missouri College of Agriculture.

Frankfurters.—Use about one-third lean beef trimmings. The pork should be about one-half fat, and trimmings from the cured hams and bacon may be used. For one hundred pounds, the following seasonings are recommended but may be varied to suit the consumer: White pepper, four ounces; red pepper, one ounce; mace, two ounces; sugar, four ounces; saltpeter, three ounces; salt, two and one-half pounds. Five pounds of flour and twenty pounds of water are added. The mass is thoroughly mixed, ground fine, and stuffed into small casings. It is customary to make the link of Frankfurters about four inches long. Press the casing together and twist once around. Alternate the direction of the twist and the sausages will stay linked. Smoke about four hours and then cook for about ten minutes in water between 170 and 175 degrees. In stuffing sausages care must be taken not to stuff the casings too tight or they will burst while cooking. The attractive stuffed sausage is one that can be served with the skin intact. If onion is desired in sausages, one-fourth pound to each one hundred pounds of sausage will impart an onion flavor and will not be sufficient to be objectionable.

Frankfurters in Brine.—The frankfurters prepared as directed above may be preserved in brine if it is desired to keep them for a month or two. To six parts of saturated brine add four parts of water. Pack the frankfurters in the brine and weight down to keep them completely covered.

Sausage in Brine.—Stuffed sausages may be kept for several months if placed in a mild brine for four or five days (seven parts saturated brine and three parts water). Rinse and smoke six or eight hours. Hang in a dry, airy place.

All stuffed sausages that are to be kept for some time may be kept from molding or becoming dry if the cool sausages are dipped in melted paraffin or painted with the melted paraffin.

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Magazine Section

LITERATURE
POETRY
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MICHIGAN FARMER
AND *LIVE STOCK* JOURNAL
PUBLISHED WEEKLY ESTABLISHED 1843.

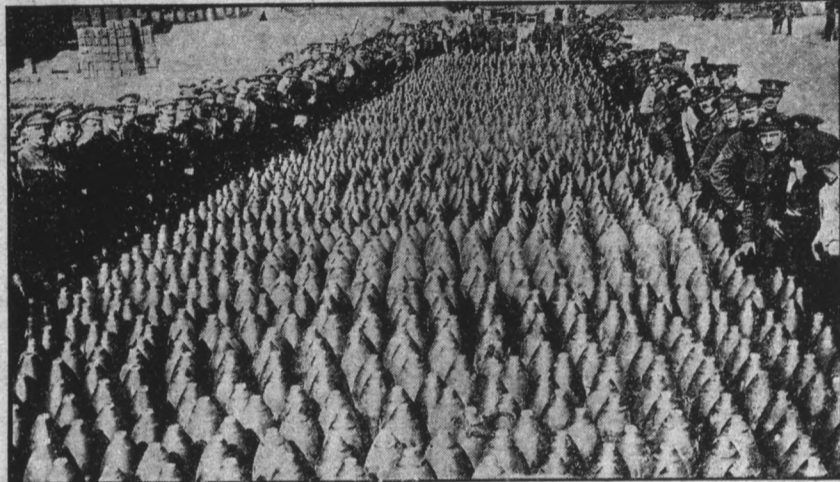
The FARM BOY
and GIRL
SCIENTIFIC and
MECHANICAL

This Magazine Section forms a part of our paper every week. Every article is written especially for it, and does not appear elsewhere

WORLD EVENTS IN PICTURES



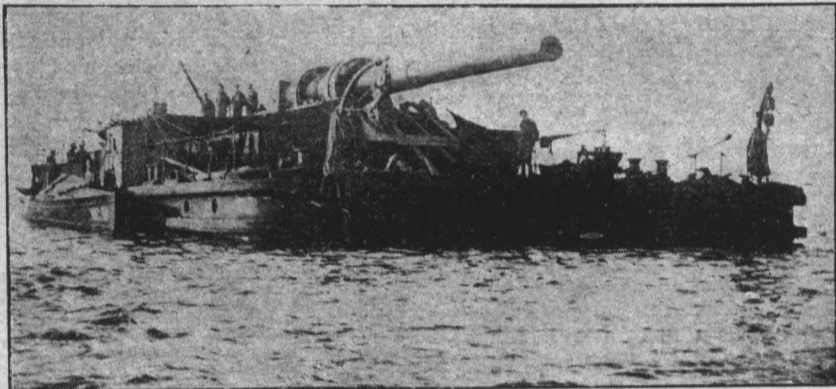
Grandson of Robert E. Lee is Now a Lieutenant in the U. S. Army.



A Few of the Big Shells that May be Seen Piled at Various Munitions Depots Behind the Allies' Lines on the Western Front.



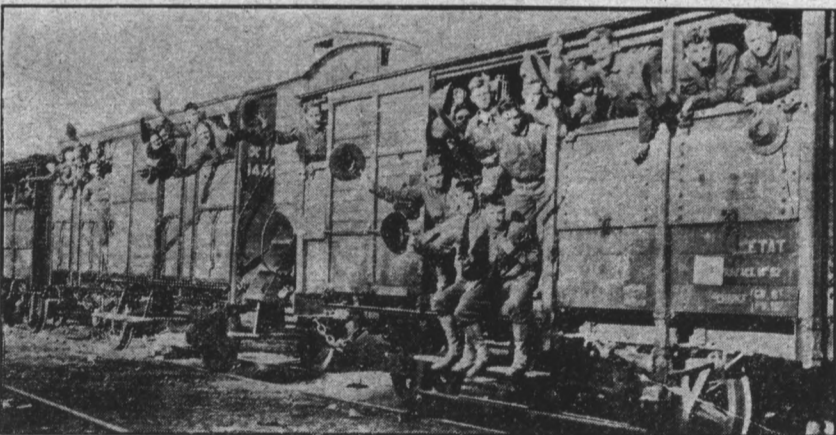
A White-haired Italian Grandmother Moves Goods as Germans Come.



By Mounting a Heavy Artillery Gun on a Barge Italians were Able to Bombard the Enemy's Trenches Along the Lower Piave River.



Notwithstanding the Heavy Fall of Snow in Northern France, Military Activities Are Kept up, as Shown by the French Advance in this Picture.



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Inside the Lines

By EARL DERR BIGGERS & ROBERT WELLES RITCHIE

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The girl was just coming out of a cafe—the only cafe aspiring to Parisian smartness Gibraltar boasts. Her head was bare. Under an arm she had tucked a stack of cigar boxes. Had it not been that a steady light from an overhead arc cut her features out of the soft shadow with the fineness of a diamond-pointed tool, Capper would have sworn his eyes were playing him tricks. But Louisa's features were unmistakable, whether in the Lucullian surroundings of a Berlin summer garden or here on a street in Gibraltar. Capper had instinctively crushed himself against the nearest wall on seeing the girl; the crowd had come between himself and her, and she had not seen him.

All the weasel instinct of the man came instantly to the fore that second of recognition, and the glint in his eyes and baring of his teeth were flashed from brute instinct—the instinct of the night-prowling meat hunter. All the vicious hate which the soul of Billy Capper could distil flooded to his eyes and made them venomous. Slinking, dodging, covering, he followed the girl with the cigar boxes. She entered several dance-halls, offered her wares at the door of a cheap hotel. For more than an hour Capper shadowed her through the twisting streets of the old Spanish town. Finally she turned into a narrow lane, climbed flagstone steps, set the width of the lane, to a house under the scarp of a cliff, and let herself in at the street door. Capper, following to the door as quickly as he dared, found it locked.

The little spy was choking with a lust to kill; his whole body trembled under the pulse of a murderous passion. He had found Louisa—the girl who had sold him out—and for her private ends, Capper made no doubt of that. Some day he had hoped to run her down, and with his fingers about her soft throat to tell her how dangerous it was to trick Billy Capper. But to have her flung across his path this way when anger was still at white heat in him—this was luck!!! He'd see this Louisa and have a little powwow with her even if he had to break his way into the house.

Capper felt the door-knob again; the door wouldn't yield. He drew back a bit and looked up at the front of the house. Just a dingy black wall with three unlighted windows set in it irregularly. The roof projected over the gabled attic like the visor of a cap. Beyond the farther corner of the house were ten feet of garden space, and then the bold rock of the cliff springing upward. A low wall bounded the garden; over its top nodded the pale ghosts of moon flowers and oleanders.

Capper was over the wall in a bound, and crouching amid flower clusters, listening for possible alarm. None came, and he became bolder. Skirting a tiny arbor, he skulked to a position in the rear of the house; there a broad patch of illumination stretched across the garden, coming from two French windows on the lower floor. They stood half open; through the thin white stuff hanging behind them Capper could see vaguely the figure of a girl seated before a dressing mirror with her hands busy over two heavy ropes of hair. Nothing to do but step up on the little half balcony outside the windows, push through into the room, and—have a little powwow with Louisa.

An unwonted boldness had a grip on the little spy. Never a person to force a face-to-face issue when the trick could be turned behind somebody's back, he was, nevertheless, driven ir-

resistibly by a furious anger that took no heed of consequences.

With the light foot of a cat, Capper straddled the low rail of the balcony, pushed back one of the partly opened windows, and stepped into Louisa's room. His eyes registered mechanically the details—a heavy canopied bed, a massive highboy of some dark wood, chairs supporting carelessly flung bits of wearing apparel. But he noted especially that just as he emerged from behind one of the loose curtains a white arm remained poised over a brown head.

"Stop where you are, Billy Capper!" The girl's low-spoken order was as cold and tense as drawn wire. No trace of shock or surprise was in her voice. She did not turn her head. Capper was brought up short, as if he felt a noose about his neck.

Slowly the figure seated before the dressing mirror turned to face him. Tumbling hair framed the girl's face, partly veiling the yellow-brown eyes, which seemed two spots of metal coming to incandescence under heat. Her hands, one still holding a comb, lay supinely in her lap.

"I admit this is a surprise, Capper," Louisa said, letting each word fall sharply, but without emphasis. "However, it is like you to be—unconventional. May I ask what you want this time—besides money, of course?"

Capper wet his lips and smiled wryly. He had jumped so swiftly to impulse that he had not prepared himself beforehand against the moment when he should be face to face with the girl from the Wilhelmstrasse. Moreover, he had expected to be closer to her—very close indeed—before the time for words should come.

"I—I saw you tonight and followed you—here," he began lamely.

"Flattering!" She laughed shortly.

"Oh, you needn't try to come it over me with words!" Capper's teeth showed in a nasty grin as his rage flared back from the first suppression of surprise. "I've come here to have a settlement for a little affair between you and me."

"Blackmail? Why, Billy Capper, how true to form you run!" The yellow-brown eyes were alight and burning now. "Have you determined the sum you want or are you in the open market?"

Capper grinned again, and shifted his weight, inadvertently advancing one foot a little nearer the seated girl as he did so.

"Pretty quick with the tongue—as always," he sneered. "But this time it doesn't go, Louisa. You pay differently this time—pay for selling me out. Understand!" Again one foot shifted forward a few inches by the accident of some slight body movement on the man's part. Louisa still sat before her dressing mirror, hands carelessly crossed on her lap.

"Selling you out?" she repeated evenly. "Oh! So you finally did discover that you were elected to be the goat? Brilliant Capper! How long before you made up your mind you had a grievance?"

The girl's cool admission goaded the little man's fury to frenzy. His mind craved for action—for the leap and the tightening of fingers around that taunting throat; but somehow his body, strangely detached from the fiat of volition as if it were another's body, lagged to the command. Violence had never been its mission; muscles were slow to accept this new conception of the mind. But the man's feet followed their crafty intelligence; by fractions

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of inches they moved forward slowly. "You wouldn't be here now," Louisa coldly went on, "if you weren't fortune's bright-eyed boy. You were slated to be taken off the boat at Malta and shot; the boat didn't stop at Malta through no fault of ours, and so you arrived at Alexandria—and became a nuisance." One of the girl's hands lifted from her lap and lazily played along the edge of the rosewood dressing table. It stopped at a curiously carved rosette in the rococo scroll-work. Capper's suspicious eye noted the movement. He spared for time—the time needed by those stealthy feet to shorten the distance between themselves and the girl.

"Why," he hissed, "why did you give me a number with the Wilhelmstrasse and send me to Alexandria if I was to be caught and shot at Malta?"

"Excellent Capper!" Her fingers were playing with the convolutions of the carved rosette. "Intelligent Capper! He comes to a lady's room at night to find the answer to a simple question. He shall have it. He evidently does not know the method of the Wilhelmstrasse, which is to choose two men for every task to be accomplished. One—the 'target,' we call him—goes first; our friends whose secrets we seek are allowed to become suspicious of him—we even give them a hint to help them in their suspicion. They seize the 'target,' and in time of war he becomes a real target for a firing squad, as you should have been, Capper, at Malta. Then when our friends believe they have nipped our move in the bud follows the second man—who turns the trick."

Capper was still wrestling with that baffling stubbornness of the body. Each word the girl uttered was like vitriol on his writhing soul. His mind willed murder—willed it with the strength of hate; but still the springs of his body were cramped—by what? Not cowardice, for he was beyond reckoning results. Certainly not compassion or any saving virtue of chivalry. Why did his eyes constantly stray to that white hand lifted to allow the fingers to play with the filigree of wood on the mirror support?

"Then you engineered the stealing of my number—from the hollow under the handle of my cane—some time between Paris and Alexandria?" he challenged in a whisper, his face thrust forward between hunched shoulders.

"No, indeed. It was necessary for you to have—the evidence of your profession when the English searched you at Malta. But the loss of your number is not news; Koch, in Alexandria, has reported, of course"

The girl saw Capper's foot steal forward again. He was not six feet from her now. His wiry body settled itself ever so slightly for a spring. Louisa rose from her chair, one hand still resting on the wooden rosette of the mirror standard. She began to speak in a voice drained of all emotion:

"You followed me here tonight, Billy Capper, imagining in your poor little soul that you were going to do something desperate—something really human and brutal. You came in my window all primed for murder. But your poor little soul all went to water the instant we faced each other. You couldn't nerve yourself to leap upon a woman even. You can't now."

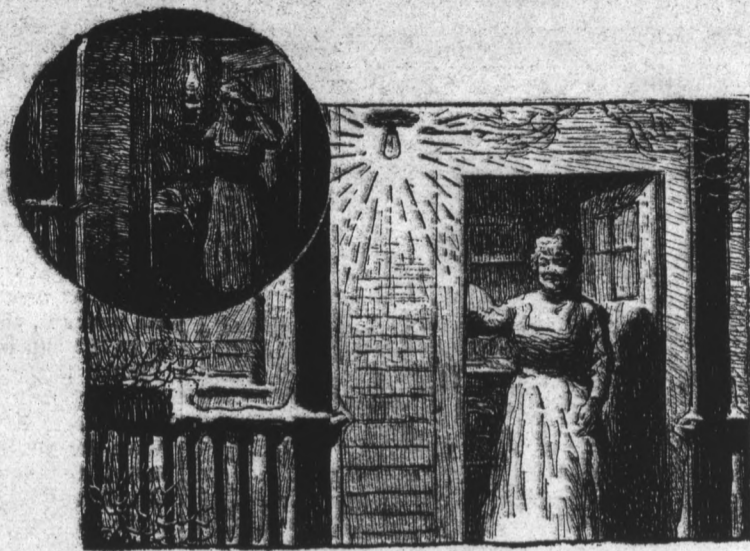
She smiled on him—a woman's flaying smile of pity. Capper writhed, and his features twisted themselves in a paroxysm of hate.

"I have my finger on a bell button here, Capper. If I press it men will come in here and kill you without asking a question. Now you'd better go."

Capper's eyes jumped to focus on a round white nib under one of the girl's fingers there on the mirror's standard. The little ivory button was alive—a sentient thing suddenly allied against him. That inanimate object rather than Louisa's words sent fingers of

(Continued on page 187).

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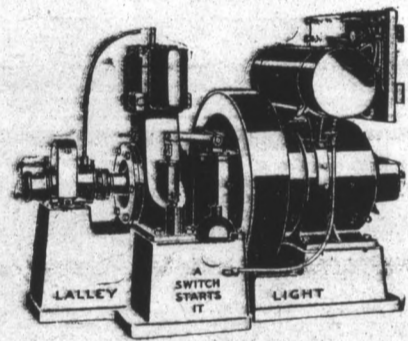
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Bumper the White Rabbit

By GEORGE ETHELBERT WALSH

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Bumper Finds His Country Cousins

AFTER leaving Buster the Bear, Bumper did not have far to go before he stumbled upon the rock under which the wild rabbits had their burrow. It was a big, towering rock right in the middle of the woods, with trees trying to grow on top of it, and under it, as if they were determined to lift and roll it away.

When the white rabbit first saw it his heart beat high with expectation. This was to be the end of his journey. When he found it impossible to get back to the garden where the red-headed girl lived, he concluded the best he could do was to join the wild rabbits and live with them. They would teach him the ways of the woods, and perhaps in time he would be happy and content as a member of their family.

In spite of the dangers and ventures that had marked his progress, he was greatly pleased with the woods, and the freedom he enjoyed appealed to him. But to make his happiness complete he needed companions and friends of his own kind. The friendship of the birds was all right, but they had their own families to look after, and besides, he could not always depend upon having them near.

It was natural that he should be a bit homesick and lonely without other rabbits to associate with. He often thought of Jimsy and Wheelies, and of his mother and Topsy. Any one of them would be welcome. In his newly-acquired knowledge of the woods and its inhabitants, he felt that he could give Jimsy and Wheelies pointers that would make their eyes open.

When he reached the big rock, he hopped all around it, looking for the entrance to the rabbit burrow, and sniffing the ground expectantly. There were many signs that rabbits had recently been there, but he could find nothing that looked like a burrow. Around and around the big rock he hopped, sniffing, pounding with his hind feet, and calling to his cousins. But there was no response.

"Perhaps they're all out," he reflected finally, "and I'd better rest on the top of the rock until they return." He scrambled to the summit of the rock and sprawled out full length to watch and wait. From his high position, he could see anyone approaching from any direction. The sun found its way down through the trees and lit up the top of the rock, and, feeling very tired, Bumper fell asleep.

He was aroused from this suddenly by the breaking of a twig near-by. He raised his head and looked around. Not a dozen feet away from him was a wild rabbit, one of his country cousins. Now Bumper had never met a wild rabbit before, and this one certainly looked very dirty and uncouth compared to himself. The only white he had was under his throat and belly. The rest of him was a dull gray and brown.

"Hello, Cousin!" Bumper called very softly. The approaching rabbit stopped and looked around, his two ears raised straight up in the air. Then his quick eyes saw Bumper on the top of the rock. Whether he took him for a ghost or some strange, dangerous animal, no one could say; but he turned swiftly and disappeared in the bushes.

"Don't be afraid, Cousin!" Bumper called loudly. "I'm Bumper the White Rabbit, and I've come to visit you!" But this had no effect whatever on the wild rabbit. Bumper could hear him scurrying away in the bushes. And then all was quiet. For a long time Bumper watched and waited. Once he caught a glimpse of his cousin on the

right of the rock, then on the left, then behind, and again in front. The amazing rapidity with which the wild rabbit changed his position surprised Bumper.

It was not until after he had caught sight of two heads simultaneously peeping above the bushes did he realize that the rabbit was not alone. Then he caught sight of a third head, then of a fourth, and of a fifth. The whole burrow of rabbits was circled around him, watching him either in fear or curiosity. Bumper thought it was a good time to make a speech.

"Cousins," he began, rearing upon his hind legs, "I've come a long distance to visit you. I've always lived in the city, but I got lost, and if it hadn't been for the birds and Buster the Bear I would never have found my way here. I hope you will welcome me, and let me live with you. I'm lonesome and homesick for friends and companions."

He supposed this speech would have a good effect, and he waited eagerly for one of the wild rabbits to respond. But they were quiet for so long that he felt despondent. Then, to his surprise, a big rabbit rose near-by, and turned to his companions.

"Beware!" he said. "It's a trick of Mr. Fox. We must run for it altogether!"

Bumper didn't know just what the speaker meant by this last sentence. But he soon found out. There was a rush and scramble in the bushes all around him, and then a dozen or more rabbits appeared. They came toward the rock like an army closing in upon the enemy, leaping over bushes or crawling through the underbrush.

For a moment Bumper was startled. He had a vision of being attacked on all sides by his country cousins and driven ignominiously from the woods. But his anxiety was of short duration. The rabbits reached the side of the rock and disappeared as if by magic. Then Bumper understood. They had made a simultaneous rush for their burrow, knowing that this was the safest place for them. When the last rabbit had disappeared, Bumper hopped down, and began looking for the entrance. There was certainly an entrance to the burrow, or his cousins couldn't have disappeared so quickly.

Bumper searched on every side for over an hour, but so artfully concealed was the entrance to the burrow that he was unsuccessful. There was no noise under the rock—nothing to indicate that there were rabbits there.

Discouraged and down-hearted, he was nearly ready to give up when he happened to poke his head in the hollow end of a tree whose roots were pinioned down by the huge rock. The small heart of the trunk had decayed, offering an entrance just large enough for a rabbit to squeeze through.

Bumper thought this would be a safe place for him to spend the night, and he began crawling through. The hole followed the trunk of the tree downward for some distance. Then suddenly it turned sharply to the right.

At this point Bumper met an unexpected challenge. A big, gray rabbit at the other end of the hollow trunk thumped hard with his two hind feet, and instantly there was an uproar. Bumper had accidentally found his way into the burrow through the hollow tree trunk!

"Stop where you are!" the rabbit guarding the hole shouted. "What do you want in here?" "I want to greet my cousins. If you don't let me come in Mr. Fox will catch me after dark. I have no other home."

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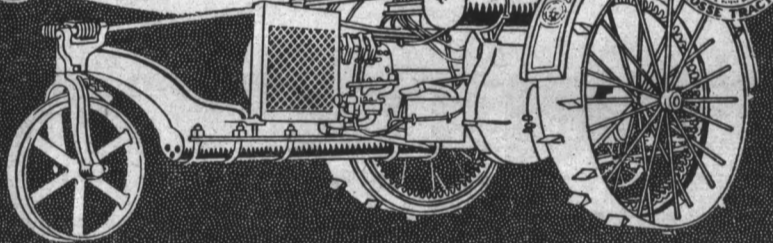
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"You're not a rabbit," replied the other. "We have no white cousins. There are no white rabbits in the world."

"But I'm one," returned Bumper, amused by the same cry that had been made by the crow and birds.

There was silence inside, followed by a buzz of many voices. Finally a weak, trembling voice said authoritatively:

"Admit him— it can't be Mr. Fox in disguise, for he could never crawl through that hole. Admit him so I can talk with him."

Evidently the speaker was one in authority, for the other instantly obeyed.

INSIDE THE LINES

(Continued from page 185).

cold fear to grip his heart. A little ivory button waiting there to trap him!

"You're a devil—a devil from hell, Louisa! But I'll get you. They shoot women in war time! Sir George Crandall—I know him—I did a little service for him once in Rangoon. He'll hear of you and your Wilhelmstrasse tricks, and you'll have your pretty back against a wall with guns at your heart before tomorrow night. Remember—before tomorrow night!"

Capper was backing toward the open window behind him. The girl still stood by the mirror, her hand lightly resting where the ivory nib was. She laughed.

"Very well, Billy Capper. It will be a firing party for two—you and me together. I'll make a frank confession—tell all the information Billy Capper sold to me for three hundred marks one night in the Cafe Riche—the story of the Anglo-Belgian defense arrangements. The same Billy Capper, I'll say, who sold the Lord Fisher letters to the Kaiser—a cable to Downing Street will confirm that identification inside of two hours.—And then—"

"And your Captain Woodhouse—your cute little Wilhelmstrasse captain," Capper flung back from the window, pretending not to heed the girl's potent threat; "I know all about him, and the governor'll know, too—same time he hears about you!"

"Good night, Billy Capper," Louisa answered with a piquant smile. "And au revoir until we meet with our backs against that wall."

Capper's head dropped from view over the balcony edge; there was a sound of running feet amid the close-ranked plants in the garden, then silence.

The girl from the Wilhelmstrasse, alone in the house save for the bent old housekeeper asleep in her attic, turned and laid her head—a bit weakly—against the carved standard, where in a florid rosette showed the ivory tip of the hinge for the cheval glass.

(Continued next week).

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BY LULU G. PARKER.

Write a sunny, funny letter
To the boy somewhere in France,
Happier it is the better,
Make it cheer him at first glance.
Tell him of the latest winning
Of the team from Homeville High,
All the little home jokes spinning
Leave out every doleful sigh.

We must keep the home fires burning,
Bright within each khaki breast,
If we drown our fears and yearnings
His courage will do the rest.
His to fight the nation's battle
Ours to work and wait and pray
Then when guns have ceased to rattle
Freedom shall have come to stay.

FOR FEBRUARY'S CHILDREN.

I mark upon the calendar the days I
should remember
From January through the year 'til
Christmas in December;
But February has the most of all
around the line,
With Lincoln's birthday, Washington's,
and then St. Valentine,
With Longfellow's, and Edison's, and
Mr. Dickens's mild,
I am so proud to be with these a Feb-
ruary child.

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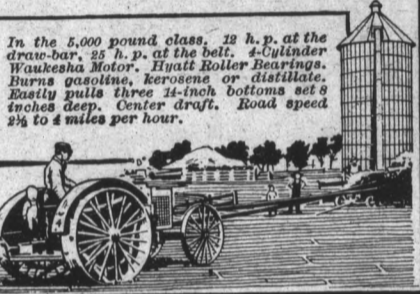
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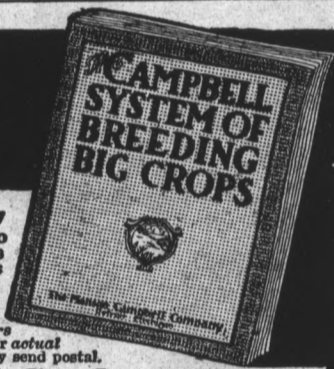


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The Grizzly King

By JAMES OLIVER CURWOOD
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An early July rain at three o'clock in the morning in the northern British Columbia mountains is not as warm as it might be, and for the greater part of an hour Langdon and Bruce continued to gather fuel and dry their blankets and clothing. It was five o'clock before they had breakfast, and a little after six when they started with their two saddles and single pack up the valley. Bruce had the satisfaction of reminding Langdon that his prediction had come true, for a glorious day followed the thunder shower.

Under them the meadows were dripping. The valley purred louder with the music of the swollen streamlets. From the mountain-tops a half of last night's snow was gone, and to Langdon the flowers seemed taller and more beautiful. The air that drifted through the valley was laden with the sweetness and freshness of the morning, and over and through it all the sun shone in a warm and golden sea.

They headed up the creek-bottom, bending over from their saddles to look at every strip of sand they passed for tracks. They had not gone a quarter of a mile when Bruce gave a sudden exclamation, and stopped. He pointed to a round patch of sand in which Thor had left one of his huge footprints. Langdon dismounted and measured it.

"It's he," he cried, and there was a thrill of excitement in his voice. "Hadn't we better go on without the horses, Bruce?"

The mountaineer shook his head. But before he voiced an opinion he got down from his horse and scanned the sides of the mountains ahead of them through his long telescope. Langdon used his double-barreled hunting glass. They discovered nothing.

"He's still in the creek-bottom, an' he's probably three or four miles ahead," said Bruce. "We'll ride on a couple o' miles an' find a place good for the horses. The grass an' bushes will be dry then."

It was easy to follow Thor's course after this, for he had hung close to the creek. Within three or four hundred yards of the great mass of boulders where the grizzly had come upon the tan-faced cub was a small cove of spruce in the heart of a grassy dip, and here the hunters stripped and hobbled their horses. Twenty minutes later they had come up cautiously to the soft carpet of sand where Thor and Muskwa had become acquainted. The heavy rain had obliterated the cub's tiny footprints, but the sand was cut up by the grizzly's tracks. The packer's teeth gleamed as he looked at Langdon.

"He ain't very far," he whispered. "He shouldn't wonder if he spent the night pretty close an' he's mooshing on just ahead of us."

He wet a finger and held it above his head to get the wind. He nodded significantly.

"We'd better get up on the slopes," he said.

They made their way around the end of the boulders, holding their guns in readiness, and headed for a small coulee that promised an easy ascent of the first slope. At the mouth of this both paused again. Its bottom was covered with sand, and in this sand were the tracks of another bear. Bruce dropped on his knees.

"It's another grizzly," said Langdon. "No, it ain't; it's a black," said Bruce. "Jimmy, can't I ever knock in to yo'r head the difference between a black an' a grizzly track? This is the hind foot, an' the heel is round. If it was a grizzly it would be pointed. An' it's too broad an' clubby fr a grizzly, an' the claws are too long fr the length

of the foot. It's a black as plain as the nose on yo'r face!"

"And going our way," said Langdon. "Come on!"

Two hundred yards up the coulee the bear had climbed out on the slope. Langdon and Bruce followed. In the thick grass and hard shale of the first crest of the slope the tracks were quickly lost, but the hunters were not much interested in these tracks now. From the height at which they were traveling they had a splendid view below them.

Not once did Bruce take his eyes from the creek bottom. He knew that it was down there they would find the grizzly, and he was interested in nothing else just at present. Langdon, on the other hand, was interested in everything that might be living or moving about them; every mass of rock and thicket of thorn held possibilities for him, and his eyes were questing the higher ridges and the peaks as well as their immediate trail. It was because of this that he saw something which made him suddenly grip his companion's arm and pull him down beside him on the ground.

"Look!" he whispered, stretching out an arm.

From his kneeling posture Bruce stared. His eyes fairly popped in amazement. Not more than thirty feet above them was a big rock shaped like a dry-goods box, and protruding from behind the farther side of this rock was the rear half of a bear. It was a black bear, its glossy coat shining in the sunlight. For a full minute Bruce continued to stare. Then he grinned.

"Asleep—dead asleep! Jimmy, you want to see some fun?"

He put down his gun and drew out his long hunting knife. He chuckled softly as he felt of its keen point.

"If you never saw a bear run yo'r goin' to see one run now, Jimmy! You stay here!"

He began crawling slowly and quietly up the slope toward the rock, while Langdon held his breath in anticipation of what was about to happen. Twice Bruce looked back, and he was grinning broadly. There was undoubtedly going to be a very much astonished bear racing for the tops of the Rocky Mountains in another moment or two, and between this thought and the picture of Bruce's long lank figure snaking its way upward foot by foot the humor of the situation fell upon Langdon. Finally Bruce reached the rock. The long knife-blade gleamed in the sun; then it shot forward and a half inch of steel buried itself in the bear's rump. What followed in the next thirty seconds Langdon would never forget. The bear made no movement. Bruce jabbed again. Still there was no movement, and at the second thrust Bruce remained as motionless as the rock against which he was crouching, and his mouth was wide open as he stared down at Langdon.

"Now what the devil do you think of that?" he said, and rose slowly to his feet. "He ain't asleep—he's dead!"

Langdon ran up to him, and they went around the end of the rock. Bruce still held the knife in his hand and there was an odd expression in his face—a look that put troubled furrows between his eyes as he stood for a moment without speaking.

"I never see anything like that before," he said, slowly slipping his knife in its sheath. "It's a she-bear, an' she had cubs—pretty young cubs, too, from the looks o' her."

"She was after a whistler, and undetermined the rock," added Langdon. "Crushed to death, eh, Bruce?"

Bruce nodded.
"I never see anything like it before," he repeated. "I've wondered why they didn't get killed by diggin' under the rocks—but I never see it. Wonder where the cubs are? Poor little devils!"
He was on his knees examining the dead mother's teats.

"She didn't have more'n two—mebby one," he said, rising. "About three months old."

"And they'll starve?"
"If there was only one he probably will. The little cuss had so much milk he didn't have to forage for himself. Cubs is a good deal like babies—you can wean 'em early or you can half grow 'em on pap. An' this is what comes of running off an' leavin' your babies alone," moralized Bruce. "If you ever git married, Jimmy, don't let your wife do it. Sometimes th' babies burn up or break their necks!"

Again he turned along the crest of the slope, his eyes once more searching the valley, and Langdon followed a step behind him, wondering what had become of the cub.

And Muskwa, still slumbering on the rock-ledge with Thor, was dreaming of the mother who lay crushed under the rock on the slope, and as he dreamed he whimpered softly.

CHAPTER VIII.

THE ledge where Thor and Muskwa lay caught the first gleams of the morning sun, and as the sun rose higher the ledge grew warmer and warmer, and Thor, when he awoke, merely stretched himself and made no effort to rise. After his wounds and the sapoos oowin and the feast in the valley he was feeling tremendously fine and comfortable, and he was in no very great haste to leave this golden pool of sunlight. For a long time he looked steadily and curiously at Muskwa. In the chill of the night the little cub had snuggled up close between the warmth of Thor's huge forearms, and still lay there, whimpering in his babyish way as he dreamed.

After a time Thor did something that he had never been guilty of before—he sniffed gently at the soft little ball between his paws, and just once his big flat red tongue touched the cub's face; and Muskwa, perhaps still dreaming of his mother, snuggled closer. As little white children have won the hearts of savages who were about to slay them, so Muskwa had come strangely into the life of Thor.

The big grizzly was still puzzled. Not only was he struggling against an unaccountable dislike of all cubs in general, but also against the firmly established habits of ten years of aloneness. Yet he was beginning to comprehend that there was something very pleasant and companionable in the nearness of Muskwa. With the coming of man a new emotion had entered into his being—perhaps only the spark of an emotion. Until one has enemies, and faces dangers, one cannot fully appreciate friendship—and it may be that Thor, who now confronted real enemies and a real danger for the first time, was beginning to understand what friendship meant. Also it was drawing near to his mating season, and about Muskwa was the scent of his mother. And so as Muskwa continued to bask and dream in the sunshine, there was a growing content in Thor.

He looked down into the valley, shimmering in the wet of the night's rain, and he saw nothing to rouse discontent; he sniffed the air, and it was filled with the unpolluted sweetness of growing grass, of flowers, and balsam, and water fresh from the clouds.

Thor began to lick his wound, and it was this movement that roused Muskwa. The cub lifted his head. He blinked at the sun for a moment—then rubbed his face sleepily with his tiny paw and stood up. Like all youngsters, he was ready for another day, in spite of the hardships and toil of the preceding one.

While Thor still lay restfully looking down into the valley, Muskwa began investigating the crevices in the rock wall, and tumbled about among them. From the valley Thor turned his eyes to the cub. There was curiosity in his attitude as he watched Muskwa's antics and queer tumbings among the rocks. Then he rose cumbrously and shook himself.

For at least five minutes he stood looking down into the valley, and sniffing the wind, as motionless as though carved out of rock. And Muskwa, perking up his little ears, came and stood beside him, his sharp little eyes peering from Thor off into sunlit space, and then back to Thor again, as if wondering what was about to happen next.

The big grizzly answered the question. He turned along the rock shelf and began descending into the valley. Muskwa tagged behind, just as he had followed the day before. The cub felt twice as big and fully twice as strong as yesterday, and he no longer was obsessed by that uncomfortable yearning for his mother's milk. Thor had graduated him quickly, and he was a meat-eater. And he knew they were returning to where they had feasted last night.

(Continued next week.)

SAINT VALENTINE'S DAY.

BY AUNT QUILLIA.

Saint Valentine's Day, said the snow-flakes,

Let us each a gay partner seek,
(Not for love but for fun's sake only),
Who will join us in frolic and freak;
And so with a million others,
Away they went whirling around,
Spreading their white rugs of ermine
Star broidered on the cold ground.

St. Valentine's day, said the sun beams,
Let us each a bright partner pick,
(Not for love, but for fun's sake only),
Who will help us do a neat trick;
And so with a million others,
They glimmered and shimmered and
burned,

Till ev'ry last little snowflake
Into wet water was turned.

St. Valentine's day, said the youngsters,
Let us each a brave partner hunt,
(Not for love, but for fun's sake only),
Who will join us in a big stunt;
And so with a dozen valiants,
Forgetting cap, mittens, and hood,
They made for the ponds and puddles
That right in the highway stood.

St. Valentine's day, said the mamas,
St. Valentine's day, and oh, dear,
Just see what a job is before us—
Glad it comes but once in a year;
Off come the shoes and stockings,
The garments with mud overspread,
(Then for love and love's sake only),
They are spanked and hustled to
bed.

IN PRAISE OF ST. VALENTINE.

BY ALONZO RICE.

Of good St. Valentine I sing;
And all his tender arts;
This votive wreath to him I bring,
Kind Emperor of hearts.
And Cupid with his bow half drawn
Will join the festive lay,
And press with me the springing lawn
This February day.

Bucolic themes let some pursue,
Or harp on Grasmere's vale;
Let Tuscan heavens echo to
The storied song or tale;
I rather would relate the truth,
Excelling fancy's page,
Of him who binds the willing youth
A captive till old age!

While Venus guides along the blue
Her doves with ribboned reins,
And mating birds their vows renew
In softly warbled strains;
My soul will break the pensive spell
That bound it far too long,
And with a fervid rapture tell
The beauty of love's song.

No "fine filled phrase" I can renew,
But this my critic knows;
I miss the march of Milton's verse,
The grace of Hugo's prose;
Though lacking still scholastic ease,
Ambition's meed is mine,
If these poor lines a moment please
My dearest Valentine!

It is when tomorrow's burden is added to the burden of today that the weight is more than a man can bear.
—MacDonald.

The Quickest! Cheapest! Easiest! Way to Pull Stumps!!

Use a Kirstin Puller On 30 Days Free Trial Pull Stumps at 5c!

Labor scarcity no longer prevents ANY man pulling STUMPS! One man alone handles, operates this famous Kirstin one-man CLUTCH Stump Puller! No help needed! No horses! Leverage principle gives man giant's power—enables you to pull stumps big, little, green, rotten, low-cut tap-rooted—or brush! Pulls them quickly! EASILY! CHEAPLY!! A record breaking 30 Days FREE TRIAL to prove astounding superiority! Clear one acre from one anchor—think of it! No longer is labor scarcity a good excuse for stumps—not with the



This Great Book FREE describes, illustrates the famous Kirstin Puller, both one man style and Horse Power. Tells how to clear your stump land quickly, cheapest and easiest. Solves every stump pulling problem—reproduces letters of proof. Write for this book before our SPECIAL OFFER expires.

Kirstin One Man Stump Puller Single — Double — Triple Power

Because of its wonderful double leverage, the Kirstin gives a boy the power of a giant. A few pounds on the handle pulls tons on the stump! No stump can resist it!

6 Speeds! When stump loosens, increase speed, without stopping! Patented jiffy "speed-shift" enables you to operate in any one of 6 Speeds and make the change instantaneously. Saves time—saves trouble—permits pulling stumps in from 4 to 10 minutes at a cost of from 5c to 10c.

Take-up saves time and bother in taking up cable-slack—makes quick hitching possible—saves cable. The Kirstin is made of high grade steel, strong, light, easy to handle. Soft steel clutches grip cable without injury. Nothing to wear, get out of order! None like it! A 3-year guarantee—flaw or no flaw! Lasts for years. Most economical puller made! Used by U.S. Gov't! Users everywhere.

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The Food Controllers of United States and Canada are asking for greater food production. Scarcely 100,000,000 bushels of wheat can be sent to the allies overseas before the crop harvest. Upon the efforts of the United States and Canada rest the burden of supply.

Every Available Tillable Acre must Contribute; Every Available Farmer and Farm Hand must Assist.

Western Canada has an enormous acreage to be seeded but man power is short and an appeal to the United States allies is for more men for seeding operations.

Canada's Wheat Production last Year was 225,000,000 Bushels; the demand from Canada alone, for 1918, is 400,000,000 Bushels.

To secure this she must have assistance. She has the land but needs the men. The Government of the United States wants every man who can effectively help to do farm work this year. It wants the land in the United States developed first of course; but it also wants to help Canada. Whenever we find a man we can spare to Canada's fields after ours are supplied, we want to direct him there. Apply to our Employment Service, and we will tell where you can best serve the combined interests.

Western Canada's help will be required not later than April 5th. Wages to competent help, \$50 a month and up, board and lodging.

Those who respond to this appeal will get a warm welcome, good wages, good board, and find comfortable homes. They will get a rate of one cent a mile from Canadian boundary points to destination and return.

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A Voss Washer

will relieve your wife of all that back-breaking toil, and the wash is on the line in a-half the time.

Let your wife enjoy the benefits of modern washing equipment. A very interesting book will be sent to you on request. Write

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More Comfortable,
Healthful, Convenient

Eliminates the out-house, open vault and cess-pool, which are breeding places for germs. Have a warm sanitary, odorless toilet right in your house. No going out in cold weather. A boon to invalids. Endorsed by State Boards of Health.

ABSOLUTELY ODORLESS
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The germs are killed by a chemical process in water in the container. Empty once a month. No more trouble to empty than ashes. Closet absolutely guaranteed. Guarantee on file in the office of this publication. Ask for catalog and price of this publication. **ROWE SANITARY MFG. CO.** 7402 8th St., DETROIT, MICH.
Ask about the Ro-San Washstand—Hot and Cold Running Water Without Plumbing

Strawberry Plants postal will bring complete book, tells all about my vigorous stock grown best way. **Mayers Plant Nursery, Merrill, Mich.**

Gladioli Large flowering bulbs mixed colors 50c per doz. prepaid. **H. B. FRANK, Custer, Mich.**

Woman and Her Needs

Fighting the Enemy at Home

I HAVE just been reading "Little Women" once more, of course, to the children, though I must confess they did not seem to enjoy it so much as the reader. There is so much in it about knitting army socks and sewing shirts, and letters from the front that it might almost seem to apply to our times. And the mothers and girls who have loved ones "Somewhere in France" could get a great deal of comfort from Mrs. March's philosophy.

"Speaking of father reminded me, of how much I miss him, how much I owe to him, and how faithfully I should watch and work to keep his little daughters safe and good for him," says Mrs. March to "Jo."

"Yet you told him to go, mother, and didn't cry when he went, and never complain now, or seem as if you needed any help," said Jo, wondering.

"I gave my best to the country I love, and kept my tears till he was gone," said Mrs. March. "Why should I complain, when we both have merely done our duty, and will surely be the happier for it in the end? If I don't seem to need help, it is because I have a better friend even than father to comfort and sustain me."

The same reasoning and assurance which is sustaining countless thousands of women today kept brave hearts in American women during the Civil War. And the same fight which bothered "Jo" is again bothering hundreds who are staying at home.

"Don't I wish I could go as a drummer, or a nurse, so I could be near him and help him," exclaimed Jo, with a groan.

Then when Mrs. March had explained that the girls could best help by fighting their bosom enemies and conquering themselves, Jo resolves,

"I'll try to do my duty here instead of wanting to be somewhere else," thinking that keeping her temper at home was a much harder task than facing a rebel or two down south.

Which same resolution is the best one we all can make just now, and, as Jo thought, just about the hardest one to keep. To do our duty where we are is so dreadfully stupid, if where we are happens to be the same old place we've been occupying all our lives, and the duty is the same old thing we've been doing so long we've grown stale doing it. Following the boys across the water to work in the hospitals takes courage of a sort, but it has the spice of romance, the breath of adventure, the stimulus of new scenes and new faces to keep us up. Staying right at home on the farm to help out in the kitchen because mother needs us, while we watch other girls go who haven't half our brains and ability, takes the sort of courage of which martyrs are made. For it must be done with no outside stimulus to help us, just the consciousness that we are choosing the right and that, as Mrs. March put it, we "will surely be the happier for it in the end."

And if, when added to the fact that you must stay at home you have the added bitterness of being unable to do anything there but the same old household stunts, surely you have the last straw, and your courage must be sublime if you keep sweet. Jo at least had the comfort of knitting socks for father, but a few women today find themselves so busy with the burdens already laid upon them that they have not the time to do even that much for the boys over the sea. Their only way of helping is in watching the leaks at home, and this, while it is the best sort of help, is not in the least inspir-

ing. It takes a strong sense of humor and a sure belief in the ultimate "working together of all things for good," to keep one going straight ahead in the face of just commonplace everydayness, when the world is full of opportunities for "something different," and you are denied a part in it.

The girl who can keep cheerful and good tempered under such conditions possesses the best thing in life, the ability to conquer self. The main thing is to do our duty, no matter how disagreeable or deadly dull. And in doing it we prove our worth, for "He that ruleth his spirit is better than he that taketh a city." It isn't half so thrilling, I'll admit. But there's a lot of satisfaction in it, if you can do it.

DEBORAH.

THE NEW PLEDGE CARDS.

The new Hoover pledge cards will ask you to observe the following things:

One wheatless day each week and one wheatless meal each day; the wheatless day to be Wednesday. By wheatless we mean to eat no wheat products.

One meatless day each week, which shall be Tuesday, and one meatless meal each day. By meatless we mean to eat no red meat—beef, pork, mutton, veal, lamb; no preserved meat—beef bacon, ham or lard.

One porkless day each week in addition to Tuesday, which shall be Saturday. By porkless we mean no fresh or salted pork, bacon, lard or ham.

Sugar.—You can materially reduce sugar by reducing the use of candy and sweet drinks. We will make every endeavor to see that the country is provided with a supply of household sugar on the basis of three pounds of sugar for each person per month. Do not consume more.

On the reverse side the card carries this message from Mr. Hoover:

"The food situation in Europe is far graver than when the preliminary survey of the food supply of the world for this year was made. We have an abundance for ourselves, and it is the firm policy of the Food Administration, by the prevention of exports, to retain for our people an ample supply of every essential food stuff. The harvests of our Allies have proved less than we had contemplated, and the great curtailment of shipping by the submarine during the last few months has further prevented them from access to more remote markets. Beyond the demands of the Allies there is a call upon us by the friendly neutrals for food supplies, and if we can not at least in part respond to these neutral calls, starvation on an unparalleled scale must ensue.

"Food has now taken a dominant position in the war, and we must ask the American people to sacrifice far more than was at first thought necessary. We have exported the whole of the surplus of the wheat from this harvest after reserving to ourselves an amount sufficient for our normal consumption of seed and flour until the next harvest, and therefore the amount of wheat flour that the United States can contribute to mix with the war bread of our Allies during this winter will be simply the amount that our people reduce their consumption month by month. In other words, every grain of wheat or its products that the Allies receive from the United States from now on will be exactly the amount



"The Peace Offering"

"I know what will change mother's mind"

—nothing has solved household problems like Calumet Baking Powder. It has brought happiness into millions of homes—made expert cooks of millions of housewives who never had much bake day "luck." Its unequalled leavening and raising powers mean big, tempting bakings. The never-varying quality of its wonderful ingredients means the same good results every bake day. Calumet saves you money because its moderate in price, goes farthest, eliminates failures and waste. It's pure in the can—pure in the baking—and the favorite in millions of homes.

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We make beautiful Ladies' Furs from Muskrat, Raccoon, Skunk, etc. Our new Custom Style Book and Calendar is ready to mail, giving prices and styles for the Season 1918. It is free for the asking.

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WHOLESALE PRICES. on Strawberry Plants. Many other varieties and garden roots at reasonable prices. Catalogue FREE. Write today to **A. H. Weston & Co., Bridgman, Mich.**

which our people have saved each month on their behalf.

"The Allies today ask for twenty-five per cent more meat and fats (pork, dairy products and vegetable oils), than we consider our monthly production permits us to send them without entrenching on our own supplies, or, on the other hand, unless we can consume less. Due to the shortage in shipping, our available sugar supplies must be less than normal from the present time forward.

"Thus every particle of diminished consumption by the American people is one particle more for the soldiers, men, women and children of our Allies and for the starving people in other countries. This is a personal obligation upon every one of us toward some individual abroad who will suffer privation to the extent of our own individual negligence.

"If we are to reduce the consumption of the few products which we should export abroad, we will need to eat a larger proportion of many different food stuffs which we can not export and which we have at home. For this reason we must not waste any food stuffs. A great many individuals in our population eat far more food than is necessary to maintain their health and strength. In this emergency only the simplest of living is patriotic. We want no person in the United States to eat less than is required for good health and full strength, for in this emergency America requires every atom of the productive power of our

people. While many can eat less, all of our population can substitute other food stuffs for the few that are vitally needed for export.

"We must not overlook the fact that Russia collapsed not because of the Germans on her borders, but largely because of the failure to organize and feed her own citizens, and, if we are to emerge victorious from this war, we can not risk the collapse of another of our Allies—there is the most drastic reduction in their consumption; there is actual privation among their women and children; there is starvation in Belgium.

"We have already issued a series of suggestions in the Home Card—a card that is now hanging in over ten millions of homes. These suggestions have already shown important results, and to these we now add others. The problem of saving in food is a local and individual one, so that more precise and definite rules, just to all, can not be formulated. It is a matter for the conscientious consideration of every individual that he or she should eat only that which is necessary to maintain bodily health and strength and unselfishly to select those food stuffs the use of which relieves international necessities. In this winter of 1918 lies the period when there will be tested in this great free country of ours the question as to whether or not our people are capable of voluntary individual self-sacrifice to save the world."

Who Will Help In the Food Inventory?

THE first thought of every housekeeper when "company unexpected" drives into the yard, is without doubt, "what shall I give them to eat?" And a rapid survey of her pantry and cellar stores runs through her mind. Having satisfied herself that there is enough for everyone, she can enjoy the day.

Uncle Sam is in somewhat the same predicament today as the housekeeper. He finds himself with a great deal of unexpected company to feed, and a rather overgrown family of his own on his hands, and naturally his first thought is, "wherewithal shall they be fed?" Unlike the housekeeper, he can't make a rapid mental survey, for his pantries and warehouses are too many and scattered. He has to have help. And that is what he has recently gone about. He has asked his many assistants to take stock of what they have to eat, and to let him know, approximately, just what his family can depend upon. Wholesale houses, food manufacturers and retail dealers have been asked to take stock, and farmers are reporting the amount of grain, live stock and other products on hand. Now the housekeeper is to be asked to help out with an inventory of her canned goods, fruits, vegetables, meats, everything she has on hand, so that the government may know about what and how much food there is in America. In addition it is necessary to know just how much the people are using, so the housekeeper is asked to tell as near as she can how much the family uses on the average during the year.

Not every family is to be asked to make this inventory. There are estimated to be 22,000,000 families in the United States, and of these, 44,000 housekeepers are to be asked to make the inventory. The families are to be selected according to places of residence, whether city or farm, occupation and income, and from these selected families the average of the whole country will be estimated. Here is a chance for the housekeepers to help, but it is going to take some figuring. Could you tell, for instance, how many cans of peas you canned in 1916 and in 1917? How many quarts of fruit and vegetables you canned in the

two years? How much jam, jelly and marmalade you made? How many vegetables you stored? How much cream you used at home, as well as how much you sold? How much separated milk you used yourself and how much you fed to the stock? These are just a few of the things the government is going to ask you to tell, in order to find out how much we shall need next year, so get out all your record books, or "put on your memory caps," for here is a chance to do a very real service.

To find out if the substitutes requested by the food administration are being used, the survey also asks how much lard or lard substitutes you used in 1916 and 1917, butter and margarine, rye flour and rye bread, buckwheat, oat meal, rice, corn and corn meal, hominy, macaroni, sugar, syrup and molasses, cheese, cream, milk—in all, a list of thirty-four commodities.

Housekeepers who aid the government in this way will be doing a patriotic service, and may rest assured that none of the information regarding individual families will be published. When the returns have all been tabulated, a statement of some of the results will be mailed to those helping.

Mrs. J. B. Vermontville.—I have no directions for canning pork. Cornell University issues a bulletin on "The Curing of Meat and Meat Products on the Farm," which should help you in taking care of pork. Write for it. Directions for canning beef and poultry, cold pack, follow:

Beef.—Cut in pieces of about three-quarters of a pound weight and roast or boil slowly a half hour. Cut into small pieces, removing gristle and bone, pack into hot jars, boil down liquid in pan one-half and fill jars.

If you have a sweet-tooth, pull it. Corn and potatoes, America's two bumper crops for 1917, are eligible to the bill of fare three times a day seven days a week. Who will be the first American housewife to so ingeniously camouflage these products as to tempt the family appetite twenty-one times in succession?

Cream-Saving Machines

IF you are still setting your milk and skimming by hand, you are losing anywhere from one-fourth to one-third of your cream. If you are using a separator, and it is not one of the best, you are still losing an amount of cream that would surprise you if you knew it. Every farm loss or leak that can be stopped this year should be stopped. Buy a Lily or Primrose cream separator and stop the cream loss.

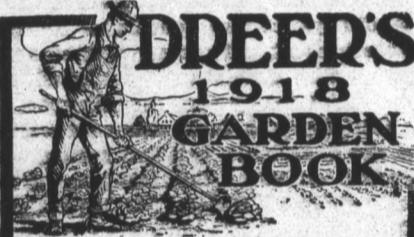
Don't imagine that cream left in the skim milk will fatten pigs and calves faster. It has been proved scores of times that stock thrives as fast on warm separator skim milk, when a little meal or flax replaces the fat. Cream in the skim milk is dead-loss cream!

Lily and Primrose separators get that cream. We can prove to you that they get it all, except about one drop in each gallon.

Besides that, they are well-known as simple, easy-running, easily-cleaned machines that last and do the same good work year after year. Buy a Lily or Primrose—it will pay back its cost in cream you may now be losing. See the local dealers who handle these separators, or, write us for catalogues.

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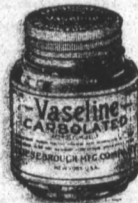


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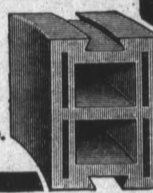
Four layers of tile and three dead air spaces protect silage from freezing. The patented block gives tongue-and-groove air-tight joint construction. Looks as bright and new ten years after as the day it was built. No hoops to adjust. Never needs painting or repairs. As clean and solid as a jug.

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Our illustrated catalog gives a lot of information. It tells how to take off and care for hides; how and when we pay the freight both ways; about our safe dyeing process on cow and horse hide, calf and other skins; about the fur goods and game trophies we sell, taxidermy, etc.

Then we have recently got out another we call our Fashion book, wholly devoted to fashion plates of muffs, neckwear and other fine fur garments, with prices; also fur garments remodeled and repaired.

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IRON AGE

Farm, Garden and Orchard Tools Answer the farmers' big questions. How can I grow crops with less expense? How can I save in planting potatoes? How make high priced seed go farthest? The IRON AGE Potato Planter

solves the labor problem and makes the best use of high priced seed. Means \$6 to \$50 extra profit per acre. Every seed piece in its place and only one. Saves 1 to 2 bushels seed per acre. Uniform depth; even spacing. We make a full line of potato machinery. Send for booklet today.

No Misses No Doubles

Bateman M'fg Co., Box 24B, Grenloch, N. J.



Boys' and Girls' Club Notes

Conducted by E. C. Lindemann

The reason for closing the girls' garment making club enrollments by February 15 is to insure completion of the project and the holding of the exhibit before graduation day. In many cases the commencement dress is the final goal of the club member.

Close follow-up work will be given these clubs during the next few months and every effort will be made to clear the way leading to gardening and canning this coming summer.

Several exhibits of corn and beans were received at the state exhibit with no names thereon. The owners may have the same returned by writing to this department.

The prize-winning exhibits, as well as the prizes given at the State Corn and Bean Exhibit, which was held on January 15-16, at the Agricultural College, are being held over until Farmers' Week, March 4-8.

The annual exhibit of the Boys' Potato Clubs of the state will be held in connection with Farmers' Week at the Agricultural College, March 4-8.

Two projects that have not been given much stress heretofore will be pushed harder during the coming season. These are the cow-testing and poultry projects.

Enrollments for handicraft and garment making clubs must be received on or before February 15, 1918.

New Exercises for Handicraft.—Among the new exercises to be made by the Handicraft Club boys are several for the soldiers. These include the checker board, the cribbage board, the sock stretchers and the knitting needles. The checker boards are made of scrap pieces of soft wood, and are equipped with black-headed furniture tacks and brass-headed tacks, for men, and are so fashioned that when the boards are folded up, the men are enclosed. The cribbage boards are made of scrap pieces of mahogany or walnut. The material for these is now being furnished by the club department through the kindness of the Grand Rapids Bookcase & Chair Company.

Material for cribbage boards is now ready and club members wishing same should send their request to the Boys' and Girls' Department, care Handicraft Project.

All handicraft club members who have not received the plans for making the cribbage boards, checker boards, and other exercises for the soldiers, should write at once to the Boys' and Girls' Club Department for them.

City Boys Enroll for Farm Service

At a recent meeting held at the Detroit Board of Commerce over a thousand boys of the schools of Detroit were present, with many of their families. The cadets were reviewed for the first time by Governor Sleeper.

One hundred boys, who responded to the President's call last spring, and worked on farms this last year, were presented with Federal Service Badges. Two hundred more boys were sworn in for service for this coming year, by Governor Sleeper.

The Governor congratulated the boys on their service and impressed upon them the service which they were performing to their country at this time.

President Allen Templeton was one of the principal speakers. He said:

"I have just been in conference all day with the captains of industry in our city. We are face to face with very grave problems. Just now the most immediate problem is coal, but we all know that the world faces, also, a more serious problem in the shortage of food.

"I assure you boys that the business world of Detroit can better dispense with your services for this year, which we have always been glad to have,

than to stand in the way of your helping to increase food production.

"As a measure of preparedness you young men are doing a most necessary thing in helping to take the place of the older boys who have gone. Depend upon it, the business men of Detroit are back of you."

Dr. Chadsey, superintendent of the Detroit schools, presided at the meeting, and spoke briefly on school and the war. He congratulated the boys for what they had done in the Liberty Loan, and expressed his confidence in their taking part in other movements which could help to win the war. He said:

"As a school man I realize that we are face to face with problems in our schools which will necessitate very great changes. I can see clearly that things which we have deemed essential are now becoming unessential, and things which we have deemed unessential will become most necessary. But the schools will help you boys to do your bit in this very important matter.

"We all realize that food is of the greatest importance; without that we can do nothing. With millions of people in the world on a ration basis the



Michigan Boys will Soon be Interested in Sheep Clubs. Here is an Indiana Boy with His Shropshire Ewes in the Auto Trailer. Not Only Does he Expect to Learn Much About Caring for Sheep, but he wants to Assist Uncle Sam by Producing Wool and Mutton.

THE ROSS SILO



Wood Stave
The Ross Wood Silo is pleasing thousands of users all over the country. The high quality of material and workmanship put into the Ross Wood Stave Silos guarantee their durability and insure complete satisfaction. Exclusive features too numerous to mention here. Catalog explains. Your choice of Long Leaf Yellow Pine, Oregon Fir or California Red Wood.

Buy Your Silo Now and Be Safe. Do not wait until too late. Conditions considered, prices were never lower. You owe it to yourself, as well as to the Government not to be without one.

The E. W. Ross Co. Box 314 Springfield, Ohio

Special proposition to Agents.

"In-de-str-uct-o" Metal

The Silo without a single objection. The only Silo on the market the good qualities of which permits of a guarantee equal to what the purchaser himself would write. Produces 99% Food Value Silage. Resists fire, and is, without question, the most permanent Silo. Ask for Catalog and Testimonial Circular.



The Lankford HUMANE HORSE COLLAR

cures your horse while he works

Galls and sore shoulders reduce the efficiency of your horse—sap his strength—down his spirit. Cure him without the use of medicine—while he does his heaviest work, with the Lankford Collar.

We guarantee a cure

when properly fitted. Be careful and get the genuine Lankford Collar—made of best white sail duck, trimmed in extra heavy leather and stuffed with clean and downy curled cotton, medicated, which will not pack or harden. Also comes in special brown waterproof duck.



The Lankford fits any shape neck—easily put on or removed—always soft and pliable. Will not sweat. Hame straps attached. Prices \$1.50 and up. In Canada \$2.00 and up. See your dealer.

Over 12,000,000 sold Lankford Collars prevent galls and sore shoulders, as well as cure them. Get one today—one for each horse, but be sure it's a Lankford.

Buy a Lankford Send postal for copy and of our literature on Lankford Horse Collars.

Powers Mfg. Co. Dept. 27, Waterloo, Iowa

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It's Free Send a Postal For It.

This book gives highly interesting and practical information about tillage. We want you to have a copy—and if you wish a complete "CUTAWAY" catalog to arrive with it, just write, "Send your book and catalog".



The Cutaway Harrow Co., 472 Main St. Higganum, Conn. Makers of the original CLARK Disk Harrows & Plows.

GOOD SEEDS

GOOD AS CAN BE GROWN Prices Below All Others

I will give a lot of new sorts free with every order I fill. Buy and test. Return if not O. K.—money refunded.

Big Catalog FREE

Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses. R. H. SHUMWAY, Rockford, Ill.



need of every able-bodied boy to do his utmost to produce food is clear to us all."

Charles A. Parcels, Federal State Director of the United States Boys' Working Reserve, pointed out the shortage of labor on the farms of Michigan, and throughout the country due to enlistment and draft, and told the boys of Detroit that they must rally to do a man's job, taking the place of the boys who have gone to fight.

How the World's Business Is Transacted - By COMFORT A. TYLER

Now, I want to go back to article eight just for a moment and take up with you a little more emphatically the wisdom of doing all of your business, your financial business, with a bank.

There is nothing that gives a young man or woman as much stability in the community, and faith in himself, in a business way as to be able to go into the bank and secure such recognition by way of credit as he may need, so I want to say again, and more emphatically than before, do all of your business through the bank.

Don't sign obligations indiscriminately just because some "good fellow" asks you to. Do not sign a promissory paper, that is a note, bond or monetary obligation of any kind until after you have "communed" with yourself and asked and affirmatively answered these questions: First, am I getting value received, and second, would I be willing to pay this obligation if the other fellow does not? If you are doubtful about it always give yourself the benefit of the doubt and go ask the banker about it. See if he thinks it would be a good thing for you to do. Many a promising business career has been ruined just because someone wanted to be a "good fellow" and accommodating to some other "good fellow." I think it is a most excellent practice to never give notes to anyone except the banker. He will trust you for all you are entitled to and may save you some severe jolts some day by advising you right when you are started wrong.

Then, too, if the banker learns that you are doing all of your financial business with him he very soon gains confidence in you. If he finds your name bobbing up on every bunch of farm sale notes that come into his bank, or finds that you are buying on credit here, there and everywhere, if he finds you are just "accommodating" some fellow with the use of your name, he at once begins to feel insecure with your paper, for he has no way of knowing where your obligations may come from next and is thus unable to judge of your financial standing as closely as he wishes to.

I am not discouraging, or attempting to discourage borrowing. I advise it. I like to see the young people go in debt for something that is a good investment. I like to see the young man ready to pay six per cent for capital to put in a business that he knows about and that he can make earn more than the six per cent he pays.

Again, I think nearly all young people will be more careful and exercise more economy when they have a debt to pay than when they have not. I think a debt for some useful serviceable acquirement that will make your efforts more fertile, is strictly in the interest of economy.

This is an age of expenditures. We have grown almost spendthrift mad. Boys and girls spend money like a drunken sailor, with and without reason, and if there is one thing I would wish to implant in your minds it is the need of economy right now.

It seems to me that the mute appeals for economy are more potent today than ever before in the history of my short business career. Every starving Belgian child, every suffering woman, every drowning person who is the victim of the ruthless submarine policy of the Kaiser, every maimed and

wounded soldier, every need of the Red Cross, or the Y. M. C. A. or the Knights of Columbus, every story of the savagery and treachery and plotting of the arch enemy of a world democracy is an unanswerable argument for economy, with a plea stronger than any yet made to the American people. It is not a time for wanton waste or thoughtless expenditures, but a time for economy of the most rigid kind, to the end that we shall be prepared to care for the needs of a suffering humanity—and it is even now at our very doors.

I did not intend to refer even to the war in these articles, for I am essentially a peace-loving person, but I want our boys and girls who live in God's free country to realize that we have a stern duty before us and that we simply must not waver, we must not evade, we must not say it is not our war, it is not our concern, for it is our war, it is our concern, it is our very life and freedom, and whether or no, we must not shirk now. It will require courage to do all this, and it will require money as well. To waste now is criminal. I love thrift always, I admire economy at all times, but now we must remember that as never before we must be prepared for what comes and then stand to the ordeal as only our American boys and girls can stand when they realize what is before them. The first test is economy, thrift, saving. I know you will not falter.

MY EXPERIENCE IN POULTRY.

BY CLARE R. COLVIN.

I am a little boy twelve years old. I live in the country two miles from town. I am in the sixth grade and have passed every year since I started to school. My father being interested in poultry, I thought I would like to try it too. I have been among chickens ever since I was old enough to feed them.

One of my father's chickens, a S. C. White Leghorn hen, got away one day and he told me I could have the chicken if I could catch it. The chicken ran in a bush and got its legs tangled up in a vine and I caught it. This was the first chicken I had ever owned.

I fed the chicken every day until one day my father gave me another S. C. White Leghorn hen. He got me a cockerel for Christmas. I sold ten dozen eggs through last winter at thirty-five cents per dozen.

In the spring I started a sixty-egg incubator and hatched about fifty chicks. I fed them until they were old enough to sell. I sold the cockerels for broilers.

I picked twelve of the best pullets out of the others. Then I put the whole fifteen in a coop eight by ten. I sold the rest at seventeen cents per pound.

With this money I bought egg mash and oyster shell. I borrowed a non-freezable drinking fountain and some hoppers from my father. I kept fresh water, oyster shell, egg mash, and charcoal before them all the time. I fed them scratch-feed morning and night in a deep litter of straw.

January 15 I got my first eggs. Now I am getting six to ten eggs every day. I am selling every egg I can get and some are sold before I get them. I have private customers who pay two cents more than the market. All the eggs are sorted and cartoned before I sell them.

FARM SEEDS

AT WHOLESALE PRICES

To make new customers, to introduce our highest quality, reconditioned, guaranteed farm and garden seeds, we are making wholesale prices—prices that are creating a sensation among seed buyers—prices that will save you more money on your seed bill than you ever saved before.

Our big volume, our many customers, our own growing facilities, our connections with biggest producers, our direct plan of selling enable us to do business on a small margin of profit. Our big storage facilities and our big capital enable us to put in our stock when prices are lowest. We buy right. You get the benefit when you buy Alfalfa, Timothy, Clover, Sudan Grass, Fescue, Oats, Wheat, Sweet Clover and other field seeds from us. See prices below.

IOWA'S LARGEST SEED HOUSE

Tests And Guarantees All Seeds

Testing is done in our own laboratory by experts. Sold under guarantee to be exactly as represented. Sold subject to Government or State Test and your approval.

We don't want any customers to be sorry they buy from us unless they are convinced they have saved money and have a real economic bargain. That's our fair and square policy. Either still, we leave it for you to decide—give you 30 day's time to do your own testing and your money back if your tests do not.

Before You Buy Seeds Get Our Samples and Compare Our Quality and Low Prices

116 Page Catalog And Samples FREE Write Today

Special War Garden Collection

Everybody interested in garden-fruiting seeds you want from us. We have the best—guaranteed—seeds on which we have a special collection of 20 low priced seeds worth \$1.50—50c any time.

Beans, Cereals, Cucumbers, Eggplants, Peas, Potatoes, Pumpkins, Squashes, Tomatoes, Turnips, Watermelons, etc.

Seed Corn

We have a limited supply of the best seed corn, guaranteed by our seed experts. Write for price list and samples.

TESTING LABORATORY

THESE PRICES SAVE YOU MONEY

To give you some idea of our bargains, we quote a few below. Considering quality and price, they are biggest bargains, the greatest value ever offered and we will gladly send you samples free as you can judge for yourself. It's money in your pocket to invest. It's a opportunity to buy good seed at wholesale, money-saving prices. Write today for free 116 page catalog and see for yourself just how thousands of other customers are saving a big portion of their seed money.

Timothy \$3.15 per bu. and up

A bargain that will open your eyes. Also new reconditioned Iowa Grown Timothy, free from noxious weeds. Guaranteed equal to samples or money refunded. Gold Medal quality of purity and germination tests. Investigate.

Alfalfa \$9.00 per bu. and up

Extra big bargain. Guaranteed equal to samples or money refunded. A top line seed, guaranteed 90% per cent pure—95% germination.

Clover \$16.80 per bu. and up

Tested quality. Absolutely guaranteed. Sold subject to government test and your approval. Clover crush proof—price must advance later. Investigate this bargain of once. Seed for samples.

Alsike \$5.50 and Timothy bu.

Best and cheapest seed mixture known. Wonderful and nature combination. Contains 25 to 30 per cent Alsike. A rare bargain at our price. Seed for samples.

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The Home of BERRY SEEDS

FIRST-OLD DETROIT NATIONAL BANK

MEMBER FEDERAL RESERVE BANK

THIS BANK recognizes a distinct partnership relation with its depositors. For we succeed only as they succeed. It is to our interest further their success by every legitimate co-operation we can offer.

And by reason of the dominant position of this bank we are exceptionally equipped for the purpose.

DETROIT

Sturges Milk Cans

Accurate in Capacity

Each Sturges Milk Can is made to hold just so much and no more. Always agrees with the city sealer's measure.

Only highest grade steel plate is used in Sturges Milk Cans. That's why they last longer than usually expected. Carefully tinned, seams soldered smooth as a china bowl—easy to keep clean. Write for Catalog No. 46.

Sturges & Burn Mfg. Co.
500 So. Green St.
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Established 1875

Wire Fence

Basic Open Hearth steel—shipped on approval direct from factory. Get our special prices for short time only. Compare with others.

Rubber or metal roofing—highest quality at money-saving prices.

Standard Supply House,
30 West Logan Street,
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Protect Early Cabbage

Don't let the cabbage maggot get your crop. For years growers have been using larger, firmer heads and insuring practically 40% crops by using

A. B. C. FLAY PROTECTORS

Special tar repellent which any boy can slip on the stem directly after planting to prevent the maggot fly from laying its eggs.

Big growers say they can't grow cabbage without them. Write for copies of their letters. Full information and wholesale price. Plant Protector Co., 40 South Water St., Rochester, N.Y.

SALESMEN WANTED

The draft and enlistment took some of our best Salesmen. This territory is now open and we would be pleased to hear from interested persons. Must be exempt from draft. Permanent. Fine opportunity for the right man.

SAGINAW MEDICINE CO., Desk E, Saginaw, Mich.

WANTED

Man with \$250 to \$500 to invest in stock. Man with family preferred. We have the land to grow unlimited feed and pasture. Also four silos. Will help the right man financially. Write Woodward Bros. Co., Constantine, Mich., for particulars.

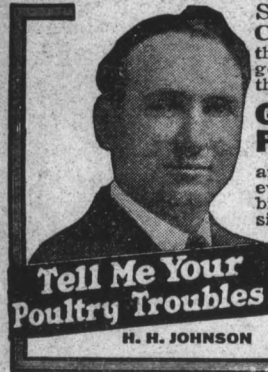
WANTED

young married man desires position on farm in northern Michigan, sheep farm preferred, understands care of sheep and cattle and consists of managing farm.

F. C. WILSON, Okla. Mich.

Western Alfalfa Seed. Grown in Wisconsin and Montana. Write us for prices. Lovell Commission Company, Lovell, Wyo.

"I Always Do Better With Old Trusty"



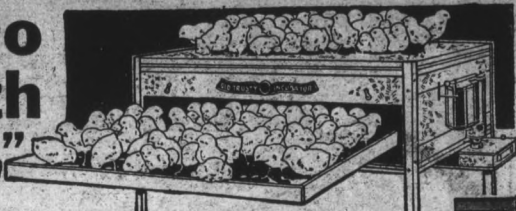
So says Mrs. Catherine Sullivan of Osman, Wis., one of the 750,000 Old Trusty owners. "I've seen many good incubators but the higher the poultry prices the more we depend upon Old Trusty." Write and

GET THIS BOOK of FREE Poultry "Know How" FREE

and learn why Old Trusty means more than ever to you this year. With valuable eggs and big profits at stake you can't afford to lose a single hatch. Our oldest machines are now 14 years old and still making big hatches.

We pay the freight or express and ship Old Trusty double quick—completely built—ready for business the minute it arrives. Write today. Yours truly, H. H. JOHNSON.

M. M. JOHNSON COMPANY
CLAY CENTER NEBRASKA



Raising Broilers for Profit

By C. M. WHITTAKER

IN responding to the food commission's request for more market poultry, we must, in justice to ourselves, receive a fair compensation for our time in addition to the expense involved in raising the fowls. To do this the poultry must be sold on the best market and fed for the shortest possible time. At the present cost of feed a fowl cannot be kept more than four months and sold for enough to cover the actual outlay for food, brooding, and the eggs that were used for incubation. To realize a profit they should be marketed at from eight to twelve weeks old and not later than early June. An unusual shortage next season may keep the price up another month or six weeks. There is a very great scarcity of hens throughout the country and comparatively few early broil-

try. The lamp heated brooder is very serviceable for the brooding of small numbers of chicks, but for larger amounts, the colony type, which usually burns coal, is advisable.

There are a number of these coal-burning brooders on the market. They consist of a small stove which burns hard coal and needs attention only once or twice a day, and a large sheet-iron hover which covers it and throws the heat down to the floor. One of these brooders may be placed in any coop or building, but for the sake of economy in fuel it should not be larger than ten or twelve feet square.

After the stove is in place about two inches of moist earth should be spread over the floor and covered with an inch of chaff or fine-cut straw. Humidity is necessary and the stove dries the air

WILL SAVE YOUR CHICKS

Any reader of this paper who will write P. J. Kelly the Poultryman, at 73 N. 2nd St., Minneapolis, Minn., will receive a Free Copy of this booklet "White Diarrhoea in Baby Chicks." It tells how to prevent, remedy and save the whole hatch. It's free and you are urged to write for it at once. Advertisement.

Your Chickens Will Pay

if raised in a systematic way. These booklets tell how to get best results: "LEE'S POULTRY BOOK", "SECRETS OF SUCCESS WITH CHICKENS", "CARE OF BABY CHICKS", "ALL ABOUT EGGS", "POINTS FOR SUMMER AND FALL". Send now for these poultry helps, free for 5c stamps to cover mailing. GEO. H. LEE CO., 265 Lee Building, Omaha, Neb.

POULTRY SUPPLIES

and equipment. Everything you need from legbands to buildings. 40 page free catalog quotes lowest prices on hundreds of articles. GEORGE B. FERRIS, 634 Shirley Street, Grand Rapids, Mich.

HOMESTEAD FARMS

A LETTER

DEAR FARMER OF MICHIGAN: Each week we announce in this space certain small lots of poultry—hens, pullets, cockerels, Day-Old Chicks—that we have ready for sale. You will find something new under the "Homestead Farms" heading almost every week. Just now we want to ask you to notice what we offered last week and to notice again what we shall offer next week—just at this time (with eggs 50 cents a dozen in your home market) is when you want fine, healthy hens or pullets for winter laying, and with the spring laying season immediately at hand.

Homestead Farms is not merely a business affair for profit it is a cooperative work organized on the principle of a federation of interests and for social service. We are doing something that the farmers of Michigan have long needed to have done: we are breeding and raising pure breed poultry on a free range colony plan which gives the farmer and farmer-wife poultry natural to farm conditions and to convenient farm care.

We are laying plans so as to be able to supply the farmer poultry men and women of Michigan with their poultry each year—with eggs for sittings or for incubators, Day-Old Chicks, and with grown fowls.

Will you come into this federation of interests?
Yours,
HOMESTEAD FARMS, Bloomingdale, Mich.

Baby Chicks

from Standard Bred S. C. White and Brown Leghorns. Good laying stock. \$13 per 100. Safe arrival guaranteed. Catalogue free. Book your order now for spring delivery. Wolverine Hatchery, Box 202, Zeeland, Mich.

Baby Chicks.

Bred-to-lay S. C. White and Brown Leghorns at last year's price, \$12 per 100. No catalog or circular. Order direct from this ad. Cash in full with order. Hatch every Tuesday, beginning April 2. Sunnybrook Poultry Farms, C. G. Burroughs, Prop., Hillsdale, Mich.

Barred Rocks

Cockerels for sale from strain with records to 290 eggs a year. \$2 to \$5 each. Circular free. FRED ASTLING, Constantine, Mich.

Barred Plymouth Rock

cockerels \$3.00 each. Full blood from prize-winning heavy laying strain. J. A. Barnum, Union City, Mich.

Barred Rocks

Cockerels from good laying strain \$3.00 each two for \$5.00. Saline, Mich. A. A. WOOD & SON.

Barred Rocks.

A strain of heavy layers with size and good barring. Cockerels for sale at \$2 and \$3. WESLEY HILL, Ionia, Mich.

BUFF Leghorns.

breeding cockerels also a few fine pens of four hens and cockerel for \$10. More hens \$2 extra. Dr. William A. Smith, Petersburg, Mich.

Bull Orpingtons—Seventeen years.

Best exhibition egg producing strain. Eggs or Baby Chicks. Circular free. WILL SCHADT, Goshen, Indiana.

Chicks.

We ship thousands, booking orders now FREEPORT HATCHERY, Box 12, Freeport, Mich.

Cockerels—From Chicago Coliseum winning stock.

\$3 & up "Ringlet" & Buff Rocks, both combs Reds, Spanish, Orpingtons, Wyandottes. Tyrone Poultry Farm, Fenton, Mich.

DAY-OLD CHICKS

of quality guaranteed to 1,500 miles. Eggs for hatching at low prices. Bar Rocks, S. C. W. Leghorns, S. C. and R. C. Reds, W. Wyandottes, Buff and W. Orpingtons. Chicklet catalog free. GOSHEN POULTRY FARMS, R-19 Goshen, Indiana

Ferris White Leghorns

A real heavy laying strain, trapped 17 years, records from 200 to 264 eggs. Get our special summer prices on yearling hens, breeding males, eggs for hatching, 8-week-old pullets and day old chicks. We ship C. O. D. and guarantee results. Catalog gives prices; describes stock; tells all about our farm and methods; results you can get by breeding this strain. Send for your copy now—it is free. GEORGE B. FERRIS, 984 Union, Grand Rapids, Mich.

Laybill S. C. W. Leghorns Large, great layers. Pure white. Bargains in choice breeding hens now. Everfresh Egg Farm, Ionia, Mich.

Biggest Hatches Strongest Chicks

That's what you will get with my Hatching Outfit—and I can prove it. The whole story is in my big catalog, "Hatching Facts", sent Free. It tells how money is made raising poultry. Get this Book and you'll want to start one of my Guaranteed Hatching Outfits making money for you. It's good patriotism and good business to raise poultry this year, and

\$8.95 140-Egg Buys Champion Belle City Incubator

Prize Winning Model—Double Fibre Board Case, Hot-Water, Copper Tank, Nursery, Self-Regulated Safety Lamp, Thermometer Holder, Egg Tester, With \$5.25 Hot-Water, Double-Walled, 140 - Chick Brooder, both only \$12.95

Freight Prepaid

East of Rockies—allowed towards Express and to points beyond.—I ship quick from Buffalo, Minneapolis, Kansas City or Racine. Used by Uncle Sam and Agr'l Colleges. With this Guaranteed Hatching Outfit and my Guide Book for setting up and operating you can make a big income. And my

Special Offers

Provide Ways for You to Make Extra Money Save time—Order Now, or write today for my Free Catalog, "Hatching Facts"—it tells all. Jim Rohan, Pres. Belle City Incubator Co., Box 14 Racine, Wis.

Stop Hatching Weak Chicks

With Cheap Incubators

Remember, it is not how many you hatch that counts, but how many you raise. A Queen costs but little more, and the extra chicks that live and grow soon pay the difference.

Queen Incubators

Hatch Chicks That Live and Grow

Built of genuine California Redwood. Redwood does not absorb the odor from the hatching eggs. Cheaper woods, and pastboard lining in iron and tin machines, retain the odors to weaken and kill the hatching chicks. The Queen is accurately regulated—taking care of temperature variation of 70 degrees without danger. Not cheap, but cheap in the long run. Catalog free. Queen Incubator Co. 30 Lincoln, Nebr.

You Take No RISK With An Ironclad

Both \$12.50
30 Days Free Trial
10 Yr. Guarantee
Freight Paid

Think of it! You can now get this famous Iron Covered Incubator and California Redwood Brooder on 30 days trial, with a ten-year guarantee, freight paid east of the Rockies.

150 EGG INCUBATOR CHICK BROODER

Incubator is covered with galvanized iron, triple walls, copper tanks, nursery, egg tester. Set up ready to run. Brooder is roomy and well made. Order direct from this advertisement—money back if not satisfied or send for free catalog.

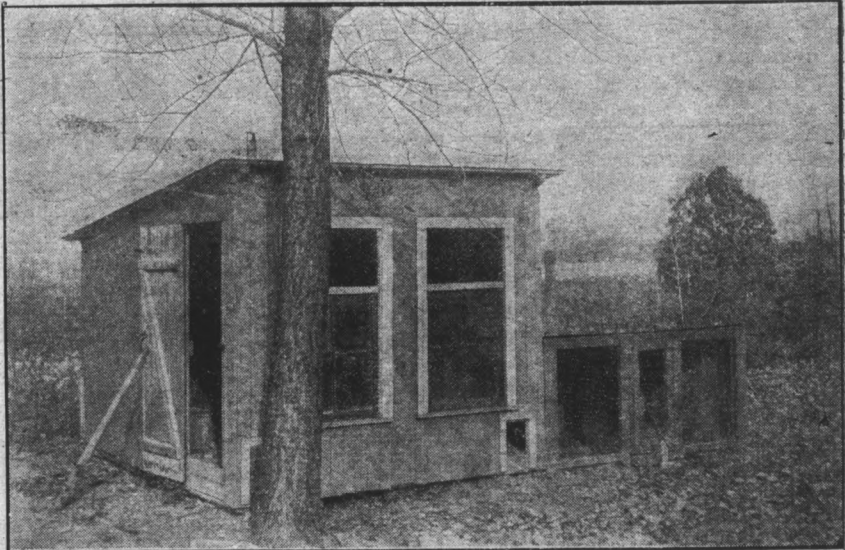
IRONCLAD INCUBATOR CO.

Box 121 RACINE, WIS. Made of Redwood cov'd with Galv. Iron

MANKATO SPECIAL

Big Book FREE

Get it quick—express prepaid—Mankato Special with six great improvements: Large oil tank, new automatic regulator, new heating system, new ventilating system, wonderful results. Write for book. Mankato Incubator Co. Box 717 Mankato, Minn. Write Today



A Practical Brooder Coop.

ers will go on the market next spring. These will undoubtedly sell for higher prices than we have ever dreamed, and in spite of the high cost of feed there will be a good profit in early broilers.

The Best Breeds for Broilers.

To go at the matter right and run the least risk of failure it is necessary to start with the breeding stock several weeks before the eggs are needed for hatching. Any of the medium sized breeds make good broilers, Plymouth Rocks, Rhode Island Reds, Wyandottes, and Orpingtons. Hens are better breeders than pullets, though good results may be secured from early hatched pullets after they have laid long enough so their eggs are of good size.

To keep them in good health they must have sanitary quarters, and as great a variety of food as possible, special attention being given to green food in the form of sprouted oats, cabbage, beets, carrots, potatoes and anything else that will help keep them in good condition physically. Alfalfa or clover hay makes a good substitute for green food.

The care of the breeding stock is of first importance, as upon this depends the hatching quality of the eggs and the vitality of the chicks. Gather the eggs often so they will not become chilled and use for incubation those of good shape and uniform size. Let me emphasize this point, that success depends as much on the care given the breeding stock and the eggs that are to be used for hatching as on the care of the chicks after they are hatched. Only healthy hens will produce healthy chicks and weak chicks are a source of bitter disappointment.

Hints for Brooding.

As the care of the incubator cannot be discussed here without making the article too long, we will skip to the question of brooding. Greater progress has been made in brooding chickens in the last three or four years than in any other branch of the poultry indus-

quickly. Two or three times each week the portion of the floor beneath the hover should be thoroughly wet down. Although some brooders are provided with moisture pans, these are not as effective as the method given above.

Care of Chicks.

As soon as the chicks know how to find their way back to the hover give them a run on the cold ground. Shovel the snow from a small space near the door and dump the coal ashes from the stove here for them to scratch in. See that all the chicks get out every day as contact with the cold earth and breathing the cold air makes them hardy and better able to grow and withstand disease. Kill all the droopy chicks as soon as they are discovered. They will probably die anyway and even if they do not they will endanger the health of the rest and develop into runts not worth the feed they have eaten.

If your present method of feeding is satisfactory it would not be advisable to make any great change in it. The following has given good results, though we vary it slightly to conform to the kinds of food available: The chicks have no drink but sour milk for the first two weeks. Sour milk is probably the greatest known foe of white diarrhea. It is within easy reach of every farmer and possesses considerable nutritive value. The first meal is a small ration of rolled oats. This is given in increasing quantities every two or three hours during daylight for the first two or three days, and is then changed gradually to fine chick feed. A small box of bran is given them and a little later this is mixed with meat mash. The quantity of mash is gradually increased until it is all mash. Our formula for this varies somewhat owing to the food at hand but is substantially as follows: Ground corn and oats 200 pounds; bran 100 pounds; middlings 100 pounds; alfalfa meal 50 pounds; meat scraps 50 pounds.

Chicks intended for the broiler mar-

ket should be forced faster than those intended for breeders and layers, but they should never be given more than they will clean up quickly. At four weeks old they may be fed four times a day as follows: First feed, mash moistened with sour milk or buttermilk; second feed, medium sized chick feed; third feed, same as first; fourth feed, same as second. Be sure they are well fed at the last meal in the day.

Green food of some sort should be given them from the first. If they have access to green grass they will do their own harvesting, but during the late winter and early spring when ground is covered with snow green stuff should be added to their regular ration. Where oats are sprouted for the laying stock a part of a tray may be clipped with a pair of shears each day for the chicks. Lacking this, vegetables, fine cut alfalfa or clover hay will do.

Fitting for Market.

A week or ten days before they are to be marketed shut them in a small yard and put the finishing touch on with a morning feed of two parts of sifted ground corn and oats, one part bran and one part meat scraps wet with buttermilk or thick sour milk; a light feed of cracked corn or scratch feed at noon and a supper the same as the morning feed. Give all they will eat morning and night but take the trough away as soon as they have finished. The idea is to have them so hungry at meal time that they will fill themselves full, and for this reason many breeders when fitting fowls for market omit a noon feed of any kind. Another method is to feed in the morning as given here, a wet mash about four o'clock and just before roosting time to give them all the cracked corn or scratch feed they will eat. This heavy feeding without exercise cannot be followed for any great length of time without danger of leg weakness. Should this develop the afflicted chicks should be taken out and given free range.

MID-WINTER POULTRY NOTES.

It is none too soon to obtain brooding equipment for this year's chicks. Some breeders who are equipped with stove brooders may find hard coal hard to get. We are planning to change our coal-burning brooder stoves into oil burners and believe in this way we can save money or at least be sure of an efficient heating system for protecting the young chicks. Traffic may be congested in the spring when such equipment is necessary, so it will pay to place orders early.

In selecting an incubator it usually pays to buy a machine large enough to handle all of the eggs to be incubated in one or two hatches. That means that most of the birds will be out early and their age will be more uniform. A busy farmer will find an economy in having the chicks of the same age. It saves time in feeding and when on the range the birds will grow better if they are of the same age. Flocks of mixed ages do not do well as young chicks are apt to be stunted and underfed.

Incubators Economical.

Some farmers have attempted to make their own incubators with good results, but in general the effort does not pay. Efficient machines can be purchased for a very moderate sum and there is a great risk in using a machine that is improperly made. Of course, an incubator is not very complicated and consists largely of a heating plant so arranged as to raise the temperature in an insulated box with a thermostat which regulates the damper. The machine looks easy to make, but possibly many amateurs have worked hard and then found that the machine ruined more than enough eggs to have purchased a first-class incubator upon which some other fellow has paid for the experimenting.

When the poultry are constantly con-

finied to the houses the nests are apt to become unclean. Then the hens refuse to use them and many of the eggs may be laid on the floor in the corner of the house. Litter is then scratched over the eggs while the hens are scratching for grain and the result is a lost or broken egg. The regular cleaning of the nests should not be neglected as hens are more particular where they place their eggs than it might seem from some of their other careless habits.

An Easy Way to Start.

Day-old chicks is one of the easiest methods of establishing a flock of pure-bred poultry if the farmer owns suitable brooding equipment. This year the hatcheries seem to expect a fine business and to avoid disappointments it will be best to place the order for chicks early in the season. There is really only one best time for starting out the chicks according to our idea, and if it is impossible to obtain chicks at that time there is bound to be some loss. We like to start our American breeds to scratching between March 1 and March 15. When we raised Mediterranean we found that chicks which were hatched about April 15 turned out the best.

Sanitation in the poultry houses is quite necessary to keep down vermin and disease. Sunshine is the poultryman's best friend and aids in keeping the houses in good condition. Clean litter, clean water and healthful food will assist the birds to keep in a vigorous condition. Sanitation must be emphasized to keep the flocks healthful, as a sick hen means a loss regardless of the cost of her feed or the length of her pedigree. The foundation of success with breeding stock of any kind is built on skill in keeping the stock in fine physical condition.

Ingham Co. R. G. KIRBY.

PROTECTION FOR THE HOMING PIGEONS.

Since the United States entered the war and the great value of homing or carrier pigeons to the armies on the battlefields in the transmission of messages, when all other means have failed, has been established, one step in long-wanted action for their protection has at last been taken.

In this connection Representative Brodbeck, of Pennsylvania, has introduced a bill in congress providing for their protection. It is provided in the bill that it shall be unlawful for any person to entrap, shoot, kill, steal, or in anyway retain a registered Antwerp homing pigeon or pigeons, commonly called "carrier pigeons," while on the wing, or at rest while on an interstate flight. The secretary of war is authorized and directed by rules and regulations as he may devise to enforce the provisions of the act. The bill was referred to the committee on military affairs.

Want Protective Law.

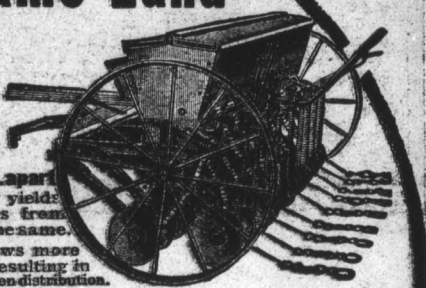
For a number of years the American Racing Pigeon Union has endeavored to have congress take some action against the killing or entrapping of these birds. Thousands of homing pigeons are lost yearly by persons shooting them or of others entrapping them when they alight for food and water.

Since the United States has entered the war and the work of pigeons in the French armies has been demonstrated, thousands of similar pigeons, many of them from Washington, have been shipped to Europe to aid in the message carrying for General Pershing's army.

A pen of pullets, which had been receiving ordinary care, were shut in a house, due to the extreme cold winter weather, and were fed on green feed. This treatment increased egg production, the egg yield being 36 per cent greater the first 17 days of housing than it was the last 17 days of the previous month. Housing during the winter, the feeding of green feeds, and regular feeding all go to increase the egg yield.

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sows more rows than drills with discs 7 or 8 in. apart. Thousands of farmers have increased their yields per acre with consequent bigger incomes from all fields sown with this drill. And you can do the same. The New Climax Grain and Clover Drill sows more rows to the acre but fewer seeds to the row, resulting in stronger plants and a good seedling on account of even distribution.

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Don't fail to get our prices and all the special details about this drill. It is equipped with complete outfit for all kinds of grains and grass seeds, with or without fertilizer attachment. Sows seeds and fertilizer in rows only 4 inches apart. For Wheat, Oats, Barley, Rye, Soy Beans, Alfalfa, Red Mammoth, or Japanese Clover, Timothy, Orchard Grass, Cow Peas, etc. Sows less seed to the furrow but drills more furrows. Only two horses required. This drill will sow clover or any other small seed in the growing wheat without injury to the wheat. And because of a strong lifting spring which aids the lever, even a boy can easily and quickly raise the discs out of the ground when required.

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Wisconsin have hot water heat, double walls, air space between double glass doors, copper tanks and boilers, self regulating. Nursery under egg tray. Made of finest, select, clear CALIFORNIA REDWOOD, not pine, paper or other flimsy material. Incubator finished in natural color—not painted to cover up cheap, shoddy material. Incubator and Brooder shipped complete with thermometers, egg tester, lamps, everything but the oil. This is the best outfit you can buy. If you don't find it satisfactory after 30 days' trial, send it back. Don't buy until you get our new 1918 catalog, fully describing this prize winning outfit. WRITE FOR IT TODAY. You can't make a mistake in buying a Wisconsin. On the market 15 years.

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Fowlers Buff Rocks Cockerels Pullets and hens for sale from two dollars up according to quality. B. B. FOWLER, Hartport, Mich.

Pine Crest S. C. White Orpingtons, special sale of year old cocks and hens also young cockerels. MRS. WILLIS HOUGL PINE CREST FARM, Royal Oak, Mich.

IMPROVE YOUR POULTRY

My Young's strain bred-to-day S. C. White Leghorns are great money makers. 100,000 baby chicks for \$250 delivery at \$10 and up per 100. Satisfaction guaranteed. Write for free catalogue. W. VAN APFELDORN, R. 7, Holland, Mich.

RHODE ISLAND REDS and plymouth Rocks Males 1.5 to 12 lbs, according to age 25 to 35; P. R. hens weight 5 to 10 lbs, eggs 15 for \$1; 100, \$5; 120, \$8. Mammoth Bronze Tom Turkeys 5 to 25 lbs, according to age \$4 to \$25, 10 eggs \$3. J. Morris & J. Barsan, Vassar, Mich.

R. I. REDS, both combs. Day old chicks, eggs for hatching. Write for catalogue. INTERLAKES FARM, Box 29, Lawrence, Mich.

Rose Comb Rhode Island Red cockerels, Rich and surface, even under color. Eggs in season. Mrs. F. A. EYER, Richland, Mich.

SILVER Golden and White Wyandottes. Choice breeding stock of sale after Oct. 1st, a few bargains in yearling hens. C. W. Browning, R. 2, Portland Mich.

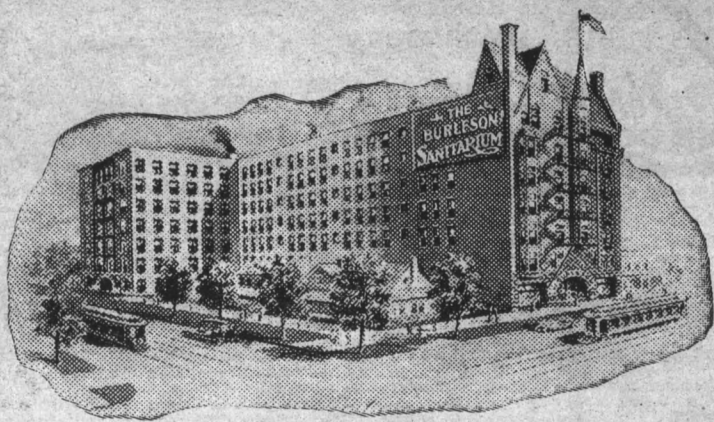
WHITE Wyandottes. I have a fine lot of April and May hatching cockerels for \$2.00 and \$5.00 each. DAVID HAY, 209 Norris St., Ypsilanti, Michigan.

White Wyandottes 50 extra choice cockerels \$3 to \$5. Lishipon approval and guarantee satisfaction. Milton E. Stewart, R. 3, Augusta, Mich.

Mammoth Bronze Turkeys Early hatching 25, Tom \$3 & 250 W. E. DOWDAN, Elm Hill, Mich.

MANMOTH White Holland Turkeys, Tom \$3, Hen \$2.50 M. E. PALMER, R. 1, Grand Rapids, Mich. ALDEN WHITCOMB, Byron Center, Mich.

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Registered Aberdeen Angus. Twelve yearling heifers for sale. Our motto: size with quality best of breeding. Price \$150 each for bunch. F. J. WILBEK, R. 4, Ohio, Mich.

Cloverly Angus Good quality bulls of serviceable age and younger. Inspection invited. Geo. Hathaway and Son, Ovid, Mich.

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

Guernseys—For Sale, four young registered cows. Tuberculin tested. Geo. N. Crawford, Holton, Mich.

Guernseys 45 Registered head, all tb. tested. Nora's heads our herd, 10 of his half sisters sold averaging \$1950 each. His bull calves are booked ahead at reasonable prices. Avondale Stock Farm, Wayne, Mich.

Registered Guernseys

3 choice Heifer calves, \$150 each. 1 choice 3 year old will freshen in March \$300. J. M. WILLIAMS, North Adams Mich.

For Sale At my farm near Ludington, Mich. two choice registered Guernsey, bulls of serviceable age, grandsons of a cow with an A. R. record of 836.04 lbs. of butter fat for one year. Prices reasonable. GEO. C. HUMPHREY, Madison, Wis.

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

For Sale Registered Guernsey bull calves May Rose breeding. JOHN EBELS, R. 2, Holland, Mich.

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Parham's Pedigree Stock Farm offers Reg. Holstein cattle, Chester White Swine, extra bargains in calves and fall pigs. Bulls half price. R. B. PARHAM, Bronson, Mich.

\$50 Gets son of 80 lb. bull dam is grand-daughter of De Kol 2nd But. M. L. McLAULIN, Redford, Michigan.

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Flint Maplecrest Boy sire in service His sire is Maplecrest Korndyke Hengerveld, his 3 Nearest Dams each over 30 lbs. of butter in 7 days. His dam and grand dam both made over 1232 lbs. of butter in year. It is the yearly cow we are looking for to deliver the goods. Flint Maplecrest Boy's Dam is Gluck Vasser Bell, 30.57 lbs. of butter in 7 days and 120 lbs. in 30 days. Her butter fat test is 5.23. This looks about right to the man who goes to the creamery. We have Bull Calves from 2 weeks to 8 months old for sale at dairy farmers' prices all out of A. B. O. Heifers. Write & tell us the kind of a bull you want. John H. Winn, (Inc.) Holton, Mich.

Registered Holstein cow blemished udder light in color, weight 1300 lb. 6 yrs. old. will be bred to 80 lb. sire. Price \$125. Dewey C. Pierson, Hadley, Mich.

Grange.

ANNUAL TWO-DAY MEETING AT HILLSDALE.

The annual two-day meeting of Hillsdale County Pomona Grange No. 10, was held in Hillsdale, Wednesday and Thursday, January 2-3. The feature of Wednesday's meeting was the installation of officers and the banquet in the evening. Thursday morning was given to the transaction of business, and resolutions similar to those adopted at the recent State Grange were presented and adopted. The resolutions were partly as follows: "Be it resolved, that we feel constrained at the beginning of the new year to pay our brothers in the cities the debt long standing, viz., advice; that our brethren in town refrain from eating meat five days each week; that you deliver your own goods purchased, or pay for said delivery; that as a further evidence of your patriotism, you refuse to accept mail delivery at your door to exceed once each day, and use the same diligence and perseverance in bringing to the attention of our United States senators, congressmen, and the postmaster-general, your desire to economize as you did in fighting the parcel post system, and thus demand the repeal of all laws granting special privilege, to you, brethren, not enjoyed by the tillers of the soil." Someone suggested that if the farmers and business men would get together and talk over things their imagined differences could, perhaps, be straightened out.

Dinner was served by Hillsdale Grange. The afternoon meeting was open to the public and was given over to a literary program. A memorial service was held in honor of the members who had passed away during the year, A. M. Carver, Robt. MacBrier, Charles Clark, Mrs. C. M. Finch. A quartet sang, "As Goes America so Goes the World," and "Soldier's Farewell." A reading was given by Minnie Fitzsimmons, followed by a duet, "Somewhere in France is Daddy," sung by Lawrence Baker and Lawrence Rowe, of Mosherville. For an encore they gave, "Let the Flag Fly." Mrs. O. J. C. Woodman, of Paw Paw, chaplain of the State Grange, was the speaker for the afternoon. Her address was upon subjects of interest to Grangers and was given in her usual happy style. The attendance was good and a great many outsiders were in the audience. These two-day meetings are events of interest, not only to the Grangers themselves but to many of the city people as well.—Esther Marie Betts.

AMONG THE LIVE GRANGES.

Sparta Grange met in all-day session Saturday, January 3. The morning session was a business meeting, with officers' reports, etc. The afternoon meeting was an open meeting, and Mr. and Mrs. John Preston, of Kinney, installed the officers for the coming year. After the installation Mrs. Preston gave a fine report of the State Grange meeting at Jackson. The rest of the program was in charge of the new lecturer, who fitted the place very nicely, having been lecturer of Leroy Grange for several years, the place of their former residence. The loyal support and cooperation pledged by the members to the master and lecturer will surely make the coming year a prosperous one for Sparta Grange.

GRANGES ORGANIZED AND REORGANIZED.

Following is the number of Granges organized and reorganized from October 1, 1917, to December 31, 1917, both inclusive, as follows:

Organized.
Colorado 5; Indiana 1; Iowa 1; Kansas 8; Maryland 1; Massachusetts 1; Michigan 3; Nebraska 1; New York 2; Ohio 1; Oklahoma 5; Oregon 1; Pennsylvania 4; Washington 8; Wisconsin 2; total 44.

Reorganized.
Washington 2; Wisconsin 1; total 3.

Farmers' Clubs

Associational Motto:

"The skilled hand with cultured mind is the farmer's most valuable asset."

Associational Sentiment:

"The Farmer. He garners from the soil the primal wealth of nations."

CLUB DISCUSSIONS.

Club Has Buying Committee.—The annual meeting of the Allendale Farmers' Club was held at Spring Hill Farm, the home of Wells Parish & Sons, on January 9, a large number being present. The forenoon was taken up with reports from delegates who attended the state meeting in Lansing in December, and routine work. The ladies served coffee and luncheon at the noon hour, after which the following officers were elected: Pres., Erwin Parish; vice-pres., Truman E. Hubbel; sec., Andrew Allen; cor. sec., Elmer E. Smead; treas., George W. Leggett. Resolutions were passed giving the retiring officers a vote of thanks for their faithful services in the past. Representatives of fertilizer and feed firms were present and gave talks and prices of their products they have to sell. The Club has a buying committee and already has purchased spray materials, binder twine, a carload of bran, and has a car of corn coming. The Club holds meeting every two weeks, but as there is to be a Farmers' Institute held in Allendale on Tuesday, January 22, the next meeting of the Club will be held at the home of Mr. and Mrs. John Ossewaarde, February 6, in the daytime.—Elmer E. Smead, Cor. Sec.

Discuss the War.—On Thursday, November 22, the Hickory Farmers' Club was royally entertained at the pleasant farm home of Mr. and Mrs. Albert Howell. The weather man was very much alive, but he has nothing on the members of the Hickory Club. In spite of storm and bad roads a large number were present. One of the pleasant features of the day was that the Caro Orchestra was present. Everyone enjoyed the fine music which they rendered. B. B. Reavey and W. F. Dowling, Sr., were the chief cooks and bottle washers of the day—that is, what their wives did not do. Such a dinner as they served, it was rightfully called the Thanksgiving dinner. The orchestra played while dinner was being served. The music was thoroughly enjoyed by all. After dinner the social hour was enjoyably spent and slipped away all too soon. The president, Jas. Arnold, being absent, Vice-president R. P. Reavey called the meeting to order. Roll call was answered with quotations. Mrs. J. C. Robinson read a "Thanksgiving Soliloquy," which was very good. C. A. Donohue read "Give the Boy a Chance," which held some very fine thoughts. The topic for discussion, "Michigan Farmer's Part in this War," was led by R. P. Reavey. He said in part: "Are we really in war? The place is so far distant, few realize its meaning." He also said, "that we who were born here were United States citizens, not from choice, but by birth, and the alien who had become a citizen of the United States was a citizen by choice and ought to be a better citizen, and that any such, who could not loyally stand by Uncle Sam had better be given their just dues and depart from our land." W. F. Dowling, Sr., said that "Mr. Reavey had given some fine thoughts and they ought to be taken home with each one of us." He also said that if the war is won by the United States, forty per cent is due to the soldiers and sixty per cent to the people at home. We must stand back of our men and aid them in every possible way. The next meeting will be with Mr. and Mrs. B. B. Reavey.—Mrs. R. L. Robinson, Cor. Sec.

Men's Day.—A large crowd was very pleasantly entertained by Mr. and Mrs. Edgar Ross at the January meeting of the Wells-Dayton Farmers' Club, held at the home of S. G. Ross. It being men's day there was a bounteous dinner served under the directions of Chef E. Ross. After a social hour the meeting was called to order. The Club sang "Battle Hymn of the Republic." The new president, S. G. Ross, then gave a short address. Mr. Stokes, delegate to the State Association of Farmers' Clubs, gave a very interesting report, which was enjoyed by all. Guy Forbes being home on furlough, gave an interesting talk on life in the navy, which was much appreciated by all. Club then sang "Tenting Tonight," after which the meeting adjourned to meet with Mr. and Mrs. Charles Riley in February.—Miss Della Hunt, Cor. Sec.

Veterinary.

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

Feeding Rye Straw—Scratches.—We would like to know if it would be harmful to feed rye straw to horses. We also have a horse that has scratches and after giving and applying different commercial remedies I fail to cure him. A. E. D., Decatur, Mich.—In relative value for horse feeding, the straws rank in the following order: Oat, barley, wheat, rye, the rye being of slight nutritive value, but when mixed with hay or any of the other straws will not prove harmful. When fed alone it will do no particular harm. Give ½ oz. of Fowler's solution at a dose in feed or drinking water three times a day; also apply equal parts glycerine and compound tincture benzoin to sores twice a day. Paint sores occasionally with tincture iodine.

Infectious Abortion.—We have two mares that lost their colts, one last Wednesday, the other Saturday. Neither of them met with any accident, nor were they fed bad food or water, so far as we know. L. S. C., Lowell, Mich.—Doubtless both mares suffer from infectious abortion. Give them good care but don't breed them for three months. Perhaps they will carry next colt to full gestation period.

Indigestion.—Have mare five years old that occasionally has sick spell. Her bowels are inclined to be constive and she has had two different attacks of colic, but our local Vet. cured her. J. S. G., Means, Mich.—She should be exercised daily, fed food which has a laxative tendency. Clover, roots and well salted bran mash will loosen her bowels.

Mange.—Last summer I bought a horse in the city. Since then he has remained thin and has an itchy skin disease. A. C. H., Mulliken, Mich.—Give him ¼ oz. of Donovan's solution of arsenic at a dose in either feed or drinking water three times a day, apply one part coal tar disinfectant and 30 parts water three times a week. Perhaps he should be clipped, then less medicine will cure his skin ailment.

Barrenness.—During the past year three of my cows have constantly been in heat and found neck of womb of two almost closed, the uterus of other small. D. P. R., Kalkaska, Mich.—Have the cows examined by a skillful Vet. who specializes in this line of work, and he will tell you if they are hopelessly barren. The writer believes they are.

Thirsty Mare.—I have a four-year-old mare that drinks too much water, but so far as I can tell she is healthy. L. B., Wayne Co., Mich.—Change her feed and give her ½ oz. of ground gentian in each feed. She should be watered often.

Weak Mare.—About one month ago my six-year-old mare commenced to run down, now she is unable to get up without help. She raised a colt last summer, was quite thin then. Have rubbed back with liniment, but it failed to help her much. M. R. K., Goble, Mich.—First of all, she should be well fed, bowels kept open, give her 1 dr. of fluid extract nux vomica, 1 oz. tincture cinchona, and ½ oz. of Fowler's solution in feed or drinking water three times a day.

Open Joint.—We have a large mare that has punctured leg; wound is on back part of hock joint and there is dripping of fluid from it. Our local Vet. claims it is a case of open joint. He said it would heal after all the joint oil ran out, but not until then. He prescribed permanganate potash lotion to be injected into joint and to apply vinegar and salt. She is now in slings. Mrs. F. L., Dundee, Mich.—If she is improving under your Vet's care continue his treatment. Clipping off hair and blistering joint with one part cantharides and five parts lard will help close opening. Applying tincture of iodine to edges of wound daily is helpful. I might say that recovery in such cases is usually doubtful.

Chronic Grease Heel.—Some time ago you prescribed Fowler's solution of arsenic as a remedy for chronic grease heel; also told me to apply iodoform and charcoal to sores. This treatment has seemingly worked fine and the sores are all healed, but I think best to give more medicine. I asked the druggist for Fowler's solution and he asked me whether I wanted Mr. or Mrs. Fowler's solution. Will you please make this matter plain? J. B., Owosso, Mich.—Fowler's solution of arsenic is one of the oldest and best known preparations kept by druggists and I fear the druggist showed himself to be exceedingly dense, to ask you such a foolish question. I advise you to continue treatment.

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Just fill out and mail me coupon below and I will send you this FREE SAMPLE BOX OF CORONA WOOL FAT postpaid. Try it on any case of Galled or Sore Shoulders, Sore Neck, Collar Boils, barb wire or other Cuts, Wounds, Scratches, Split Hoofs, Sore and Contracted Feet, Sore Teats on Cows—and see for yourself the splendid results this new healing preparation gives. This is an absolutely free offer—I don't ask you to send a cent of money; I even pay the postage—



C. C. PHILLIPS The Wool Fat Man

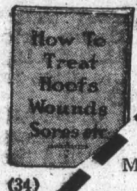


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is not like any other salve or ointment you have ever used. It is made from the fatty secretions extracted from the skin and wool of sheep. Its base is one of the ingredients which Nature has provided in the animal's body to heal inflamed tissues. It penetrates, but does not blister or cause the hair to fall out—it soothes, relieves—and reduces inflammation.

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Just fill out the coupon and mail it to me today. I will send you the free sample box together with my valuable new booklet "HOW TO TREAT WOUNDS, ETC." CORONA WOOL FAT is sold by leading blacksmiths, druggists, harness and hardware dealers. We also manufacture Corona Distemper Cure for Horses and Cows—Corona Balm for household use.



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Dear Sir: Without obligation, send postpaid free trial box of Corona and your book, "How to Treat Hoofs, Wounds and Sores."

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RARE OPPORTUNITY

Special Dairy Stock and Farm For Sale Near Live City of 30,000 and Big Permanent Army Cantonment

Fifty-two heads of pure-bred Holsteins and Guernseys, including a few good grade cows. Fine herd of young heifers also for sale.

FARM.—Purchaser of stock may rent or buy—if desired—our splendidly equipped farm of 200 or more acres, with 25 acres of alfalfa; elegant buildings; silos of 700 tons capacity; dairy barn with 60 James stanchions, individual drinking fountains; large hay and grain barn, horse barns, barns for calves and young stock; creamery building with latest equipment; ice house and refrigerator room. Everything complete—utmost convenience—modern sanitation.

LOCATION.—One-half mile from city of Battle Creek, Mich., with 30,000 population, and three miles from Camp Custer with upward of 25,000 soldiers.

MILK sells at 10 cents a quart wholesale, 12 and 13 cents retail. Cattle are of very best breeding, tested for tuberculosis, and all large producers.

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Senior—Maplecrest Korndyke Hengerveld. Dam and grand dam each better than 1200 lbs. of butter in a year.

Junior—King One. Dam and grand dam average better than 1200 lbs. of butter in a year.

Yearly production is the result sought. Maplecrest Korndyke Hengerveld and King One constitute a combination of long distance breeding that is very rarely if ever equaled and never excelled. Maplecrest Korndyke Hengerveld, although a young sire, has already 13 advanced registry daughters, only one of which is past two years of age and is destined to great fame.

King One mated with the daughters of Maplecrest Korndyke Hengerveld would seem to represent the ideal for long distance production and that is what we are aiming at. We want Michigan dairy herds to average 12,000 lbs. of milk and 600 lbs. of butter a year per cow, and if we give them ancestry to breed from that produced twice that amount and more, there is no reason why it cannot be accomplished.

I have a few heifers in calf to King One that I will sell at reasonable prices as I have not sufficient pasture for them. They will have to be taken away by May 1st.

Also some young bulls sired by above sires.

D. D. AITKEN, Flint, Michigan.

Guernseys: Some choice purebred cows, heifers, bull calves and bulls of good breed, individual, well grown. A.R.O. records for seven near-out dams average butter 7 days 23.36 lbs. milk 53.27. Dams record 18 lbs. at 2 yr. old. W. B. Reader, Howell, Mich.

2 CHOICE Holstein bulls nearly old enough for service. No. 1 born January 24, 1917, sire's dam, grand-dam and great grand-dam's semi-official records average 843 lbs. butter. Dam of calf 49 lbs. butter 7 days average 27.21 lbs. old, average percent fat 4.3. No. 2 Sired by 23 lb. bull and out of a 14 lb. junior 2-yr. old. C. L. BRODY, Owner, Fort Huron, Mich. Ohas. Peters, Herdsman, Three Rivers, Mich.

When you think of good Holsteins, think of E. M. PIERCE & SON, Manchester, Michigan. We have a few good females and several bull calves at eight prices. The latter from \$50 up. Excellent breeding.

"TOP-NOTCH" HOLSTEINS

"Milk production is an inherited ability. Good cows must be bred to good pure-bred bulls if progress in dairying is to be made." Extract U. S. Dept. of Agric. Bulletin.

Buy this young bull and give your milk and butter production a "push."
King Colantha De Oakdale, No. 18287, Born Nov. 4, 1915.
His sire's 3 nearest: Butter 7 days 30.87
Dams average: Milk 7 days 57.86
Butter 7 days 30.59
His Dam's: Milk 7 days 58.99
Record: Butter 29 days 124.79
Milk 30 days 248.60
(She heads one of the ten only combinations of three direct generations of thirty pound cows.)
His dam's record at 3 yrs.: Butter 7 days 23.33
Milk 7 days 49.40
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Milk 7 days 54.68
(Including 2-3 and 1-4 yr. old.)
Ideally marked, about half and half. Price \$220.
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50 lbs. BUTTER
One Week's Work for One PURE-BRED

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All records for production are held by Holstein cows. They are indeed "The Profitable Breed." Learn about them. Free illustrated books.

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Holstein Bull Calf born Mar. 7, Sire individual prize winner from 29.42 lb. Sire and 23.39 lb. 4 yr. old dam. Price low. A. F. LOOMIS, Owosso, Mich.

Bull calves sired by a double-gon of Friend Hengerveld De Kol Butter Boy from dams of the greatest yearly record breeding. Write for photos and prices to Ontario Valley Holstein Farm, Bruce's Crossing, Mich.

OAK Leaf Farm. Herd sire Lenawee Pontiac Galamity King sired Registered Holstein bull sires from A. B. O. cows and the above sire whose dam holds the milk and butter record in the state of Ind. 7 days milk 76.3, butter 32.51—315 days milk 2382.3, butter 936.775. E. H. GEARHART & SON, R. 4, Marcellus, Mich.

For Sale Registered Holstein bulls ready for service and bull calves from 30 lb. sire and A. R. O. dams with records up to 35 lbs. Wm. GRIFFIN, R. 5, Howell, Mich.

3--HOLSTEIN BULLS--3 Ready for service at Long Beach Farm, Augusta, Mich.

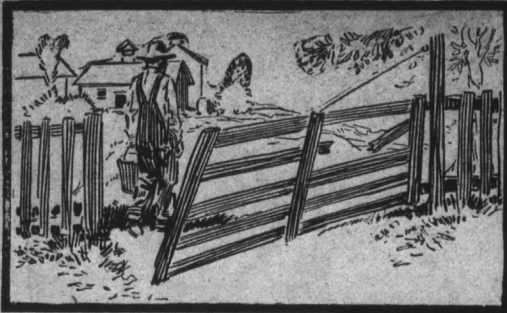
HOLSTEINS of quality. Bull calves from dams with records high as 21 lbs. in 7 days. Also colts, puppies. E. A. HARDY, Rochester, Mich.

FOR SALE Eleven High Grade Holstein heifers from two to four years old some milking others to freshen soon. E. A. ROHLFS, R. 3, Box 6, Akron, Mich.

Holstein bull calf for sale. Born Jan. 9, 1918. Beautifully marked and straight. Dam at 2 yrs. over 12 lbs. butter 7 da. First check for \$40 gets him registered and transferred. C. U. Haire, West Branch, Mich.

Why Use inferior bulls when you can buy grandsons to 2500 pounds of milk last year for from \$15 to \$160. One ready for service. Write for pedigrees stating about what you wish to pay. SINDLINGER BROTHERS, Lake Odessa, Mich.

P.E.G. Holstein bull calf for sale, mostly all white. Bred a good individual. His sire's dam's record butter 1 yr. 124 lbs, dam's sire has a 122 lb. butter record 1 yr. Get this one and raise your butterfat 3. Write ELMER E. SMYTH, Bedford, Mich.



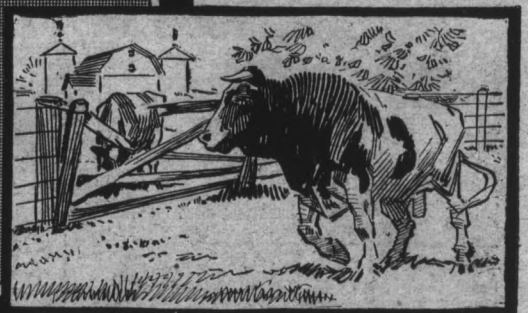
Hired help, children and strangers are tempted to leave your heavy, rickety, hard-to-handle gates open.



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No Nails to Pull Out—Every Board Double Bolted

Between 4 pairs of angle steel uprights which give every "Can't-Sag" Gate more than 10 times the strength and 3 times the life of any home made all-wood gate—with 1/4 less weight too. "Can't-Sag" Gates have a stiff, strong back-bone of steel which always holds them plumb and true. Stock can't break them. Hogs can't open them. They are the most satisfactory gate for any farm.

Never Sag, Drag, Warp or Twist Out of Shape

"Can't Sag Gates" will bear the weight of 5 men without sagging 1/4 of an inch. The double sets of angle steel uprights (bolted on) hold it for years just where you first hang it.

STOCK WON'T INJURE THEMSELVES on "Can't-Sags," as they do on wire gates. They're not apt to run against them because they can see them plainly. The happy combination of wood and steel makes Can't-Sag Gates flexible. They give under pressure but instantly spring back into place.

Buy Them or Build Them

I'll furnish "Can't-Sag" Gates set up, painted, ready to hang with your name, the name of your farm or "No Trespassing" sign neatly lettered on the boards. Or if you prefer I will supply you with just the Gate Steels which consist of 8 angle uprights, bolts, truss braces, lag screws, hinges, socket wrench, directions, in fact everything but the boards. You can get the boards from your lumber dealer, and save still more money. Get my prices on "Can't-Sag" Gate Steels.

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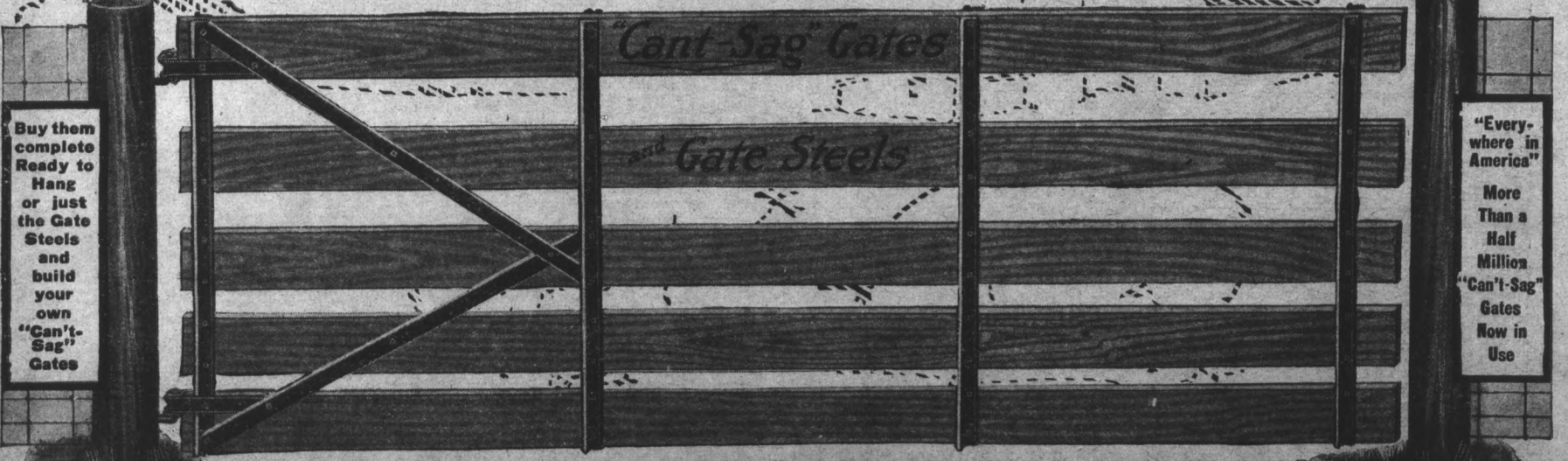
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