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CURRENT COMMENT.

Business Before Pleasure. While this is the usual order on every purchase, have so largely used automobiles as "pleasure cars" that the increasing use of automobiles on the farms of the country has frequently been cited as an indication that our farmers are devoting more time to mere pleasure and less to the business of production than was formerly the case. In order to determine the purpose for which farm owned automobiles are mostly used, the research department of our Chicago office conducted an investigation in a typical farming county.

In this investigation inquiries were sent out to a list of farmers who owned a well known make of car selling from \$650 to \$850 and to another list owning a well known make selling at \$1,650. The reason for selecting the two lists was to reach farmers who owned medium priced cars and also those who owned higher priced cars. The questions addressed to each list were three in number and asked whether the automobile was purchased for pleasure use or as a necessary part of the farm equipment, what percentage of time the automobile was used for pleasure and for business, and how many miles were covered in the year.

Eighty-eight replies were received. To the first question sixty-three said they bought the cars as a necessary part of the farm equipment, twenty-one that they bought the car for both pleasure and business, and two said they bought the car for pleasure.

To the second question twenty-five replied that ninety-five per cent or more of the use of the car was for business and five per cent or less for pleasure; twenty-one others replied that ninety per cent or more of the use of the car was for business and ten per cent or less for pleasure; twenty-eight others replied that seventy per cent or more of the use of the car was for business and thirty per cent or less for pleasure. To the third question the largest number of replies showed an annual mileage of 3000 miles or less.

A summary of the answers received shows that 73.2 per cent of all the farmers included in this investigation

bought their automobiles as a necessary part of the farm equipment; 24.4 per cent bought for both business and pleasure, while 2.4 per cent bought automobiles for pleasure use alone. This investigation practically proves that there is no such thing as a pleasure automobile on the farm. It is largely a business vehicle bought and used for business purposes.

The recreation and pleasure derived from its use by the family is incidental, although a factor which should not be overlooked in the beneficial influence of the automobile on the farm. A curtailment of production of automobiles which would limit their purchase by farmers would be a business handicap which the government should hesitate to impose even in the present emergency.

Potato Grades. Many people, including both growers and dealers, who believe in the principle of standardized grading for potatoes as well as other farm products are strongly of the opinion that there should be but one grade instead of two grades, as fixed by the food administration order. Those who favor one standard grade would generally include all potatoes in that grade which would not go through a one and three-quarter-inch screen and which are otherwise sound and of good quality.

There are good arguments in favor of this contention, not the least important of which is the fact that the standard would conform fairly closely to the better grade of merchantable potatoes which producers have been accustomed to selling in the market. In normal years such standard grade would exclude only a small percentage of potatoes which are ordinarily marketed on account of size. In years of low production like last year, however, a very large proportion of the crop would not grade as standard on account of the small average size of the tubers produced, which fact would undoubtedly reduce the marketable value of the crop to some extent as compared with the present provision for two standard grades.

Careful experiments would be required to determine the proportion of a normal crop which would be included under the single grade and under two grades, before the comparative results from the grower's standpoint could be accurately estimated. Under conditions of short production such as prevailed last year, there would, however, be a very small price differential between first and second grade tubers under the present price standard. The wide price differential fixed by the action of dealers between the two grades this year leaves no room for doubt as to the effect on the grower. The No. 2 grade for which dealers offer but sixty per cent of first-grade price this year is quite as good as the average stock sold from last year's Michigan crop.

One of the best reasons given by the Bureau of Markets for recommending this second grade is that they are of a size which can be economically used in restaurants where machinery is used in peeling them. Under the present operation of this system of grading, however, growers are obliged to take a greatly reduced price for the No. 2 grade, which from the standpoint of actual food quality is but little inferior to the first grade, or else haul them back home after they have been graded out at the receiving warehouse. This is an economic waste which should not be imposed upon potato growers.

If the contention of the Bureau of Markets that two grades are economically preferable to one is sound, then steps should be taken to establish a fair price differential as between the two grades. If this proves impractical, the only other just course would seem to lie in the making of a single standard grade which would conform to the usual custom in marketing normal crops to which both producers and consumers have become educated through

long use. Unless this difficulty can be overcome, the result of the grading plan will be a further discouragement of growers at a particularly unfortunate time, rather than a benefit to the trade from producer to consumer, as was undoubtedly contemplated.

The best remedy for present conditions because it could be most quickly applied, would be for dealers to pay a fair price for the No. 2 standard grade and make an effort to market them where they are economically most useful. If this cannot be done, the present grading plan will prove a failure.

The Detroit Milk Commission met last week at the request of producers and distributors of milk in the Detroit area to consider the old problem of surplus milk, which under present conditions has become a factor in the local situation. The official experts of the commission, Prof. Anderson, of M. A. C., and State Dairy and Food Commissioner Woodworth, had previously made an accurate survey of the situation and determined the actual surplus to be approximately 13½ per cent of the total receipts. A careful survey of a typical producing area made by the Michigan Experiment Station showed production to be below normal. A carefully conducted survey in other consuming centers, as well as in Detroit, showed a general reduction in consumption as compared with recent years. That this reduction is due to a general tendency toward economy in consumption all along the line, rather than to the recent increase in Detroit market milk prices was indicated by the fact that a similar reduction in consumption is shown in Grand Rapids, where a "milk war" is being conducted between rival distributing agencies and milk is still selling at ten cents per quart; in Lansing where milk is still selling at twelve cents, and in other cities covered by the survey. Producers prophesied an early shrinkage in production, due to feeding methods which have resulted from present conditions.

With this data at its disposal the commission outlined a plan to divide the temporary loss incident to the present surplus between producers and distributors by making a price of \$2.75 per cwt. on but ten per cent of the shipments for February from all producers in every freight zone, the price on ninety per cent of the shipments to stand as before at \$3.35 per cwt. at the shipping station platform in the fifteen cent freight zone.

This temporary adjustment was accepted as satisfactory by the officers of the Michigan Milk Producers and the distributors present, thus again demonstrating the success of the commission plan of settling market milk problems on a fair basis.

Income Tax Statements. Michigan Farmer readers should not forget that under the amended income tax law, every single man having an income of \$1,000 or more and every married man having an income of \$2,000 or more for the calendar year of 1917 is required to file a statement with the Collector of Internal Revenue for the district in which he resides on or before March 1, 1918. Refusal or neglect to file such a statement involves a penalty of not less than \$20 nor more than \$1,000, and a further liability to fifty per cent additional tax.

The first step in complying with the law is to secure a blank statement from the Collector of Internal Revenue for your district, fill out same and file with the collector if you are in either of the classes as to income above mentioned. As previously noted in these columns a representative of the collector is spending a day or more in each county to aid people with taxable incomes in making out their statements. Your local banker or post-

master will be able to inform you when and where such aid can be secured in your county.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—Notwithstanding the severe winter weather, which now grips all of the theatres of war, there was some fighting on all three fronts during the past week. Near the North Sea land batteries cooperated with British monitors early last week in bombarding the defenses of Ostend and surrounding country. No infantry action was attempted, but later the Germans reacted sharply and broke into the French lines and for a brief period were able to hold their ground, but during counter attacks French troops drove out the invaders and re-established themselves on their former positions. The British were also enabled to extend their lines to a point slightly south of St. Quentin without the enemy's knowledge and thus further relieving the French. The Allies continue preparations to meet the anticipated German drive against the western lines. The recent decrease in the number of U-boat attacks leads to the belief by military critics that simultaneously with the attack by land the Germans will undertake the biggest U-boat campaign they have yet organized. It is believed that practically all U-boats have now been withdrawn from service to be re-fitted for this campaign. It is expected further that the U-boat drive will be directed especially against American lines of communication to prevent if possible, the landing of additional troops and supplies.—The attack by the French on Monte Tomba on the Italian front three weeks ago has obliged the enemy to abandon an extensive line north of this point extending to the Piave river. This action would make it appear that the enemy has temporarily, at least, abandoned the idea of reaching the plains of northern Italy through this channel.—Serious fighting has taken place between Russians and Roumanians in the neighborhood of Galitz near the Black Sea border.

President Wilson's fourteen conditions of peace have been replied to by both Germany and Austria. Chancellor Hertling of Germany, substantially rejects the conditions laid down by our chief executive except those that would accrue to the advantage of Germany. On the other hand, Premier Czernin of Austria, indicates in his reply a desire to use the fourteen conditions as a starting point for discussing terms of peace.

National.

The government has issued peremptory orders to all railroad officials to cut off immediately from the payrolls all legislative railroad lobbyists, unnecessary lawyers, literary men, political payments and all passes whether interstate or intrastate. Several million dollars will be saved within the first year by this drastic step.

In Michigan 134 plants have been exempted from the Monday closing order by federal fuel administrators. In addition to being exempted, these concerns will have preference for coal shipments.

In nine months of war fires, believed to have been set by enemy agents, have done damage in this country to the extent of \$50,000,000.

On Monday of this week bakers began the manufacture of the new "Victory loaf," a war bread which contains five per cent substitute for wheat flour. The percentage of substitute flours used by baking establishments will be increased gradually until February 24, when the substitute will amount to twenty per cent of the usual wheat flour used. At the same time, grocers will sell wheat flour to householders only when the latter purchase an equal amount of other cereals.

By referring the question of hours and wages to an arbitrator appointed by the federal secretary of labor, strife between the country's ten largest packing houses and their employees was ended early this week. The awards of the arbitrator will become effective as of January 14.

The government railroad administration has selected four men to analyze and recommend action on all wage and labor questions now pending before that department of the government. This commission will also consider demands now being made by the railway brotherhoods.

Notwithstanding the fact that the new Cuban crop of sugar is already arriving in Atlantic ports, the country will continue upon a fifty per cent sugar consumption basis which has practically obtained in many of the states, including Michigan, since the first of last November.

Can We Use Peat to Make Humus? II.

By EZRA LEVIN

Extension Specialist in Muck Crops, M. A. C.

THERE is a question that came up recently in St. Clair county.

"Do you mean to say that I can go down to my swamp and use that stuff for fertilizer? Why, I dug that stuff out of there three years ago and there it is, in blocks on the bank, just as I left it."

Yes, sir. That stuff can be used for replenishing the humus in your soil. It will cause your soil to hold more water and to resist drought; it will loosen and lighten the soil if it is heavy; it will bind the soil particles together if it is light. It will reduce the lime requirement of your soil; it will hold the soluble plant food; it will cause your soil to be better aerated, better ventilated, so that the germs which prepare the plant food in the soil can grow and multiply and increase their activities. It will provide these living workers in the soil with food and energy for their work. It will not only provide part of the essential plant foods for the crops you raise, but it will feed the germs which take the unavailable nitrogen from the air and make it available to those crops, thus adding nitrogen to that which is already in the organic matter. Altogether, it will provide the most important fundamental factor in your agricultural business—humus, organic matter; with this condition, that you handle that stuff properly, scientifically.

We shall proceed to define this condition by first defining that "stuff" we are handling.

The Role of Organic Matter.

Dr. R. C. Kedzie, when he suggested the mixing of muck and manure, states "powdery muck." The Scottish landowner used "moss," sphagnum moss. Those who have ever experienced the difficulty of rotting this material will recognize its hardness and its resistance to decay. This Scotchman also states that he surrounded a carcass of a horse with pine shavings and peat and subsequently had ten tons of rich compost. It is a common gardeners' practice to place all forms of organic refuse in the compost heap. Plant and animal remains of all kinds, irrespective of their chemical and physical condition, are placed in the pile. The reason for this is apparent.

We do not use the organic matter merely for the plant food that is contained in it. There are the other important reasons, mentioned above, for the incorporation of organic matter in our soils. The farmer should recognize these facts as an integral part of his farming system. Most farmers know that organic matter functions as a very important factor in obtaining good tilth and regulating the water-holding capacity in soils. We cannot quote too often the following statement from Russell:

"So marked are these physical effects that if fifteen or twenty per cent of organic matter is present in a soil, the operation of other factors ceases to count for much, and the distinctions between sands, loams, and clays are obliterated."

Soil Germs Must be Fed.

They have learned this by experience. However, it may be necessary in the light of present day knowledge, to focus the attention on the fact that organic matter is the home of the important germ life of the soil and that good tilth, good ventilation, affect these small germ plants as well as the large corn plants. I believe that enough evidence has been produced to show that commercial fertilizers affect the germ life of the soil, as well as the crops that are grown on it. It must be kept in mind continually that these germs are plants—alive—breathing, feeding and multiplying.

It is apparent why the application of twice the amount of mineral fertilizer which is found in manure will not pro-

duce the results that manure will. It is the other essential qualities of organic matter which produce the results from manures which chemically add such a small amount of plant food to the soil.

Humus is a Primary Requirement.

The objection has been raised that different peat deposits contain varying amounts of nitrogen; that they contain very little phosphorus and potash. This is misleading. It places the emphasis upon chemical analysis of the organic matter, which is unquestionably a secondary consideration. Furthermore, the organic matter which it is proposed that we add to our soils indirectly does add large quantities of nitrogen to the soil. The food in the organic matter, more definitely the carbohydrates, provide the energy for the nitrogen germ workers to change unavailable nitrogen of the air to usable, available nitrogen for plant food. It provides energy for the germs to act directly or indirectly upon the insoluble potash and phosphorus compounds in the soil and release part of them for plant use. Experimental work in the bacteriological laboratory at Michigan Agricultural College indicates that muck is the best soil medium for the nitrogen germs. We want the humus. More or less nitrogen in peat indicated by chemical analysis is negligible considering the greater benefits derived from its application.

Peat or muck deposits can be considered as great straw stacks, stacks of plant remains, stacks of organic matter.

Origin of Peat and Muck.

A swamp is produced as the result of plants growing on the surface of the water, or on the bottom, or on the

sides. These plants die. They fall back into the water. Their remains are only partially decomposed because of the lack of air under water and the fact that the germs which cause decomposition cannot live and work under these conditions, and also because there is produced early in the deposit of these plant remains poisonous substances which act as an antiseptic and inhibit the growth of these germs.

Each year more plant remains are deposited, stacked up. Certain conditions might arise by which further decomposition takes place. Thus we have all grades of peat, from sphagnum moss to muck, from that red stuff to the black stuff. These changes are brought about mainly by germs. These changes are hastened, accelerated, by producing the conditions in the peat in which the germs will work best. Drainage, aeration, weathering, washing by rains, the presence of lime, the introduction of the germs which cause decomposition—all these make red peat into muck. This has been done practically. At another time I will take up in detail the experiences of farmers who have taken the top ten inches of peat and changed it to a brown-black muck in two years.

Decay Caused by Living Organisms.

The late C. A. Davis, a world authority on peat and its uses, states:

"When allowed to remain exposed to the air, in the presence of moisture, it is well known that most forms of vegetable matter rot, and finally disappear entirely, and such decay has been described as a form of oxidation, similar to, if not identical with, that which occurs when the same sort of material is burned; that is, as a purely chemical process. This process is not, however, directly due to the action of the

air, or any of its gaseous constituents, or to moisture. Perfectly dry vegetable matter will keep indefinitely in the air, as is shown by innumerable articles in common use. In like manner, we find that wood and similar material of vegetable origin will keep for very long periods of time when entirely submerged in water. The decay of vegetable matter is really a series of complicated changes, due to the growth and development of living organisms in the decaying matter. These use part of the material of which the vegetable tissue is composed for their own nourishment and growth, and thus break it down into simpler compounds. The organisms which thus produce decay are mainly plants of simple structure, and often of microscopic size, and when they are not so small, their lack of color, and their intimate association with the tissues in which they grow render them very inconspicuous. These plants are bacteria and fungi, and are aided in bringing about decomposition by many types of animals.

Like all other plants, these decay-producing forms need both air and moisture in order to grow, and moreover, the moisture must be present in proper amount, too much water being detrimental to their growth as too little, and where air is excluded they do not thrive."

Lime Essential to the Process.

The Scottish land owner piled up moss and it would not decay; then he put lime in it, and it changed slowly; it became muck. He piled it up, allowed the elements to weather it, but it was "sour" and the germs which decompose could not start.

They could not use the food from this "stuff." Then, he added lime. Of course, he did not know anything about germs, but it is a fact that the addition of lime had the effect of removing the objectionable elements in this moss so that the germs could obtain energy for their respective activities from it.

Did you ever notice that wherever we find hard water in swamps, we find muck somewhere in it? Hard water contains lime. Is it not a fact that most of our soft water marshes are peaty? The lime from the marl, or from the limestone, or from the limey stratum through which the springs pass permeates the swamp and provides the lime that the germs need to change the peat to muck. Perhaps that has something to do with the different types of plants that we find growing on mucks and peats.

Peat Decomposed by Composting.

For our purpose, let us consider peat. Let us take that stuff that will not decompose rapidly when dug out and exposed—the stuff which is red, which contains poisonous substances, and which actually has antiseptic properties. That is what our Scottish land owner used. Surely all that applies to peat will apply to muck as far as using it for humus on our uplands is concerned.

More than one hundred years ago the Scotchman said, "Peat, when taken out of a bog is certainly not manure. If dried, it becomes fuel, and so remains if kept dry." But he found that the addition of decaying and putrefactive substances to the moss accelerated the action, and he was able to change this inert substance into manure. Perhaps the acids produced in the manure acted upon the peat, or other chemical changes took place which had to do with this. However, no one will deny that the addition of this decaying material to this moss added the germs, the living organisms which produced rapid decomposition and nitrification, broke down the complex organic substances so that their nitrogen became available rapidly and produced those conditions which caused this moss to assume the properties



Note the Leaves
and
Barbs

HELP!

DESTROY AN ENEMY OF THE WHEAT CROP DIG OUT EVERY BARBERRY BUSH

They start black stem rust on grain. Help us locate every bush. Owners must dig them up within

TEN DAYS

after notification. (See Senate Bill No. 139)

J. R. HAGAN, Commissioner of Agriculture and Labor

Poster Used by the North Dakota Farmers in their Fight Against the Stem Rust of Wheat. (See "The Stem Rust of Wheat," Page 135).

of valuable humus which, added to the soil, gave satisfactory results.

It is reasonable to conclude that if he had done the same with muck the results would have been similar—the action probably a little more rapid. This conclusion is borne out by the experience of those who have composted muck and manure.

A Stock of Plant Remains.

Now, we have given the theoretical basis for advocating the use of peat for humus. The question now is, how? Is it practical? Will it pay? How shall it be applied? Shall all types be handled similarly?

We will consider peat as that swamp material which is not decomposed—usually reddish; the plant remains sometimes plainly distinguishable. Peat may be woody, grass-like, or moss-like in character, depending on the character of the plants which made up the deposit; does not become powdery when dried, but rather retains the shape as excavated.

Decomposed peat or muck is black or brownish-black—the plant remains cannot be distinguished; it is powdery when dried, and particles are much more finely divided than in peat.

We have stated that a peat deposit is a stack of plant remains. So is a straw stack a deposit of plant remains.

When straw is plowed under, we do obtain results—not immediate, but gradual. We will see the effects of plowing under a large quantity of straw perhaps, over a number of years. It depends on the soil, on the season when plowed under. This is because the decomposition of the straw is brought about by the various types of germs and their activities are limited by temperature, moisture, aeration, and amount of organic matter in the soil.

When raw peat is plowed under we can expect the same effect, with this difference, that it will take longer to decompose. If applied to a soil that is rich, which contains organic matter, germ life, and available minerals it will decompose more rapidly than when applied on a barren soil, and consequently produce better results. This practice is not recommended. If it is found that labor conditions prevent the utilization of the peat by composting and thus making available the plant food rapidly, and it is desired to apply directly to the soil, it should not be applied at once. Not only will it be difficult to plow under and break up these peat "chunks" but the addition of the poisonous substances in the peat might inhibit the growth of the beneficial germs in the soil. It is the best practice to dig this peat and allow it to weather by piling in small heaps near the excavation so that it can drain off and aerate.

Special tools have been developed for digging peat. A type of spade which has a special flange on one edge is used in Vermont. There are machines on the market which are used to dig peat for fuel purposes on a large scale, but, of course, they are not practical for the ordinary farmer. There is an opportunity for implement manufacturers for a machine which will facilitate the removal of peat at a low cost.

Apply Manure with Weathered Peat.

Even after peat is weathered for six months or a year and it has become somewhat "crumbly," its use for direct application alone will not be as satisfactory as when used under the conditions in which decomposition will be accelerated. I mean that we use the same judgment in this matter as we do in plowing under a crop of rye, clover, vetch, or any other form of humus for a cover crop. It is well known, and it is a practice of good farmers in Michigan to top-dress this cover crop with a light application of well-rotted manure. The results are always satisfactory, especially on light land. While the increased production may be the result of the little available plant food in the manure, it is probably due to a larger

extent to the introduction of germs which accelerate the decay of the cover crop and make the plant food available more rapidly.

This is just exactly the method which can be used with success, considering the peat as the cover crop. After the peat has been properly weathered it is hauled up and spread, and a light dressing of well-rotted barnyard manure applied shortly before plowing. Turning under this mixture will act similarly to plowing under the manure and the cover crop. It will hasten decomposition and the increase of available plant food. If much is used, of course no weathering is necessary. It can be applied directly and used as directed. We have used this method on our farm with success. Ten loads of muck applied to one-fourth of an acre, top-dressed with ten loads of manure, as compared with twenty loads of manure on a quarter of an acre, produced practically the same amount of beans, while twenty loads of muck showed only a slight increase over no muck at all. This experiment was conducted on a very light sandy soil, which was distinctly "sour," and which needed lime badly. What would have happened if lime had been applied on the plot which had muck alone is a matter which we intend to try out this year.

There are others who have tried out muck and lime with good results.

While this is not particularly connected with muck—as a farmer, it appeared to me that the reason my neighbors have had such poor luck after plowing down rye on their sandy lands was possibly because of the lack of lime and the presence of those conditions which did not allow the germs to do their work. What do you think about it?

GROWING SPELTZ.

I am asking for information concerning speltz. What can you advise me about seed, bed, amount to sow per acre, its value as cow feed, etc.? We never have had any success in raising barley; lay same to the fact that we plow too deeply and have seed bed too mellow. Others spend very little time on ground, plow four or five inches deep and get good yields. I understand speltz are on same order as barley. We never have raised barley straw long enough to cut with binder. This same land will grow wheat straw four and five feet, and yield 35 to 40 bushels per acre. We have 23 head of cattle and eight horses, so you see the land is well fed. Also used marl and spread same with a spreader. This farm has never been run any; always well seeded and very seldom more than two crops raised on a field before the same is seeded again, and every time one is planted to corn the same is covered with manure. I state this so you can see what care the soil gets and how it is fed. I do not understand what it lacks to grow barley straw. What would you advise. We do not fall plow on account of ground runs to muck in spring and becomes as hard as a road, therefore it is not practical to fall plow. What would you advise? Also state how many bushels to the acre and where can I get seed?

Genesee Co. SUBSCRIBER.

If your land will grow wheat successfully it ought to grow speltz. Speltz is more of the same nature of wheat than it is of barley. In fact, it belongs to the wheat family. This grain is quite well adapted to dry land, that is, land that is apt to dry out with a protracted drought, land that has a porous subsoil, and yet, it ought to grow well on any land that will produce a good crop of corn. Personally, I became interested in speltz or emmer, which is another name for it, once, and experimented with it for two years. I raised fairly satisfactory crops but I gave it up because our wheat drills that are used successfully in sowing wheat and oats and barley will not sow speltz successfully. The kernels are covered with a heavy hull or outside coat, and they are so apt to adhere to each other that it is almost impossible to get a proper distribution of seed with

an ordinary drill, otherwise one could grow speltz just as well as he could oats or barley, but the proper distribution of the seed is a very important thing and when you have a drill continually clogging and bothering and then doesn't distribute the seed evenly, you have lost your chance of getting a good stand and consequently a good crop.

I am of the opinion that speltz would do better than barley on your land. Your land is probably naturally too well drained for barley, that is, it loses its moisture too quickly. In other words, it doesn't hold moisture long enough and I think speltz would probably be a better crop and I have no objections to this grain except as mentioned above.

This grain is a good cow feed. The heavy outside coat of speltz when ground with the grain puts it in good condition for horses and cattle but there is too much chaff or fiber coating to make it a good hog feed. If it was not for this heavy coating on the oat kernel there would be nothing better than oats for pigs, but it makes so much chaff or fiber that pigs don't like ground oats very well. On the other hand, ground oats are a splendid feed for cattle and horses and it is much the same way with speltz.

If you would fall plow for barley so as to get the subsoil settled down and then early in the spring cultivate or disc and mellow up two or three inches deep for a seed bed, this land is much more apt to hold moisture than spring plowed ground, especially if the spring plowing is deferred until late and you don't take time or the necessary labor to compact the under surface or subsoil. This same condition of soil that is freshly plowed, especially if it is late plowed and sown to oats will give you the same results during a dry season. Land, however, that will grow from thirty-five to forty bushels of wheat per acre ought to produce barley because barley will do better on drier soil than oats and I am positive from what I know about speltz that you can grow it on a looser, drier soil than you can barley or oats.

COLON C. LILLIE.

RESULTS FROM USING LIME.

In your issue of December 29, last, I read with interest the article entitled "Demonstrations Prove Need of Lime," by the Department of Soils, Michigan Agricultural College.

I would like to supplement this article by relating my experience along this line, as it may encourage and benefit some brother farmer who is similarly situated.

In the beginning I will say that my soil is a good quality of Jack Pine plains land. In the spring of 1916 I staked off one-quarter of an acre of old timothy sod that had "run out," for the purpose of making an alfalfa and lime test. I plowed the ground, harrowed it over to level it down and laid it off into three equal strips. On strip No. 1, I applied carbonate of lime at the rate of two tons to the acre; strip No. 2, one ton to the acre, and strip No. 3, none. I then sowed Grimm alfalfa seed at the rate of ten pounds to the acre, and harrowed it in thoroughly.

Briefly, the results were as follows: Strip No. 1 made a good catch, was thick enough on the ground, had a good color and produced a crop of hay this year. Strip No. 2, was just a fair catch, not as thick on the ground and not as good color as strip No. 1. Strip No. 3 was almost a failure—was very thin, short and yellow.

All the seed was inoculated with pure culture.

I experimented with a plat of sweet clover in exactly the same way, and with results practically the same as the above.

After noting the results of the above

experiments, I would not think of trying to get a catch of alfalfa or sweet clover on this kind of soil without lime. I would apply it generously—not less than two tons to the acre.

There are thousands of acres of plains land in Northern Michigan, and in my opinion, much of it could be made to produce abundantly if properly handled and liberally limed.

In this connection, I might say, however, that I secured a good catch of Mammoth clover and harvested a bumper crop of hay simply by plowing virgin soil, working it down and sowing the clover seed alone—no nurse crop and no lime being used. The seed was inoculated.

Ogemaw Co.

PERRY HOLT.

FARM NOTES.

Yellow Sweet Clover.

Have you had any experience in the growing of yellow sweet clover? If so, what is it good for, and how much do you sow to the acre? I have about three acres of heavy sand loam that is badly run, and I want to sow the crop to plow under. Is it a good crop for the purpose, and easy to seed on this kind of soil? I was thinking of plowing up the ground in the spring and sowing it to sweet clover and later to alfalfa. I would like to sow a little speltz with it as a spring crop.

Hillsdale Co.

C. S.

The yellow sweet clover is not as valuable as a forage plant as is the white sweet clover which is found in the wild state in Michigan. It is a much smaller plant, and will not give anything like the growth for either hay or pasture or for soil improvement which will be secured from the white sweet clover.

White sweet clover should be sown on a firm seed bed, preferably on ground that is not spring plowed, either with a light seeding of spring sown grain or without a nurse crop. It will require little if any more seed than other clovers, provided seed of good germinating quality is secured. There are a great many so-called hard seeds in sweet clover which do not absorb moisture readily, and better results will be secured if the seed is soaked over night in warm water before sowing.

Like alfalfa, sweet clover requires soil which contains plenty of lime for good results. If the soil is deficient in lime, it will pay to apply same before seeding. The writer has gotten good stands of sweet clover by sowing ten pounds per acre as above described.

GROWING BARLEY.

Will Mr. Lillie, or some well informed reader, please advise me on growing barley on river bottom land? This is excellent land, very rich and well drained, and raises a large crop of corn with the exception that frost catches it. Also, this is loose soil and practically clean. Would you advise plowing or just discing it up before sowing?

Van Buren Co.

H. W.

This rich bottom land is splendid for barley unless the barley is apt to lodge. Sometimes barley on rich land lodges badly as the straw is not apt to be quite as stiff as oats, and yet oats on such land are quite liable to lodge also and when they do it is expensive harvesting. On rich bottom land this fault of lodging can be remedied somewhat by not sowing the grain too thick. This will give the plants a chance to grow a little more sturdily and they will be less liable to lodge.

I don't think it necessary to plow this land. As a matter of fact, I would prefer to disc it as you suggest. It is better to have two or three inches of soil finely pulverized and the subsoil somewhat compact than to have it loosened too deeply. Of course, if you will plow it and go to the expense of rolling and packing you can get a good seed bed but it is more expensive. As long as there is no necessity in plowing to get this seed bed I would advise discing.

The Stem Rust of Wheat

By DR. G. H. COONS

Plant Pathologist, M. A. C.

NEXT to fighting forces, the wheat crop is the vital thing in this war. Anything which menaces it menaces our liberty. Yet we have passively stood by while a parasite has stolen, year in and year out, from our wheat crop—sometimes five per cent, then sometimes twenty-five per cent. Anyone who has followed the prices of wheat knows what the quotations show when the reports begin to mention the stem rust on the wheat of the Dakotas. Nor is the loss limited to far-off states. Last season Clinton county reported a loss of fifteen per cent of its wheat crop on account of rust. The light, shriveled kernels which the rusted plants produce are well known to every farmer and miller. Michigan used to grow spring wheat. In a year like this, such a crop would be a very great asset to replace the winter wheat that has failed. But the old folks can tell you that rust drove spring wheat out of cultivation in Michigan, and farmers in general feel that spring wheat is unsafe in Michigan.

The time is ripe to wage war upon this parasite which ruthlessly, whenever the weather favors it, attacks our wheat and shortens the bread supply of our fighting forces.

To fight an enemy of any kind, we must know his method, his places of hiding, his equipment, in short we must learn to know this rust parasite as we have had to learn to know the German.

Life History of Rust.

The stem rust is a microscopic plant which steals its living not alone from wheat, but from oats, rye, barley, and other grasses. Upon these plants it develops in two distinct forms—"Red Rust" stage and "Black Rust" stage.

The red rust appears first and produces on the plant a reddish, rusty appearance, accompanied by breaking and cracking of the epidermis. Walk through a rusted field, and your clothes will become dusted with a red powder. This powder is made up of the minute seed-like bodies, the spores of the rust. The spores have the power of spreading the rust and wherever one is carried by the wind to a wheat plant, for example, there, if the conditions for growth are favorable another rust spot develops. Over and over again this story is repeated as the grain is growing. After a time the red rust stage is replaced by the black rust stage by the development in the red rust spots of black spores. These black spores are hard walled and slow to germinate and they serve to carry the rust over winter. The farmer, noticing the rusted grain, sees black lines or streaks on the stems and leaves.

A Peculiar Cycle.

Now comes the most curious part of the whole rust story. The black rust spore lives over winter on the stubble and in the spring sprouts, producing a second set of spores. These spores are powerless to attack the wheat or other grasses. The only plant that they are capable of obtaining food from is the barberry, the plant made famous in the nursery rhyme. On this plant the wheat rust makes a yellow spot, and later develops another type of fruiting body. This fruiting body is a minute cup, filled to the brim with spores. These spores do not reinfect the barberry, but infect only the wheat or other grasses. The wind blows them to the grasses, where they grow and penetrate. The red rust stage is thus started, and extensive rusting may develop from a single spore blown from the barberry.

It is seen then, that this parasite is a peculiar one. The spores from the black rust stage serve to carry over the rust from the wheat to this ornamental (?) shrub and there another

kind of spore carries the thief back again to the wheat plant.

One little complication needs be mentioned. There is the possibility that the spores of red rust stage live over winter. These, borne on wheat, have the power of attacking wheat over and over again. No one knows how important these spores are, but observations in the great wheat states of the west, and observations in Michigan seem to indicate that the red rust is not the important means of wintering of the stem rust.

Checkmate the Rust Spores.

Of course, the botanist has seized upon this life history and named every part with a long Latin name, but the practical man grasps the point when he is told that both the wheat and barberry harbor the same pest and the pest works alternately between them.

It is clear, then, that one of the best ways to checkmate this rust which must needs work back and forth on the wheat and barberry, is to destroy the barberry plant. In fact, it is the purpose of this article to suggest that Michigan could make a great contribution to the war if it would root out every barberry plant in its borders. You may think this is something new, but the old philosopher said there is nothing new under the sun. In 1760 the farmers of the Massachusetts colony knew of the evil effect of the barberry in blasting the wheat, and passed a drastic law, which, like many others, became a dead letter. Nearly a hundred years elapsed before a scientist worked out the life story of the stem rust and thus explained the particular significance of the barberry to wheat.

Some Object Lessons.

There is good reason to believe that the barberry bush is a center of infection which results in wet seasons, disastrously to our wheat crop. The barberry bush, except for its trifling value as an ornament, is of no economic importance in Michigan. We could doubtless prevent enormous loss to our wheat if we would rid ourselves of this useless ornament. Denmark formerly had great epidemics of stem rust of wheat every three or four years. Ten years ago it passed a law against the barberry and exterminated it. The Danish farmers pulled and cut by stealth the barberries of the rich men's flower gardens. Since the extermination of the barberry, stem rust of wheat has ceased to be a factor causing loss. Epidemics no longer occur.

Nor is the example in the United States lacking. Two years ago North Dakota passed a barberry law and appointed a commission to lead in the extermination. Public sentiment was aroused and in one week 4,000 barberry bushes came out. The lesson for Michigan is clear.

The average man has never seen a barberry bush to know it, or if he does know the barberry he thinks of the low shrub, very popular for setting out around formations, which has small spoon-shaped leaves and bears small red berries which hang, one in a place, like a gooseberry. This plant is the Japanese barberry and has nothing to do with the stem rust.

The dangerous plant is the high bush barberry, a thorny plant which has large-toothed leaves and clusters of red berries arranged on their stems as in the currant. This plant has slight decorative value and is a plant which can easily be replaced in any landscape gardener's scheme. Study the illustration on page three of this issue and you will be able to recognize it.

Just now a determined effort is being made in the great wheat states to get this enemy to the wheat crop exterminated. The most feasible way

HELP the HELP

The Year Book of the Department of Agriculture contains this statement: "There is no question of the general value of commercial fertilizers in farm practice. The farmer who wisely and systematically applies commercial fertilizer to his fields will raise larger and better crops than his neighbor who, with similar conditions of soil, climate and rotations, and equal industry applied to cultivation, does not use fertilizers."

This is another way of saying that a day's labor on fertilized land will produce more than a day's labor on unfertilized land; and that for this reason fertilizer is a good weapon against the high cost of labor. The hired man is costing you more. Make him produce more by putting him to work on well-fertilized land.

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MORE CROP From LIME!

How Soil Becomes Acid

When you consider acidity, think of lemon juice, strong vinegar, muriatic acid or oil of vitriol. But think further—Can you imagine the thousands of bacteria of growth so necessary to plant life flourishing in a soil saturated with these acids? Unquestionably not, for the BACTERIA SIMPLY WON'T LIVE.

Acidity develops in the soil on your farm in one or all of three ways:

1st—The original rock or mineral elements from which the soil has decomposed were acid or of an acid-producing nature.

2nd—Rotting leaves and grasses, to the yearly influence of which your soil was subjected hundreds of years before put under cultivation, have made the soil sour—for rotting vegetable matter produces acid just as silage becomes sour when it decomposes.

3rd—The turning under of green and stable manures, in order to supply necessary plant foods, continually produces sour soil thru its decomposition. Poor drainage often aids this acid-producing process, but careful cultivation and rotation delays the process.

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seems to be to get the Food Administration to recognize the evil and ask the patriotic people of the country to pull out this worthless and dangerous plant.

A campaign of education is necessary to acquaint the people with the facts, to let them know the sort of alien enemy they have been harboring in their parks and yards. No scientist is sanguine enough to think that this move is going to solve completely the wheat rust problem, but those who are best

informed are convinced that it will do a great deal to lessen the toll which rust takes.

Action seems imperative at this time and properly directed effort will make the barberry plant an outlaw.

I want to take this means of acquainting you with the conditions and the opportunity to do something, not only for Michigan's wheat crop, but for the wheat crop of the great west as well, for the wind bloweth the rust spores where it listeth.

Some Phases of War-Time Horticulture

By I. J. MATHEWS

HORTICULTURE is subdivided into four main divisions, which are pomology, vegetable gardening, floriculture and landscape gardening. The last two named will, no doubt, have no particular stress laid upon them during the war, since they are regarded as luxuries rather than necessities and they contribute but very little toward the needs of a war-stricken country. War-time horticulture will concern itself largely with matters pertaining to the orchard or garden. This reasoning was enunciated by Professor C. G. Woodbury, director of the Indiana Experiment Station while speaking before a body of state extension workers.

Community Standards Essential.

Professor Woodbury called attention to the obvious fact that the production of quality fruit is one of the best ways of eliminating waste. The waste apples found in a hundred-acre orchard that has been tended, sprayed and cover cropped properly are not as many as can be found in a one-acre orchard that has been neglected. In many communities, the proper method of caring for orchard trees has spread from a single individual who has conducted his orchard along right lines. Is not an uncommon thing for the small farm orchard to produce a gross return of from \$200 to \$270 per acre.

Unless one has thought about the matter previously, the setting of a community standard seems to be a rather intangible something that may be possible but has never been put into operation. This is a long way from the truth. In fact, the standard of any article is made valuable through its adoption by a group of some sort. The fruit that is put out by the California Fruit Growers' Exchange, is highly salable, not because of the excellence of the fruit itself but rather because the growers have set up definite standards.

Similarly, a neighborhood in the west has established a reputation for muskmelons not because their melons are any better than the ones that are grown at home, but because the individuals in that community have adhered strictly to the standard set up by the community.

Another community in Maine, Aris-took county, has established a standard for potatoes and forthwith the county became famous and all the earth looks to Aris-took county to furnish it with seed potatoes.

Neighborhoods where fruit does well and can be grown in competition with real fruit growing sections owe it to their prosperity to get together and formulate definite standards. After a standard has been well considered and adopted, any individual who goes contrary to the standard ought to be moved out of the county free of charge.

Significance of War Gardens.

"The war garden has been a great social as well as economic influence," commented the professor. "When the talk was first started, I will confess that I did not take much stock in it for I felt that the products of these war gardens would not contribute any very large share toward the nation's supply. I am now convinced, however, that the gardens established by city folk and

factory laborers have made a mighty dent in the conflict against Kaiserism.

"A result that should not be lost sight of is even more striking. The social importance can not be overestimated. Last spring, many city dwellers seemed of the opinion that the farmer was rapidly accumulating enormous wealth. They believed that after the seed was planted, the gardener could wait for the cabbage heads to mature, the potatoes to ripen and the tomatoes to redden. Now they have, as well as a few bushels of produce, a better appreciation of the problems of production and of the farmer. They have learned that pests must be fought, that weeds must be eliminated and that all is not clear gold that gleams. Moreover, this influence has had a great deal to do with the promotion of better feeling between urban and rural people."

Utilization of Wastes.

More and more, the by-products of the orchard and garden must be utilized. No man can lay claim to genuine patriotism who allows apples to rot under his orchard trees when they can be turned into valuable vinegar or more valuable apple butters which may be used at home, thus liberating more concentrated foods to be sent to our representatives in khaki.

Professor Woodbury cited a case in Indiana where an orchard had not been cared for. When a market was being sought for these cull apples, the state market director was called on for help. They soon disposed of the total yield of 4,550 bushels at \$2,000. Attention was called to the fact that if an expenditure of ten cents a bushel had been made for sprays and spraying, the price would have been near \$10,000 for the same number of bushels.

The small home orchard has been heretofore the subject of much neglect. In the case of one small home orchard of less than a half acre, about \$20 was spent for spraying tools and about \$15 for spray materials. In the orchard were nine Grimes Golden trees and this year (first year of spraying) the apples yielded by these nine trees brought the owner \$156. The total income from this small orchard would pay for proper treatment many years in advance.

The Needs of the Hour.

The especial needs of the hour are for definite planting tables, including the distances the various vegetables should be apart. This year, such information was lacking and this lack took on different aspects. In one case, the rows of peas might be three or four feet apart while not more than ten rods over, in another garden the potatoes were planted in rows a foot apart. Detailed information should be supplied before another garden season draws on.

A definite cropping system for the garden should be prepared. This year, about Christmas time, people began to want to plant tomatoes. One gardener told me that he sold a number of thousand plants in February. He told the folks that it was still too cold for tomatoes but they insisted on getting the plants and so he let them have them.

The rush and urge of spring causes (Continued on page 138).

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The year 1918 will see a still greater number who will grow their own Flowers and Vegetables and will profit by their experience and plant only Quality Seeds.

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Maple Sugar Organization

Michigan Maple Sugar Makers' Association

FEW maple sugar makers of Michigan realize, we believe, that there is a state organization of the above name in existence, nor do they comprehend the objects of the same or the benefits which arise to members of such an association.

During the early months of 1917 this association was formed. The first meeting was held at the Agricultural College during the Farmers' Week. At that time the formalities of organization were completed and officers elected. The second annual meeting will be held at the Agricultural College during the week of March 4-7 when the Farmers' Extension Week meetings are in progress.

At that first meeting a great deal of enthusiasm was expressed over the possible benefits to be accomplished. Nor were expectations disappointed. During the year the membership has benefited from the following results:

1. Standardization of the product. Three grades of syrup were made and sold under label.
2. A standard label was adopted which placed the product of all members upon a dignified and reliable basis.
3. A scale of prices were approved which, more than anything else, effected a splendid adjustment of values. Each grade was given a certain value, which is accepted by the manufacturing members as just and fair.
4. The individual members market their product as they see fit either locally or through the regular channels. Last season the association acted as clearing house between consumer and the members of the association, with the result that the requests for syrup far exceeded the available supply. The fact that the association stood between the maker and the consumer gave added confidence to both.
5. The association acted as purchasing agent for its members. A uniform container and a standard label resulted.
6. A change is being introduced which will result in a further popularizing of the product through the retail channels. Smaller containers in attractive shapes and sizes will soon find their way into the trade.

Need for Maple Syrup.

Particularly fitting and proper at this time is the launching of a project which will produce a needed sweet in greater abundance.

Sugar is being withdrawn from the local markets—for use of the armies in preparation and abroad.

It then becomes a patriotic duty of every sugar bush owner to produce every pound of syrup or sugar he possibly can during this crisis. Combined with this duty will be the very agreeable return which will result from the labor for the sale of the syrup or sugar, for there can be no such thing as an over-production of maple products during the duration of the war at least.

Every owner of a sugar bush or wood-lot containing two hundred and fifty, or more, hard maple trees of twelve inches or more in diameter should apply for membership to this association and begin to plan on making maple syrup this spring. The season is not far distant, there is plenty of time to get ready if one acts at once.

How to Join the Association.

Write to the secretary of the Maple Sugar Makers' Association, enclosing the annual dues of one dollar, with request for membership stating your willingness to conform to the requirements of the association as regards: 1, grades of syrup and sugar; 2, weights, which are standard for the product and use of standard containers and labels, and 3, that you agree to submit samples of your product to the

secretary when they may be requested for test or check grading.

Prices.

The prices for the various grades of syrup for the 1918 season will be worked out on an equitable basis by the membership at the annual meeting in March.

If more convenient to see the county agricultural agent of the county in which you live, he will be glad to take your application for membership, and to assist you.

For necessary details concerning:

- (a) Equipment, evaporator, etc.
- (b) Instructions for making.
- (c) Prices of product and costs of marketing.

(d) Miscellaneous information. Write to the secretary, who will extend all the aid possible to those who really desire to "Do their All" in producing maple products.

F. H. SANFORD, Sec'y.

TREE-VACCINATION WORTHLESS FOR SCALE.

Claims that the insertion of a white capsule and a brown capsule, containing potassium cyanide and other substances, in the bark of fruit trees will kill scale on the trees, led to a fine of \$100 in the federal courts upon the makers of the "Fertilizing Scale Treatment," who pleaded guilty to the charge of misbranding and adulteration.

The department tested these capsules for several years on fruit trees to determine whether their use had any deterrent effect on scale and whether the material also actually fertilized the trees as asserted by the makers. The department found that the capsules did not kill the scale and did not fertilize the trees, but on the contrary, injured the tree, causing large cankers through which rot fungi may enter and finally destroy the tree. The department's tests were further supplemented and confirmed by the scientists of the department who visited many orchards in Maryland and Pennsylvania and studied the trees which had been treated by the agents of the company.

The "Fertilizing Scale Treatment" has been advertised and sold also as a remedy for other insects and for various tree diseases. Department specialists fail to find any reason to believe that the potassium cyanide and other substances inserted in trees in capsules have any value whatever, in controlling plant pests.

FRUIT NOTES.

Orchards properly sprayed and well managed have yielded anywhere from \$100 up to several hundred dollars per acre, net. Neglected orchards in the same neighborhood have yielded anywhere from nothing up to \$18 to \$20 per acre, hardly enough to pay interest on the valuation of the land and the expense of growing the orchard.

Some orchardists have hesitated to assume the expense of equipping for spraying, and of employing the labor necessary to properly prune the orchard. There is a fear that should the crop fail the orchardist would not be in position to pay for his spraying outfit and his spraying material.

REPAIR FARM MACHINERY

Now is a good time to repair the farm machinery, so as to have it in readiness for next spring and summer. Better results are usually secured when the spring work and harvesting is done promptly and it saves labor. The day or more spent in waiting for extras or in having a machine repaired when it should be in uses, causes considerable loss in crops as well as of time.—N. D. Ag. Ex. Sta.



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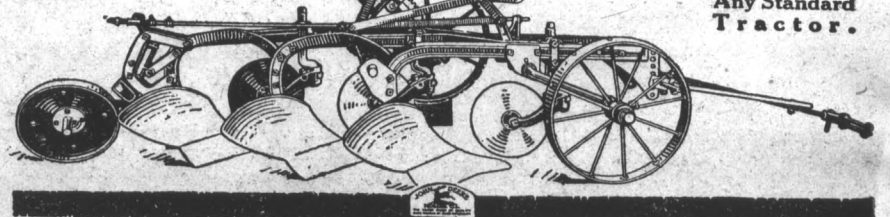
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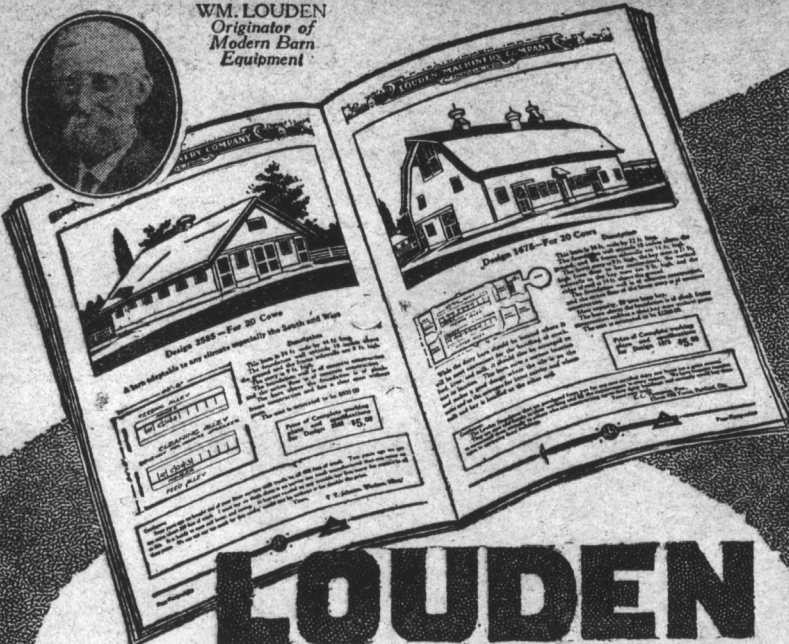


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Stabilizing the Milk Industry

To Michigan Milk Producers

It is with the keenest feeling of solicitation that I bring this message to you. Your state association has exerted itself to the utmost in the past for certain principles. Not in a single instance has your association striven for a price only, but everywhere and at all times we have been contending for that principle which must be the basis, the foundation for every stabilized business industry. We have contended that the business of manufacturing or producing liquid milk, and this is a manufacturing process, should receive the same consideration in the business world that the manufacture of every other product receives. We have and do still contend that the only thing that can stabilize this industry is to demand and receive for this product a price that equals the cost of production plus a small profit. No other business can long exist unless it has beneath it this irrevocable business principle. Had milk production in Michigan been reduced to the same business basis, so that there would have been no milk produced except by paid labor and with adequate income for capital invested, the production of this indispensable food product would have been so far reduced in the years past as to affect the size, the minds and the potentialities of the American people. This would have been one of the worst calamities that could have come to this nation. All of this is conceded and emphasized by the best medical and scientific authority of today.

Johns Hopkins and some of the other great universities of the country are making a special investigation concerning not only the food value of the dairy product, but also concerning the special quality that it possesses which is the most active of all healing agents for broken down or injured tissues of the human body. Milk is the only indispensable food product. There is some substitute for every other food product but no substitute for milk to the growing child. There is no other food product that contains all the elements necessary for the growth and development of a normal human body.

In our struggle to stabilize this industry we have had the most helpful cooperation of every agency to which we have applied. Our Michigan Agricultural College has given to us and to the world a most important service in getting us down to the basic principle of all manufacturing projects, namely, cost of production, and we no longer need to grope in the dark for this fact. We know today as we never have before, what it costs to produce milk. Those splendid and patriotic citizens composing the Michigan Milk Commission and the Detroit Area Milk Commission have given of their time and thought to assist us to stabilize this business by helping us to establish a price for the product that equals cost of production plus a profit. These very important steps have been taken in laying the foundation for your business but this is not all that must be done. It matters but little how much you know about your own cost and the price you can obtain if this other and greater element is ignored, namely, public demand. If there is not a sufficient demand for your product to stimulate output, then a surplus and a glut of milk will follow that will unstabilize the entire industry, and here is our next problem. This is the work that lies before us now. We must be builders. We must do constructive and not destructive work. Your association has never yet called or countenanced a strike. The buyers of your product are as fair-minded men as you are. Let us work with them and not against them. We are looking forward to the time when the producer, the distributor and

the manufacturer of milk in Michigan will unite in one great educational campaign to let the people know of the food value of milk. Many of the great distributors and manufacturers, and the people of some of the condensaries have signified a willingness to cooperate with us in this heroic and patriotic service. What will it mean to America if we, by our united effort in giving to humanity this indispensable food product, cause to be strengthened our mental, moral and physical manhood. We can hardly do a more patriotic service than this, but the producer should take the initiative. We must be the pathfinders. We must blaze the trail in this great pioneer service.

The press of the country is anxious to cooperate with us in this. Your secretary has talked with many publishers and they are ready to do more than their share in this great work. To accomplish such work we must use the newspapers. We must carry paid advertisements. In this way alone can we increase the consumption to meet the needs of the growing manhood. One or a few milk producers cannot accomplish this, but by united effort, each one doing his bit, we can raise a sufficient sum to enable us to do constructive pioneer work with profit to ourselves and blessing to the world. We are not asking you for a single dollar in advance, for it is conceded by the very best authority, by men with broad vision, that the work of the Michigan Milk Producers' Association has resulted in so raising the profits of your business to a level with other business industries so that you now obtain cost of production plus a small profit, and that the average income of all the cows in Michigan has been increased more than forty dollars per cow per year as a result of this organized effort.

That the stabilizing of this industry will greatly increase production is also conceded. Now we must increase consumption or there will be an overproduction which will demoralize the industry, and you will lose what has been gained. Your state association is already taking up this work. We are entering the field and planning the campaign, and we call upon you who are most vitally interested, not for all you have gained in the last year, forty dollars per cow, but we appeal to your manhood, your patriotism and your fairmindedness. We appeal to you members of Farmers' Clubs, the Gleaners and the Grange, and to all who would be in any community a dynamic force for the molding of public opinion. We appeal to you to take up the slogan of the Michigan Milk Producers' Association, education, legislation and cooperation, and urge your people to join us in this educational campaign.

Funds.

By vote of the delegates at the last annual meeting of the association, the membership fee was fixed at one dollar for the state association and whatever you choose for your local dues. Forward your funds promptly. There is a large amount of funds remaining in the hands of local officers. No one thing is more conducive to dissatisfaction among your members than this. Send your dues to this office at once and get your receipt and let your members know about it. In some sections the milk producers are forwarding one-half cent for every hundred pounds of milk sold. We hope to see this become the practice over the state in future.

Many automobile manufacturers are putting five per cent of their total sales into an advertising campaign. They pay for every printed line concerning their product in the newspapers. We have no right to expect of

(Continued on page 140).

Hinge-Door Silo

The Man Who Climbs the Silo always votes for the Hinge-Door. It's SAFE and EASY to Operate. The one silo forming a perfect ladder. Convenience and safety—NO RISK. Doors always in place. Lock operated by one hand—any boy can operate it. Keeps ensilage perfectly next to door. Prevents freezing in winter and drying out in summer. Will not sag, freeze in, bind nor stick. Circular FREE. Agents Wanted. LANSING SILO CO., Lansing, Mich. Formerly Woods Bros. Silo & Mfg. Co.

Strawberry Plants That Grow

“PROGRESSIVE” Best Fall-Bearer; Also Standard June sorts, including our new seedling, “Collins.” Raspberry, Blackberry, and Grape Plants in Assortment. Catalog Free.

C. E. WHITTEN'S NURSERIES, Box 14, Bridgman, Mich.

Strawberry Plants

1000 for \$2 Everbearing at \$1 per 100. All kinds at other prices. Raspberries, grapes, everything to plant. Free catalog of bargains. Write the ALLEGAN NURSERY, Box 208, Allegan, Mich.

STRAWBERRY PLANTS

And Other Small Fruit. It is easy to make \$300 to \$500 per acre on our superior Michigan grown Plants, they grow sure and fast, are big producers. Write today for free catalog. Bridgman Nursery Co., Box 3, Bridgman, Mich.

STAWBERRY PLANTS

Everbearing and common varieties. Full line of Raspberry, Blackberry etc., at very reasonable prices. Write for catalog. J. N. ROKELY, R. 6, Bridgman, Mich.

WHOLESALE PRICES.

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

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

Wet Beans

We buy them. Send exact sample in tin can. W. L. IRELAND & CO., Grand Ledge, Mich.

Pick Your Own Beans

with one of our Lohr & Wildt bean pickers. Price \$5.50 Vassar. Why pay thirteen cents a pound for having your beans picked. Write The MILLER CO., Vassar, Mich.

Onion Seed our specialty, all kinds of tested fresh seeds. We sell by weight and pay your postage. Catalog free. ALLENS SEED HOUSE, Geneva, Ohio

Mention the Michigan Farmer when writing Advertisers



THE Suction-feed principle insures clean skimming—no matter whether you turn fast, medium or slow. The

SHARPLES

Suction-feed Cream Separator is the only separator that skims clean and delivers cream of even thickness at varying speeds. Write for catalog.

Address: Dept. 18

The Sharples Separator Co.

West Chester, Pa. Chicago San Francisco

Write for Silver's New Book on Silo Fillers

Increase Your Dairy and Stock Profits. 1918 catalog tells how “Silverized Silage” brings maximum yield from dairy cows—puts weight on fat stock. “Ohio” Cut silage is better feed—cut clean—packs air-tight in the silo—avoids air pockets—mold-proof. Get the facts about Silver's “Ohio” Silo Fillers and Feed Cutters, used by Experiment Stations everywhere. 88 styles and sizes. Catalog FREE. The Silver Mfg. Co., 390 Broadway, SALEM, OHIO.



MAKE YOUR BIKE A MOTORCYCLE

at a small cost by using our Attachable outfit. FITS ANY BICYCLE. Easily attached. No special tools required. Write today for bar-gain list and free book describing the SHAW Bicycle Motor Attachment. Motorcycles, all makes new and second-hand, \$35 and up.

SHAW MANUFACTURING CO. Dept. 225, Galena, Kansas.

A SELLING PLAN.

One of our neighbors related an interesting experience in selling peaches last year. The Early Blakes ripened so rapidly that about seventy-five bushels were too soft for shipment before they could be picked. The owner of the orchard suggested to the young man who ran the business for him that he sell the peaches at the local village, where the housewives bought soft peaches at twenty-five cents per bushel. This, however, did not seem the best move under the circumstances, and the young man resolved to try a different selling plan.

The peaches were loaded onto a wagon, and an extra man hired for a trip to an interior town where peaches were not grown. Some of the fruit was sold to farmers along the road, as the home town was left farther and farther away. When the destination was reached, a crowd of boys was seen on the village four corners. The amateur salesman now showed his tactfulness. Selecting a half bushel of sample peaches, he placed them in reach of the crowd, and invited them to help themselves. Each boy grabbed two or three peaches, and many of them ran for home, returning soon with the message, "Say, Mister, my ma wants to buy a bushel of those peaches!"

One sale made another, and the bulk of the load was sold in this one village, a day's haul from the shipping point where peaches were a glut on the market. One housewife took a bushel, and later her husband met the salesman on the street, and unwittingly ordered a bushel and a half more. When the house was pointed out, on receiving directions for delivering, the peach peddler explained that he had already sold a bushel there. "No matter," said the husband, "we will take another bushel and a half." Other sales covered orders for a peck, or ten cents worth, and in these cases generous measure was given. The price quoted was \$1.50 a bushel, but the proceeds from the miscellaneous sales figured a cash return at the rate of \$1.40 per bushel.

The salary of the extra man was \$1.75. It will thus be seen that the venture was highly successful. To be sure, such a selling place has its limitations, but where the conditions are favorable, and the product to be marketed is not too excessive in amount, the direct marketing of a perishable crop to a town not supplied with the commodity is worth considering.

The plan for selling cherries, peaches, plums, etc., to farmers in interior towns who do not produce these goods on their own farms, and who do not find anything but oranges and lemons on sale in their local stores, will be carried out more extensively this year by this same amateur salesman. He is planning to drive away for a week during the time when fruit is selling at a sacrifice, or rotting on the trees for lack of a market. He will have his fruit picked and shipped by rail to successive villages along the line, and market the perishables at favorable prices to farmers along the road, in much the same way as before. The rail shipments will simply keep him going from day to day without the long haul home each night for a fresh load.

Benzie Co. E. H. BROWN.

TO AVOID CAN SHORTAGE.

Shortage of tin for commercial purposes threatens to make the dairy industry more and more dependent on the present supply of cans. The Food Administration recommends that all shippers of milk and cream locate and bring into use as soon as possible all cans along the highways and byways of traffic and keep them in good condition by thorough drying after washing, and by careful handling.

Managers of dairy establishments and shipping stations are asked to discontinue the practice of loaning cans. Experience has shown that loaned cans as a class are especially subject to rough treatment and are consequently short-lived.

Dairymen who ship cream—the Food Administration suggests—can market as much butter-fat as formerly in fewer cans by skimming the cream richer. Ten cans of 35 per cent cream contain, for instance, as much butter-fat as 17 cans of 20 per cent cream. The richer cream leaves more skim-milk on the farm and makes shipping charges considerably less per pound of butter-fat.



GET the idea?

Ten acres, properly fertilized by daily or frequent applications of FRESH manure with a New Idea Spreader pays as well as 15 acres under the old system of hauling, piling and spreading-by-hand.

Can we prove it?

Well! Here are Experiment Station figures—judge for yourself!

The chemical value of a ton of fresh stable manure is approximately \$3.31. Of manure that has lain in the barnyard or been piled on the field, leaching and fire-fanging, it may be \$2.55—probably less.

Now, there you are! Take any number of tons you please as a proper dressing for the land—10 or 15 or 20 per acre; multiply by the difference in value between fresh and "weathered" manure; add the extra labor of piling and hand spreading and you'll be forced to agree with us. And remember, these figures are based on low-priced chemicals. Take present war-time prices of nitrate and potash and see where you come out!

NEWIDEA

Registered U.S. Pat. Off.

The Original Wide Spreading Spreader

is making thousands of hundred-acre farms pay like a hundred and fifty acres. It is adding 30% to 50% to the profits of thousands of farmers and will do the same for you if you'll let it.

The New Idea spreads so finely that you can manure growing corn and distributes fully 7 ft. wide—outside its own wheel tracks. It was the first spreader to do this and the most successful. Other machines imitate but fall short of New Idea performance.

The New Idea has a solid bottom and a never-fail chain conveyor that brings every scrap of manure to the beaters. Loads fully 30 inches high where others carry but a level box full. Spreads at will 3, 6, 9, 12 or 15 loads per acre. Low down, light draft and backed by a broad guarantee against breakage from any cause within one year.

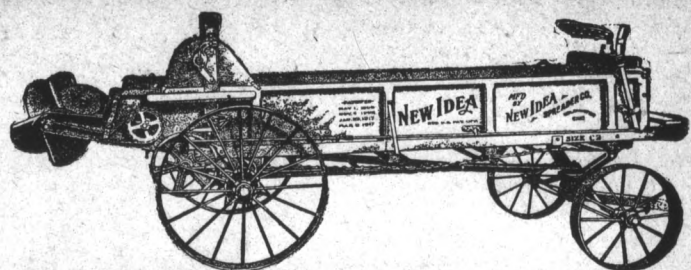
Ask your dealer to show you the New Idea Spreader. If he hasn't it, let us tell you where you can see it.

NEW IDEA SPREADER CO.

"Spreader Specialists"

MAIN OFFICE AND FACTORY:—COLDWATER, OHIO

Branches: Harrisburg, Pa., Columbus, O., Indianapolis, Ind., Jackson, Mich., Chicago, Ill., St. Louis Mo., Minneapolis, Minn., Omaha, Neb., Kansas City, Mo., Guelph, Ont., Canada.



"NEW IDEA"

=15 Acres Without



SEND FOR THESE FREE BOOKS

They're well worth having. Our catalog tells all about the famous New Idea Spreader, and "Helping Mother Nature" reads like a story. You never saw as many dollar-saving facts collected in so small a space before or told in so interesting a way. You'll surely like "Helping Mother Nature"—send the coupon now.



NEW IDEA SPREADER CO.,
Box 534 Coldwater, Ohio
Please send me without obligation your New Idea Catalog and FREE BOOK—"Helping Mother Nature."
Name..... P.O..... County..... State.....

GRASS SEEDS AT WHOLESALE

To Make New Customers

SAMPLES FREE

Highest Quality—Re-cleaned Seed—Government Tested.

Guaranteed as represented, sold subject to Government or State test and your approval. We want no customers to keep seed unless they are convinced they have saved money and have a decided bargain. That is the way we sell our seed. We leave it to you to decide and give you 30 days' time for testing. Don't pay two profits on Grass Seed. Write to headquarters and get the best at right prices and save money. Also have some high-testing seed corn. Write us today.

BEFORE YOU BUY SEEDS, GET OUR SAMPLES AND COMPARE OUR QUALITY AND LOW PRICES

Bargains you can't duplicate on all Field and Grass Seed of all kinds. Be sure to investigate before you buy. It means dollars to you. We are the largest growers and dealers in Seeds selling direct to the Farmer and can offer the biggest, and best bargains. Our customers will testify to this fact. Get our 116-page catalog and be convinced. Write today for special prices and samples of seed you wish to buy. It will mean money to you. Write

A. A. BERRY SEED CO.
BOX 731 CLARINDA, IOWA



Duplex FARM Tool Grinder

Pays for itself in one season

Grinds your plow shares, cultivator points, axes, sickles, knives and all tools. Edge or side of wheel can be used. No Engine too small for it. Will last a lifetime. Special attachment for grinding discs furnished free. Write for circular.

Duplex Mill & Mfg. Co., Box 408, Springfield, O.

CLOVER

Buy now and save money. Wonderful value for the price. Higher later. Our stock pure Iowa Grown re-cleaned and tested. Also Timothy, Sweet Clover, Alfalfa and other farm seeds at wholesale prices which mean big savings. Write today. Don't buy until you get our reduced prices on all grades, and catalog.

A. A. BERRY SEED CO., Box 131, CLARINDA, IOWA

SCOTT'S FIELD SEEDS

Our seeds are selected and cleaned to be WEEDLESS and free from dead grains. They will go much farther than ordinary field seeds, nearly always adding enough to the crop to pay for themselves. Samples and catalog including "How to Know Good Seeds" free. Write today. O. H. SCOTT & SONS CO., 56 Main St., Marysville, O.

Mention the Michigan Farmer when writing Advertisers

MORE CORN

From the same acres

BETTER CORN

On each acre

No Additional Expense for labor
is the natural result from using
THE TOWER CULTIVATOR

Nature's Way



BEST for all cultivations and under all conditions. Ease of operation makes them ideal for boys.

The TOWER excels all others for the reason that it cuts all the ground between the rows a depth of two to three inches and destroys none of the ROOT SYSTEM and gets all the weeds. Clinton Heaton, Rosholt, S. D. reports double the yield and 75% matured against 10% by the neighbors using the style that grandfather thought so much of. Tower Tools Decrease the cost of labor twelve to twenty percent; they increase yield 8 to 17%—important items to the farmer. They cost no more than similar tools that are less effective. Read our "Reasonable Reasons Why Every Corn Raiser Should Use Tower Tools;" one copy free on receipt of your address. If your dealer cannot furnish these cultivators with the name "TOWER" on the tongue, advise us and we will quote you f. o. b. your town. Address

The J. D. Tower & Sons Co.
37th St. Mendota, Ill.

Does a Clean Job— Saves a Lot of Work

That's the story of "SCALECIDE," the premier dormant spray. It will absolutely clean up San Jose scale—will also control apple canker, collar rot, bud moth, case bearer, aphid, pear psylla, etc. No other spray will do all this. "SCALECIDE" can be put on in one-half the usual time—a great saving in labor and you get through on time. Pleasant to handle. Sold on Money Back Basis.

Send today for booklet No. 14.
B. G. PRATT CO.,
M'Fg Chemists
50 Church Street
Dept. 22 New York



FREE THIS BIG STRAWBERRY BOOK

describes the KELLOGG WAY of growing and selling strawberries, also tells how to make one acre do the work of two. Get this book and learn how you can easily make \$500 to \$1200 Per Acre each year growing Kellogg Strawberries the Kellogg Way. It pictures and fully describes the world famous Kellogg Everbearing Strawberries also the wonderful KELLOGG STRAWBERRY GARDENS. Stop paying high prices for common strawberries. Get this book and learn how to supply your family with delicious strawberries the year round without cost and make a big cash profit besides. Write today—the book is FREE. **R. M. KELLOGG CO., Box 575 THREE RIVERS, MICH.**

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.**

RHODES DOUBLE OUT PRUNING SHEAR
Cuts from both sides of limb and does not bruise the bark.
Made in all Styles and Sizes
All shears delivered free to your door. Send for circular and prices.
RHODES MFG. CO.
615 S. Division Ave. GRAND RAPIDS, MICH.

PLANT MICHIGAN TREES

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.

Celery City Nurseries Box 18, Kalama-zoo, Mich.

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

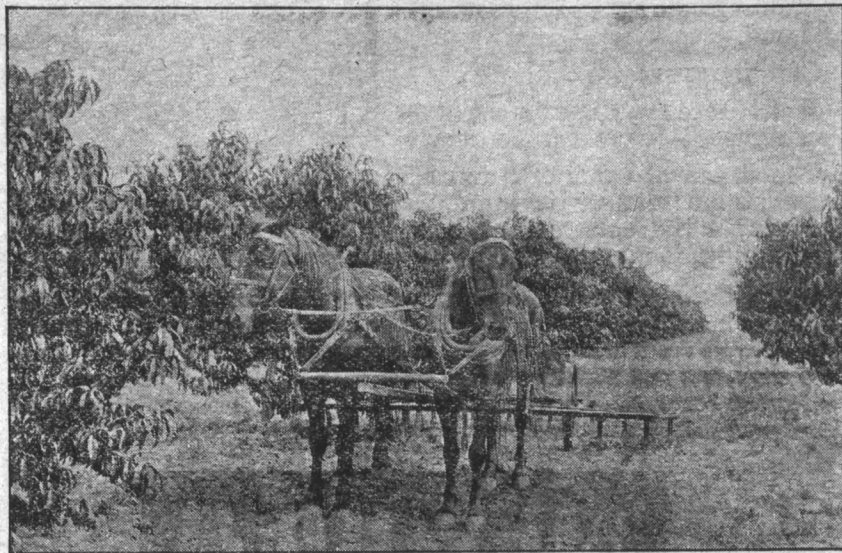
The Control of Peach Leaf Curl

IT is now approaching the time when fruit growers must look forward to the annual spraying campaign. If they are to profit by the experience of the last few years in regard to peach leaf curl, it would be well to determine the necessary measures to take to keep this disease down as much as possible. Perhaps a brief description would make the control measures clear.

Peach leaf curl is a disease which manifests itself early in the year on the new leaves. The symptoms are very plain and well known. Most of the damage, however, occurs from the distortion and early fall of the leaves. Although this will seldom cause the death of the tree, there is an undeterminable loss of vigor which it would be well to remedy. Ordinarily, the disease confines itself to the foliage, al-

curl is favored by cold, wet weather when the leaves are opening. Areas near large bodies of water, having slow-drying dews and cold misty springs, are most liable to be subject to epidemics of the disease. Among varieties, the Elberta peach seems to be the most susceptible. As to the amount of loss, Pierce says that the annual loss in the United States from this disease is about \$3,000,000. This is caused to the greatest extent by the loss of vigor due to shedding of leaves, and also to the weakened conditions for going into winter. This last condition in some cases will make winter-killing possible.

It is the wintering habit of the fungus which makes this one of the easiest of fungus diseases to control. The spores which carry the fungus over winter are found lodged in the bud



Thorough Spraying and Cultivation Are Essential in Peach Growing.

thought in many cases it is found on the twigs and fruit, producing "clubbing" of the twigs and reddish blotches on the peaches.

The prevalence of the curl in a particular orchard is largely dependent upon the locality and weather. Leaf

scales, and for this reason it is important to spray before the buds swell in the spring. Failure to do this very thing has been the cause of practically all inability to control this disease in the past. If once the bud scales begin to open, it is then too late, as the fungus spores will have germinated and will already be in the new leaves which are ready to unfold.

As to the kind of spray to use, either Bordeaux mixture or winter-strength lime-sulphur will do the work efficiently. However, there are two disadvantages to the use of Bordeaux mixture, viz.: (1) copper sulphate is a costly material at the present time, and (2) Bordeaux mixture will not control the San Jose scale, when this insect is present. For these reasons, concentrated lime-sulphur should be used, and applied, as stated before, while the buds are still perfectly dormant. If the San Jose scale is not present, the standard solution may be diluted 1:15 with excellent results.

Probably the greatest drawback to early, and hence efficient spraying, is that of muddy orchards. Often when it is the ideal time for spraying, the season is too early to draw a spraying outfit through the orchard, owing to the deep mud. There seems to be just one way to overcome the condition cited above. Fall spraying will accomplish the desired results, but is unfavorable in that pruning will take place after the spraying in most cases. In New York and Ontario where spraying experiments of this kind have been conducted, it has been proved that curl leaf spraying has been just as effective in the fall or mild days of December as in the early spring, especially as the treatment for the San Jose scale is practically as effective at that time. However, in most cases it will be found more opportune to do the spraying in the spring.

If fruit growers will continually bear in mind the nature of this leaf curl disease and realize that it is easy to control completely, if only the prop-

er precautions are taken in regard to fighting it, there will be no more severe epidemics in the future. Furthermore, even the small outbreaks and minor losses can be eliminated by the proper application of the simple control measures.

Van Buren Co. J. T. BREGGER.

WAR-TIME PHASES OF HORTICULTURE.

(Continued from page 134).

many gardeners to plant many of the early spring sorts of vegetables. They load up heavy on lettuce and radishes and then when it comes time to put in the real staples, they are tempted to leave the lettuce and radishes in the ground, thereby curtailing the space that can be used for crops that will materialize.

Methods of storage ought to be conveyed to those who have stuff to store. They should learn that potatoes and cabbages can be safely pitted, they ought to know that squashes, pumpkins and sweet potatoes should be kept in a dry room while beets, carrots and apples may be stored in a cool, damp storage room.

In summarizing, Professor Woodbury noted again the social phase of the war gardens, called attention to the needs of the hour along storage and cropping lines and mentioned the fact that the surest way to end the war is straight ahead, not forgetting that "an army fights on its stomach" and that cull apples with attendant fresh meat do not make first class munitions of war. All wastes should be utilized. Even the rotten apples should be saved for the Kaiser.

Indiana. I. J. MATHEWS.

Begin at the top in pruning a tree to secure a low, broad-spreading branching system, with open center, to admit sunlight and air from above. Do not remove strong lower limbs if they can be given sufficient light from above. Aim to secure bearing branches throughout the main body of the tree. If the tree is shaded by too much growth at the top, the inner and lower twigs will weaken and die instead of bearing fruit.

PROGRAM OF STATE HORTICULTURAL MEETING.

The mid-winter meeting of the Michigan State Horticultural Society will be held at South Haven, February 5-6. As indicated by the program below, the meetings will be of great value to the practical fruit grower.

Because of the unusual conditions which prevail, the fruit grower should avail himself of all sources of information. Don't forget to attend this meeting if interested in fruit growing.

Tuesday Morning, 10:00.

Address of welcome, Jas. E. Chandler, City Attorney, South Haven.
"Orchard Fertilization," W. C. Eckard, Assistant County Agent, Van Buren County.
"Pruning," Prof. C. P. Halligan, M. A. C.

Tuesday Afternoon, 1:30.

Question box, in charge of H. A. Lurkins, County Agent Berrien County.
"Michigan Orchard Laws and their Enforcement," L. R. Taft, East Lansing.
"Control of Orchard Aphids," S. L. Simonton, Department of Agriculture, Washington, D. C.

Tuesday Evening, 8:00.

Patriotic address, "Our War," Ex-Governor Chase S. Osborn, Sault Ste. Marie.

Music will be furnished by the South Haven High School Orchestra.

Wednesday Forenoon, 10:00.

Question box.
"Apples for Michigan," R. J. Coryell, Birmingham.
"The Labor Situation for 1918," A. B. Cook, Owosso, Federal State Farm Labor Specialist.

Wednesday Afternoon, 1:30.

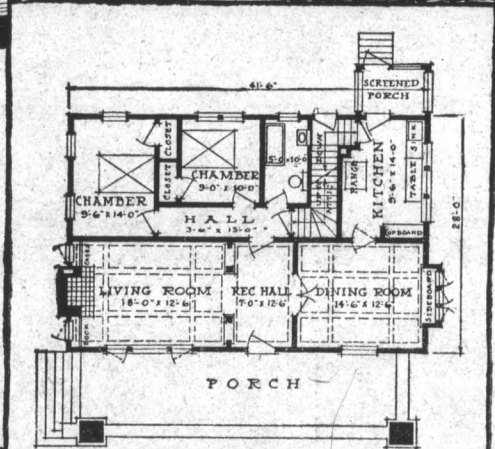
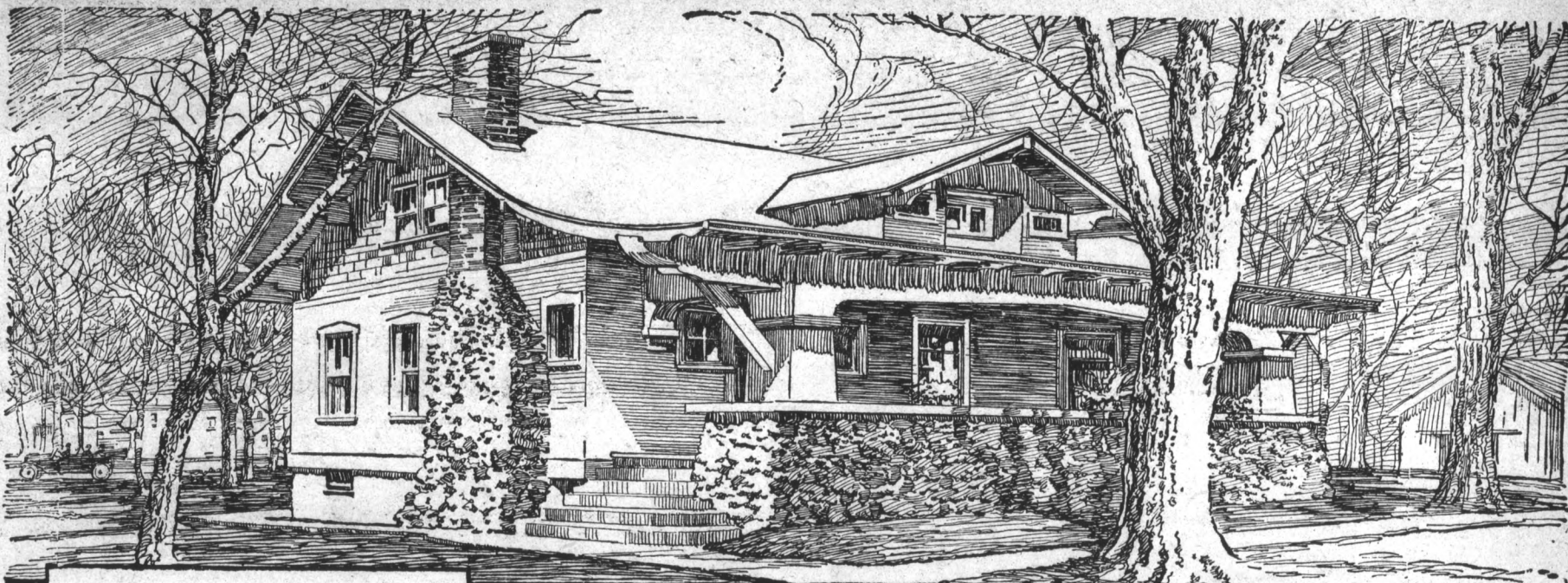
"Making Use of the School Boy," E. V. Root, Paw Paw, County Commissioner of Schools.
"The Canning Factory and its Relation to the Fruit Industry of Western Michigan," George Friday, Coloma.
"Pears for Michigan," Chas. A. Pratt, Benton Harbor.



Women
whose sensitive
nerves often yield
to coffee's harmful
stimulation, appreciate the change
resulting from a
ten days' trial of
**INSTANT
POSTUM**
INSTEAD OF COFFEE.

Such a delicious
drink makes the
change easy and
better nerves make
it a permanent one.

"There's a Reason"



Build Without Disappointment. Build Now

SEND for your choice of our free home books. Study the plans carefully and select the one that suits you and your family. Get the help, too, of the service the Curtis dealer can render you. Go to him and show him the plan you have selected. He will co-operate with the contractor you have selected to build your home. He will talk to you regarding materials. Important as are such services as these in solving the vexing questions confronting you, perhaps the Curtis dealer's greatest value to you will be in his recommendation of



Build Now—It's Good Business

In war, as in times of peace, there are three essentials to life—food, clothing, and shelter. People who are sufficiently fed, properly clothed, and well-housed, do more and better work. And to win the war, we must produce more.

If your family should have a better home, why not build it now? You can now buy over twice as much building material with your farm products as you could four years ago; Curtis Standard Designs cost no more now than special woodwork cost "before the war"

Home Books Free

The home shown in this advertisement is "Rockdale," selected from "Better Built Homes," Volume III, a book containing thirty homes costing \$3150 and more. "Better Built Homes," Volume II, contains thirty homes costing \$3150 and less.



Fill in and mail
the coupon
today

1866 CURTIS WOODWORK

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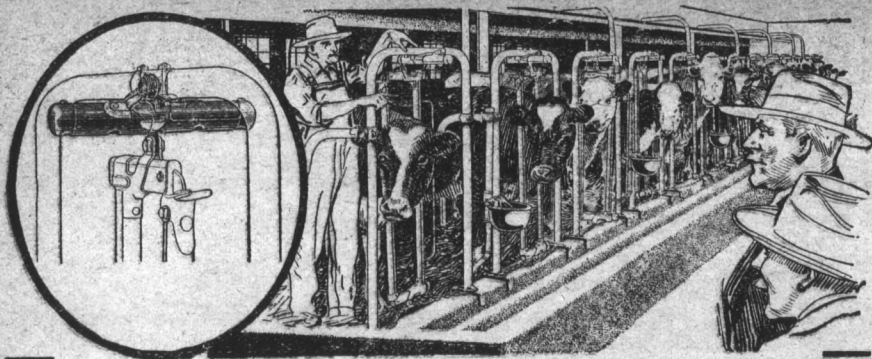
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Cold Weather Dairying

By I. J. MATHEWS

ORDINARY winters, the special problems which are injected into dairying by virtue of the cold weather do not make any very greatly different methods necessary. However, the long cold spell which now embraces the whole country carries with it such extremes that dairying must be changed to correspond. No longer is it possible to leave cows out for a spell of exercise during the middle of the day, no more can the water be sufficiently heated in an hour during the morning, and there is a great tendency to close the barn up too tightly at the expense of not providing sufficient fresh air so that the cows can burn up the food they are given.

Out-of-Door Exposure Dangerous.

Under ordinary conditions, the cattle can usually be allowed four or five hours a day out in the yards or running about the straw stacks. Bitter cold, however, makes this a dangerous practice. In the last few weeks, some cases of frozen teats have been reported.

apply a little more labor in ridding the stables of waste than a lot more feed. Stabling means a little more labor on the part of a single attendant, undue exposure to cold means a loss equal to the wasted heat of a single cow multiplied by the number of cows in the herd.

Warm Water Cheapest.

The water must be warmed either inside the cow or outside. If the water is warmed inside the cow, the fuel is the feed we give her, while if the water is warmed outside, it is done with coal or wood. Wood and fuels are high in price and so is feed, but as a water warmer, wood and coal are much cheaper than is feed under present conditions.

It is not only a matter of economy of resources but often a matter of health with the cow. Serious results often follow when cows are allowed to fill up on feed and then go to the tank and drink several gallons of ice cold water. Of course, care should be taken



Although a General Farmer, Mr. C. A. Bullock, of Lapeer County, Finds Economy in the Use of the Milking Machine and Litter Carrier.

ed and a number of frozen ears have been observed. This winter will make more earless and tailless cattle than has been caused by the cold weather in all ten years before it.

This winter it is wise to avoid turning out those cows whose tails are wet through soaking in the liquid of the gutter. This is causing some trouble hereabouts since the moisture freezes so rapidly with the consequent result that the tail as well is frozen.

Much of the heat that is given off by the digestion of the food supplied is wasted when the dairy cow is kept too long out in the cold. The real purpose of turning the cows out is to give them water and exercise and where water is supplied in drinking cups, the out-door time merely means the supplying of exercise. The remarks of the owner about some dairy barns would lead one to believe that the cows are turned out so that the labor of cleaning the stables may be lessened. This is not a good reason for it is much cheaper to

en that the tank heater does not endanger the rest of the buildings, but the tank heater is a mighty essential dairy adjunct this cold weather and should be kept going enough to keep the ice out of the tank. In some cases it is desirable to drive a long post into the ground beside the tank and connect up three or four lengths of stove pipe with the tank heater. This not only protects the buildings but it gives added draft to the heater—a feature which is quite essential on many mornings.

Fresh Air Necessary.

Through all the cold weather, it is well to keep ever in mind the fact that the animal body is like a stove. In order to burn and give off heat, the stove requires both fuel and fresh air containing oxygen. Withhold the fuel and there is no heat; likewise when the draft is moved, the heat is regulated. Should the draft be closed, the fire immediately dies down and will even go out.

Likewise the animal body is but a heat machine in which feed, both hay and grain, is the fuel. Air for burning with it is taken in through the lungs. Now the tendency is, during these cold nights, to close the barns or sheds too tightly thus keeping out fresh air. It is well to remember that not all warm air is stale; neither is all cold air fresh. Any arrangement which allows the air to sift gradually or diffuse into the stable without causing a direct current is a good way. Coarse burlap nailed or tacked over a few openings will provide sufficient ventilation and will, at the same time, admit fresh air which is so vitally essential to the furthering of the milk-giving function.

Drafts in cold weather are dangerous to sensitive dairy cows but fresh air is

(Continued on page 146)

STABILIZING THE MILK INDUSTRY.

(Continued from page 136).

the press anything else, but you, the milk producers of Michigan, have been given space in the papers of the state worth many hundreds of dollars in the last eighteen months. It is up to us now to move forward. All that has been accomplished in recent months will be lost unless we move forward into the next trench and occupy new positions. We must advertise the food value of milk. Every man who owns a cow in Michigan should be a member of the Michigan Milk Producers' Association. Write this office concerning your needs and assure us of your co-operation.

R. C. REED,

Sec'y Michigan Milk Producers' Assn.

Dairy Problems

By COLON C. LILLIE

GROUND RYE FOR DAIRY COWS.

I am writing to you for a little information about a ration for my cows. At present I am feeding oats and rye. I take two bags of oats and one of rye ground together. I give them a good liberal feed of it. They are doing well on it. But a dairyman told me the other day to watch out for the rye, for it was very bad for the unborn calves. I want to ask you if there is anything in it? Of course, rye is more expensive than oats, and if it doesn't help the ration any I will feed all oats. I have no corn and can't buy any at present. I might say that I am feeding silage and a pound of cottonseed meal twice a day and corn stover and oat straw, what they will eat.

Midland Co.

R. W.

Ground rye is not considered a good dairy ration. In the first place, cows don't like it any too well; they won't eat as full a ration of ground rye as they will of ground oats, for it isn't as palatable. Again, there is some danger from the cause you mention. Sometimes there is a fungus growth on rye, "ergot" of rye, which tends to produce abortion, but that is not always present, only occasionally. We simply run the risk of something of this sort when we feed very much rye. However, rye is quite extensively fed in some of the countries of Europe as a dairy food or at least it was before the war, but I certainly think it would be a good plan for you to sell the rye and use ground oats in place of it, or wheat bran or wheat middlings in its place. I think it would make a better ration. I think your cows would do better and, as you say, at the present price of rye you can cheapen the ration some. As you have no clover hay I would suggest that you use wheat bran to mix with your ground oats. Mix them about half and half and then feed enough of this grain with the two pounds of cottonseed meal that you are feeding to give each cow about a pound of the grain to every four pounds of milk she produces in a day.

DAIRY PROSPECTS.

I have a farm and a good herd of grade Guernsey cows. While they are good cattle, I find that at the present high price of grain, hay and labor, and on the other hand, the low price that the government has fixed for butter, that is 43c per pound, I fail to find any profit. Moreover, there is no prospect of grain being any lower for some time to come, and if the market for butter should advance in proportion to the price of grain, hay and labor, many people would buy and use substitutes for butter, so after looking the dairy proposition squarely in the face, I have concluded that I had better let the dairy cows go and develop a beef herd. I wish you would take this subject up for discussion. I would like to know what the dairymen think about it, and I would like to find out whether or not there can be something done so that the dairy herds would not have to be sacrificed.

Van Buren Co.

J. H. C.

I think J. H. C. is too pessimistic on the dairy question. It seems to me that the present price of dairy products will warrant a man in using the present high-priced feed and paying for high-priced labor. The New York price for butter is now fifty-two cents a pound and above.

The only fixing of butter prices by the Food Administration is for storage creamery butter at New York and Chicago. The price in New York was fixed at forty-seven cents a pound for the remainder of the season, which ends about the first of April, and at Chicago at forty-five and a half cents until February 1, after which date it will be advanced a quarter of a cent a pound on the first and fifteenth of each month until all creamery butter has been released from storage. This semi-monthly advance is designated to compensate for storage costs. The establishment of stable prices for storage butter at the two leading butter centers of the

country has been done to prevent speculators from obtaining too wide a margin of profit on stock that was put in storage at a time when butter was cheaper than at present. These figures, therefore, do not refer to current offerings of butter from creameries or dairies.

Milk is selling at condensaries at \$3.00 and \$3.25 per cwt. and a man with good dairy cows I think can make as much profit now as he ever could. The fact is, that a pound of butter today will buy as much or more feed than it ever did before. One hundred pounds of milk will buy as much or more labor than it ever did before. Dairy products are higher in proportion, it seems to me, than beef. This last fall and winter beef has been lower than it should be compared to hogs and dairy products. The reason, we are told, is because the country has been marketing much of its reserve cattle stocks owing to the extreme drought in the great grazing sections of the southwest. I look for a greater scarcity of beef this year and next year than last.

And so it would seem to me that it wouldn't be good judgment for a man who has a good herd of Guernsey cows to change from dairy cattle to beef cattle under the present conditions. It always has been the history of the markets that dairy products were the first to advance in price in good times and the last to go down when we had the reverse, and I believe that this will continue to be the case. Now that beef prospects are better than ever before many people are going to do just what J. H. C. proposes, and change over to beef, and the probability is that in the course of two or three years there will be a scarcity of dairy products and a surplus of beef, though it may be that the beef resources of the world have been so much reduced that this will not be brought about as soon as usual. At any rate, I should think this matter over carefully before I ruined a good herd of dairy cows by attempting to change them into a beef breed. My idea would be that you had better sell these cows for what they are worth now if they are good ones, and buy beef cattle rather than to attempt to change them to a beef type by a process of breeding.

With regard to people getting into the habit of eating butter and dairy substitutes. There may be something in this; we can't tell exactly. The present high price of butter is driving many people to eating oleomargarine, and whether this will continue when normal times come again, I don't know, but the fact is that the world is taking all the butter that is being produced at the present time and paying its price, and why will it not continue I believe the dairyman is always safer from a business standpoint than the producer of beef because he has a more stable business; it is not so much affected by adverse condition, and he can produce food more economically.

CASH VALUE OF CORN SILAGE.

How many tons of ensilage will a silo, 10x36 feet, hold? How much a ton is good ensilage worth, where it can be bought and fed right out of the silo?

Van Buren Co.

C. W. C.

A silo 10x30 would hold about sixty tons of well settled silage.

It is difficult to state the cash value of corn silage. There is no market for it; you can't sell it only as you get a special customer, and so the only value that one can place upon it is a comparative value, that is, its food value compared with other foods.

In analysis, corn silage is more nearly like timothy hay than any other common food stuff and so its value is generally compared with that of tim-



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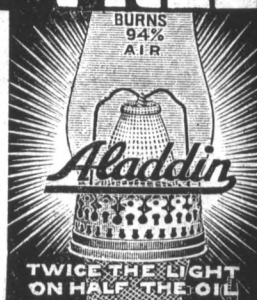
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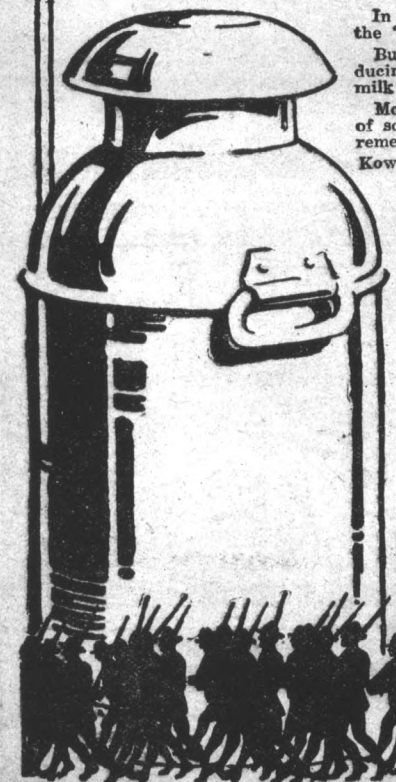
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othy hay and is usually figured at one-third the value of the market price of timothy hay. Hay is very high-priced at the present time, about \$20 per ton; this would make good corn silage worth \$7.00 or \$8.00 per ton, and I think that I would be willing to pay that much for good silage if I had to buy timothy hay to take its place for the silage has a value that cannot be expressed in the analysis. Its succulency is worth considerable, especially where one has no other succulent food.

MOLASSES IN A DAIRY RATION.

I would like your advice as to feeding dairy cows for milk with the following feeds: I have corn silage, mixed hay, molasses and cottonseed meal. Which would be the better, good wheat middlings at \$40 a ton or oats at 75c a bushel, or would you mix the two? Also I can get bran for two cents a pound. I am getting \$3 per cwt. for milk. I have some oats but I think I want them for the horses, or would it be better to feed them to grade dairy cows and buy something else, or more oats, for my work horses in the spring? And in what proportion would you feed these feeds?

Calhoun Co.

A. H. W.

Molasses is a highly concentrated, carbonaceous food, hence would be classed along with corn meal so far as food nutriment are concerned. I have only fed molasses myself in a very limited way. Most animals like the sweet taste and will eat more of a poor quality of roughage if it is sweetened. For instance, if a person wanted to feed considerable straw he could get the cattle to eat more straw if he would dissolve the molasses in water or reduce it by adding water and then sprinkle it on the straw. Molasses is really a nuisance to feed in a stable; it sticks all over the mangers and all over the animals' noses, but it can be fed in a ration to take the place of a food rich in carbohydrates with considerable satisfaction if one will put up with the inconvenience of feeding. I would say the best way to feed dairy cows molasses would be to reduce it to a very thin syrup and sprinkle on the silage or the hay.

I wouldn't recommend over two pounds of cottonseed meal per day for each cow and I would feed this separately so that you know just how much each cow is getting. Wheat middlings and ground oats are splendid feeds. You can get along without the middlings if you have plenty of oats. With two pounds of cottonseed meal per day in the ration you need only ground oats to make a balanced ration and this would allow you to feed some molasses but if you wanted to feed wheat middlings there would be no objection. I would mix the oats and middlings, say equal parts by weight, and feed the same number of pounds of the mixture as I would of ground oats. There was a splendid crop of oats, taking the whole country into consideration, last year, and probably you will be able to buy this grain on the general market any time during the year although they are pretty high-priced. If it would bother you to get oats at any time you could substitute wheat middlings and the cows will get along nicely on a feed of wheat middlings and wheat bran mixed half and half by weight in place of oats.

Of course, I would feed all the hay and all the corn silage the cattle would eat up twice each day. I would sprinkle a pound of cottonseed meal on the silage. You can have a small dish that will hold just about a pound and after the silage is placed in the manger, this pound of cottonseed meal can be sprinkled on top of it. This, I think, is the very best way to feed the cows. Now, feed them enough ground oats, or oats and middlings, with the two pounds of cottonseed meal to make a pound of grain for every four pounds of milk the cows produce. Perhaps some of your cows will eat a larger ration of grain than this and give you a profitable return. Perhaps now and

then one will not take quite so large a ration. Only just a little personal experience in feeding them will determine this, however.

SUNFLOWERS FOR ENSILAGE.

I see in the Michigan Farmer where they are making ensilage out of sunflowers. Do you know anything about them, and do you think they would be all right here? If they are all right it would be quite a boon to this country if the seed isn't too high in price. They will grow here, as they have been grown for chicken feed. Our last three corn crops haven't been much good. Fodder is about all we get. Why would it not be all right to mix sunflower seed with ensilage corn and plant it that way? Would there be any chance of getting seed corn in your locality? Otsego Co. J. M. Y.

Of course, sunflowers will make ensilage. Any plant that grows will make ensilage if put into a silo when it contains the right amount of moisture, or, if too dry, water can be added so as to make the right amount of moisture. It will heat up and ferment sufficiently to make ensilage so that it will keep almost indefinitely in a good silo.

As to the wisdom of growing sunflowers for silage, I don't believe that it is practical. The corn plant, when made into silage, does not furnish a balanced ration. It contains too much carbohydrates, (fats and sugars), in proportion to the protein and of course, if we grow some other crop richer in protein and put it into the silo at the same time, it will make the mass or the combination more nearly a balanced ration. Sunflowers, especially the seed, are very rich in protein and if they were grown and run through an ensilage cutter at the same time as the corn and mixed in this way it would make a better quality of ensilage so far as food nutriment are concerned than corn alone. However, there are other plants that would assist in balancing up the corn in the same way that can be grown more economically than sunflowers. Soy beans, for instance, would balance the ration as well as sunflowers and could be grown and put into the silo, I should think, at very much less expense. Therefore, I don't believe it would be practical for one to advise the growing of sunflowers for silage. If one had a crop of sunflowers, it might pay to put them into the silo in preference to attempting to handle them in any other way. I think one could make a success of growing soy beans anywhere that sunflowers could be grown.

Seed Corn.

While a large per cent of the corn in Michigan did not mature and is not fit for seed, I think there will be no trouble in finding a sufficient amount of seed corn if one goes at it early enough. Many people who had corn that matured are saving a large part of the entire crop for seed, knowing that there will be a scarcity of this product. Because of this very situation almost every person who will have more seed corn than he can dispose of in his home community will be advertising. So watch the advertising columns of this journal from now on.

FOOD VALUE OF ALSIKE CLOVER.

Please tell the value of alsike clover as feed for dairy cattle. Montcalm Co. F. E. W.

The food value of alsike clover does not differ materially from that of red clover. As a matter of fact, there is not enough difference in the food value of the two plants to make any difference in compounding a ration; one would take the place of the other. Alsike makes just as good hay when it is cured under just as favorable conditions. Cattle like it just as well. But in their growing habits, red clover and alsike vary considerable and a farmer would take this into consideration, whether he grew alsike or red clover. For instance, alsike will grow in soil that is too moist and too sour for red

clover to thrive in. Alsike clover grown alone is much more inclined to lodge than red clover because it has a weak or reclining stem. It is a pretty good practice to mix some alsike clover in with some red clover in seeding down, for on much of our soil a portion of the field will be more adapted to the growth of alsike clover than of red clover; consequently, one is reasonably sure of getting a larger yield of hay if he mixes them than he would to grow either one separately. They do not mature just at the same time, yet the difference isn't enough to prevent cutting both plants at the same time without very much lessening in the value of either as a food. We most always mix a little alsike clover seed in with the red clover seed for the reason stated above.

VARIETY OF SOY BEANS FOR SILO.

Having read your article in the Michigan Farmer on soy beans, I would like to ask you what kind of soy beans you plant. I planted the Black Mammoth soy beans with my corn last year but they were too late to mature. When the corn was ready for the silo the beans were just beginning to bud. The vines were four feet tall but no beans on them. I also planted a few of the Idosans broadcast about three weeks later. They ripened all right and had plenty of beans on, but the vines are so small. Saw two fields last year of the Idosans in corn and the vines were so short that what few the binder cut off would drop out of the bundle. I would like to hear what kind of beans you raise as I would like to get something better if there are any.

Gratiot Co.

L. S.

You don't want a variety of soy beans that will get dead ripe for ensilage any more than you want to let corn get dead ripe for ensilage. I would rather have the soy beans just nicely in blossom than to have them so ripe that the pods would shatter when you would lose part of the beans. Yet, you want to avoid both extremes by using a medium variety which I have found better to plant with silage corn than either a late or an early variety.

Last year we used the medium yellow and it was quite satisfactory. They grew to quite a good height and the pods were nicely filled when the beans were ready to go into the silo. That is about the right condition for soy beans. You don't want the beans hard so they will shell for they won't be properly masticated by the cattle.

If the pods have formed and partially filled I think the plant contains as much nutriment as it ever will contain. If you don't get quite as much nutriment in the pod itself this nutriment will be in the stalk and leaves and by cutting them early you get all the nutriment there is in them. One trouble is, if you let soy beans get too ripe, the leaves all fall off and you lose them. I would rather have a late variety just nicely in blossom or in pod to put into the silo with the corn than to have an early variety that gets too ripe.

There are so many varieties of soy beans that one can hardly recommend any particular one. There are early, medium and late varieties of the black and yellow kind and I think the medium, or even the later variety is best for silage.

A DAIRY RATION.

I have corn fodder, containing considerable soft corn, and hay. My cows freshened last fall.

Barry Co.

P. Q.

If you feed corn fodder, ears and all, of this soft corn, to dairy cows, it ought not to be fed when the ear is in a frozen condition. If you could run this corn through a cutting-box and leave it in a large compact pile, it would heat up and thaw out, then it is safe to feed it, but a cow will not do well when fed this frozen corn. If you can't cut it and leave it in large quantities so that it will heat up you could cut it in small amounts and put it in a big, tight box

and pour boiling water over it and leave it until it has softened and thawed out. Thus you can get splendid results.

There is nothing better to feed in connection with this as a grain ration than oil meal or cottonseed meal. If you have no grain at all and must buy all of it, I would feed two pounds of oil meal once a day and two pounds of cottonseed meal once a day on this steamed corn fodder, and then give them what hay they will eat up clean. I think this would make you a splendid dairy ration and is as cheap a one as you can get with the present price of food products.

HOLSTEIN SALE AT EAST LANSING.

The following sales of Holstein cattle were made at the auction held in connection with the recent live stock meeting at the Agricultural College.

Consigned by G. F. Baldof & Son, Dimondale, Mich.

Elzevere Colantha Butter Boy de Kol, \$195, A. J. Robinson, Mason, Mich.

Consigned by H. D. Box & Sons, Lansing, Mich.

Ianthe Wayne De Kol, \$320, Dr. Wm. K. Wilson, Lansing, Mich.

Consigned by C. I. Brunger, Grand Ledge, Mich.

Heifer calf, \$75, Chas. D. Brannan, Williamston, Mich.

Heifer calf, \$75, Chas. D. Brannan, Williamston, Mich.

Consigned by M. H. Daniels & Son, Okemos, Mich.

Selma Laundry Girl, \$265, J. B. Branson, Lincoln, Nebraska.

Heifer calf, \$140, Chas. Merriman, Deckerville, Mich.

Heifer calf, \$110, A. N. Louchs, Charlotte, Mich.

Heifer calf, \$220, E. B. Griffin, Angola, Ind.

Selma Pietertje Laundry Girl, \$200, Clifford Jordan, Charlotte, Mich.

Heifer calf, \$140, Chas. Merriman, Deckerville, Mich.

Consigned by F. S. Jenkins & Son, Lansing, Mich.

Bessie Netherland Pontiac, \$295, J. B. Branson, Lincoln, Neb.

Maude Netherland Pontiac, \$355, J. B. Branson, Lincoln, Neb.

Heifer calf, \$150, Rossman Bros., Lakeview, Mich.

Lady Washington Hartog, \$625, W. F. Schilling, Northfield, Minn.

Consigned by F. W. McKim, Lansing, Mich.

Mable Export King Korndyke, \$230, James Wright, Maple Rapids, Mich.

Pauline Johanna Fayne 2d, \$235, I. C. Grill, Hubbardston, Mich.

Queen Model Korndyke, \$300, Dr. Wm. K. Wilson, Lansing, Mich.

Consigned by Michigan Agricultural College.

College Colantha Canary, \$420, J. B. Branson, Lincoln, Neb.

College Belle Johanna Fayne, \$250, J. B. Branson, Lincoln, Neb.

College Lassie Margolyn and calf, \$500, J. B. Branson, Lincoln, Neb.

Belle Mutual Fayne, \$300, Hunter Bros., Northfield, Minn.

Colantha Segis Margolyn, \$225, Chas. Heeg, Howell, Mich.

Stella Canary Segis, \$425, W. F. Shilling, Northfield, Minn.

Consigned by B. B. Perry, Leslie, Mich.

Houttje Pietertje Toppie 2d, \$180, Dr. Wm. K. Wilson, Lansing, Mich.

Consigned by Chas. A. Wilson, Okemos, Mich.

Heifer Calf Sire 119794—dam 218192, \$130, Geo. E. Fisher, Plymouth, Mich.

Heifer Calf Sire 119794—dam 218193, \$160, Fern C. Kinne, Albion, Mich.

Consigned by C. W. Wilson, Mason, Mich.

Snowball Albino De Kol 2d, \$170, Jas. Wright, Maple Rapids, Mich.

Snowball De Kol Queen, \$165, Clifford Jordan, Charlotte, Mich.

Snowball De Kol Queen 2d, \$225, Dr. Wm. K. Wilson, Lansing, Mich.

Consigned by Frank Young, Lansing, Mich.

Espanore Bonheur Elzevere, \$200, E. B. Griffin, Angola, Ind.

Espanore Daisy, \$180, Geo. E. Fisher, Plymouth, Mich.

Under ordinary conditions the udder of the cow contributes but a small number of germs and these have little effect upon the milk. Occasionally, however, cows or even herds are found where the udder content is high and the effect upon the keeping quality of the milk pronounced. Further information is necessary before the true significance of this factor can be accurately estimated.

Save on coal bills with IDEAL heating

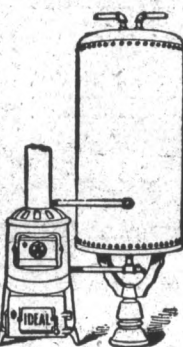


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Play safe and get your fertilizer stored in your own barn. War conditions have decreased the supply of fertilizer, and increased the demand. Late orderers may be disappointed.

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Order Spring Fertilizer NOW

Make certain of your supply and at the same time do your part toward relieving railroad congestion.

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Soil Improvement Committee
of the National Fertilizer Association

Postal Telegraph Bldg., Chicago The Munsey Bldg., Baltimore



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The Live Stock Meeting

Beef Section.

The interests of the beef breeds were sponsored in the convention by delegates of the Michigan Shorthorn, Hereford and Aberdeen-Angus Associations, though with them, as with the dairy-men, the weather kept away all but a few of the most determined. There was, however, a fairly generous turnout of Shorthorns for the sale of animals of this breed. The Shorthorn men gave up a part of their session to "chipping in" for the purchase of a helper, which the association later sold for \$400, the proceeds going to the Army Y. M. C. A. and Red Cross funds.

Just an informal gathering was conducted by the members of the Michigan Hereford Breeders' Association. They had hoped to be able to put on a sale, but failed to find conditions ripe in Michigan for the effort. During the coming year, however, they expect to do a little missionary work in this direction, particularly with a view to awakening Michigan's Hereford breeders to the necessity for better conditioning of their stock for sale purposes.

An address by Alexander Minty, of Ionia, president of the Michigan Aberdeen-Angus Breeders' Association, was a principal event in the gathering of this organization.

"The first step in stimulating interest in cattle in Michigan at this time," he said, "is to point out that the quickest solution of the growing labor problem is by increased beef production on our farms. One man can handle more acres of a farm under beef raising than under almost any other form of farming."

"World demands, plus a serious labor problem, is bringing the country back to beef production. With changing conditions on the range and the added depressing droughts of the past three years, the production of this beef, from start to finish, must largely come from the corn belt. Michigan, while not such a corn producer as some of the states to the south, can raise silage in even its northern extremities, while its grasses and hay are ideal for cheap beef production with minimum labor."

Horse Section.

Addresses by Dr. C. M. Campbell, of Manhattan, Kansas, and Dr. Judson Black, of the Michigan Veterinary Board, were the big things in the convention of the Michigan Horse Breeders' Association, which as usual was presided over by the veteran Jacob DeGeus, of Alicia.

Dr. Campbell commented pointedly upon "The Farm Horse Situation." "Each year," he told the convention, "finds us raising an increasing number of farm horses, the annual colt crop reaching into millions, but only a few thousand are bred and fed with sufficient thought and care to insure the development of really high-class farm horses."

"Possibly one of the many reasons for this deplorable state of affairs is the fact that most producers are raising horses for service on their own farms and giving very little attention to the cost of production, cost of maintenance, and amount of service rendered. Such producers fail to appreciate the difference in efficiency between different types of horses, the difference in the cost of labor rendered by horses of different types, and continue year after year to breed their mares with little thought as to the kind of horses they will raise, thinking only of the horse power needs of their farm in terms of numbers rather than of efficiency."

Another reason for the fact that our farm horses are not as good as they ought to be in the scarcity of good, useful sires. Approximately half the stallions standing for public service in this country are grades and scrubs, and half the pure-breds ought never to have been used as sires. While it is true

that the kind of sires found in a community depends largely upon the demands of the horse-raising public, yet frequently the public is ready and willing to pay for the services of a good sire, but unfortunately many purchasers of public service stallions know little about horses and less of the ins and outs of the horse business, but imagine there is a lot of money in standing a stallion for public service. Usually such buyers are very decided in their opinions and I know how strong is the temptation to "unload" when such an opportunity presents itself, but breeders of pure-bred horses who are genuinely interested in the permanency and stability of a profitable horse business can well afford to exert a greater effort to place better sires in the hands of those who stand stallions for public service.

"Another reason for much of the carelessness and lack of interest in the kind of horses raised is a feeling more or less prevalent in many localities that there is no market demand for good heavy horses. Two reasons in particular are largely responsible for this feeling. 1, the general lack of authentic information on the part of the producers regarding the horse supply and the motive power demands and needs of the country today; 2, the shortsighted policy of horse buyers in the country in attempting to belittle the value and need of heavy horses in the city and on the farm. In my state this effort has been most persistent, and unfortunately it has had a rather harmful effect upon the farm horse situation."

Doctor Black told of favorable progress in Michigan with the stallion law.

"Stallion dealers are coming to know," he asserted, "that Michigan has a stallion law and that they can no longer make this state a dumping ground, as many have been doing in the past. I just recently saw an advertisement of a stallion dealer in which he was offering stallions for sale that would pass the Michigan inspection. This shows they are taking notice."

"Take papers now are encountered rarely, if ever, due no doubt to the campaign against them by personal conduct, correspondence and publicity through our reports."

"The question of transfers, which was formerly such a bugbear, is also working out nicely."

Sheep and Swine Sections.

The gatherings of the Michigan Sheep Breeders' Association, and the Michigan Swine Breeders' Association were hardest hit, perhaps, of any by the vagaries of the weather. The sheepmen devoted a major part of their session to dwelling upon the ideal conditions Michigan affords for the development of the sheep-raising districts, particularly upon the vast areas of cut-over lands in the northern parts of the state.

THE RECENT SHORTHORN SALE.

Following is a list of the offerings sold at the Shorthorn sale held at the Michigan Agricultural College in connection with the annual live stock meeting:

Baroness Hudson 6th, calved December 13, 1916, George Doster, Doster, \$160.

Lavender Maid 203303 and B. C., calved June 2, 1913, John Hisler, Charlotte, \$325.

Lucerns 465677, calved August 10, 1914, D. S. Bristol, Royal Oak, \$170.

Lorna K 620826, calved February 27, 1917, V. M. Shoemith, Bailey, \$165.

Royal Sultan 620824, calved December 16, 1916, W. H. Campbell, Alpena, \$155.

Roxie 514663, calved November 4, 1915, Chas. Findlay, Albion, \$170.

Bonnie Lad 620823, calved June 5, 1917, Jed Waldo, Grand Ledge, \$205.

Golden Prince 601574, calved October 1, 1916, C. Richman, Doster, \$300.

Bray's Sharon 485101, calved April 28, 1915, Ollie Cross, Plainwell, \$235.

Pioneer Ruby 485105, calved April (Continued on page 146).

Feeders' Problems

Cottonseed Meal for Steers.

On account of the poor corn season my ensilage is not as good as usual and is poorer yet by my breaking off some of the largest and ripest ears for the hogs. Now I am feeding this to beef cattle (weighing around 1000 lbs. each), one bushel each to a feed, giving two feeds a day, and one feed of hay (mostly timothy) and giving each three pounds of 36 to 41 per cent cottonseed meal per day. I have no other grain to feed them and would like to get them fat as soon as possible. Now, how much cottonseed meal dare I give each per day?

Manistee Co.

W. E. R.

It is a different proposition to feed fattening steers heavily on cottonseed meal than it is to feed a herd of dairy cows. The steers are going to be kept only for a short time and you can feed them heavily on cottonseed meal if you feed it carefully with good results and with very little danger of injury.

The trouble in feeding cottonseed meal heavily to dairy cows when they are kept from year to year, is that, sooner or later, if this feeding is kept up it injures the reproductive power of the cows; they are not apt to get with calf, they are more apt to abort, I think, and then cottonseed meal fed regularly for any considerable length of time to animals doesn't tend to keep them in good health. It is too constipating. It is not nearly as good as oil meal for this purpose and so one must be careful in feeding this to dairy cows that are to be kept from year to year. But in fattening steers you can feed it by carefully increasing the feed up to several pounds per day. Steers weighing 1000 pounds, I think by carefully increasing the feed a little at a time you could feed five or six pounds and even more, of cottonseed meal per day without any injury and you will get splendid results in increased growth of your steers.

Molasses for Horses.

Will you please advise me how much feeding molasses I should feed a horse per feed, also if they should have it daily or once or twice a week? I also want to feed some to my milch cows. I am feeding them ensilage, ground oats and hay. How much molasses should I feed them per day?

Shiawassee Co.

D. C. C.

Molasses may be fed to all kinds of stock. All of our domestic live stock like sweets, and yet they, as well as people, can get along without sugar. In the process of digestion starch is turned to sugar so that animals as well as ourselves can get along without sugar if it is necessary.

Feeding sugar direct assists in digestion but, of course, sugar is so expensive that we cannot afford to feed it to live stock only in the form of cheap molasses. The only trouble in feeding cheap molasses is that it is so sticky, it gets the mangers in a very bad condition and also sticks to the lips and mouths of the animals and they will slobber it all over themselves and you will have a condition that makes a man nervous.

I think the best way to feed it is to reduce it with water so that it can be applied with a sprinkling can and sprinkle it on the hay or straw or on the ensilage. In this way it doesn't stick to everything and, of course, animals get the sugar just the same. If it is fed in this way there is little danger of over-feeding. If molasses is fed in excessive quantities it is too laxative but no harm comes from feeding two or three pounds per day to an animal if you want to feed that much.

Molasses works nicely in feeding the hogs because it can be dissolved in the slop and in that way doesn't make everything so stick yand nasty.

Oil Cake Meal.

I have two tons of oil cake meal. Have you had any experience in feeding this feed? I am told that it was for hogs only, but I want to feed it to steers in place of corn meal.

Ottawa Co.

G. T.

This meal is a by-product in making linseed oil from flaxseed. Flaxseed is

very rich in oil and this oil also is very valuable in a commercial way, being used in making paint. It is a splendid preservative of wood and is readily absorbed and adheres to the surface of wood so that it is of considerable value for these purposes. After the oil is taken out by pressure, the oil cake remains as a food for live stock. Sometimes it is very coarsely ground or broken, leaving it in the form of particles about the size of a hickory nut, and is called oil cake. When used for food in this country this cake is ground finely and is known as oil meal.

It is one of the best protein foods that we have to feed in connection with the ordinary roughage and grain on the farm. It is rich in protein and besides, it has a beneficial effect on the action of the digestive tissues of the alimentary canal. It is a mild laxative and it is considered by all stock feeders as a splendid conditioner, in fact, almost a tonic. Animals kept in the pink of condition when they are fed a small amount of oil meal. Their hair is bright and soft and they usually have a splendid appetite. Many people feed horses a little oil meal in the winter time because of the stimulating effect. Its large food value makes it a splendid food in any ration that contains an excess of carbohydrates.

To feed with corn or cornstalks, there isn't anything that can be purchased that would be more beneficial as a food. My judgment would be that this would be better than cottonseed because cottonseed is constipating in effect. Besides oil meal is almost as rich in protein as cottonseed meal, and in addition it has in a degree this medicinal property. I certainly would feed the oil meal. I think you can get very satisfactory results in feeding it.

COLON C. LILLIE.

CARE OF THE FEET.

Every farmer should understand the important relation existing between the feet of his horses and their value to him as working machines. He should watch them carefully and exercise every precaution possible to keep them in first-class condition.

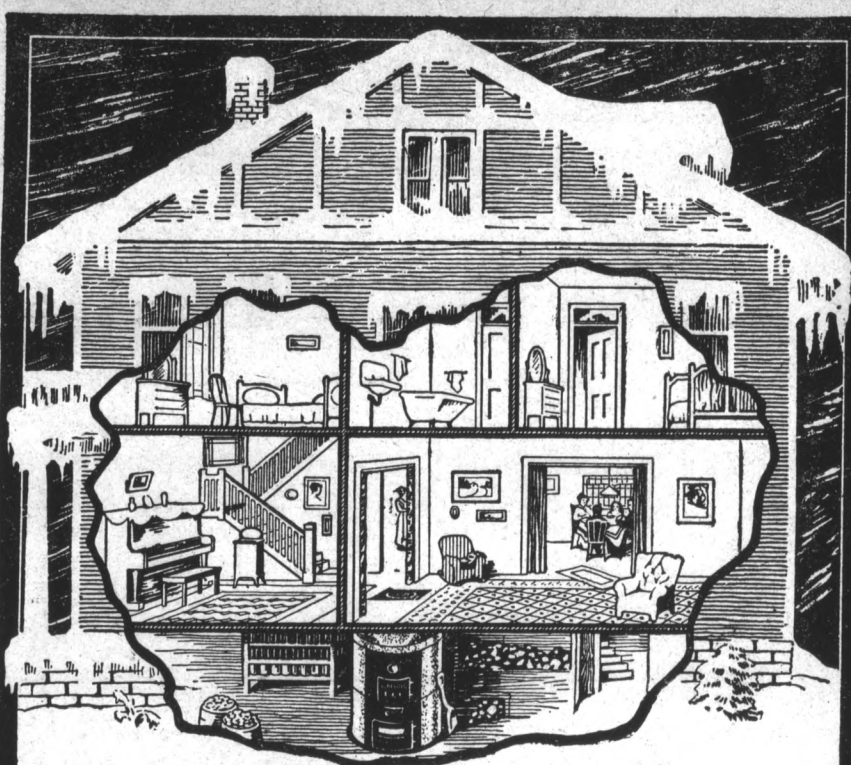
A horse's hoof corresponds in a general way to the toe and finger nails of human beings. It is made up of a corneous material that protects the more sensitive parts of the foot from injury. Like the finger nails of some people, some horses' hoofs have a tendency to dry out and become hard and brittle, thus breaking and cracking, while others are tough and resistant to wear. The value of the animal is largely determined by the kind and character of his feet or hoofs, and no two horses have hoofs exactly alike.

On an average, a horse's hoof grows about one-third of an inch a month, some faster and some slower. The hind hoofs grow faster than the fore hoofs, and unshod ones grow faster than those that are shod. The toe of the hoof will grow down in from nine to twelve months, depending on its length, the quarter in from six to eight months, and the heel in from three to four months. Some hoofs grow irregular and must be given attention from time to time. In unshod horses and colts it is often necessary to trim off the uneven edges with a knife and rasp to prevent breaking and cracking. Colts should always be given plenty of exercise on dry ground so their hoofs will wear off even. Foul stables will do much to ruin a young horse's feet.

Horses are shod principally to protect their feet from wear and to increase their efficiency as beasts of burden. Shoes should be renewed as often as necessary and they should be designed to fit the particular needs of each animal. A good farrier is one who thoroughly understands the anatomy of the foot and knows how best to correct its imperfections.

Indiana.

W. F. PURDUE.



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Yes, it's just as possible in your home as it has been in fifty thousand others. You, too, may have every room comfortable with **balmy**, healthful heat, reaching every corner by Nature's method of circulation—and all through only one register! It isn't necessary to clutter up your house with pipes, overheat your cellar and incur big bills—not when you can get the

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The Original Patented Pipeless Furnace

It can be set up in a day, without inconvenience to you, and will make your home so comfortable for the rest of the winter you will be well repaid.

Your house will be uniformly warm; your cellar will be just right for the storage of fruits and vegetables. Your fuel bills will be less than with stoves that heat only a part of your house.

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The Caloric is the Original Patented Pipeless Furnace—the result of the study of competent engineers to solve the heating problem in the most satisfactory way. That they have succeeded is proved by the fact that the number of Calorics sold on an absolute guarantee of satisfaction is three times greater than any other pipeless furnace.

The cause of this satisfaction lies in the patented and exclusive principles that distinguish the Caloric from all others. It is not a pipe furnace provided with an extra casing, but a complete revolution in furnace building designed exclusively for pipeless heating.

See The Caloric Dealer

Our dealer will show you what these principles are, and you will then see what Caloric quality means, why it always succeeds and why imitations cannot accomplish the same results. Then you will be in no danger of buying an inferior article, with all its disappointments in later months. You will see why the Caloric leads everywhere.

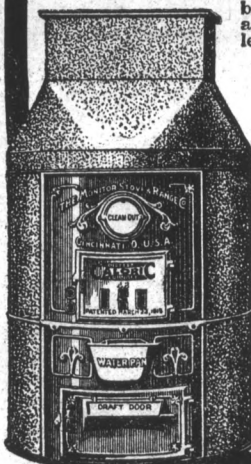
If you don't know the Caloric dealer, let us send you his name and our book, "Progress," which tells all about pipeless heating. Sent free on request. Get it and study the question.

THE MONITOR STOVE & RANGE CO.

Established 1819 99 Years of Service

205 GAST STREET

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Build a Guernsey Silo

Glazed Hollow Tile. Eight inch walls and special air-space construction prevent frozen ensilage. Interlocking tile clamps and steel reinforcements make proof against wind and storm. Fire and acid proof. Write today for catalog and special proposition. **Guernsey Clay Co., 908 Fletcher Trust Bldg. Indianapolis, Ind.**



CLEAN, disease free Northern Grown SEED POTATOES for sale. John V. Harrison, Sec'y, Manton Potato Grower's Ass'n, Manton, Mich.

It Pays to Dehorn



Dehorned cows give more milk; take less room; are gentle and easily handled. Steers fatten quicker and are harmless—they pay better. The new **Improved Keystone Dehorner** removes horns quickly, cleanly and safely. Shear has sliding cut; no bruising. Easy to dehorn. Money-back guarantee. Send for booklet. **M. T. Phillips, Box 126, Pomeroy, Pa.**

HEAVES

Money Back if it Fails

A horse with heaves can't do its full share of work. Cure the heaves and you have a horse worth its full value to work or in money. Send today for **FLEMING'S TONIC HEAVE POWDERS** (\$1.00 per package). Satisfactory results or money back. Fleming's Vast-Pocket Veterinary Adviser. Helps you distinguish heaves from other ailments. Write for the Adviser. It is FREE. **FLEMING BROS., Chemists, 252 Union Stock Yards, Chicago, Ill.**

BEAN

Seed. 100% purity, sample and price on request. **MAYERS' PLANT NURSERY, Merrill, Mich.**

When writing to advertisers please mention **The Michigan Farmer.**

THE OLD RELIABLE

SCHUMACHER FEED has been the "stand-by" and standard of dairy stock feeds for so long, it needs no special endorsement as to its merit. It has to its credit more World's Champion Long Distance Milk and Butter Records (as the carbohydrate portion of the ration) than all other feeds combined.

Such cows as Finderne Pride Johanna Rue, a Holstein World's Champion Milk and Butter Cow; Sophie 19th of Hood Farm, a World's Champion Jersey; Dolly Dimple, a World's Champion Guernsey; Auchbrain Brown Kate 4th, a World's Champion Ayrshire; Jean Duluth Beauty, a World's Champion Red Poll, and 22 other World's Champions made their records with SCHUMACHER as the base of the ration. Of these 27 World's Champion Records, over 20 were on yearly production.

SCHUMACHER FEED

The secret of the exceptional merit of SCHUMACHER is in the fact that it supplies the energy, stamina, "back bone", vigor, "stand-up-ability" so vitally necessary for long milking periods—yearly production.

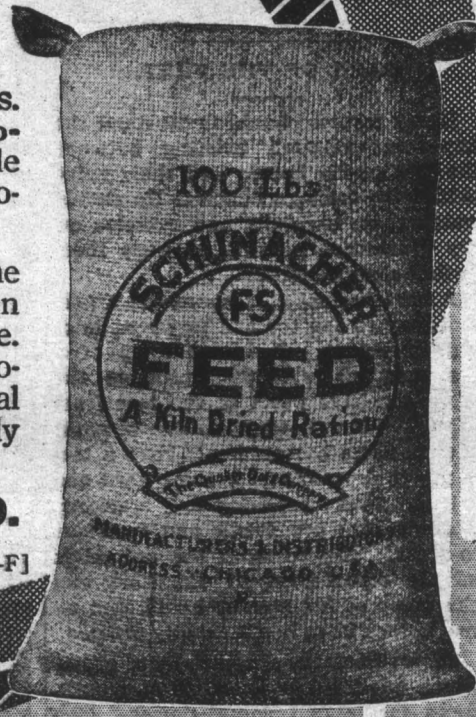
It is without doubt the most scientifically proportioned carbohydrate ration on the market, due to its quality, wide variety and palatability of ingredients. Fed with BIG "Q" DAIRY RATION, our new high protein feed, you have a mixture which can be made suitable for any cow, in any lactation condition, which will produce results hard to beat.

For hogs, horses and cattle SCHUMACHER takes the place of any grain ration, being a balanced ground grain ration, suitable to feed with any kind of roughage.

It saves the waste of feeding whole grain—produces much better results at less cost. A trial tells. At dealers. If yours can't supply you, write us.

THE QUAKER OATS CO.

ADDRESS
CHICAGO, U. S. A. [66-F]



COLD WEATHER DAIRYING.

(Continued from page 140).

just as essential as drafts are objectionable. Let the cows have plenty of fresh air that, if possible, is warmed, before they breathe it. When the thermometer hovers about zero or lower, twenty or thirty minutes is ample time for the cattle to be out of doors in the yards. In this time, the stables can easily be cleaned and as soon as the bedding is in place, the cows ought to be allowed to come back into the barn. It will add greatly to their comfort, as well as being an economical practice to furnish the cattle with water that has been warmed artificially. Attention to these seemingly small matters means greatly increased economy of feed, and feed economy spells profit.

COLD COWS CAN'T PRODUCE EFFICIENTLY.

A high-producing dairy animal is a delicate and well balanced piece of machinery, and consequently she cannot continue normal production if she is exposed to severe winter weather. It is therefore essential that the discomforts incident to cold weather be eliminated if possible. The comfortable cow will repay in milk the necessary labor for her protection. Dairymen as a rule are more careful with their cows than the average farmer who merely produces the milk for family use.

Cows frequently refuse to drink the water in an icy trough. A cow must be thirsty, indeed, before she will fill herself with freezing water. It is necessary, in view of the fact that milk contains about eighty-seven per cent water, to warm the drinking water for dairy cows if the highest possible production is to be maintained. Unless the cow drinks a sufficient quantity of water her milk production will diminish, and she will not drink enough unless it is warm. Suitable shelter from cold rains and raw winds is another comfort which the cow will repay in milk.

A sufficient quantity of nourishing feed is, of course, a prime requisite if cows are expected to continue to produce milk after freezing weather has killed pastures. Corn stover and oat straw will hardly supply sufficient nutrients to maintain average production.

Sleet and freezing rains cause insecure footing, and care should be used in turning cows out of the barn. Ice at the doorway should be covered with cinders to prevent slipping. Do not hurry the animals and cause undue crowding. A slip and fall on the ice can readily result in injury to or loss of a valuable cow.

These things have been said often, but they bear repetition when the cold weather comes with accompanying discomforts. While they apply more specifically to the dairymen, it is well for all farmers to heed these suggestions and endeavor to keep all cows in milk to help increase the food supply for this winter.

U. of Mo. PROF. M. H. FORMAN.

COW-TESTING CUTS DAIRY EXPENSES.

Dairymen who have had their profits reduced by increased feed cost will find considerable relief through cow-testing associations. The cow-testing association places responsibility on each cow to demonstrate her ability to pay for her feed and return a profit to her owner. The loafers in the dairy herd can not be detected without some system of records. The cow-testing association enables the dairyman to calculate the amount of milk and butterfat which each cow returns for the feed she consumes. A system of records will disclose some eye-opening facts concerning the production of individuals of the herd.

Cow-testing associations afford a

Big Profits
GROWING STRAWBERRIES
\$300 to \$500 made per A. by inexperienced beginners following "KEITH'S WAYS TO SUCCESSFUL BERRY CULTURE."
We can save you \$2 to \$5 per 1000 plants. Satisfaction GUARANTEED or MONEY BACK. Our 1928 catalog contains valuable and practical information on growing SMALL FRUITS. Illustrated in colors. This valuable book FREE.
KEITH BROS. NURSERY, Box 302, Sawyer, Mich.

FIX YOUR OWN SALARY

Make good money selling Farm and Grass Seeds to neighbors and friends. Commissions run big. The more you sell, the more you make. We furnish you free catalogues and interesting literature. You make a good profit on every order. Our finest quality seeds, lowest prices and prompt service get the business. This is a big opportunity for you. Write today.

E. E. ELDER, Sales Agent

1929 W. 43rd Street Dept. G Chicago, Illinois

When writing to advertisers please mention The Michigan Farmer.

SEEDS FROM THIS BULGING WAREHOUSE—DIRECT TO YOU. AT LOWEST WHOLESALE PRICES.

Finest tested Field and Grass Seeds stored before prices went up. All cleaned and ready for direct shipment to you now.

Clover \$14 per bu. and up. Speltz \$1.75 per bu.
Alfalfa \$8.90 per bu. Timothy \$3.25 per bu.

Every bag sold subject to state, government and your test. A Money Back Guarantee with every sale protects you. Buy your seeds in Chicago where you can get them quick and save on freight.

Twenty-six big railroads load at our warehouse daily. Your orders move fast when they come here. We sell you direct at bedrock prices. We give you a chance to share profits with this big wholesale firm. Don't buy seeds until you see our big 1918 Seed Guide. It describes our "Profit-Sharing" Plan and gives planting advice. Our Circular "A Word from Folks Who Know" gives honest facts from reliable farmers. Our "Green List" gives you a tip on real inside seed prices, a valuable thing to have. Write today for this free information. Ask for the "Green List."

Ask For Samples
Wheat Sudan
Rape Soy Beans
Barley Cow Peas
Oats Vetches
Millet Corn
Kaffir Blue Grass
Orchard Grass

SAMPLES FREE

AMERICAN MUTUAL SEED CO.
43rd & ROBEY STS. Dept. 111 CHICAGO ILL.

means for cooperative buying of supplies and also facilitate improved methods of feeding. The results which have been obtained by cow-testing associations indicate that a large number of dairymen, who are not keeping records, are feeding some cows at a loss. Sometimes this loss may be attributed to poor producers, poor management, or lack of proper feeding. Savings brought about by cow-testing have more than paid expenses during the first year. Marked increase in the production of the herds, and the corresponding reduction of the feed cost in comparison with the milk and butter-fat yield always follows.

COOPERATIVE BULL ASSOCIATIONS.

Cooperative bull associations are among the latest activities in live stock circles. They are formed by farmers for the joint ownership, use and exchange of high-class, pure-bred bulls. In addition they may encourage careful selections of cows and calves, introduce better methods of feeding, help their members market dairy stock and dairy products, intelligently fight contagious diseases of cattle, and in other ways assist in lifting the dairy business to a higher level. Incidentally, the educational value of such an organization is great.

The history of the cooperative bull association shows that it is specially adapted to small herds where a valuable bull for each herd would constitute too large a percentage of the total investment. Thus the organization enables even the owners of small herds to unite in the purchase of one good bull and each to own a share in a registered sire of high quality. Though still in its infancy, the cooperative bull association movement promises eventually to become a very great factor in the improvement of our dairy cattle.

In the United States the first cooperative bull association of which record exists was organized in 1908 by the Michigan Agricultural College. Eight years later there were thirty-two active bull associations in this country, with a total membership of 650, owning about 120 pure-bred bulls.

The typical cooperative bull association is composed of fifteen to thirty farmers, and jointly owns five bulls, divides its territory into five "breeding blocks," and assigns one bull to each block. As many as fifty to sixty cows may belong to the farmers in each block, and the bull in the block should be kept on a farm conveniently situated. The blocks are numbered one to five, and to prevent inbreeding each bull is moved to the next block every two years.

For example an association consists of sixteen farmers and is organized into five blocks. The farms are so situated that the bulls are at no great distance from the farm of any member. Before the association was formed each farmer had an average investment of \$92 in a scrub bull. These bulls were disposed of when the association was formed and five pure-bred bulls were bought at \$240 each, or an average of \$75 for each member. A larger membership would reduce expenses still further.

Investigation by the Bureau of Mines in connection with the operation of the New York, New Haven & Hartford Railroad show that through careful firing, a great saving in fuel can be effected. During 1917 the fuel bill for the one road was reduced \$1,379,268.

Slaughter of all tubercular cattle in Illinois, their owners to be reimbursed by the state and national governments, has been suggested by the Chicago health commissioner, Dr. John Dill Robertson, to the state food administration's milk commission as a means of lowering the cost of milk production within a year. Further advances in the price of milk would undoubtedly result in a further increase in infant mortality. Many dairymen are selling off their inferior cows, and retaining only cows paying them a fair profit.

BIG MILK PRODUCER

Here is a **high protein** feed we brought out some time ago to meet a strong demand for a protein feed having as **wide a variety** of protein materials as our SCHUMACHER FEED has in carbohydrates.

Dairymen wanted a "big milk producer" which would **maintain heavy flow** over long periods, realizing that it's the cows which give **big yields month after month** that swell the profits.

BIG "Q" DAIRY RATION has more than made good the dairyman's highest expectation. It is a different protein mixture than they have ever had. Its protein materials are **right—quality the best** and in a **variety** which insures long time milk production and maximum daily yields.

THE Q DAIRY RATION

combines in the most scientific and efficient degree, the five great essentials of a big producing, health maintaining, high protein ration. These are unusual **palatability—digestibility—variety—nutrition and bulk.** Its results in **greater milk production**, especially when fed with SCHUMACHER FEED, will be a surprise to you. Its ability to keep your cows "going strong" over long lactation periods will be even more gratifying.

Try it in the following suggested rations and let your own cows render the verdict.

General Herd Ration with Ensilage or Roots { 1 part SCHUMACHER FEED
1 part BIG "Q" DAIRY RATION

To Fresh Cows with Green Feed { 2 parts SCHUMACHER FEED
1 part BIG "Q" DAIRY RATION

To Dry Cows { 4 parts SCHUMACHER FEED
1 part BIG "Q" DAIRY RATION

Test Ration { 1 part SCHUMACHER FEED
2 parts BIG "Q" DAIRY RATION

(Increase Big "Q" Ration if cow can handle more protein without bad effects.)

Now is the time for biggest milk production—prices are good—profit will be greater if you feed liberally these two ideal feeds. At dealers; if yours can't supply you, write us.

THE QUAKER OATS CO.

ADDRESS
CHICAGO
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[62-F]

QUALITY



The Farmer's Concrete Mixer

SHELDON Batch Mixer Price \$11.50 Up

Concrete saves lumber and steel for ships. A Sheldon Mixer saves labor and gets the work done besides. Designed especially for the farmer. Highly praised by users. Farmers everywhere say it's the ideal machine for them. Used now in every State and in a dozen foreign countries. Small enough to move easily—big enough to keep six men busy. Lowest in price. Build your own feeding floors, silos, tanks, troughs, foundations, cribs and buildings.

Read What These Sheldon Owners Say

I and my hired man laid a feeding floor for my hogs, 24x24, in one day; also put floor in my cow barn. My neighbor liked it so well I am not able to keep it at home. —ANONYMOUS CHRISTIANS, Hancock, Minn., Rt. 1.

We have used the mixer during past year for putting in cement foundations for a complete set of farm buildings including silo, and like it very much. —DANA WAGG, Jamestown, N. D.

Last year I bought a cement mixer from you with which I am well satisfied. It did not take long for it to pay for itself and I surely can recommend it to anyone needing a big mixer at a small price. —Wm. Parks, Martin's, Ill.

I am more than busy with my Sheldon Concrete Mixer. Have more work than I can do. I get \$10 a day when I work out. —JESSE L. WITKIN, Wellsville, N. Y.

The machine works fine. Have already got the job of mixing concrete for the bridges in this township. —JOHN ROSS, Spartansburg, Pennsylvania.

Last spring we purchased of you a set of castings to make a concrete mixer. It was constructed per the plans furnished and it surely worked great. —D. M. BAKER, Freeport, Ill.

FREE PLANS

Make your own concrete mixer. You can do it at a cost so low you can not afford to mix concrete by the shovel method. Along with our iron parts we send Free Plans and permit for making your own machine. A good way to get a practical mixer at a small expense. Or, we will sell you the complete machine, ready built.

Make Big Money at Concreting If you buy a Sheldon Mixer for your own use, you can make many times its cost in a season by renting it to your neighbors. Or, if you want to go out with the mixer on contracts, you can easily earn \$5 to \$20 a day. Our customers are doing it right now. The jobs go to the man with a Sheldon Mixer every time.

Write For Our New FREE Catalog Shows our full line of mixers which are sold direct to you on strong guarantee. Thirty days trial privilege. No other like it. Patented. Two styles, hand and power. Mixes 2 1/2 cubic feet a minute. One man can operate it, but it will keep 2, 3, 4, 5 or 6 men busy. Continuous chain drive. Tipping dump. Easily and quickly moved. All parts guaranteed. Does work equal to \$400 mixers. Be sure to get the catalog. Write today.

Write For Our New FREE Catalog Shows our full line of mixers which are sold direct to you on strong guarantee. Thirty days trial privilege. No other like it. Patented. Two styles, hand and power. Mixes 2 1/2 cubic feet a minute. One man can operate it, but it will keep 2, 3, 4, 5 or 6 men busy. Continuous chain drive. Tipping dump. Easily and quickly moved. All parts guaranteed. Does work equal to \$400 mixers. Be sure to get the catalog. Write today.

Write For Our New FREE Catalog Shows our full line of mixers which are sold direct to you on strong guarantee. Thirty days trial privilege. No other like it. Patented. Two styles, hand and power. Mixes 2 1/2 cubic feet a minute. One man can operate it, but it will keep 2, 3, 4, 5 or 6 men busy. Continuous chain drive. Tipping dump. Easily and quickly moved. All parts guaranteed. Does work equal to \$400 mixers. Be sure to get the catalog. Write today.

My New Special Offer

I want to tell you about my co-operative plan by which you can get my time-tried, thoroughly proven Sheldon Batch Concrete-Mixer at little or no cost to you. I want ten men in every county to accept my special co-operative offer right now. Are you going to be one of the ten? Write and say: "Send me special offer."

The Sheldon will pay for itself on first small job. Takes the backbone out of concrete. Makes possible those many small improvements that add so much to the value of your land. **SHELDON MANUFACTURING COMPANY, Box 770, Nehawka, Neb.**

Farms and Farm Lands For Sale

Money-Making Farm \$4800

8 Cows, Pr. Horses and

Driving horse, plow, harrow, cultivator, mower, rake, wagons, buggy, sled, sleighs, manure spreader, ensilage cutter, gasoline engine, complete new grain threshing outfit, small tools, harnesses and some hay and potatoes included by retiring owner who has made himself well off here. 185 acres with 80 in productive tillage, black soil, 30 cow, wire-fenced, spring-watered pasture; estimated 2,000 cords hardwood; 300 sugar maples; 100 apple trees; good 8-room house; 16-cow barn, silo; \$400 takes everything, part down. Details page 6 Strout's Catalogue, copy free. E. A. STROUT FARM AGENCY, Dept 111, 150 Nassau St., New York, N. Y.

Dairy Farm For Sale. 115 acres; 25 mi. from Detroit; \$5000 worth milk per yr. last 5 yrs. from 20 cows. Land gently rolling. New barn 22x75, comfortable house, good fences, loam soil and splendid neighborhood. Two good wells and spring, 5 acres fine oak grove. Also 150 A. adjoining similar soil; slightly rolling, fair buildings, 20 A. saw timber. Address **DAIRY FARMER, Rochester, Mich.**

FOR SALE. 134 acre stock and grain farm, in high state of cultivation. Improvements in good condition. Will sell stock, feed and implements with farm if desired. Location very desirable. Allegan Co., Mich., address owner, care Michigan Farmer, Detroit, Mich.

GET to producing human food. South Dakota offers the best opportunity—see Government crop reports—and the state will back you with cheap money. Get bulletins of Immigration Department, Chas. McCaffree, Commissioner, Capitol 70, Pierre, S.D.

WANTED to rent a farm of about 40 or 50 acres of plow land. Near town or car line. Must have good buildings. Will pay money rent. Address 373 Seward Ave., Detroit, Mich.

An Experienced Farmer will rent a farm or manage it on shares. Address communication **S. R., 1038 Garland Ave., Detroit, Mich.**

(Continued from page 144.)

- 8, 1915, Ralph Safford, Fenwick, \$200.
 Lily Bloom 585453, calved June 18, 1916, John Crawford, Dowagiac, \$235.
 Maplewood Eclipse 584878, calved December 12, 1916, T. D. Smith, Oxford, \$250.
 Roan King 6th 611951, calved December 23, 1916, J. H. Sim, Williamston, \$140.
 Roan King 7th 611952, calved January 5, 1917, E. Van Sickle, Albion, \$100.
 Snow Queen 591184, calved August 29, 1916, George Doster, Doster, \$100.
 Hazelwood Lady 591183, calved May 15, 1916, Harry Nearnberg, Albion, \$165.
 Highland Prince 609913, calved April 23, 1917, I. J. Bartley, Homer, \$300.
 Lady Bismarck 56026, calved October 25, 1907, Avin Barnhart, St. John, \$225.
 Tulip's Victor 619164, calved March 6, 1917, Peter Kuntz, Hastings, \$145.
 Mysie's Pride 619162, calved October 10, 1916, W. B. McQuillan, Howell, \$220.
 Prince Victor 619163, calved October 15, 1916, Clifford Rhodes, Charlotte, \$168.
 Prince Henry 620455, calved September 23, 1916, Max Ifer, Williamston, \$105.
 Bob Boy 620454, calved October 27, 1916, John Spearmaker, Riley, \$125.
 Invincible 505137, calved July 25, 1915, W. S. Wood & Co., Leslie, \$110.
 Hughey 590523, calved October 28, 1916, A. Voss, Luther, \$280.
 Huron King 585810, calved February 8, 1917, John Hisler, Charlotte, \$135.
 Prince Archer 619343, calved December 24, 1916, John Bickel, Freeland, \$180.
 Baron Archer 619340, calved October 30, 1916, A. E. Stevenson, Port Huron, \$110.
 Young Mary's Lad 2d 609150, calved March 3, 1917, Y. R. Merrill, Hamburg, \$175.
 White Chief 627260, calved March 27, 1917, C. A. Bray, Okemos, \$115.
 Blackwood Prince, calved April 20, 1917, M. H. Alban, Willis, \$140.
 King Lavender 621128, calved January 15, 1917, Aron Hagenbooth, Three Rivers, \$225.
 Rosy 235156, calved September 20, 1914, Ralph Safford, Fenwick, \$205.
 Spotlight 624695, calved February 28, 1917, J. E. Rubbert, Perry, \$80.
 Pat Light 624693, calved March 17, 1917, Henry Perry, Charlotte, \$75.
 Redman 624694, calved February 2, 1917, Ivan Briggs, Bellevue, \$60.
 Princess Royal 618049, calved September 9, 1915, Bristol, Royal Oak, \$120.
 Village Princess 603851, calved October 30, 1916, George Doster, Doster, \$160.
 Mary Mollie 2d 571146, calved November 25, 1915, R. J. Fellows, \$170.
 Duchess' Master 603848, calved December 3, 1916, R. J. Fellows, Jackson, \$135.
 Duchess' Major 603847, calved December 2, 1916, H. and G. Shutmaat, Hamilton, \$180.
 Village Judge 500581, calved May 22, 1916, George Doster, Doster, \$110.
 Princess Hampton 510624, calved January 13, 1916, A. E. Stevenson, \$400.
 Young Lady 48234, calved January 19, 1916, George Doster, Doster, \$150.
 Lavender, W. H. Pearson, Merle Beach, \$280.
 Bachelor Cumberland 531693, calved April 10, 1916, V. M. Shoemith, Bailley, \$220.
 Prince Cumberland 544923, calved January 12, 1916, J. F. McCansey, \$275.

THE NATIONAL SHORTHORN CONGRESS SHOW AND SALE.

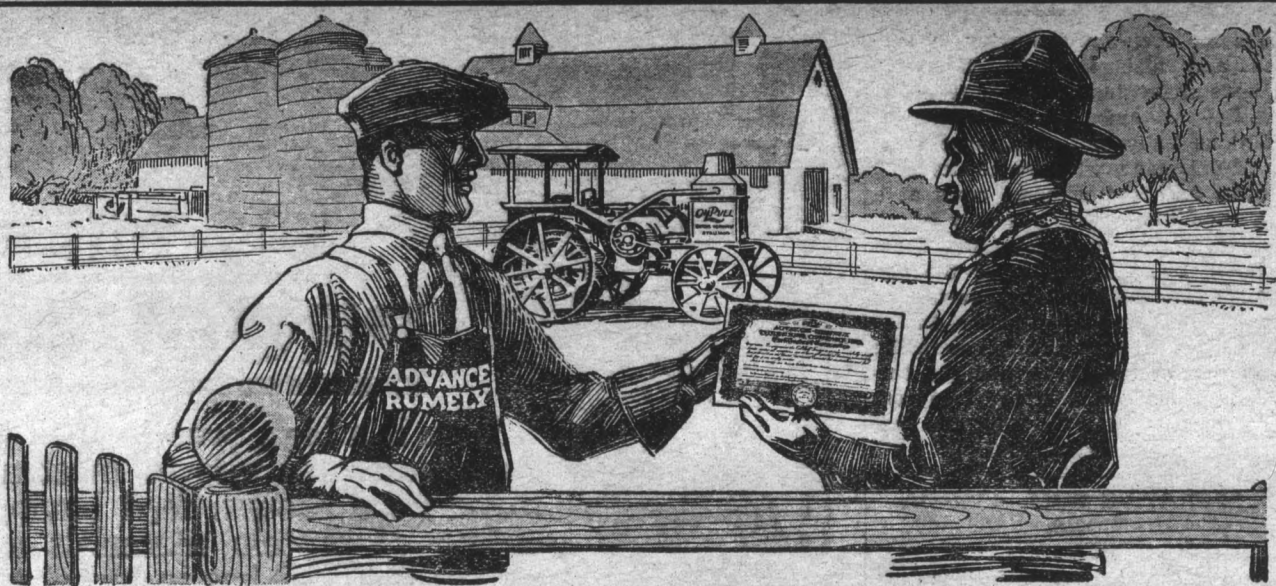
Secretary F. W. Harding, of the American Shorthorn Breeders' Association advises in regard to the entries for National Shorthorn Congress Show and Sale, Chicago, February 19-22 inclusive.

The total entry of bulls in 125 head, cows with calves and heifers 200 lots; milking Shorthorns 15 bulls, 60 cows and heifers. Total 400, including some of the best from the herds of eighty breeders and importers of the United States whose names are a guarantee of the character of the consignments. Some of the best blood and individual merit of leading herds of England and Scotland will be represented by both bulls and females. Catalogs (separate catalog for milking Shorthorns) will be ready February 5.

Tuesday, February 19, is judging day. This work will be done by Lawrence Ogden, Maryville, Mo., William Rees, Pilger, Nebraska, Harry Hopley, Atlantic, Iowa, and John Robbins, Horace, Indiana.

February 20 and 21 are auction sale days.

Milking Shorthorns will be judged by Prof. H. Barton, of Montreal, Quebec, on Friday morning February 22. Auction sale will follow the same day.



"One more thing before I go - the guarantee that goes with your OilPull"

YOU know the kind of service that goes with the Rumely OilPull Tractor—or ask any owner. He'll tell you that Advance-Rumely doesn't lose sight of the customer's best interests after the sale is made. At each of our 22 branch offices we maintain an organization of skilled tractor experts, for the benefit of Advance-Rumely tractor owners.

When you need him, there's an Advance-Rumely expert to not only help unload and deliver your tractor but to show you how to operate and take care of it.

But we go still further in guarding our customer's interests. In addition to that personal service, with your OilPull you get an iron-clad written guarantee. The OilPull would give just the same satisfactory performance without this guarantee, but we feel that the OilPull owner is entitled to protection against "near" kerosene tractors, and the word of mouth promises and "near" guarantees that go with them. It is just the difference between "delivering the goods" and "putting it over."

The guarantee speaks for itself—read it carefully. Notice that it says—under all conditions—at all loads—and with all grades of fuel oils. It protects the owner as well as the experienced operator, and it holds good for the life of the tractor.

There's no half way in this burning of kerosene, distillates, etc. Either a tractor does it successfully or it doesn't. And if it does, why should it not carry a clean, fair and square, written guarantee as goes with every OilPull? Think it over.

The OilPull in a New Size—14-28

You can now get the famous OilPull in a small size, the 14-28. A light weight, big power outfit. The 14-28 is every inch an OilPull—the same guaranteed performance on low grade oil fuels—the sure, dependable service—long life—and ability to handle all jobs, drawbar or belt.

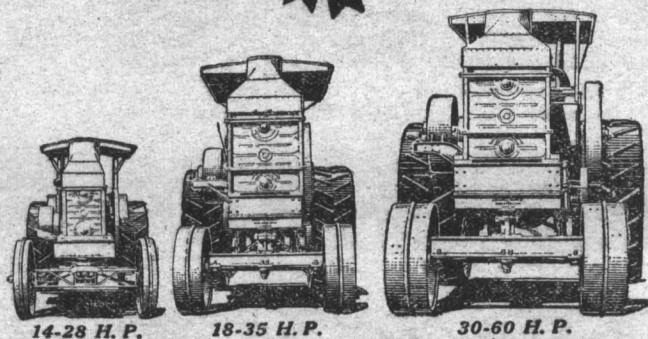
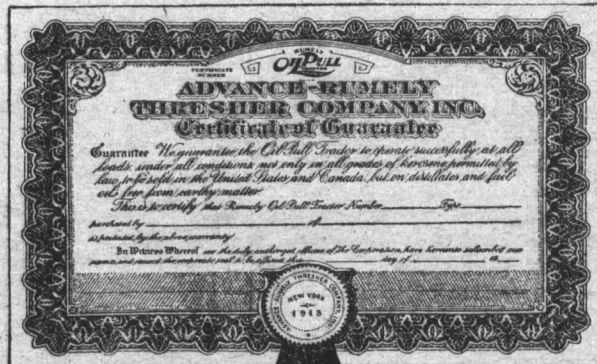
The new 14-28, with the 18-35 and 30-60, give three sizes of OilPulls—a small, medium and large. Ask our nearest branch for a copy of the special OilPull catalog.

ADVANCE-RUMELY THRESHER CO.

(Incorporated)

LAPORTE INDIANA

Battle Creek, Mich.



ADVANCE-RUMELY

Over the Top

into any Silo is the guarantee that goes with every Papec—large or small. You, doubtless, will not need to take advantage of the full elevating power of the Papec, but you have the satisfaction of knowing it's there—in reserve.

There are four sizes of Papecs. A gas engine, 3 or 4 H. P., will operate the smallest size. Our 1918 catalogue explains how a Papec will pay for itself in one season. Write for your copy today—it's free.

PAPEC MACHINE COMPANY

160 Main Street
 Shortsville, N. Y.
 25 Convenient
 Distributing Points



B.V.T. Silo

Build a Silo in 1918 and help win the war, but be sure it is a B. V. T. SILO. Then you will have one that will outlast a century. No storm, frost, or decay can touch it. No hoops to adjust, and needs no paint. Made of Vitified Brazil Fire Clay, the most imperishable of all materials—steel reinforced, solid as a rock.

Order Your B. V. T. Silo Early

Only a limited number of new orders can be filled this season. Order early and avoid disappointment.

Brazil Hollow Brick & Tile Co.
 Brazil, Indiana
 Send for booklet D.



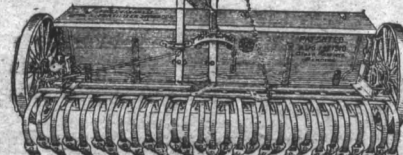
MARRIED MAN WANTED

Wish to hire married man to work on this farm with small or no children. Must be competent and reliable, without bad habits good opportunity for a man who is willing and able to give honest efficient service. Address

HERBERT W. MUMFORD,
 Brookwater Farm, Ann Arbor, Mich.

Lime And Fertilizer Are Gold To The Farmer. You Should Use It Scientifically.

Puts other Spreaders To Shame. Fortify your Spreading against Loss by writing today for Large Catalog



BE PREPARED for the labor shortage. WE HAVE COME TO YOUR RESCUE with the GUARANTEE LIME & FERTILIZER SPREADER, equipped with the automatic cultivating attachment that mixes your lime and fertilizer with the soil and at the same time harrows your soil. Let one hand and two horses do the work of ten men and five horses. THE GUARANTEE SPREADER contains special patented features of this character: super-spider-steel force-feed, shifting clutch, spreading device that spreads evenly or sows in rows, acre-mark indicator, screen, lid, seat, neck-yoke, double and single-trees, automatic mixing and cultivating attachment. BETTER WRITE US NOW. GUARANTEE MANUFACTURING COMPANY, Department B.4, Baltimore, Maryland

FOR SALE One hundred bu. hand picked seed beans. J. M. HICKS & SONS, R. 2, Williamston, Mich.

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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



Recently Captured Germans on the French Front are Mere Youngsters Just Out of School.



Roosevelt Takes Much Interest in Experiments to Determine the Value of Various Foods.



Miss Easley, "Nightingale of American Army Camps," Goes to France to Cheer Soldiers in Trenches.



The Fuel Supply is so Short in Cities that Ash Piles Are Carefully Picked Over.



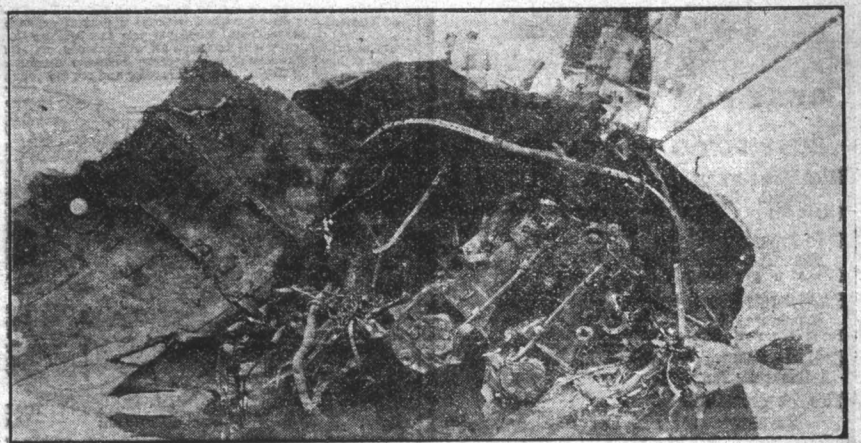
Italian Troops After Acquitting Themselves with Much Glory Throw Themselves on the Ground for a Needed Rest.



British Forces Land Supplies on the Palestine Coast by Employing Natives to Carry Stores from Boats to Land Convoys.



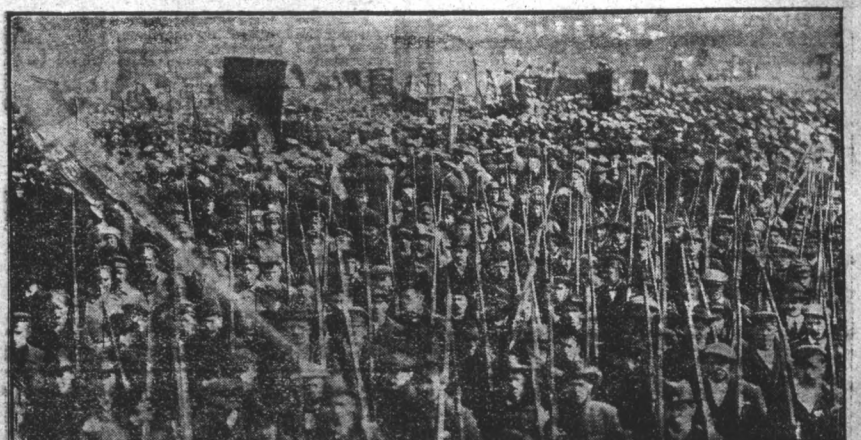
When the Germans Made their Great Counter-attack at Cambrai the Order from the British Officer was to Save the Guns.



The "Works" of a German Submarine After it had Been Rammed by a Vessel and Beached on the French Coast.



This Highlander Captures Two Germans and Forces them to Carry their Own Machine Guns Back to British Lines.



The Red Guard of Russia Attending a Great Mass Meeting in Petrograd to Nip Any Impending Disorder.

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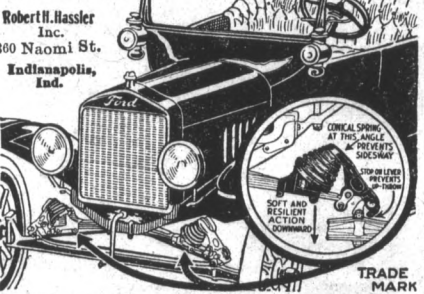
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Old Glory on a German U-Boat

By GAYNE T. L. NORTON

NONE but Americans would attempt to lift a submarine weighing hundreds of tons out of British waters and bring it to America; yet this very feat was accomplished, and that submarine that was moved is the U-C-5, a German mine layer.

The U-C-5 was captured by a British destroyer during the Heligoland engagement. After long negotiations the British Admiralty consented to lend their unusual war prize to the Liberty Loan Committee. The engineers who worked with the committee did the unheard-of mechanical engineering.

The U-53 was the first German submarine to visit America, she came to raid and destroy; the U-C-5 is the second. Her mission here is to awaken the American people to a fuller realization of the part we must take in this war. She is the first enemy submarine over which the Stars and Stripes have been flown. She was re-christened the U-Buy-A-Bond and Liberty Bonds were sold from her. After being on exhibition in New York for a short time she will be shown in other large cities.

The submarine mine layer is 110 feet long and has a beam of eleven feet, displacing 200 tons of water. She carries twelve mines, each containing 280 pounds of high explosive; she carries no guns or torpedoes. She is propelled by a single propeller and makes six knots. She is built in three sections, making overland transport possible, with a double skin and reserve buoyancy tanks.

She was captured on a hazy day. A lookout discovered something suspicious and with rifles loaded and trained the destroyer steered directly for the stranger through the mist. Not until they were within a quarter of a mile was the unusual design of the submarine and her nationality discovered. The

mines to break from their fastenings, but as it had blown up instead of down the shell was intact. The task of salvage was difficult and dangerous.

She came to this country in the hold of a transatlantic liner, and docked down near the financial section. Because of the subways being built under many of the New York streets and the great weight of the boat it was not considered safe to take her through



Explosion in Enemy Submarine.

As a British Destroyer made prisoners of the U-C-5 one remained below and touched off an explosion intended to sink the "tin fish." The force blew up instead of down, rent a bulkhead, and hopelessly twisted the interior.

this section. She was lightered to a point further up town and then moved to the Park. It took a full day to move each section; fifty horses and a truck weighing more than ten tons were used.

When the boat was assembled in the Park she was inspected by American naval engineers and officers and many of the secrets which the Germans have guarded so carefully were discovered. The explosive taken from the mines was examined by chemists of the New York Arsenal. The raising of the American flag was a stirring and patriotic occasion, attended by many notables.

HELPING HOOVER.

BY M. P. EARL.

Me an' pa worked awful hard all summer long, By Gee,
Raisin' stuff to feed the folks 'at's starvin' 'crost the sea;
Didn't have much time a-tall to fish er take a swim—
Jist kep' a thinkin' 'bout this "Hoover," 'n how we's helpin' him.

I didn't like to have to work so hard the way we done,
'Cause I'd ruther be a soldjer, with a uniform an' gun,
But Pa he kep' a tellin' me, 'twas part the Nation's plan—
An' now't I see, I'm mighty glad I helped this "Hoover" man.

Fer they's squash an' apples in the cellar, beets an' pumpkins, too;
Turnips, cabbages an' onions 'till you can't walk through,
All the taters we can eat an' lots of stuff to spare—
To help to feed the Allies an' our Soldjers, over there.

An' Ma, she's got the pantry shelves chuck full of stuff she's made—
Apple-butter, pickles, jell an' jam an' marmalade;
She didn't waste a thing, you bet, but canned up corn an' beans,
All the fruit we had, an' even dandelion greens.

An' now't the winter days is here, when the chores is done at night,
We all sit down aroun' the fire an' watch it burn so bright,
Pa reads the paper while Ma knits with khaki yarn, an' gray,
An' I—jist think 'bout all the folks we're helpin' "Hoover's" way.

Mine Carried by German U-Boats.

The U-C-5 carried twelve of these mines, each containing 280 pounds of high explosive.

Britisher demanded her surrender, and the order was understood and obeyed.

As a small boat was lowered and neared the prisoner her crew jumped into the water, crying "Kamarad." As they were returning to the destroyer a man came suddenly out of the submarine, rushed along its deck, jumped overboard and drowned as a heavy explosion shook the U-boat.

An attempt to destroy the vessel had been made. Protected by a gas mask, a sub-lieutenant risked his life by descending into the submarine to learn the extent of the damage. He found she had been badly twisted and considerable water had entered. The force of the explosion caused several of her



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Inside the Lines

(Continued from last week).

Woodhouse was mollified, and he smiled apologetically. Almer forgave him out of admiration for his discretion.

"No need to suspect me—Almer. They will tell you in Berlin how for twenty years I have served the Wilhelmstrasse. But never before such an opportunity—such an opportunity. Stupendous!" Woodhouse nodded enthusiastic affirmation. "But to business, Nineteen Thirty-two. This Captain Woodhouse some seven years ago was stationed here on the Rock for just three months."

"So I know."

"You, as Woodhouse, will be expected to have some knowledge of the signal tower, to which you will have access." Almer climbed a chair on the opposite side of the room, threw open the face of the old Dutch clock there, and removed from its interior a thin roll of blue drafting paper. He put it in Woodhouse's hands. "Here are a few plans of the interior of the signal tower—the best I could get. You will study them tonight; but give me your word to burn them before you sleep."

"Very good." Woodhouse slipped the roll into the breast pocket of his coat. Almer leaned forward in a gust of excitement, and, bringing his mouth close to the other's ear, whispered hoarsely:

"England's Mediterranean fleet—twenty-two dreadnaughts, with cruisers and destroyers—nearly a half of Britain's navy, will be here any day, hurrying back to guard the Channel. They will anchor in the straits. Our big moment—it will be here then! Listen! Room D in the signal tower—that is the room. All the electric switches are there. From Room D every mine in the harbor can be exploded in ten seconds."

"Yes, but how to get to Room D?" Woodhouse queried.

"Simple. Two doors to Room D, Captain; an outer door like any other; an inner door of steel, protected by a combination lock like a vault's door. Two men on the Rock have that combination: Major Bishop, chief signal officer, he has it in his head; the governor-general of the Rock, he has it in his safe."

"We can get it out of the safe easier than from Major Bishop's head," Woodhouse put in, with a smile.

"Right. We have a friend—in the governor's own house—a man with a number from the Wilhelmstrasse like you and me. At any moment in the last two months he could have laid a hand on that combination. But we thought it better to wait until necessity came. When the fleet arrives you will have that combination; you will go with it to Room D, and after that—"

"The deluge," the other finished.

"Yes—yes! Our country master of the sea at last, and by the work of the Wilhelmstrasse—despised spies who are shot like dogs when they're caught, but die heroes' deaths." The hotel proprietor checked himself in the midst of his rhapsody, and came back to more practical details:

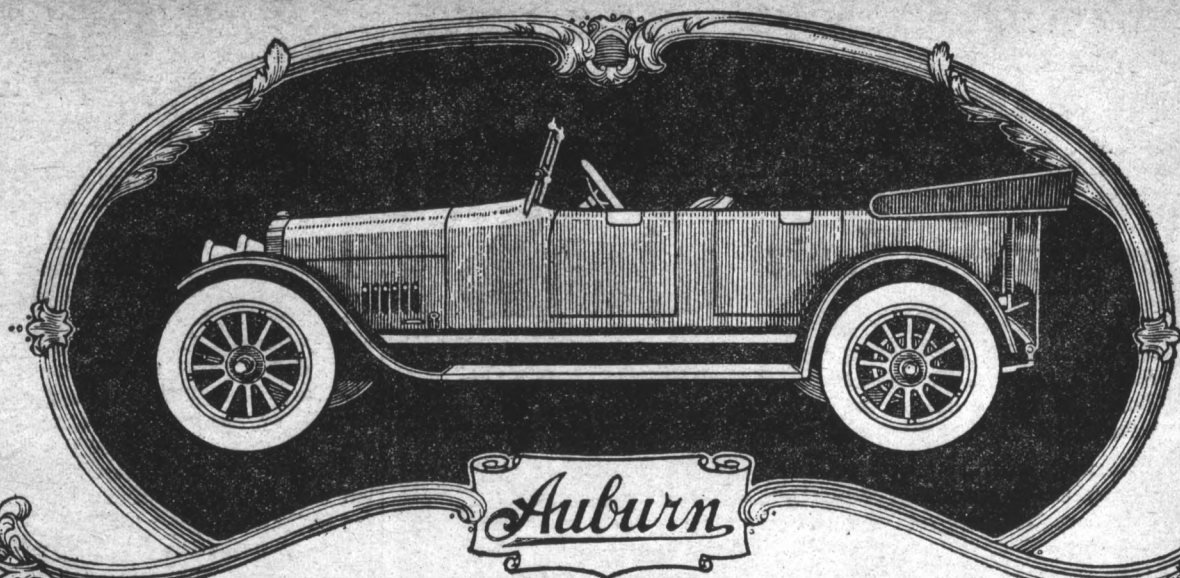
"But this afternoon—that man from Alexandria who called you by name. That looked bad—very bad. He knows something?"

Woodhouse, who had been expecting the question, and who preferred not to share an anxiety he felt himself best fitted to cope with alone, turned the other's question aside:

"Never met him before in my life to my best recollection. My name he picked up on the Princess Mary, of course; I won a pool one day, and he may have heard someone mention it. Simply a drunken brawler who didn't know what he was doing."

Almer seemed satisfied, but raised another point:

"But the girl who has just left here, (Continued on page 153).



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Developing Mesopotamia

By MARK MEREDITH

"Oh, thou river who didst bring forth
all things,
When the great gods dug thee out.
They set prosperity upon thy banks."

THIS address of some old Sumerian seer will again see its fulfillment on the day when Turkish misgovernment comes to an end in Mesopotamia. Like the delta of the Nile, the delta of the Tigris and Euphrates will depend for its full development on the good will of those who hold the upper waters of the two rivers, in the regions where they can be led out of their channels and utilized for irrigation.

Heavy irrigation works carried out on the upper Euphrates and its tributaries, the Belik and Khabour, upstream of Anah, past Meyadin, the ancient Rehoboth by the River, would deprive the lower Euphrates of the whole of its low supply; while similar works carried out on the upper Tigris and its tributaries, the two Zabs, in the neighborhood of Mosul, near the ancient Ninevah, would seriously reduce the low supply of the lower Tigris. Though in antiquity Babylonia was only prosperous when the whole country from the line of the Bagdad railway past Harren, Nisibin, and Mosul, to the Persian Gulf was under the control of a single power, or when northern Mesopotamia was given up to anarchy, it will be possible today to make the Euphrates self-containing from Kerbellah to the gulf, and possibly from Hitt to the Gulf.

Some Fragments of History.

For four hundred years the Sultans of Turkey have had complete control of the two rivers from their sources to the gulf, and have consequently been in a position to rival the Sassanian Kings of Persia, but they have not had it in them to undertake any works of peace. "Peace hath her victories no less renowned than war," is no Turkish saying. Two monuments standing today, one on the Euphrates and the other on the Tigris, tell us why the Turks failed where the Persians excelled.

Each time I have ascended or gone down the Euphrates I have been arrested by a tall column standing on the left bank of the river not far from Rakka, the summer residence of Haroub-er-Rashid. This column was erected by Sultan Selim the Grim, to his ancestor, the first Osmanli Bog, who traversed Mesopotamia. Coming westward from Turkestan at the head of his horsemen, he had forded the Tigris, and, at the point, encountered the Euphrates. Riding straight into the river, heedless of the warnings of his guides, he had been engulfed in the waters and drowned. I have never been able to pass this monument without spending an hour or two contemplating the past history of these same Osmanli Turks, of whose strength and weakness this tower is a true symbol.

Anyone in ascending the Tigris, approaches Bagdad, the ruins of the Palace of Nausherwan, the greatest of the Sassanian kings of Persia, towers above the level plain. At the time that the king's engineers lined out the foundations of the palace they impinged on the holding of a small proprietor who, like Naboth, refused to part with the heritage of his fathers. The work was stopped and Nausherwan was referred to. Unlike Ahab, he ordered the alignment to be deflected and so the palace was built, and so it stands today. In the length and breadth of the east the greatest compliment a high official can have paid to him is, to be told that his justice is comparable to that of Nausherwan. Men with traditions like this divided fairly the waters of the two rivers while they had complete control of the whole country; on the occasions that they lost control,

upper Mesopotamia was given up to such anarchy that irrigation works there were out of the question, and consequently lower Mesopotamia, Babylonia, saw a prosperity which was one of the wonders of the world. The overthrow of the Persians by the Arabs in the early years of the Heriga ushered in the ruin of the country, which was completed by the Tartars under Jengis Khan and Timur, and finally sealed by the Turks.

Fertile Plains.

The excessive fertility of Babylonia was due to the system of perennial irrigation, or irrigation all the year round, which the early dwellers in the Euphrates valley introduced into the world. To Egypt was due the credit of having introduced basin irrigation, a system far more impressive and majestic than its rival but not nearly so profitable, since it only insured one crop per annum instead of two. The Nile Valley was irrigated in broad fields of thirty and forty thousand acres apiece, while in Babylonia the water was led to each field of two or three acres.

I have always loved to contrast these two systems by comparing one to the flight of an eagle and the other to the laboriously built up cells of bees just as Horace compared the poems of Pino to those of his own composition. We see Egypt today everywhere abandoning its ancient system and adopting that of Babylonia. Babylonia will be recreated by the system of irrigation introduced by itself.

The Tigris-Euphrates delta is strangely flat. Bagdad, removed 500 miles from the sea is only 120 feet above sea level. Opposite Bagdad the Euphrates is twenty-five feet higher than the Tigris. Between the two rivers runs a regular valley, across which are carried the giant banks of the ancient canals. Though the slope of the country longitudinally to the rivers is very slight, the traverse slopes away from the rivers are one in a thousand, or five times as steep as those of the Nile valley. If the Nile breaches its banks in the flood it can be brought back in the flood to its old channel without any serious difficulty, while a very severe breach on the Tigris or the Euphrates has been followed by the river completely leaving its channel and forming a new one miles away, after inundating the whole country. Such as was Noah's flood in the early days of the world's history.

The waters of the two rivers and the soil of the country are yellow in color. The percentage of lime in the water and soil is fifteen, and this accounts for the excellence of the live stock and the sturdy build of the men. The chemical analyses of the soil and water testify to their richness.

In the Tigris-Euphrates delta we must never forget that we are in the country of Noah's flood; and, as in antiquity, so today, the foundation on which will be raised the structure of Babylonian prosperity will be the protection of the country from floods; and the more thorough the protection the more substantial will be the prosperity. The control of the Euphrates is as economical as that of the Tigris is costly.

Controlling the Floods.

With the Euphrates and the Tigris floods both really controlled, the delta of the two rivers would attain a fertility of which history has no record, and we should see men coming from the west as well as from the east, and making of the plain of Shinar a rival of the land of Egypt. The value of every acre in the joint delta of the two rivers would be immediately trebled before the irrigation works were carted out, and again increased many fold more the day the works were completed.

INSIDE THE LINES

(Continued from page 151).
am I to have no explanation of her?"
"What explanation do you want?"
the captain demanded curtly.
"She recognized you. Who is she?
What is she?"

"Devilish unfortunate," Woodhouse admitted. "We met a few weeks ago on a train, while I was on my way to Egypt, you know. Chatted together—oh, very informally. She is a capable young woman from the states—a 'buyer' she calls herself. But I don't think we need fear complications from that score; she's bent only on getting home."

"The situation is dangerous," urged Almer, wagging his head. "She is stopping at the governor's house; any reference she might make about meeting you on a train on the Continent when you were supposed to be at Wady Halfa on the Nile—"

"I have her promise she will not mention that meeting to anybody."

"Ach—A woman's promise!" Almer's eyes invoked Heaven to witness a futile thing. "She seemed rather glad to see you again; I—"

"Really?" Woodhouse's eyes lighted.

The Splendide's proprietor was pacing the floor as fast as his fat legs would let him. "Something must be done," he muttered again and again. He halted abruptly before Woodhouse, and launched a thick forefinger at him like a torpedo.

"You must make love to that girl, Woodhouse, to keep her on our side," was his ultimatum.

Woodhouse regarded him quizzically, leaned forward, and whispered significantly.

"I'm already doing it," he said.

CHAPTER X.
A Visit to a Lady.

TURNING to consider the never-stale fortunes of one of fate's bean bags—

Mr. Billy Capper, ejected from the Hotel Splendide, took little umbrage at such treatment; it was not an uncommon experience, and, besides, a quiet triumph that would not be dampened by trifles filled his soul. Cheerfully he pushed through the motley crowd on Waterport Street down to the lower levels of the city by the Line Wall, where the roosts of sailors and warrens of quondam adventurers of all the seven seas made far more congenial atmosphere than that of the Splendide's hollow pretense. He chose a hostelry more commensurate with his slender purse than Almer's, though as a matter of fact the question of paying a hotel bill was furthest from Billy Capper's thoughts; such formal transactions he avoided whenever feasible. The proprietor of the San Roc, where Capper took a room, had such an evil eye that his new guest made a mental note that perhaps he might have to leave his bag behind when he decamped. Capper abhorred violence—to his own person.

Alone over a glass of thin wine—the champagne days, alas! had been too fleeting—Capper took stock of his situation and conked the developments he hoped to be the instrument for starting. To begin with, finances were wretchedly bad, and that was a circumstance so near the ordinary for Capper that he shuddered as he pulled a gold guinea and a few silver bits from his pocket, and mechanically counted them over. Of the three hundred marks Louisa—pretty snake—had given him in the Cafe Riche and the expense money he had received from her the following day to cover his expedition to Alexandria for the Wilhelmstrasse naught but this paltry residue! That second-cabin ticket on the Princess Mary had taken the last big bite from his hoard, and here he was in this black-and-tan town with a quid and lit-

(Continued on page 157).

How to Buy Your Pullman Ticket

Pullman tickets may be purchased at 2,950 offices throughout the country, or they may be purchased from the Pullman conductor on the train.

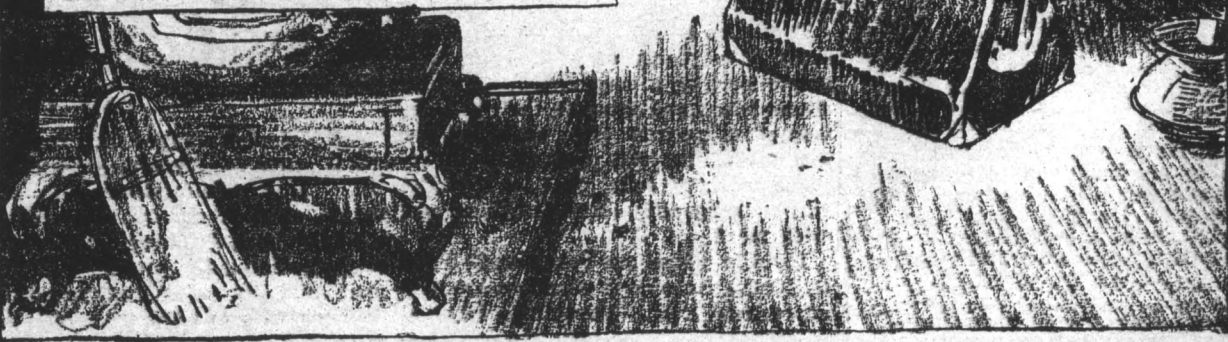
One Pullman ticket entitles you to a berth (accommodating two people) at night, and a double seat in daytime. Two Pullman tickets entitle you to a whole "section," or two berths and two double seats facing. All Pullman tickets entitle holders alike to the conveniences and comforts of the car and the services of the porter.

The price of a Pullman ticket varies with the distance traveled, but in general it is about the same that you would pay at a moderate priced hotel.

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Woman and Her Needs

At Home and Elsewhere

Correct Diet as Health Insurance

ISN'T it queer that when so much that is vital in life depends upon food and correct feeding, so few of us understand a thing about balanced ration, or pay any attention to feeding the human family sanely. We are told that food will play a big part in winning the war, yet we go about conserving with only a hazy idea of what we can best use as foods if we wish to conserve our strength and development, as well as conserve wheat for the allies.

Yet the whole thing is so simple that "even the way-faring man, though a fool, need not err therein." We eat to promote growth and to give us strength, or, as the experts say, to give us heat or energy. There are three classes of food and everything we eat may be placed in one of these three. They are the proteins, or the foods which promote growth, and the carbohydrates and fats, which give us heat and energy. The proteids consist of lean meat, eggs, milk, and the legumes. At least these are the important proteids, though many cereals contain proteins, and the proteins contain others of the food elements. For instance, milk contains fat in the shape of cream, and wheat contains proteid—the gluten which makes wheat bread elastic. The carbohydrates are the starches and sugars, and the fats we all know.

It will be seen at once that children must have plenty of proteids if they are to keep up a normal growth, while adults who have attained their full development may get along with just the amount of proteids necessary to replace wornout cells, that is, to build the body up daily as it is burned out with work.

Here is where our danger will come in during these days when we are asked to save food. We will be tempted to economize on the milk and eggs given our children, a thing we have no right to do. The children must be properly nourished or their health will be impaired for life. Those of mature growth may get along on skimmed rations with only temporary inconvenience, provided the food shortage does not last too long. But children must be fed.

Up until seven months the baby should be fed nothing but milk. Mother's milk preferably. Failing that, consult the best doctor you can secure as to the right way to modify cow's milk. Don't give your baby a prepared baby food because someone else gave it to her child and it "got along." And don't give condensed milk except as a last resort and on a physician's order. It is too sweet for a perfect food.

At seven months the salivary glands are able to do their part in digesting starch. Begin with a wheat breakfast food, or rice. Either is more apt to be digested by the average child than is oat meal. Feed only a teaspoonful the first day, and note the effect. If the cereal you choose is not digested, causes distress, choose another. Remember each child is a law unto itself and you must decide what yours can best digest. If there is a tendency to constipation oat meal is good as a corrective. If the tendency is the other way, rice is a good food.

After a few days' trial, if the starchy feed is properly digested, try to introduce egg into the dietary. Half a cod-dled egg, or soft boiled, is enough to begin with. Give this in the morning,

and if it is properly digested, add a little more at each feeding until the baby can eat the whole egg. Crackers and hard toast, not toast soaked in hot water or milk, may be given. Watch the child to see that it does not nibble off pieces large enough to choke on. Orange juice, a tablespoonful to begin with, and scraped apple should be given each day. Home-made sugar cookies may also be given occasionally in moderation.

Remember, these foods should not all be introduced at once. Never give more than one new thing on any one day, and wait for at least twenty-four hours to see its effect, forty-eight hours is better. Otherwise you can not tell which food upset the child.

Remember, that your child's future depends to a large extent on how you feed it, for health plays a large part in our ultimate success or failure. An eight-year-old boy in our block developed tuberculosis of the hip bone. He had practically nothing to eat until he was two years old except condensed milk in a bottle. His mother would not cook him cereals, it took too much time to sit down and feed him. Fresh eggs were too expensive. He used to throw the bottle away and lie on the floor and cry with hunger, but the mother declared he could take the

milk or go hungry. She had too much to do to bother with "a kid."

When tuberculosis developed the mother blamed a fall at school. Other mothers, whose boys had worse falls with no ill effects, blamed wrong feeding. And they were right. **DEBORAH.**

SOMETHING NEW FROM SOMETHING OLD.

BY GRACIA SHULL.

Two pairs of cotton bed blankets, (one gray one tan), too thin for use and too good to throw away; one pair of old rose tapestry portieres, badly streaked and faded, but whole; four full length window curtains of ecru muslin, these were the left-overs from our annual housecleaning.

After several days spent in thinking how I could put them to further use I evolved a beautiful plan and carried it out. The "rags" were torn into strips and sewn together, each color by itself, then woven into rugs. I have, for my bedroom, a cream, or ecru, rug with a four-inch border of old rose. In the entry I have a gray mat with an old rose border, and have, also, a bath mat the same color, and in the dining-room I have a long, tan rug with old rose border. Every scrap was used and I have four rugs easily worth six dollars, which cost me only a little time and a few cents in money. Surely it is worth while to study a bit before consigning wornout articles to the rag bag.

Activities of Organized Farm Women

By JENNIE BUELL

MEN who produce food rarely get onto food boards or are made food administrators in either nation, state or county. Nevertheless, the farm man is doing a lot of thinking concerning the present scarcity of food and its attendant perplexities. And his wife is right with him, thinking and working at these common problems that have come to involve the whole world's weal and woe. She doesn't make much noise or show about it but, if you look and listen, you will find her strictly at her own job.

A good place to learn what the women from the "back forties" of our state are thinking and doing on some of today's big questions was at the recent meeting of Michigan State Grange. These women were there—two hundred strong—representing all but five counties of the state. A Red Cross city worker might have been disappointed to see so few of these country women knitting and to note the almost total absence of the beautiful flowered bag which adorns her street costume; but, if she had eavesdropped, she might have heard one large, fine looking woman say to another, "Knit? Why, plover handles fitted my hands better than knitting needles last summer." Or, hear another say that she had handled every farm implement from planting to harvesting time. At another group she might have heard one woman mention that their beans had to be pulled, last season, by hand and "I had to help," while her companion said, "So did I." "No, I didn't can peas," said one, "for when mine were ready to pick I was needed in the hayfield." Remarks like these were made in no sense of pride or resentment, but simply stated as minor facts incident to war times.

Food Conservation.

There were, of course, food discussions at this meeting, many more than

can be hinted at in one article. Moreover, the food lessons were not given by a registered cook, all in white attire with a dainty cap atop her pretty hair, who told how to make economical meals out of left-overs of patented breakfast foods. No, the main food talk was made by a woman in a plain black dress, with a bit of lace at her throat, who explained how her husband and she had used their land for nine months of the year to produce a bushel of wheat which they sold at the government price for three and a half cents per pound and then went to mill and bought graham flour for seven cents a pound. When she had done that, declared the speaker, Mrs. Dora H. Stockman, she bought a hand mill, (yes, of a mail order house, too). She told the audience further:

"I can earn at the rate of seventy cents an hour grinding flour by hand. A man could earn nearly twice that amount and not work any harder than he did growing and threshing that wheat. If you have an engine you can earn about \$25 or \$30 a day, grinding your own graham, or rather whole flour, a flour that gives you all the fine elements that you have been growing such good calves and hogs on, and starving your boys and girls by giving them only nice white bread flour.

"Grind your own breakfast food. You can buy wheat at three and a half cents a pound and corn at four cents, less than half the price of any breakfast food you can buy on the market.

But this, you say, but increases the labor problem on the farm. Well, you can do this when it storms and we must do it until the price-fixing committee gets in the regulation on bread.

"As a state Grange have we not a right to ask that the mills of Michigan be required to grind our wheat at a fair ten per cent or cost of grinding basis,

thus saving the cost of sacks, transportation, several handlings and a lot of necessary and imaginary freights and costs?

I believe the Food Administration is slowly but surely trying to administer justice in these lines. Until then, let us grind. Eat our whole-wheat and save nearly a third on every barrel by using the whole-wheat pour."

This sort of talk was not regulation food talk, but that it was the sort of food talk that suited the mood of those farm people there was no gainsaying.

Then Mrs. Stockman got out of another food rut when she advocated substitution of potatoes for even the coarser grains in bread making. She said:

"We need to save the corn for the hogs. We have only about seventy-eight millions of bushels of rye. We can save these grains or ship them. Potatoes are our big crop. Potatoes are a perishable crop. Let us use potatoes in place of wheat or other grains in our bread. The war bread that saves the largest proportion of wheat that I use is potato bread. Not just a spoonful of potato, but four big cups of potato to one cup of water to a big baking of bread."

On a table in the big hall where this meeting was held, were samples of bread made with one-fourth and one-third potato by women from Eaton county. There was also shown one of the hand mills which women were advised to use until such time as the millers offer, or are forced by the government, to grind flour for less than one-half what it costs to grow it. These exhibits by the farm women of the state talked. The governor was present that afternoon and saw the potato bread and potato fried cakes and he asked that some of the bread be brought to his office the next week. When he got several loaves of it, with an exact statement as to how much cereal flour might thus be saved, and still give us white bread, he took it to the war authorities who, with the governor, decreed that hereafter potato bread shall be used in all state institutions.

Cash and Carry.

Mrs. Stockman knocked over another boggy that has long stood between the producer and consumer but is seldom mentioned—that of cost of local delivery. She stated that in Washington, last summer, it was ascertained that delivery cost seven and three-fourths of a cent on every dollar. "This month," she said, "the milk commission in Detroit set the price of milk delivered at fourteen cents, and the cost at the selling station at eleven cents, a difference of twenty per cent for delivery."

"We farmers have been trying to dodge these high delivery costs by buying of the mail order houses. Of late a lot of chain stores that make a specialty of a 'pay cash,' 'do your own delivery' have been started and they are having a large patronage in the city.

"Now, when the cost of living is pressing the farmers toward the wall of a non-profitable business, shall we not demand a price less the cost of delivery in cities, a delivery from which we receive no benefit?"

Home Economics.

The report of the committee on Home Economics was pronounced the best in all respects of any document presented at this session. This speaks wonderfully for a body of farm women, scarcely one of whom has had any modern school training along these lines. And yet this report dealt almost wholly with the educational phase of home keeping. It advocated study, discussion and demonstration through the Grange programs at every meeting; encouragement of girls' sewing, canning and housekeeping clubs extension schools from M. A. C.; substitution of mechanical for human power in housework and suggested that a fair share of the farm loan money should be used for improvement of home conditions;

and, lastly, they recommended that the Granges assist in securing more home demonstration agents for our state.

Our Girls.

At each recurring meeting of this body a strong word is spoken by the Woman's Work Committee for the closer relations of mothers with their daughters and for the mothering by mothers of girls' clubs and social events. On the matter of dress, these women said:

"In other reports we have called your attention to the necessity for changes in the manner of dress for girls and young ladies. The immodest exposure of neck and shoulders, and the equally immodest short skirt, we believe have a tendency to lower moral standard."

Suffrage.

Farm women evidently now stand united with their men—for farm men were out and out suffragists before the women were—on the point of need of women in public councils and administration. Repeatedly was this note sounded and the entire body went on record, not once but several times, in favor of the passage of the federal amendment.

Anti-Tuberculosis.

For four years there has been a standing committee of Grange women working with the anti-tuberculosis forces. The chairman of this group is Mrs. B. B. Lincoln, of Huron county, a mother with young children in a farm home, yet so full of progressive ideas for health that her report fairly sizzles with zeal. This year, because war conditions make danger from the white plague tremendously increase, she urged the need of study and practice of preventive measures more strongly than usual. Because of delayed mails this report was not read at the session but is being published in the proceedings.

All in all, one cannot meet with such a body of earnest working women from the outposts of the state, without feeling that one has come in contact with great spiritual, human resources of our national life. For every report, every detail of their word and action was permeated with a dignified patriotism and they showed they had already faced about and are administering their farm households from the standpoint of world needs, rather than, as heretofore, from the needs of their individual homes alone.

MERELY SUGGESTIVE.

Figures giving the food supplies of the world tell us that in 1918 America will more and more be called on to share with a hungry world what she can spare from her own hoard. This can be done by substituting other foods not needed for shipping. Sometimes it is hard to think of that substitute. Why not prepare a list to hang on the kitchen cabinet to be used for ready reference when in doubt. Let the list below grow with your experiments.

Meat Substitutes.

Poultry, rabbit, fish, eggs, cheese dishes, baked beans, bean loaf, nut loaf, bean soup, milk soup, chowders, milk.

Wheat Bread Substitutes.

Corn bread, brown bread, oatcakes, buckwheat cakes, hominy, potato biscuit, rye bread, potatoes, rice.

HOME QUERIES.

Poultry and Game Birds.—Kill fowl and draw at once. Wash carefully and cool, cut in convenient sections, place in wire basket or cheese cloth and boil until meat can be removed from bones. Remove from boiling liquid and bone, pack closely into glass jars, boil liquid down one-half and fill jars, add level teaspoon of salt to every quart of meat, adjust tops and rubbers and boil three hours in water bath. Remove jars, tighten covers, invert to see that no can leaks, wrap in paper and store.

Pastry? Of Course!



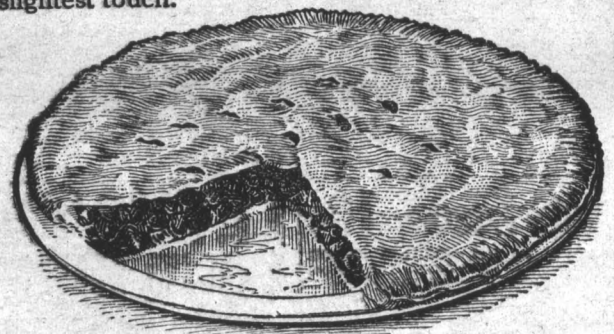
Why Use A Special Flour, For Pastry?

You don't need a "special" flour for pastry. Pillsbury's Best makes good pastry as well as good bread. Try this Pillsbury recipe for pie crust:

- 1 cup Pillsbury's Best Flour.
- (use $\frac{1}{2}$ Pillsbury's Barley or Pillsbury's Pure Rye Flour if desired)
- 3 level tablespoons shortening
- $\frac{1}{2}$ teaspoon baking powder
- $\frac{1}{2}$ teaspoon salt.
- Enough ICE-COLD water to make a soft paste.

Mix with a knife in the usual manner.

This recipe makes the finest, crispest pie crust imaginable. Not the leathery kind that bends under your fork like a sheet of rubber, but the light, flakey kind that crumbles into tender fragments at the slightest touch.



To make pie crust like this with Pillsbury's Best requires no special skill. Just remember to use lots of cold water, (ice-cold if possible) and to mix the paste as soft as can be easily handled. With these precautions you can use your own recipe with equally good results.

If you are already making good pastry, you can make better pastry with Pillsbury's Best. If folks knew what delicious pie crust they could make with this all-purpose flour, they would say good-bye to "special pastry" flours forever.

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Easily Made Centerpieces and Doilies

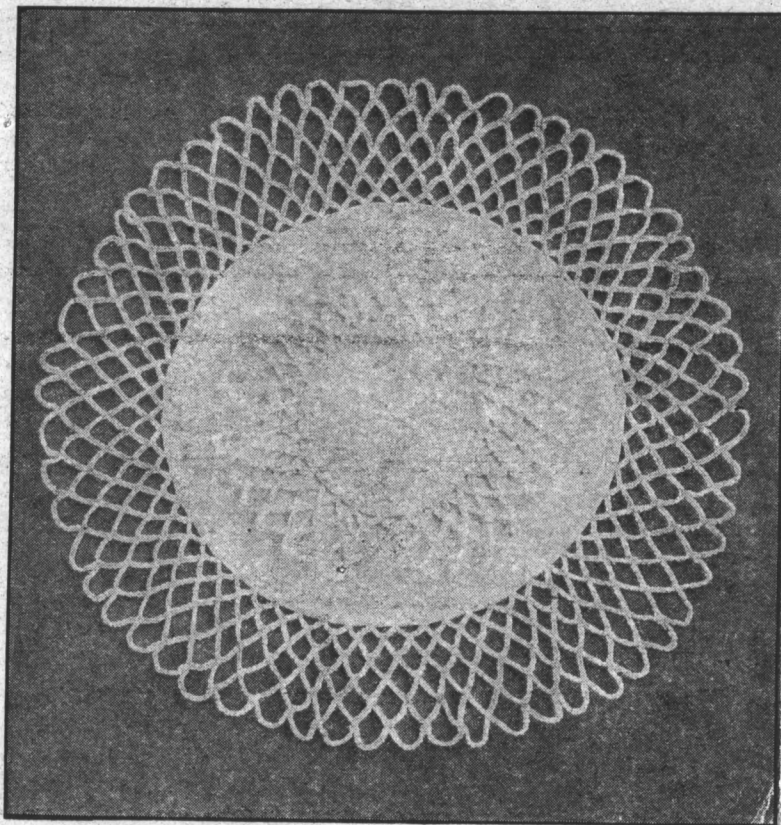
MANY of us who are fond of fancy work and like pretty things find most of the crochet designs offered us a little difficult and complicated for our skill, or rather lack of it. The centerpiece and doilies shown here are so simple that they can be made without any trouble by a beginner in the art of crochet who sometimes feels as if her fingers were all thumbs, or even by any child who is old enough to hold a crochet needle. And they are also very inexpensive, which is another advantage. The centerpiece is made by cutting a circle from duck, pique, linen or any stout white material. The most convenient size is about fourteen by fourteen inches, but, of course, you can make it larger or smaller if you prefer. If you have any difficulty in cutting out an exact circle, place a large mixing bowl on your material

the center of white duck or linen and the first chain of loops of blue mercerized cotton, the next row of white, the next of blue, and so on. Any combination of colors that you best like can, of course, be used for this. The laundering must be more carefully done than in all white centerpiece, but if you get the washable mercerized cotton I do not think you will have any trouble about this.

BREAKFAST MAMALADES.

Sugarless.

As a butter saver, Americans might adopt the English custom of serving marmalade with toast or hot bread for breakfast. Let the fruits supply the sugar to be used in making these marmalades. Their virtue lies in the tartness of the fruit and the fact that they



Centerpiece and Doily of Simple Design.

which you must be sure to pull tight and smooth under it. Then take a soft pencil and mark around it and you have an excellent guide for cutting. For plate doilies you can use plates or small bowls for a guide and for glass doilies use tumblers. The first thing to do is to make a narrow flat hem all around, or a rolled hem if you like it better. Now, with crochet cotton make a chain of six stitches and fasten this over the hem as shown in the illustration. Go all around the centerpiece in the same way, fastening each chain at equal distance from the other. Now crochet a chain of seven stitches and fasten in the middle stitch of each loop in the row just finished. Continue all around in this way and then make a third row of eight stitches in each chain. Go on increasing a stitch in each chain of every succeeding row until you have six or more of these loop-like rows bordering the centerpiece. If you find the edging is getting too full to lie flat, as it may do if your crochet cotton is a trifle too coarse, add the extra stitch in every other loop in each row. For instance, in the third row where this cupping may possibly begin to trouble you, make your first chain of eight stitches just as already directed, then make the second chain seven stitches, the third eight again, and so on. The doilies should be made with narrower borders of these crochet loops than the centerpiece.

If you want to give a pretty touch of color to the table make the centers of this set of pale pink or blue duck or linens with crocheted edge in white. Another very attractive plan is to make

contain only what nature put in the fruits.

Apple-Raisin Marmalade.—To one cup of ground seeded raisins add one cup of chopped apples and one cup of water. Cook until thickened. A little orange and lemon juice and grated rind may be added if liked.

Cooked dried fruit, as apricots, pears, peaches, or prunes may be used in combination with the ground raisins in any proportion desired, and three fruits combined, as apricots, apples and raisins.

Catsup added to the marmalades makes a simple fruit relish to serve with cold meat.

Date-Prune Jam.—Wash one pound of prunes, soak over night; cook in the same water and remove stones. Remove stones from one pound of dates and cut in small pieces. Cook with prunes until mixture is thick. Add a small amount of lemon juice.

Prune Apricot Butter.—Wash one pound of prunes and one-half pound of apricots; soak over night; stew until very soft in same water; rub through colander; return to sauce pan and cook slowly until thick like apple butter, being careful that it does not burn. Do not add sugar.

To Clean Windows.—Where the windows are not sheltered by a porch or eaves they quickly become water stained. Add one tablespoonful of glycerine and half as much wood alcohol to the water in which they are washed and they will polish beautifully and shed water for a long time. Windshields washed in the same way will remain clear during a driving storm. —L. M. T.

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INSIDE THE LINES

(Continued from page 153).
 He more between himself and the old starved-dog life.

But—and Capper narrowed his eyes and sagely wagged his head—there'd be something fat coming. When he got knee to knee with the governor-general of the Rock, and told him what he, Billk Capper, knew about the identity of Captain Woodhouse, newly transferred to the signal service at Gibraltar, why, if there wasn't a cool fifty pounds or a matter of that as honorarium from a generous government Billy Capper had missed his guess; that's all.

"I say, Governor, of course, this is very handsome of you, but I didn't come to tell what I know for gold. I'm a loyal Englishman, and I've done what I have for the good of the old flag."

"Quite right, Mr. Capper; quite right. But you will please accept this little gift as an inadequate recognition of your loyalty. Your name shall be mentioned in my dispatches home."

Capper rehearsed this hypothetical dialogue with relish. He could even catch the involuntary gasp of astonishment from the governor when that responsible officer in his majesty's service heard the words Capper would whisper to him; could see the commander of the Rock open a drawer in his desk and take therefrom a thick white sheaf of bank-notes—count them! Then—ah, then—the first train for Paris and the delights of Paris at war-time prices.

The little spy anticipated no difficulty in gaining audience with the governor. Before he had been fifteen minutes off the Princess Mary he had heard the name of the present incumbent of Government House. Crandall—Sir George Crandall; the same who had been in command of the forts at Rangoon back in '99. Oh, yes, Capper knew him, and he made no doubt that, if properly reminded of a certain bit of work Billy Capper had done back in the Burmese city, Sir George would recall him—and with every reason for gratefulness. Tomorrow—yes, before ever Sir George had had his morning's peg, Capper would present himself at Government House and tell about that house on Queen's Terrace at Ramleh; about the unconscious British officer who was carried there and hurried thence by night, and the tall well-knit man in conference with Doctor Koch who was now come to be a part of the garrison of the Rock under the stolen name of Woodhouse.

Capper had his dinner, then strolled around the town to see the sights and hear what he could hear. Listening was a passion with him.

For the color and the exotic savor of Gibraltar on a hot August night Capper had no eye. The knife edge of a moon slicing the battlements of the old Moorish Castle up n the heights; the minor tinkle of a guitar sounding from a vine-curtained balcony; a Riffian muleteer's singsong review of his fractious beast's degraded ancestry—not for these incidentals did the practiced mind under the battered Capper bowler have room. Rather the scraps of information and gossip passed from one blue-coated artilleryman off duty, to another over a mug of ale, or the confidence of a sloe-eyed dancer to the guitar player in a tavern; this was meat for Capper. Carefully he husbanded his gold piece, and judiciously he spent his silver for drink. He enjoyed himself in the ascetic spirit of a monk in a fast, believing that the morrow would bring champagne in place of the thin wine his pitiful silver could command.

Then, of a sudden, he caught a glimpse of Louisa—Louisa of the Wilhelmstrasse. Capper's heart skipped, and an involuntary impulse crooked his fingers into claws.—(Con. next week).

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8-34-16	8	34	16	3, 3 1/4, 3 1/2, 4, 5 1/2, 6, 8	650	36c	38c
8-34-30	8	34	30	3, 3 1/4, 3 1/2, 4, 5 1/2, 6, 8	825	45c	48c
8-45-16	8	45	16	4 1/2, 5, 5 1/2, 6, 7, 8, 9	660	37c	39 1/2c
9-42-16	9	42	16	3, 3 1/4, 3 1/2, 4, 5 1/2, 6, 8, 8	725	39 1/2c	42 1/2c
9-42-30	9	42	30	3, 3 1/4, 3 1/2, 4, 5 1/2, 6, 8, 8	900	48 1/2c	52 1/2c
10-50-16	10	50	16	3, 3 1/4, 3 1/2, 4, 5 1/2, 6, 8, 8	825	44c	48c
10-50-30	10	50	30	3, 3 1/4, 3 1/2, 4, 5 1/2, 6, 8, 8	990	54c	58 1/2c
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9-42-16	9	42	16	3, 3 1/4, 3 1/2, 4, 5 1/2, 6, 8, 8, 8	1300	70c	74c
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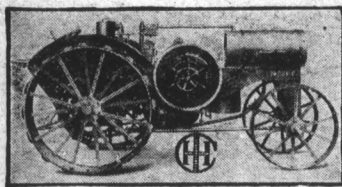
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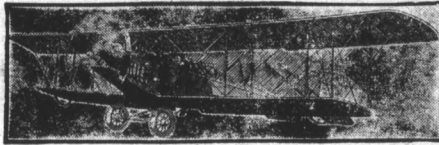
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How the World's Business Is Transacted - By COMFORT A. TYLER

Do Your Own Thinking

NOW simply because in the latter part of article seven we advised you to consult with the banker before making a financial investment of whole or a part of your savings, I do not want our boys and girls to get the notion that the banker is an "all-wise" fellow whose lead or advice should be followed blindly, for it is not true. He makes mistakes as often as anyone else, but what I wished to impress on your mind is this, that he has studied financial problems day and night, studied them from every angle, up one side and down the other, has kept in touch with financial progress, has lived in a financial atmosphere, has breathed it and dreamed it and worked at "the trade" until he will have a much broader vision of financial investments and a clearer knowledge of it than will the farm boy or girl who has not been compelled for very existence to do this as has the banker.

I am not saying that you should always follow the advice of the banker even. I want you to learn to have a mind of your own, to make decisions for yourselves, and many times a loss of some of your earnings may do more to make you quick, alert and careful than almost any other experience you could have. But with all of this, if when you are ready to make an investment, you will consult your banker first, go over the matter with him carefully telling him every angle of the deal as you see it, he will very often, from his ripper experience in money matters, be able to put a new light on it. This knowledge added to your own inclinations, may entirely change your viewpoint of it.

In our last article we mentioned once having entirely changed our minds about a certain deal after getting the advice of the banker. I well recall another incident when the writer went to his banker and told him of a certain investment he was inclined to make that would take every penny he had saved.

The banker listened carefully and attentively through the recital of the facts and then said kindly, "Comfort, you know a lot about the business you are contemplating, don't you?" We, of course, modestly (?) admitted that we thought we did. "Well," he said, "I think you do, too, I think you know ten times more about that particular business than I do or ever will. You will give it your personal attention I believe and will make it win. Why don't you go into it on a larger scale and make more money out of it and do the community just that much more good."

Now, I knew in after years when I was older, that this man was trying me out and wanted to see just how much faith I really had in the enterprise myself—and he found out. "Why," I said, "simply because I have not the money to do it with."

"Is that all the reason why you do not go in heavier?" he asked.

I admitted that it was. Up to this time I had never asked for credit from this banker and did not even know that I could get it.

"Well," he said, "How deep would you go in if you had the money?"

I told him, and probably the greatest surprise of my life came to me right then, for his very quiet, prompt reply was, "I will let you have the money."

Now I had known this banker for three years and longer. Had been doing a little business with him—with the ledger always showing a very small balance in my favor, but probably that was the supreme moment in my business career. I had gained the favor of a banker. I had established credit at the bank. I was deemed worthy of confidence by a man who was a professional money lender—and by the way, let me say, young folks, never owe anyone except the professional money lender. It is safety to you. He will usually know if you are worthy of credit and he is in the business as a profession. He wants to lend money—in all ordinary times (just now is not ordinary) as badly as you want to borrow it, and he will be a protection to you from yourself. He won't let you do foolish things very often so make it a rule early in life to owe no one but the banker. But we are off the track again. I once heard it said that the reason why a woman could not preach was because she could not stick to her text, but I doubt the truth of this, or if it is true of her it is equally true of a man. Just let her text be an Easter bonnet and see if she can't "stick."

Well, to get back where we branched off: The very fact that the banker would offer to lend me money meant as much to me as the fact that I could go into a business that I felt sure I could win at. Remember, boys and girls, that at this time I had only voted once or twice and I voted just as soon as the laws of Michigan would let me and you will see what it meant to me. I offer this as proof of the correctness of a statement made in a former article, that the banker will advise you as

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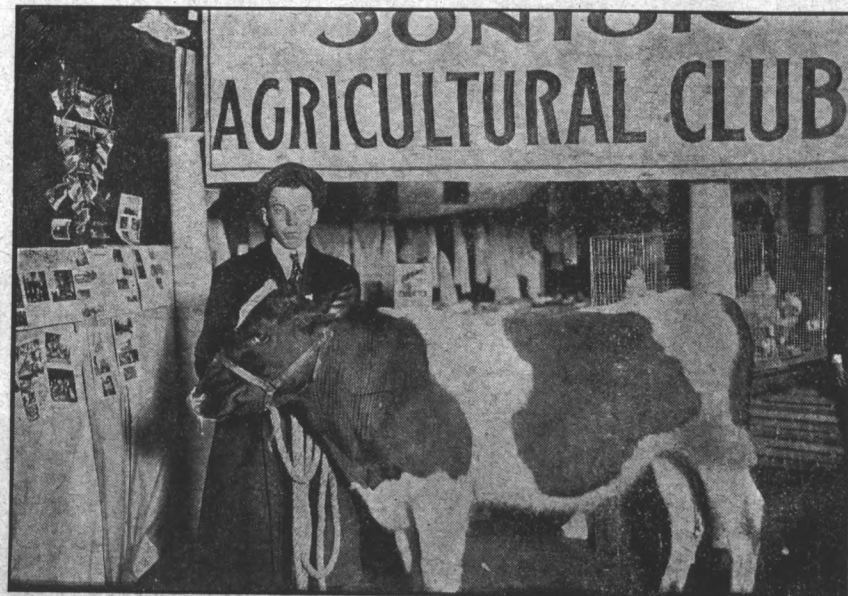
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quickly to withdraw your money from the bank, if he thinks it is a good business deal for you to do so, as he would to hold it if he thought you would make a mistake by withdrawing. It's good business from his standpoint to have his customers successful in business. He will never be successful in the banking business until the large majority of his patrons are successful. The average banker is honest enough to advise you to the best of his ability and any banker with sense enough to stay long, will advise you right—as he sees it, for selfish reasons of for no other.

I think about every boy and girl reader of the Michigan Farmer has heard of the writer in connection with the Hampshire sheep industry and it

may add a little of interest to the incident above related to say that it was the dawn of my Hampshire day. It was the beginning of the career that has brought me most of my business success. Was it a good thing for me to have had a savings account in the bank when I was a boy? Was it a good thing for me to have known a banker and that he knew me? Was it a good thing for me to have been doing what business I did with a bank, and one bank? Was it, boys and girls? My savings account was never large, not half as much in three years as most of you can save in six months, but the habit, the acquaintance, the knowledge of business thus gained spelled opportunity for me when the way opened. It will do as much or more for you.

The Grizzly King

By JAMES OLIVER CURWOOD

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"Almost—inconceivable," said Langdon then. "And yet it's true. And it isn't a freak of nature, Bruce—it's simply a result of Nature's far-sightedness. If the cubs were as large comparatively as a house-cat's kittens the mother-bear could not sustain them during those weeks when she eats and drinks nothing herself. There seems to be just one flaw in this scheme: an ordinary black bear is only about half as large as a grizzly, yet a black bear cub when born is much larger than a grizzly cub. Now why the devil that should be—"

Bruce interrupted his friend with a good-natured laugh.

"That's easy—easy, Jimmy!" he exclaimed. "Do you remember last year when we picked strawberries in the valley an' threw snowballs two hours later up on the mountain? Higher you climb the colder it gets, don't it? Right now—first day of July—you'd half freeze up on some of those peaks! A grizzly dens high, Jimmy, and a black bear dens low. When the snow is four feet deep up where the grizzly dens, the black bear can still feed in the deep valleys an' thick timber. He goes to bed mebbly a week or two weeks later than the grizzly, an' he gets up in the spring a week or two weeks earlier; he's fatter when he dens up an' he ain't so poor when he comes out—an' so the mother's got more strength to give to her cubs. 'It looks so to me.'"

"You've hit the nail on the head as sure as you're a year old!" cried Langdon enthusiastically. "Bruce, I never thought of that!"

"There's a good many things you don't think about until you run across 'em," said the mountaineer. "It's what you said a while ago—such things are what makes huntin' a fine sport when you've learned huntin' ain't always killin'—but lettin' live. One day I lay seven hours on a mountain-top watchin' a band o' sheep at play, an' I had more fun than if I'd killed the whole bunch."

Bruce rose to his feet and stretched himself, an after-supper operation that always preceded his announcement that he was going to turn in.

"Fine day tomorrow," he said, yawning. "Look how white the snow is on the peaks."

"Bruce—"

"What?"

"How heavy is this bear we're after?"

"Twelve hundred pounds—mebbly a little more. I didn't have the pleasure of lookin' at him so close as you did, Jimmy. If I had we'd been dryin' his skin now!"

"And he's in his prime?"

"Between eight and twelve years old, I'd say, by the way he went up the slope. An old bear don't roll so easy."

"You've run across some pretty old bears, Bruce?"

"So old some of 'em needed crutch-

es," said Bruce, unlacing his boots. "I've shot bears so old they'd lost their teeth."

"How old?"

"Thirty—thirty-five—or mebbe forty years. Good-night, Jimmy!"

"Good-night, Bruce!"

Langdon was awakened some time hours later by a deluge of rain that brought him out of his blankets with a yell to Bruce. They had not put up their tepee, and a moment later he heard Bruce anathematizing their idiosyncrasy. The night was as black as a cavern, except when it was broken by lurid flashes of lightning, and the mountains rolled and rumbled with deep thunder. Disentangling himself from his drenched blanket, Langdon stood up. A glare of lightning revealed Bruce sitting in his blankets, his hair dripping down over his long, lean face, and at sight of him Langdon laughed outright.

"Fine day tomorrow," he taunted, repeating Bruce's words of a few hours before. "Look how white the snow is on the peaks!"

Whatever Bruce said was drowned in a crash of thunder.

Langdon waited for another lightning flash and then dove for the shelter of a thick balsam. Under this he crouched for five or ten minutes, when the rain stopped as suddenly as it had begun. The thunder rolled southward, and the lightning went with it. In the darkness he heard Bruce fumbling somewhere near. Then a match was lighted, and he saw his comrade looking at his watch.

"Pretty near three o'clock," he said.

"Nice shower, wasn't it?"

"I rather expected it," replied Langdon carelessly. "You know, Bruce, whenever the snow on the peaks is so white—"

"Shut up—an' let's get a fire! Good thing we had sense enough to cover our grub with the blankets. Are you wet?"

Langdon was wringing the water from his hair. He felt like a drowned rat.

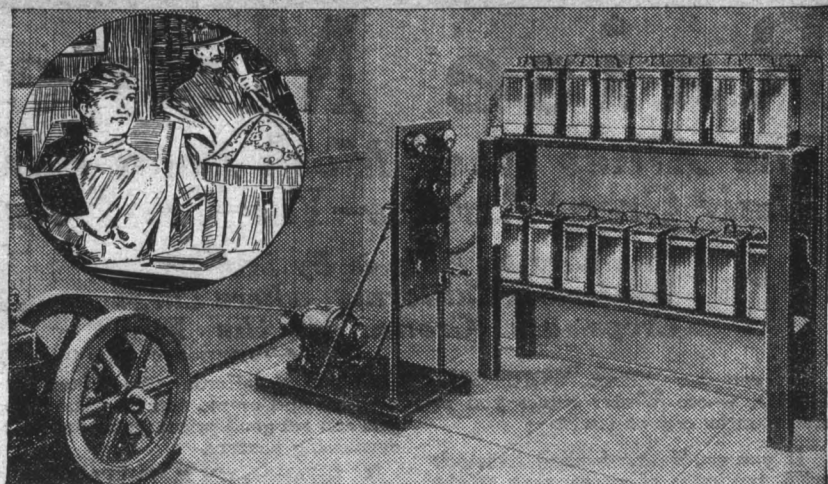
"No. I was under a thick balsam, and prepared for it. When you called my attention to the whiteness of the snow on the peaks I knew—"

"Forget the snow," growled Bruce, and Langdon could hear him breaking off dry pitch-filled twigs under a spruce.

He went to help him, and five minutes later they had a fire going. The light illumined their faces, and each saw that the other was not unhappy. Bruce was grinning under his sodden hair.

"I was dead asleep when it came," he explained. "An' I thought I'd fallen in a lake. I woke up tryin' to swim." (Continued next week).

No one is useless in this world who lightens the burden of it for another. —Dickens.



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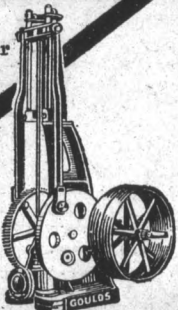
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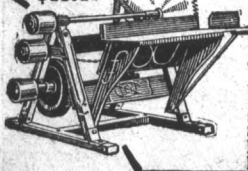
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Bumper the White Rabbit

By **GEORGE ETHELBERT WALSH**

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Bumper Meets a Bear

BUMPER spent a quiet and restful night after Dr. Crane had removed the trouble that was causing his sickness; but he was very weak and faint, and he slept long after the birds were up and singing. He was a little afraid at first to eat anything when he finally crawled from his hole in the decayed tree branch; but, recognizing some sweet birch trees, he ate moderately of the leaves and bark.

This seemed to put new life in him, and by early noon he felt quite himself again. Rusty the Blackbird, who had taken quite an interest in him, brought him the cheering news that his country cousins were living in a burrow a few miles back in the thick woods.

"Take this deer trail back about a mile, and you'll find them," he said. "You can't miss their home. It's under a big rock which you'll come to."

Bumper thanked him, and decided to begin his journey at once.

"Is there any danger of meeting Mr. Fox on the trail?" he asked a little anxiously.

"No," replied Rusty, "for Buster the Bear frequents the trail, and Mr. Fox is dreadfully afraid of him."

"But how about Buster the Bear eating me up?"

"He might," admitted Rusty, "if he caught you, and was very hungry, but you don't want to let him catch you."

"That's true," replied Bumper, "but I might not be able to avoid him. Is he as quick as Mr. Fox?"

"Oh, dear, no! You can easily out run him. He's so clumsy he falls over his own big feet sometimes, and he makes such a noise you can hear him coming a mile away."

"Then I don't believe I'm afraid of him," replied Bumper, in a voice of relief.

When he started out on his travels he felt pretty good, and on the way he stopped to eat every time he found something he knew was good for him. He avoided all strange plants, and ate only those he recognized.

In a short time he came to such thick woods that if it hadn't been for the deer trail he would have been lost, but he followed Rusty's directions, and kept strictly to the well-worn path. When he grew tired, he rested by the wayside, always hiding in the thick bushes, and keeping one eye and both ears open. There were many strange and wonderful noises in the woods, and more than once Bumper started up with fright.

But nothing happened to him until he was so far in the woods that he thought the big rock must be near. He kept a sharp lookout for it. Just then he heard a noise so different from anything that had startled him before that he stopped to listen. It seemed as if someone was in great pain, and needed help.

Now Bumper was very tender-hearted, and anyone in distress made him very sad. So instead of keeping on the trail, he wandered off to find out who was moaning so loudly.

And what he beheld was enough to make any rabbit laugh! It was Buster the Bear fast asleep, snoring as if he enjoyed it. Bumper was frightened at first by the sight of the big shaggy head and body, but when he recalled Rusty's words, and saw that Buster was sleeping, he stopped and laughed.

While he stood off at a safe distance watching, a bumblebee lighted on Buster's nose and tickled it. The bear brushed it off with a paw, and rolled over to renew his sleep. But, unfortunately for Buster, he whacked the bee so hard that he must have hurt it. Anyway, the bumblebee resented it,

and gave him a sharp sting on the nose. The effect was startling. Buster came to life with a jump, and let out a loud:

"B-r-r-r! Whoof!"

The ground seemed to tremble as he struggled to his feet, and swung his huge paws at the bee. But the bumblebee, having accomplished its purpose, calmly flew away. Buster rubbed his smarting nose, and growled angrily.

Suddenly he caught sight of Bumper grinning at him. He stopped rubbing his nose to stare and blink at the white rabbit. Bumper, now that he was discovered, ceased grinning, and began to feel afraid.

"You think it very funny, don't you?" growled Buster, his little eyes flashing. "I wish he'd stung you instead of me. Drat the old bumblebee! I wonder what they're made for?"

"I'm sure I couldn't tell you," replied Bumper, in an unsteady voice.

"What do you suppose you're made for?" continued Buster, eyeing him queerly.

"Why—to—make little boys and girls happy, I suppose," Bumper stammered.

Buster grinned at this stammering remark. Then, with a leer, he added: "No, that isn't the reason. It's something else. Want me to tell you?"

"Why, yes, I'd like to know."

"Well, then, it's to give Mr. Fox right back of you a good meal."

Bumper gave a jump of nearly three feet when he heard this. He didn't suppose the fox was anywhere near, and the thought that he was right behind, ready to spring upon him, sent the blood racing through his body. But when he turned, expecting to see dripping jaws about to close upon his neck, he was surprised and then puzzled. There was no fox in sight. However, he wasn't to be deceived, if Mr. Fox was hiding, and he stood ready to spring away, his body quivering with fright, and his pink eyes dilated.

"Ha! Ha! Ha!" laughed Buster the Bear in a deep rumble, rolling over on his fat sides. "Ho! Ho! Ho. What a scare I gave you! Now we're quits. The joke's on you!"

"The next time I see anyone in trouble," he said, "I won't laugh at him, Mr. Bear. You've taught me a good lesson."

"Well, that's what I call taking a joke in the proper spirit," smiled Buster. "I'm sorry I gave you such a shock."

"And I'm sorry I laughed when the bee stung your nose."

"Oh, as for that, I didn't mind the sting so much as the interruption to my sleep." Buster rubbed his nose as he spoke. Then he added, addressing the white rabbit:

"Where are you bound? You must be lost. I never saw a white rabbit out of the city before."

"Were you ever in the city?" asked Bumper eagerly.

"Sure! I was in the Zoo for a whole year until I escaped."

"Then you know something how I feel. The country's very strange to me, and I feel a bit lonesome. Could you tell me where my country cousins live—the wild rabbits?"

"Yes," replied Buster, "but I'm not sure they'll welcome your coming. However, you can find them by following that trail a little further until you come to a big rock. They live under it where Mr. Fox can't get them."

"Thank you," replied Bumper. "I think I'll be going, then. I must find them before night."

(Bumper's difficulties in finding his cousins will be told next week.)

Something for the Boys and Girls

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DOCTOR WILBUR'S ADDRESS.

President Wilston states here again, what he has stated before, that there is no peace to be made in this country with the Hohenzollern. If ever there was a nest of ugly vipers that needed to be wiped out this is the one. They have perverted a great people; they have torn the world with dissension; they have brought back to the world the most terrible things that have ever been seen.

Back of the Hohenzollern, pledged personally to the Hohenzollern family, fatally sworn by life, are ten to forty million armed veteran soldiers of the highest type, convinced that they are working and fighting in a cause that must succeed, that their efforts are vital to the success and life of their Fatherland. That is the thing back of this force that President Wilson calls The Thing.

There is no way to settle this problem but to settle it by force and to convince that army of armed men that there must be a change in conditions in this world. How is this going to be accomplished?

Over three years ago this thing was turned loose to crush and devour everything in its path; it crushed Belgium, pushed forth into France until stopped by the battle of the Marne, and in the three years that have elapsed since that time all that France, England and Italy have been able to accomplish is to hold that line, a few little changes here and there, but simply to hold the line drawn three years ago, while in the meantime Germany has conquered Serbia, Montenegro, a large part of Roumania, Northern France and has over-run Poland and a large part of Western Russia.

Germany is in the position of a victor in this war at the present and a peace movement at this time means not only victory for Germany, but that we as a great power will have to sink to second place unless we turn ourselves into a mighty fighting force because Germany has thrown Russia out of the fight, included most of Roumania, Bulgaria, Western Turkey, Austria-Hungary and Belgium, and as well, swept into Russia itself through Poland, and has under its power 200,000,000 of subject people from which an army of 25,000,000 can be drawn within two or three years and if the present army of 12,000,000 to 15,000,000 men can do what they have done, you can readily see that there is something that must be done by the United States of America.

This is our problem: We have got to take Russia's place and we have to reach that place and fight on that line because when this line falls, it will mean the fall of France and England and the same fate for those countries as has befallen Belgium and Poland and nothing in the world will save us from just that same experience. Hell on earth is the fate of the farmer's wife in Serbia. You will understand something of this when I tell you that there are numerous families where the father is in the army, to which two children have been added to the family while he has been away. There are no children under four years of age in Poland; 500,000 to 750,000 Armenians have been slaughtered under German orders.

Do we want that Thing turned loose in this country, or do we not? Do we want that kind of Thing that is so base that it destroys life from the babe up to the old man?

Perhaps I can illustrate this by telling you an experience of Mr. Hoover's in Belgium. In speaking of a certain village in Belgium, Mr. Hoover says: "I went there with a certain Prussian officer who was my guard and I said to him, 'Were there no atrocities in this town?' He said, 'No, there were no atrocities here. We lined up 500 men and women and shot them down with rifles and that got too slow so we finished them with machine guns. We separated the children. They were captives that we had taken for the good deportment of the community and it was a good thing they were dead.'"

This is what our President rightly called The Thing, and this is what we have got to fight. Do we want this Thing in our country? It will take two

years to prepare an army to compare in strength and numbers to that of our foe. We have got soldiers to train, ships to build, aeroplanes to build, aviation men to train, guns to build, ammunition to make; all to be done in two short years; we have got to do in this length of time, What Germany has been doing in fifty years; and we have got to maintain our soldiers and our Allies.

We have got to settle down to business; we have got to sacrifice, and sacrifice until it hurts. The man or woman who does not sacrifice and sacrifice until it hurts, is not a true American citizen.

Germany has educated her people to believe that they are in the right; that no matter what barbarous acts they commit—it is all right. They will fight as long as their breath lasts. They are going on with their wickedness; and they will go on with it, until they are checked, and we have got to help check them.

There are fifty boats filled with soldiers out on the dark waters of the ocean now—and these men do not know whether they are going to live from one minute to another; whether they will ever reach shore or not. The side of their ship may be torn open at any moment, and they will have to take to the small boats. In the boats, tossed on the waves, men are suffering cold and hunger; some wounded and perhaps dying from wounds received from machine guns. They have risked their lives to take food to our Allies, who are holding the line until we get there. Are we going to support our Allies, or are we not? We have got to save food to put on these ships. Food for our Allies, and our soldiers, who are at the front, means defeat to the Germans.

We have three years of hell before us, and the quicker we meet it, the more lives you will save. Can you do anything to save this situation?

Every bit that you save means lives of the boys who are fighting so nobly that we might live in comfort in our homes here. You can save this situation by raising more food and saving more. Stop thinking about the money you can make for yourself, get busy and raise food that is going to save the lives of your boys. The more food that you raise, the more food that you save, is going a long way toward winning the war; protecting your families, your wives and your children.

Grange.

Our Motto:—"The farmer is of more consequence than the farm, and should be first improved."

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THE OVERSEER'S REPORT.

(Continued from last week.)

This year the opening paragraphs of the overseer's report dealt with changes which war conditions are making in farm business.

Eliminate the Profiteers.

He said in part: "Manufacturing has been fostered by legislation at the expense of agriculture to such an extent that the industry has languished."

"One short year has changed all this and turned the eyes of the whole world upon the American farmer. Food has become the article of chief importance in the minds of all and farming the most needful industry. The government has begun to foster agriculture by forbidding speculation in farm products and by fixing prices thereon, based upon the cost of production plus a reasonable profit to the producer. The government is eliminating the food profiteers as fast as possible. The farmer is taking his rightful position in the business world. To him the nations look for their food supply and he will not disappoint them."

"By the nation I mean the govern-

ment, our government, a government of the people, for the people, and by the people. We, the people, are the government and when the government fixes prices we are fixing them ourselves."

"The government has drafted and called into service ten million of our young men to fight our battles for us, but we are hesitating about drafting the wealth of the people to pay their expenses. Is money more sacred than men?"

"I believe the government should make as careful inventory of the incomes of our people as we made of our man power. For taxes are ultimately paid out of incomes. Why not register the incomes of all the people, the same as we registered the young men of our country, with as drastic penalties for not registering as we inflicted upon the men who did not register, not only imprisonment but the confiscation of the property of those who fail to register. In that way we can secure a complete inventory of our resources. I believe the government should take all incomes above reasonable living requirements and business expenses and expansion for the support of our armies in the field, instead of bonding future generations to pay a large part of the expenses. They will have enough to pay after we have exhausted our resources."

"Property has become too sacred with us."

Public-owned Utilities.

With the last assertion, the Overseer proceeded to take up discussion of public utilities, making very distinct the difference between government control and government ownership. He said: "What we need and must have today in business, in public utilities, is efficiency, not dividends; service, not profits for a few."

"Efficient service to all is better than poor service and large dividends to a few. Plenty of coal, plenty of men, and people freezing. Why? Private ownership, watered stock, and dividends."

Natural resources—coal, iron, copper, timber, waterpower, etc., given to us by God Almighty for the use of man—should be owned and controlled by the government for the use of all the people. Not for the enrichment of the few. The profiteer of the natural resources and public utilities must be eliminated and controlled. I believe now is the proper time for the Grange to declare in clear, concise language, and our demands will have a favorable hearing."

"The railroads, telegraph and telephone systems can be made as efficient as our postal system, only by government ownership and control. We have in this country water power enough to develop electricity to run every railroad and electric line, every factory, mine and all farm machinery, heat and light every home. Nearly all of which we have allowed to pass unchallenged into the hands of corporate interests to which we and future generations will be compelled to pay high tribute unless we, the government, take that which belongs to us—the water powers, and use them for all people without paying tribute to anyone."

"Public ownership does not necessarily mean public operation of public utilities or natural resources. The mines of Alaska today are owned by the government and leased under iron-clad contract to the operators. The Queen & Crescent road from Cincinnati to Chattanooga is the best example of municipal ownership that I know of."

"The Georgia Central was built by the State of Georgia and is also leased and operated by the Southern Company. The Southern road gives good service. The owners of these railroads absolutely control them by their leases and the public are not obliged to pay dividends upon watered stock."

"Too radical, do you say? No more so than conscription, commandeering and building ships, and fixing prices upon the necessities of life. If these are right, and we certainly believe they are, then government ownership of public utilities and natural resources is right. They belong to the people, should be used for the people's benefit without paying heavy tributes to any. The people have the power to take possession of our own property and pay to the present holders thereof the money that they have actually expended on natural resources and actual value of public utilities and no more. Not one dollar for the water which they have injected into the stock."

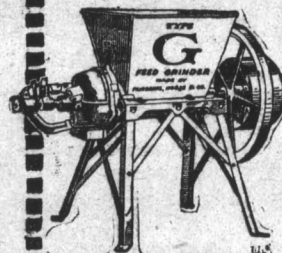
"In this way, and only in this way, can we secure efficiency and eliminate the profiteers who are preying upon the necessities of life, nay, upon the very life of the nation itself."

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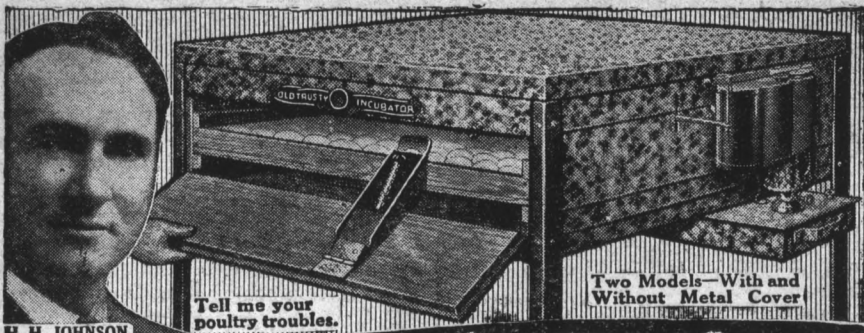
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Goose Raising for Profit

HERE is a branch of the poultry business that is not likely to be over-done, at any time in the near future. While there is doubtless an awakening, in many sections, to the fact that geese are very profitable yet a great many people imagine that they are hard to raise. Nothing could be farther from the truth. The fact is, that under ordinary conditions, geese are less difficult to raise than any other domestic fowl. Neither great skill nor expensive equipment are required.

Easy to Start.

A few good, healthy stock geese and plenty of pasture are the most important requirements in making a start. Of course, shelter of some kind should be provided, but almost any dry shed will answer. During the winter months the birds do better when protected from the elements, especially at night. However, the goose is a hardy bird and can endure a great deal of cold without apparent suffering. In spite of this fact, we always have comfortable quarters for the geese, old and young. Geese are very thrifty birds and are free from lice. They are also free from disease. We have raised geese for a number of years and have never yet lost a single bird from disease.

We seldom lose a gosling. After a gosling is four days old, we consider it almost as good as raised. A few geese can be kept as a "side-line" by almost any farmer without interfering with other poultry, or in fact, with any other farm industry. They should not be fed or housed with other poultry, however, as they are more or less abusive, as a rule, especially when feeding. Those who admire water fowl should keep geese. We can get more genuine pleasure from a flock of geese than from any other poultry on the premises. They are easily managed and really seem to be more intelligent than any other fowl we have ever raised.

Pasture is Essential.

As stated above, plenty of pasture is necessary. It is, in fact, the most important point to be considered.

The goose is essentially a grazer; in fact, grass or roughage is as essential to a goose as it is to a cow. They are not over-particular in regard to the quality of the pasture and their downy coats yield a profit that should not be ignored, even in this day of "new fangled" inventions in the way of bedding. There has never yet been a time that we have had any difficulty in disposing of the feathers, at good prices. A well matured bird will yield about a pound of feathers in a year. Laying geese must never be picked until the laying season is over. We are very careful in handling the geese.

Right now is a good time to plan for goose-raising, if the work has not been done before. If the venture is to be a success, don't put it off until spring. Geese mate in February, as a rule, and new stock should be procured before that time. We have found it advisable not to disturb old mated geese. Once they are properly mated they will so remain, year after year, unless the ganders get quarrelsome. Some ganders will mate with one or two geese, while others will choose four or five. Young stock should be kept separate from the old mated birds at first.

Do Not Give Free Range.

We learned, by costly experience, that where the goslings have free range it is impossible to control them after they once acquire the habit of running away.

A few years ago when we began raising the China geese, (which are much more active than any other geese we have ever raised), a large swamp was fenced for the old birds. This pasture which is not at all suitable for other live stock, makes a very good range for a flock of geese during the greater part of the year. Coarse

grass and weeds make good oose pasture. However, one must be on the alert for foxes and turtles.

As a range for goslings we use an apple orchard fenced and equipped with suitable houses. Young goslings must be protected from rats and other destructive animals. Also, they must have shelter at night and during hard rain storms. A cold rain will sometimes kill good-sized goslings, before they can be rescued. A gosling is easy to raise but must not get rain-soaked on the back.

We keep the White Chinese geese at the present time and find that they have a number of good points not found in other geese. They are the same in every way except color, as the Brown Chinese. Both are very beautiful in appearance. White China geese have pure white plumage and their bodies are very graceful. Their long, slender, curved necks give the birds a swan-like appearance, which is always greatly admired. The feathers are of the finest quality and always bring the highest market price.

A Good Market Goose.

These birds, while not so large as some others, are suitable for market purposes where very large geese are not wanted. While they are sometimes called the "Leghorn of the goose family," they are somewhat larger than common geese. It is not unusual for young birds to weigh fifteen pounds each when ready for market. They can be made much heavier if kept longer and fed a considerable amount of grain, but nothing will be gained this season by feeding large quantities of marketable grain.

We always try to have poultry in good condition before being sent to market, but have always been opposed to "stuffing," partly because it seems like "cruelty to animals" to keep fowls closely confined, and partly because we never have been convinced that it was very profitable.

We feed a reasonable amount of grain and always sell poultry of all kinds alive.

Geese require less grain from the time they are hatched until ready for market than any other fowl we know of. While we have always raised geese as a side-line, so to speak, we aim to raise about two hundred young birds each season. Last season was the most unfavorable that we can remember, being so cold that the hens simply would not go to setting.

Goose Eggs Hen Hatched.

Therefore, we did not get the usual number hatched. We use large, heavy chicken hens. Have never tried hatching with incubators, but have been told that it can be done.

However, we succeeded in raising 174 fine young geese and together with the old birds, which were twenty-two in number (seventeen geese and five ganders), we had a pretty nice flock.

We use leg-bands on the old geese as they sometimes get together during the latter part of the season and it is hard to tell old from young.

Sometimes the entire flock is allowed free range. Since cool weather began in October we have been feeding more grain than during the early fall because most of the birds now on hand will go to market soon. We have sold quite a number locally, to be kept for next year's stock. We never ship geese.

The Cost is Little.

Our grain bill, thus far, (November 15), for young and old during the entire season, is \$55.70. When everything is counted up, we expect to have a profit of about \$2.00 on each goose raised this season, not to mention the feathers (which will probably not be offered for sale), and several settings of eggs sold. We have found the China geese to be excellent layers. Young geese will seldom lay as many eggs as

mature ones, but an old bird will often lay from seventy-five to one hundred eggs in a season. One young bird laid fifty-four eggs last season.

Green rye is a good substitute for grass in winter. Geese must have some sort of roughage. They like clover hay, alfalfa and silage. We feed plenty of these, during the winter. Also, grain twice a day. Raw vegetables, chopped, with bran added (also a little salt), gives variety to the ration. Provide good, clean water to drink.

Ohio. ANNA W. GALLIGHER.

THE BEE-KEEPER'S PART IN THE GREATER FOOD PRODUCTION.

This year the bee-keepers have a real opportunity to perform a patriotic service of considerable magnitude. The whole country is in need of food and it must be produced more abundantly than ever before. Not over one-tenth of the honey has been produced that might be produced if the bee-keepers would properly care for their bees and keep more of them. The bees are in a serious condition this winter because of the following conditions: The clover and basswood honey crop was cut short last season by cold and rainy weather and many colonies did not store sufficient honey to last until the next crop; the fall honey flow which is depended upon by many for supplying honey for winter food was cut off by the early frost; the bee-keepers were unable to obtain sufficient sugar for feeding last fall; and, thousands of colonies of bees are standing outside exposed to the severe cold of this winter and without any more protection than the ordinary thin walled hives give them.

Bee-keepers are already reporting winter losses of from twenty to thirty per cent from starvation. Those who pay no attention to their bees will be surprised next spring at the small number of living colonies that they will have.

Bees can be fed during the winter months. The best food that can be given at this time is hard candy made from granulated sugar. Cakes of hard candy can be laid on top of the frames over the cluster. After doing this, a goodly amount of packing should be placed on top. Bee-keepers who are unable to secure sugar for making of candy for the bees should correspond at once with the State Inspector of Apiaries, East Lansing, Mich., who may be instrumental in securing the needed sugar for them.

It is very important that the bees should be saved. From one to ten pounds of sugar will keep a colony until the bees will be able to get nectar from the fields. One colony saved may mean the production of a hundred pounds of honey which otherwise would not be produced. It is of great importance that bee-keepers give attention now to the needs of their bees.

Agricultural Col. B. F. KINDIG.

KEEP THE HENS HEALTHY.

Healthy hens are not only on the job when there is something to eat, but they produce the eggs. To get maximum results from the laying flock, it is necessary to keep a constant lookout for the health of the hens. If one gets sick, it had better be removed entirely from the flock. Over-crowding is one of the evils to be guarded against. Each hen should not only have plenty of yard space, but their roosting room should not be crowded. If the hens get over-heated upon the roosts then rush out into the cold for their feed, evil results will undoubtedly follow. The poultry house should afford ample shelter and protection from the elements, but must not be too warm. They require plenty of fresh air and should have clean surroundings.

The feed yard and roosting rooms should be kept clean and sanitary. Fresh straw should be put in the nests. Give them clean water, and wholesome feeds, together with fresh dust baths and feed litter, then their good health will be assured and the egg baskets will be filled.

P. H. EATON.

111 Chicks From 114 Eggs!

Note photo by Mrs. Fred C. Miller, Hillsdale, N. Y., showing result of X-Ray hatching. It should carry a message home to you. If you want good hatches—and want to gain them at the least cost of money and time, you should, in all fairness to yourself, investigate the X-Ray.

Makes good hatches on one filling during entire hatch. Duplex Central Heating Plant, directly underneath, furnishes natural, moist mother hen heat. X-Ray Automatic Trip regulates flame—no chilled eggs—no overheated sides.

X-RAY INCUBATORS

Sent Express Prepaid to Practically All Points

Handy Height—Achieved by deep lid that retains heat—enables egg-tray to come back to hatching heat quicker.

Quick-Cooling Egg-Tray—Level—easy to turn eggs—built high in frame, protected by new, deep lid—built of heavy galvanized wire mesh.

Nursery Tray—Absolutely sanitary—great convenience in removing chicks—provides an ideal place for "drying out" chicks—the whole tray

Investigate this incubator before you put your money into any incubator. Write for the 1918 X-Ray Book. Send us your name and address on the coupon—or on a post card.



BROODERS

the center—prevents injury to chicks due to crowding—X-Ray Gas Arrestor that keeps chick chamber free from fumes—Canopy Top over exercising room that gives protection from draughts and excessive sunlight.

WRITE TONIGHT—get the 1918 X-Ray Book and be sure you are getting the best incubator and brooder any money can buy.

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At All The Fine Chicks
My Mamma Hatched
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Used by Uncle Sam and Agri' Colleges. With this Guaranteed Hatching Outfit and my Guide Book for setting up and operating you can make a big income.—And my

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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.

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Both Machines \$12

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30 DAYS FREE TRIAL

10 Year Guarantee Think of it! These two UNBEATABLE Wisconsin Machines—both for only \$12.00—freight paid east of Rockies. Don't take chances. Find out what an incubator is made of before buying. Catalog and sample of material used sent free.

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Wisconsin are made of genuine California Redwood. Incubators have double walls, air space between, double glass doors, copper tanks, self regulating. Shipped complete with thermometers, egg tester, lamps, etc., ready to run. Biggest incubator bargain of the year. Send for our new 1918 catalog fully describing this outfit. A postal brings it by return mail.

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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.

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Built of genuine California Redwood. Redwood does not absorb the odor from the hatching eggs. Cheaper woods, and pasteboard 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.

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LIKE HEN'S NEST BUILT ROUND

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Hens—Barred Plymouth Rocks; R. C. and S. C. Rhode Island Reds; 60 S. C. White Leghorns.

NOTICE: Any person who wishes S. C. White Leghorn Pullets or Hens for winter and spring laying should write to us.

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We can furnish eggs as follows, and in quantities for incubators:

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Day-Old Chicks—Orders for foregoing breeds up to capacity.

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

Additional Poultry Ads on Page 167

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must reduce herd, so offer
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Write us your wants.
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We have Bull Calves from 2 weeks to 8 months old for
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Write & tell us the kind of a bull you want.
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His sire's 3 nearest dams average 7 days 579.66
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Record 30 days 2438.00
(She heads one of the ten only combinations of three
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Ideally marked, about half and half. Price \$250.
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Judges of international reputation will place the awards. Speakers of in-
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They are less susceptible to diseases, require
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than any other breed. Write for free in-
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average 842 lbs. butter. Dam of calf 18 lbs. butter 7 days
as senior or 2 yr. old, average per cent fat 4.3. No. 2 Sired
by 23 lb. bull and out of a 14 lb. junior 2-yr. old.
C. L. BRODY, Owner, Port Huron, Mich.
Chas. Peters, Herdsman, Three Rivers, Mich.

Butter Fat Counts

Holstein Bull Calves from a 30 lb. 6.53 Sire. Dam
are grand daughters of the King of the Pontiacs.
Their dams grand daughters of Sadies Vale Concordia
the first 30 lb. cow. Edwin S. Lewis, Marshall, Mich.

Holstein Bull Calf born Mar. 7, fine individual
a prize winner from 29.62 lb. Sire and
23.80 lb. 4 yr. old dam. Price low.
A. F. LOOMIS, Owosso, Mich.

Bull calves sired by a double g-son of Friend Hengerveld
De Kol 2nd Gr. der Boy from dams of the greatest
yearly record breeding. Write for photos and prices
& etc. Ontonagon Valley Holstein Farm, Bruce's Crossing, Mich.

Our Herd is Headed
by King Vale Palmyra Payne, whose sire is a brother to
Segis Payne Johanna. Dam is a 32 lb. granddaughter
of Paul Dekol, Jr. sire of Creamline Vale. A few cows
in calf to this great sire at right prices.
E. M. PIERCE & SON, Manchester, Mich.

OK Leaf Farm. Herd sire Lenawee Pontiac Cal-
amity King offered Registered Holstein bull calves
from A. R. O. cows and the above sire whose dam holds
the milk and butter record in the state of Ind. 7
days milk 796.3, butter \$2.51—315 days milk 23782.3, but-
ter 926.775.
E. H. GEARHART & SON, R. 4, Marcellus, Mich.

Holstein 25 lb. son of the \$50,000 size King Segis Pon-
tiac Alcatraz ready for service. Price right.
JOHN A. RINKE, Warren, 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 25 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 31 lbs. in 7 days. Also collic puppies.
E. A. HARDY, Rochester, Mich.

HEREFORDS

10 bull calves for sale, Perfection
Fairfax and Prince Donald breeding.

ALLEN BROS.,
PAW PAW, MICH.

Herefords Bob Fairfax 494027 at head
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Both sexes either polled or horned. EARL C.
McARTY, Sec'y Mich. H. B. Ass'n, Bad Axe, Mich.

Jersey Bulls for sale from high-producing dams, with
testing Assn. records, also on
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Price \$50.00 each. Visitors welcome.
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ling heifers. Two six-mo.-old. All good breeding.
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Choice Bulls ready for service. Also heifers
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ready for service.
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MAPLE Lane R. of M. Jersey Herd has for sale R.
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heifer calves and bulls. All from 500 & 600 lb. dams.
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Choice registered Jersey bull calves priced low.
Sired by Oxford Dairy's Flying Fox.
Champion at Kalamazoo Fair whose dam produced
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O. S. Bassett, Drexel Place, Kalamazoo, Mich.

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A Federation of Interests

We have for sale the following thoroughbred cattle which
we shall be pleased to describe fully:

Shorthorn Durlams—Milking strain—Roan cow,
Scotch topped, 7 yrs. old; heifer, red, 9 mos., Bates
strain; Bull calves, red, 3 mos. and 6 mos.

Holsteins—High class bull, 11 mos., an animal for
the farmer who wants to grade up into the highest
Holsteins, dam butter test 24.26, grand sire King Segis
Pontiac Alcatraz, the well known \$50,000 bull.

Holsteins, Heifers and Calves—Same high class
breeding as bulls: Two spring, two yearling calves;
one 2 yr., one 3 yr., heifer with calf; two cows 7 yr.
Jerseys—Two yearling heifers, dams 46.35 and 73.20
butter fat; large for age and well grown.

HOMESTEAD FARMS, Bloomingdale, Mich.

Shorthorn Cattle of both Sex for Sale

W. W. KNAFF, Howell, Michigan.

Shorthorns—Dairy or beef bred. Breeding stock all
ages for sale at farmers' prices. C. W. O'Connell,
Secy. Cent. Mich. Shorthorn Breeders' Assn., McBride, Mich.

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For Beef and Milk.

5 Bulls ready for service, 15 months to 2 years, for
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ern, sanitary equipment. One hour from Toledo,
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Box B, Tecumseh, Michigan.

Shorthorns for sale, 5 bulls Scotch top 10 to 14 mos.,
3 roan, 1 white, 1 red, price \$150 to \$250, 1 son of Max-
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Shorthorns. Bulls 9 mos. to 12 mos. old from
good milking cows. Prices rea-
sonable. COLLAR BROS., R. 2, Conklin Mich.

Milking Shorthorns—Bull calf 5 mos., by a Grand-
son of General Clay, dam by a son of General Clay,
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SHORTHORNS. Butterfly Sultan, half brother to
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Milking Shorthorns and Polled Durhams. 20 head cows
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Sittany Duchess included. M. H. Hallett, R. 1, Orion, Mich.

Shorthorns Maxwellton Monarch 2nd. 387322 half
brother to 5 Grand Champions in ser-
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Shorthorns—Four fine young bulls ready for service.
Grandsons of Imp. Villager. Also bred
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SON of Harthorth Welfare heads our herd of milk-
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2 Loads feeders and two loads yearling steers. Also
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HOOS.

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A Federation of Interests

We have for sale the following thoroughbred Hogs:
please write for full description and prices:

Duroc Jerseys—Early fall farrow highly bred sows
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Hampshires—Sows and boars, farrowed in August;
well belted and best blood lines. Sire 800 lbs. at 20
months.

HOMESTEAD FARMS, Bloomingdale, Mich.

DUROCS Orion Chief Perfection No. 68945, and Jen-
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of big type and excellent quality. All selected large
type smooth sows. Thrifty, smooth, large boned spring
gilts from these herd boars and choice sows at very
reasonable prices. The Jennings Farms, Bailey, Mich.

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Dobson's Durocs surplus stock all sold. Noth-
ing doing till spring.
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Duroc Jersey Spring gilts and
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Duroc Jersey: Extra good spring pigs for sale.
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guaranteed safe in pig. Fall boars and gilts not rel-
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Duroc Jerseys—boars of the large heavy boned type,
Prize winning stock, prices reasonable, type and
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DUROC Jerseys. Orders booked now for early spring
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O. I. C. To Wm. B. No. 47049, Longfield No. 48575 sire
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Fall pigs and breeding boars.
J. CARL JEWETT, Mason, Mich.

Chester Gilts bred for March farrow early
fall pigs both sexes from best blood
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I HAVE started thousands of breeders on the road to
success. I can help you. I want to place one hog from
my great herd in every community where I am not already rep-
resented by these fine early developers—ready for market at six
months old. Write for my plan—More Money from Hogs.
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Big Type O. I. C's.

Stock of all ages for sale. We showed at four state
fairs and won more championships and Grand Champions
than all the other breeders together double, we were
Premier Breeder and Exhibitor at every fair we show-
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CRANDELL and SON, Cass City, Mich.

O. I. C's choice May boar also some choice
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O. I. C's 2 choice May boars & Sept. & Oct. pigs sired
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Clover Leaf Stock Farm, R. 1, Monroe, Mich.

O. I. C. & CHESTER WHITE SWINE.
Strictly big type with quality. Have a choice lot of
boars fit for early fall service. These boars will be
solid worth the money. Also have some fine gilts.
I will ship C. O. D.
NEWMAN'S STOCK FARM, R. 1, Marlette, Mich.

O. I. C's. Registered serviceable boars. Bred gilts.
Aug., Sept., Oct., pigs. Registered Shrop-
shire ewe lambs. G. P. Andrews, Dansville, Mich.

O. I. C. Am offering some good boars of May far-
row and fall pigs either sex.
O. J. THOMPSON, Rockford, Mich.

O. I. C. For sale a few extra good gilts bred
for March and April farrow.
H. W. MANN, Dansville, Mich.

O. I. C. open and bred gilts. All stock
guaranteed. Mason, Mich.

Big Type Poland Chinas.

Bred Gilts and Sows for sale.

HILLCREST FARM,
Kalamazoo, Mich.

BOARS--SOWS

Big type big bone. For the next 30 days we will sell
Big type Poland Chinas at bargain prices. April boar
weighing 300 lb. Open gilts. Summer and fall pigs
everything goes. Get busy.
J. C. BUTLER, Portland, Michigan, Bell Phone.

LARGE Type P. C. Largest in Mich. Spring Boars
ready to ship. The kind that make good. Come and
see the real big type kind. Expenses paid if not as
represented. Free liverty from Farms.
W. E. LIVINGSTON, Parma, Mich.

Big Type Poland Chinas: April and May pigs, heat-
thy and growthy. Prices
right. L. W. BARNES & SON, Byron, Mich.

LARGE Type P. C. Some growthy spring Boars and
Gilts ready to ship, come and see them. Free liv-
erty from Augusta. W. J. Hagelshaw, Augusta, Mich.

Veterinary.

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

Paralysis.—I have a spring calf that slipped on ice; when we found him he was unable to stand, but as he was chilled we thought little of it, but even with good care he is unable to stand when helped up. What shall I do for or with him? J. B. Temple, Mich.—His recovery is exceedingly doubtful. All things considered, I am inclined to believe you had better destroy him. The carcass may perhaps be fit for food.

Suppurating Foot.—Eight weeks ago my five-year-old horse went lame in fore leg; five weeks ago pus commenced to discharge from coronet, since then our local Vet. has been treating the horse, but his foot still runs. He tells me gravel worked through from sole of foot. Have been poulticing the foot. H. M., Capac, Mich.—Apply one part iodoform and five parts boric acid to sore daily. Keep foot clean and discontinue poulticing. Cover sore parts with oakum and bandage.

Light Milker.—Have cow that came fresh on October 15; vealed calf when four weeks old; cow then gave six quarts of milk twice daily, now she is giving only three quarts twice a day. This cow is seemingly healthy, but seven days before she freshened she bloated some, but soon got over it. H. D. McC., Prattsville, Mich.—By changing her food supply you will be able to increase milk yield. A healthy cow should not be given drugs.

Sores on Abdomen.—We have a Colie bitch that was spayed last May which has two sores on lower and back part of abdomen. Applying simple home healing remedies fail to heal these sores. R. H., Ypsilanti, Mich.—Paint sores occasionally with tincture of iodine and they will heal. She may lick these sores, if so bandage.

Partial Paralysis.—Have a Boston bull pup five months old that seems to have lost the use of hind quarters. Ten days ago I noticed him twitching in muscles; he gradually grew worse and finally went down behind; I wish you would tell me how to cure him. Miss A. C., Mt. Morris, Mich.—Apply hot water bottle or bag to back constantly; hand-rub hind quarters three times a day; also give him three drops tincture nux vomica at a dose three times a day until he gets well.

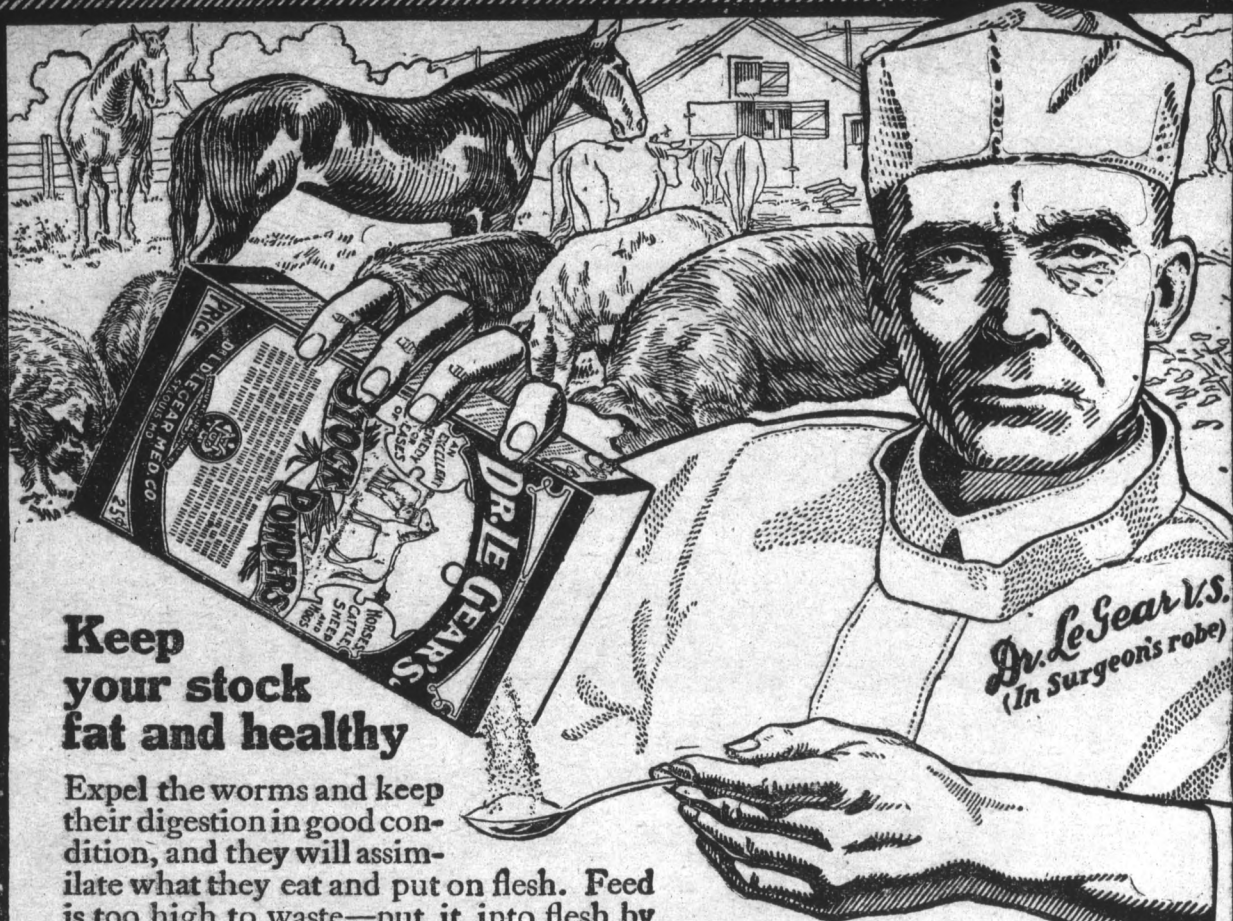
Scaly Condition of Skin.—My cow has rough, scaly bunches on her skin; when the scale or bunch sloughs, the hair comes also, leaving the skin somewhat raw. C. H. O., Mecosta Co., Mich.—Give your cow 2 drs. of Fowler's solution of arsenic at a dose in feed or drinking water twice a day for thirty days. Apply one part tincture iodine and four parts olive oil to sore parts of skin three times a week.

Navicular Disease.—Our eight-year-old mare has been lame for some time in right fore leg, but our local Vets. fail to locate her trouble. Where shall I look to find seat of lameness? W. A. W., Webberville, Mich.—In the fore quarter three-fourths of lameness is below knee, but as you fail to notice any bunch the lameness is perhaps in coffin joint. Apply equal parts of turpentine, aqua ammonia and raw linseed oil to coronet three times a week.

Bog Spavin.—My 12-year-old horse went lame the early part of last fall, caused by bog spavin. Applied blister, which made him more sore and lame. I applied first blister one month ago; since blistering, he holds up foot and is much worse than when first treated. P. E. M., St. Johns, Mich.—Apply equal parts of tincture iodine and glycerine daily. It is considered bad practice to blister a spavin when it is not causing lameness.

Constipation.—Have four horses that we feed alike; one of them is troubled with constipation every few days and he is so large that I am unable to give him medicine. What can I feed him in feed to open his bowels? G. B. S., Jackson, Mich.—Feed him some molasses, oil meal, clover, alfalfa, or roots, any one of them will act as mild laxative. Remember that the bowels of horse, when exercised, act four or five times as often as if standing still without exercise.

Chronic Indigestion.—I purchased a Shorthorn heifer last spring. She soon came fresh, gave good mess of milk, but ever since she freshened she has lost flesh and kept thin. Have fed her condition powder, but it made no good impression. W. E. R., Bear Lake, Mich.—Mix together equal parts ginger, cooking soda, gentian, salt and powdered wood charcoal, and give her two tablespoonfuls at a dose in feed three times daily.



Keep your stock fat and healthy

Expel the worms and keep their digestion in good condition, and they will assimilate what they eat and put on flesh. Feed is too high to waste—put it into flesh by giving your stock **Dr. LeGear's Stock Powders.**

An excellent appetizer and worm expeller. A first-class condition powder and animal regulator for all domestic animals. An excellent remedy for coughs, colds, distemper, kidney troubles, loss of appetite, hide-bound, loss of flesh, etc.

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will make your hens and pullets lay now. Keeps them healthy and insures you Winter Eggs and bigger profits.

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for collar and saddle sores, barb wire cuts and all open sores on stock. In sifter top cans, 25c and 50c.

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The animals are destroyed and their cash value lost not only to the farmer but to the community, the State. This amazing sum of money can be saved to the farmers and the State if they (the farmers) will but avail themselves of

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LARGE Type P. C. Some good spring boars up to 270 lbs. Will also price gilts, open or bred. Fall pigs ready to ship. Wm. J. Clarke, R. 7, Mason, Mich.

Large Strain P. C. Gilts bred to Smooth Jumbo large. Last 2 yr. old in state, & a grandson of Gushalls Smooth Big Bone for April & May farrow. H. O. Schwartz, Schoolcraft, Mich.

Big Type P. C. Big boned fellows from Iowa's greatest herds. Special prices on spring boars. E. J. MATHEWSON, Burr Oak, Mich.

POLAND CHINA GILTS Bred for March and April farrow. G. W. HOLTON, R. 11, Kalamazoo, Mich.

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Big Type P. C. bred for March & April farrow sired by Peter's Jumbo & Grand Superba and 2 or 3 yearling sows at bargain prices. C. E. Garnant, Eaton Rapids, Mich.

Big Type Poland China bear for sale. Guaranteed or money back. HERBERT HAMMOND, Williamston, Mich.

Leonard's Big boned Poland China sows and gilts bred for Apr. farrow. Fall pigs. Shipped C. O. D. Call or write. E. R. Leonard, R. 3, St. Louis, Mich.

For Sale Spotted Poland Chinas Heavy boned stock. Bred gilts and pigs not akin. Best of blood. L. O. CLAPP, R. 1, Adrian, Mich.

Registered Hampshires, spring boars and gilts book your order now. JOHN W. SNYDER, R. 4, St. Johns, Mich.

Large Yorkshire Gilts Red Poll Cattle. E. S. OARR, Homer, Mich.

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BREEDING EWES ALL SOLD ALMOND B. CHAPMAN, So. Rockwood, Michigan

EWES: Rambouillet and Hampshire for sale. A. A. WOOD & SON, Saline, Mich.

Western Ewes bred to Registered Mutton Rams. BARNARD SHEEP RANCH, R. 5, Clare, Mich.

Shropshire Ram Lambs and one three year old flock header for sale. ARMSTRONG BROS., R. 3, Fowlerville, Mich.

KOPE-KON FARMS.

Coldwater, Mich.

Hampshires & Shropshires.

It's a wise man who orders his ram for August delivery now.

Registered Oxford Ram and Ram lambs. Also Berkshire hogs. CHASE STOCK FARM, R. 1, Mariette, Mich.

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REGISTERED PERCHERON Mares and Stallions priced to sell. Inspection invited. L. C. HUNT, EATON RAPIDS, MICH.

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Belgian and Percheron Stallions for sale that will pass the Michigan Stallion Inspection. Have a few mares of both breeds. Shorthorn Cattle, we offer a choice lot of bulls and females. Write us.

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PERCHERON DISPERSAL

The entire herd of the late A. A. Palmer will be closed out; 25 pure bred percheron mares \$200 to \$400 except two; also young stallions

PALMER BROS., Belding Mich.

Percherons, Holsteins, Angus, Shropshires, Durocs DORR D. BUELL, Elmira, Michigan.

FOR SALE Registered Percheron Stallion Dapple Gray Five years old. E. J. ALDRICH, Tekonsha, Mich., Bell Phone.

Two Large young Jennets cheap, and some Shetland Ponies and several good fox hounds. W. E. LECKY, Holmesville, Ohio

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Ten Days before date of publication.

We Offer a Few Special Bargains
In S. C. White Leghorn cockerels, Ram-
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for a small investment to reap the bene-
fit of a large expenditure of capital and
years of expert breeding.

Flanders Farm, Orchard Lake, Mich.

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WOODCOTE ANGUS

Trojan-Ericas and Blackbirds only Breeders of the
dam and former owners of the sire (our herd bull)
of the Grand Champion Bull at the International
Chicago for 1917.

WOODCOTE STOCK FARM, Ionia, Mich.

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

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

Registered Guernseys

Stock always for sale. May Rose Strain—Hard Tub-
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abortion. J. M. WILLIAMS, North Adams, Mich.

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

Guernseys For Sale, four young
registered cows, tuber-
culine tested. Geo. N. Crawford, Holton, Mich.

Guernseys 45 Registered head, all th. tested. Nora's
May King, son of Imp. May Rose King,
heads our herd, 19 of his half sisters sold averaging \$195
each. His bull calves are booked ahead at reasonable
prices. Avondale Stock Farm, Wayne, Mich.

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

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

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

Write us your wants.
R. BRUCE McPHERSON, Howell, Mich.

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

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

\$50 Gets son of 30 lb. bull dam is grand-
daughter of De Kol 2nd But-
ter Boy 3rd. Her dam 18.96 lb. 2 yr. old.
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A Few Fine Bulls For Sale

Bigelow Holstein Farms, Breedsville, Mich.

I Always Have Holsteins To Sell

If wanting Registered cattle write me your wants
before placing your order elsewhere.

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WINWOOD HERD

REGISTERED HOLSTEINS

Holton, Mich.

Reference: Old State Bank, Fremont, Mich.

Flint Maplecrest Boy sire in service

His sire is Maplecrest Koradyke Hengerveld, his 3
nearest dams each over 30 lbs. of butter in 7 days.
His dam and grand dam both made over 125 lbs. of
butter in 1 year. It is the yearly cow we are looking
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We have Bull Calves from 2 weeks to 8 months old for
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Write & tell us the kind of a bull you want.

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"Milk production is an inherited ability. Good cows
must be bred to good pure-bred bulls if progress in
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Buy this young bull and give your milk and butter
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King Colantha De Oakdale, No. 182837, Born Nov. 4, 1915.

His sire's nearest

Dams average

Milk 7 days

579.65

Butter 7 days

30.59

His Dam's Dam's

Milk 7 days

565.00

Butter 7 days

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Record

Milk 30 days

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(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 429.40

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His five nearest dams average Milk 7 days 546.68

(Including 2-3 and 1-4 yr. old.)

Ideally marked, about half and half. Price \$250.

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Reg. Holsteins: Bull calf born Oct. 8. A splendid in-
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FOR Sale One registered Holstein bull calf. Sire's
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Selected from foremost registered herds from the Atlantic Coast to the
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The most important thing in buying a Jersey bull is to get one backed up by generations of high
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MOST VIGOROUS
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They are less susceptible to diseases, require
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of roughage and are more persistent producers
than any other breed. Write for free in-
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2 CHOICE Holstein bulls nearly old enough for
service. No. 1 born January 24, 1917, sire's dam,
grand dam and great grand dam a semi-official records
average 842 lbs. butter. Dam of calf 18 lbs. butter 7 days
senior 2 yr. old, average per cent fat 4.3. No. 2 Sired
by 23 lb. bull and out of a 14 lb. Junior 2 yr. old.
C. L. BRODY, Owner, Port Huron, Mich.
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Holstein Bull Calves from a 30 lb. 6.53 Sire. Dam
are grand daughters of the King of the Pontiacs.
Their dams grand daughters of Sadie Vale Concordia
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Holstein Bull calf born Mar. 7, fine individual
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Bull calves sired by a double g-son of Friend Henger-
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from A. R. O. cows and the above sire whose dam holds
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days milk 796.3, butter 82.51—35 days milk 2378.3, but-
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Holstein 25 lb. son of the \$50,000 sire King Segis Pon-
tiac Alcatraz ready for service. Price right.
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For Sale Registered Holstein bulls ready for service
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3—HOLSTEIN BULLS—3

Ready for service at Long Beach Farm, Augusta, Mich.

HOLSTEINS of quality. Bull calves from dams with
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10 bull calves for sale, Perfection

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Herefords Bob Fairfax 494027 at head
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Both sexes either polled or horned. EARL C.
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vice, out of R. of M. dams, 10 heifers bred to fresh-
en next fall. Colon C. Lillie, Coopersville, Mich.

Jersey Bulls for Sale from high-producing dams, with
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semi-official test. C. B. Webber, R. 6, Allegan, Mich.

Jersey Bulls For Sale

Ready for service. Raleigh - St. Lambert breeding.
Waterman & Waterman, Packard Rd, Ann Arbor, Mich.

2 Majesty line bred solid colored bull calves 3
mo. old, from dams that are doing
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Price \$50.00 each. Visitors welcome.
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FOR Sale. Four registered Holstein cows. Two year-
ling heifers. Two six mo. old. All good breeding.
FRED McKEE, R. 2, Benton Harbor, Mich.

Choice Bulls ready for service. Also heifers
for sale. Strong in the Blood
of Royal Majesty. Come and see them or write for
particulars. THE WILDWOOD HERD,
Alvin Balden, Capac, Mich., Phone 143-5.

FOR SALE Registered Jersey bulls,
ready for service.
SMITH and PARKER, R. 4, Howell, Mich.

MAPLE Lane R. of M. Jersey Herd has for sale R.
of M. cows, daughters of R. of M. cows, bull calves,
heifer calves and bulls. All from 500 & 600 lb. dams.
IRVIN FOX, Allegan, Mich.

Choice registered Jersey bull calves priced low.
Sired by Oxford Daisy's Flying Fox,
Champion at Kalamazoo Fair whose dam produced
788 lbs. butter from 1378 lbs. milk in one year.
C. S. Bassett, Drexel Place, Kalamazoo, Mich.

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A Federation of Interests

We have for sale the following thoroughbred cattle which
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Shorthorn Durham—Milk strain—Roan cow,
Scotch topped, 7 yrs. old; heifer, red, 9 mos., Bates
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Holsteins—High class bull, 11 mos., an animal for
the farmer who wants to grade up into the highest
Holsteins, dam butter tested 24.28, grand sire King Segis
Pontiac Alcatraz, the well known \$50,000 bull.

Holsteins, Heifers and Calves—Same high class
breeding as bulls: Two spring, two yearling calves;
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Jerseys—Two yearling heifers, dams 46.35 and 73.20
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Shorthorn Cattle of both Sex for Sale

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Shorthorns—Dairy beef bred. Breeding stock all
ages for sale at farmers' prices. C. W. Orum,
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For Beef and Milk.

5 Bulls ready for service, 15 months to 2 years, for
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ern, sanitary equipment. One hour from Toledo.
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Shorthorns for sale, 5 bulls Scotch top 10 to 14 mos.,
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walton Sultan, 19 mos. \$350. C. Carlson, Leroy, Mich.

Bates Shorthorns the original milk strain young
bulls 8 mos. old for sale. Price
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good milking cows. Prices rea-
sonable. COLLAR BROS., R. 2, Conklin Mich.

Milking Shorthorns—Bull calf 5 mos., by a Grand-
son of General Clay, dam by a son of General Clay,
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SHORTHORNS. Butterfly Sultan, half brother to
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Milking Shorthorns and Polled Durhams, 20 head cows
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Sittytton Duchess included. M. Hallsted, R. 1, Orion, Mich.

Shorthorns Maxwellton Monarch 2nd. 387322 half
brother to 5 Grand Champions in ser-
vice. JOHN SCHMIDT, R. 5, Reed City, Mich.

Shorthorns—Four fine young bulls ready for service.
Grandsons of Imp. Villager. Also bred
heifer & cows heavy milking Strain. Farmers prices.
Free Catalogue. HOBRIERSON FARMS, Hart, Mich.

SON of Harthorth Welfare heads our herd of milk-
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cows, young bulls ready for sale and service, write us
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Grand Traverse Shorthorn Assn. Reg. stock for
M. E. DUCKLES, Sec., Traverse City, Mich.

Cattle For Sale

2 Loads feeders and two loads yearling steers. Also
2 can show you any number 1, 2 and 3 year old from
600 to 1200 lbs. Isaac Shanstun, Fairfield, Iowa, R-8

HOGS.

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A Federation of Interests

We have for sale the following thoroughbred Hogs;
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Duroc Jerseys—Early fall farrow highly bred sows
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with pig; one high class boar 2 yr., 600 lbs.

Hampshires—Sows and boars, farrowed in August;
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months.

HOMESTEAD FARMS, Bloomingdale, Mich.

DUROCS Orion Chief Perfection No. 68945, and Jen-
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type smooth sows, Thrifty, smooth, large boned spring
gilts from these herd boars and choice sows at very
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Dobson's Durocs surplus stock all sold. Noth-
ing doing till spring. Quincey, Mich.

Duroc Jersey Spring gilts and fall pigs either
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Duroc Jersey: Extra good spring pigs for sale.
CAREY U. EDMONDS, Hastings, Mich.

Duroc Sows & Gilts

guaranteed safe in pig. Fall boars and gilts not re-
lated. You want more size and feeding qualities; buy
now. Cat. giving breeding and description of 30 sows
NEWTON BARNHART, St. Johns, Mich.

Duroc Jerseys—Boars of the large heavy boned type,
D prize winning stock, prices reasonable, type and
breeding considered, also gilts bred to Junior Cham-
pion boar for spring farrow. F. J. Drott, R. 1, Monroe, Mich.

A FEW Duroc Jersey bred gilts for sale. Some
extra good fall boars. Milan, Mich.

DUROC Jerseys. Orders booked now for early spring
pigs. R. C. R. I. Red cocks \$3.00, eggs in season.
E. E. CALKINS, R. 6, Ann Arbor, Mich.

DUROCS for sale, 1 fall boar, 7 Spring boars, good
breeding. Write for description and prices
J. D. CRANE & SON, Plainwell, Mich.

BRED GILTS

To Wm. B. No. 47049, Longfellow No. 48375, sire
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Fall pigs and breeding boars.

Chester Gilts bred for March farrow early
fall pigs both sexes from best blood
lines. F. W. ALEXANDER, Vassar, Mich.

Raise Chester Whites?
Like This
the original big producers

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

Big Type O. I. C's.

Stock of all ages for sale. We showed at four state
fairs and won more champions and Grand Champions
than all the other breeders together double, we were
Premier Breeder and Exhibitor at every fair we show-
ed. We breed the best. We sell the best. We guaran-
tee them to be the best. Write your wants. Get our
Catalogue. We ship on approval.

CRANDELL and SON, Cass City, Mich.

O. I. C's choice May boar also some choice
fall pigs. WEBER BROS., Royal Oak, Mich.

O. I. C's 2 choice May boars & Sept. & Oct. pigs
First Premium boar Mich. State Fair 1917.
Clover Leaf Stock Farm, R. 1, Monroe, Mich.

O. I. C. & CHESTER WHITE SWINE.

Strictly big type with quality. Have a choice lot of
boars fit for early fall service. These boars will be
sold worth the money. Also have some fine gilts. I
will ship C. O. D.

NEWMAN'S STOCK FARM, R. 1, Marlette, Mich.

O. I. C's Registered serviceable boars. Bred gilts.
Aug., Sept., Oct., pigs. Registered Shrop-
shire ewe lambs. G. P. Andrews, Danville, Mich.

O. I. C. Am offering some good boars of May far-
row and fall pigs either sex.
C. J. THOMPSON, Rockford, Mich.

O. I. C. For sale a few extra good gilts bred
for March and April farrow.
H. W. MANN, Danville, Mich.

O. I.

Veterinary.

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

Paralysis.—I have a spring calf that slipped on ice; when we found him he was unable to stand, but as he was chilled we thought little of it, but even with good care he is unable to stand when helped up. What shall I do for or with him? J. B. Temple, Mich.—His recovery is exceedingly doubtful. All things considered, I am inclined to believe you had better destroy him. The carcass may perhaps be fit for food.

Suppurating Foot.—Eight weeks ago my five-year-old horse went lame in fore leg; five weeks ago pus commenced to discharge from coronet, since then our local Vet. has been treating the horse, but his foot still runs. He tells me gravel worked through from sole of foot. Have been poulticing the foot. H. M. Capac, Mich.—Apply one part iodoform and five parts boric acid to sore daily. Keep foot clean and discontinue poulticing. Cover sore parts with oakum and bandage.

Light Milker.—Have cow that came fresh on October 15; vealed calf when four weeks old; cow then gave six quarts of milk twice daily, now she is giving only three quarts twice a day. This cow is seemingly healthy, but seven days before she freshened she bloated some, but soon got over it. H. D. McC., Prattsville, Mich.—By changing her food supply you will be able to increase milk yield. A healthy cow should not be given drugs.

Sores on Abdomen.—We have a Colie bitch that was spayed last May which has two sores on lower and back part of abdomen. Applying simple home healing remedies fail to heal these sores. R. H. Ypsilanti, Mich.—Paint sores occasionally with tincture of iodine and they will heal. She may lick these sores, if so bandage.

Partial Paralysis.—Have a Boston bull pup five months old that seems to have lost the use of hind quarters. Ten days ago I noticed him twitching in muscles; he gradually grew worse and finally went down behind; I wish you would tell me how to cure him. Miss A. C., Mt. Morris, Mich.—Apply hot water bottle or bag to back constantly; hand-rub hind quarters three times a day; also give him three drops tincture nuxvomica at a dose three times a day until he gets well.

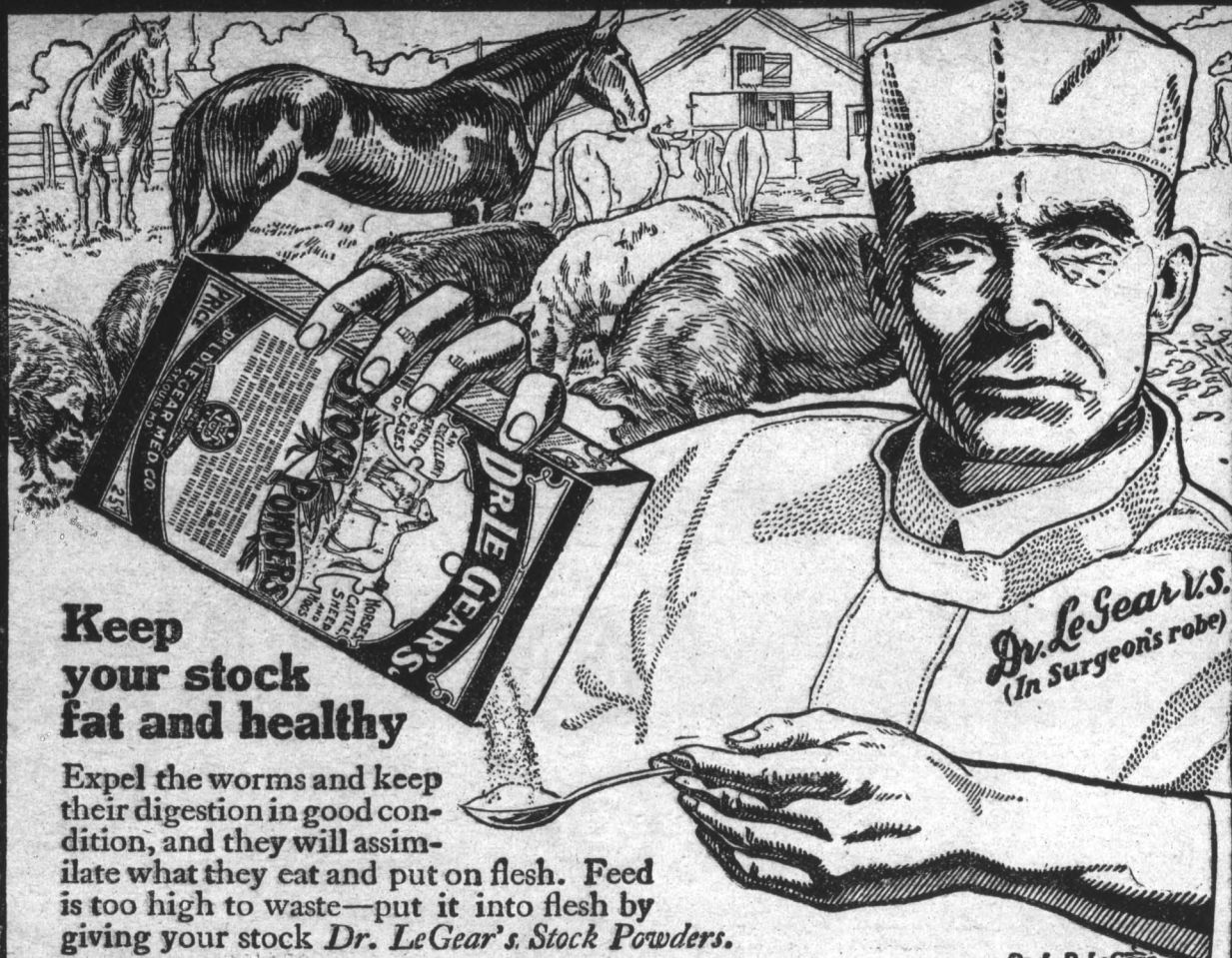
Scaly Condition of Skin.—My cow has rough, scaly bunches on her skin; when the scale or bunch sloughs, the hair comes also, leaving the skin somewhat raw. C. H. O., Mecosta Co., Mich.—Give your cow 2 drs. of Fowler's solution of arsenic at a dose in feed or drinking water twice a day for thirty days. Apply one part tincture iodine and four parts olive oil to sore parts of skin three times a week.

Navicular Disease.—Our eight-year-old mare has been lame for some time in right fore leg, but our local Vets. fail to locate her trouble. Where shall I look to find seat of lameness? W. A. W., Webberville, Mich.—In the fore quarter three-fourths of lameness is below knee, but as you fail to notice any bunch the lameness is perhaps in coffin joint. Apply equal parts of turpentine, aqua ammonia and raw linseed oil to coronet three times a week.

Bog Spavin.—My 12-year-old horse went lame the early part of last fall, caused by bog spavin. Applied blister, which made him more sore and lame. I applied first blister one month ago; since blistering, he holds up foot and is much worse than when first treated. P. E. M., St. Johns, Mich.—Apply equal parts of tincture iodine and glycerine daily. It is considered bad practice to blister a spavin when it is not causing lameness.

Constipation.—Have four horses that we feed alike; one of them is troubled with constipation every few days and he is so large that I am unable to give him medicine. What can I feed him in feed to open his bowels? G. B. S., Jackson, Mich.—Feed him some molasses, oil meal, clover, alfalfa, or roots, any one of them will act as mild laxative. Remember that the bowels of horse, when exercised, act four or five times as often as if standing still without exercise.

Chronic Indigestion.—I purchased a Shorthorn heifer last spring. She soon came fresh, gave good mess of milk, but ever since she freshened she has lost flesh and kept thin. Have fed her condition powder, but it made no good impression. W. E. R., Bear Lake, Mich.—Mix together equal parts ginger, cooking soda, gentian, salt and powdered wood charcoal, and give her two tablespoonfuls at a dose in feed three times daily.



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Expel the worms and keep their digestion in good condition, and they will assimilate what they eat and put on flesh. Feed is too high to waste—put it into flesh by giving your stock *Dr. LeGear's Stock Powders*.

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will make your hens and pullets lay now. Keeps them healthy and insures you Winter Eggs and bigger profits.

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for collar and saddle sores, barb wire cuts and all open sores on stock. In sifter top cans, 25c and 50c.

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Graduate of Ontario Veterinary College, Toronto, Can., (1892). Over twenty-six years' experience in treating stock and poultry ailments. Nationally famous as a prize-winning poultry breeder. Every Dr. LeGear Remedy is the doctor's own prescription, based on his long practice and experience.



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319 Widdicombe Bldg., Grand Rapids, Mich.

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Gracner Bldg., Saginaw, W. S., Mich.

HOGS

LARGE TYPE P. C. Some good spring boars up to 270 lbs. Will also price gilts, open or bred. Fall pigs ready to ship. Wm. J. Clarke, R. 7, Mason, Mich.

Large Strain P. C. Gilts bred to Smooth Jumbo large-boned 2 yr. old in state, & a grandson of Dutch Smooth Big Bone for April & May farrow. H. O. Swartz, Schoolcraft, Mich.

Big Type P. C. Big boned fellows from Iowa's greatest herds. Special prices on spring boars. E. J. MATHEWSON, Burr Oak, Mich.

POLAND CHINA GILTS Bred for March and April farrow. G. W. HOLTON, R. 11, Kalamazoo, Mich.

P. C. Bred sows, big type, big bone, big litters, big fall pigs. In pairs, or triples. Saline, Mich.

Big Type P. C. bred for March & April farrow sired by Peter's Jumbo & Grand Superba and 2 or 3 yearling sows at bargain prices. C. E. Garman, Easton Rapids, Mich.

Big Type Poland China boar for sale. Guaranteed or money back. HERBERT HAMMOND, Williamston, Mich.

Leonards' Big boned Poland China sows and gilts bred for Apr. farrow. Fall pigs. Shipped C. O. D. Call or write. E. R. Leonard, R. 3, St. Louis, Mich.

For Sale Spotted Poland Chinas Heavy boned stock, not akin. Best of blood. Bred gilts and pigs. L. O. CLAPP, R. 1, Adrian, Mich.

Registered Hampshires, spring boars and gilts, book your order now. JOHN W. SNYDER, R. 4, St. Johns, Mich.

Large Yorkshire Gilts Red Poll Cattle. E. S. CARR, Homer, Mich.

SHEEP

BREEDING EWES ALL SOLD ALMOND B. CHAPMAN, So. Rockwood, Michigan

EWES: Rambouillet and Hampshire for sale. A. A. WOOD & SON, Saline, Mich.

Western Ewes bred to Registered Mutton Rams. BARNARD SHEEP RANCH, R. 5, Clare, Mich.

Shropshire Ram Lambs and one three year old flock header for sale. ARMSTRONG BROS., R. 3, Fowlerville, Mich.

KOPE-KON FARMS.

Coldwater, Mich.

Hampshires & Shropshires.

It's a wise man who orders his Ram for August delivery now.

Registered Oxford Ram and Ram lambs. Also Berkshire hogs. CHASE STOCK FARM, R. 1, Marietta, Mich.

HORSES

REGISTERED PERCHERON Mares and Stallions priced to sell. Inspection invited. L. C. HUNT, KATON RAPIDS, MICH.

LOESER BROS.

Belgian and Percheron Stallions for sale that will pass the Michigan Stallion Inspection. Have a few mares of both breeds. Shorthorn Cattle, we offer a choice lot of bulls and females. Write us.

LIGONIER INDIANA.

PERCHERON DISPERSAL

The entire herd of the late A. A. Palmer will be closed out; 25 pure bred percheron mares \$200 to \$400 except two; also young stallions

PALMER BROS., Belding Mich.

Percherons, Holsteins, Angus, Shropshires, Durocs DORR D. BUELL, Elmira, Michigan.

FOR SALE Registered Percheron Stallion Dapple Gray Five years old. E. J. ALDRICH, Tekonsha, Mich., Bell Phone.

Two Large young Jennets cheap, and some fox hounds. W. E. LECKY, Holmesville, Ohio

Markets.

GRAINS AND SEEDS

January 29, 1918.

WHEAT.—There is no change in the wheat market situation except possibly millers are a little more urgent for wheat supplies. A year ago No. 2 red wheat was quoted on the Detroit market at \$1.78 per bushel. Present prices are: No. 2 red wheat \$2.17; No. 2 mixed \$2.15; No. 2 white \$2.15.

CORN.—There is a fairly good trade in this cereal which, however, would be larger with improved transportation facilities. Monday's market closed steady with that of Saturday. Uncertainty of their ability to ship either by rail or to Europe has made exporters slow buyers. The trade expects lower prices as soon as the grain can be secured in large volume from the corn belt. One year ago No. 3 corn was quoted on the local market at \$1.03½ per bushel. Last Tuesday's Detroit quotations were: No. 3 corn \$1.80; No. 3 yellow \$1.85 per bushel.

Chicago.—January corn \$1.27½ per bushel; May \$1.25¼.

OATS.—Oat values have advanced considerably this past week. The demand has been active from both millers and shippers. Supplies are limited. One year ago standard oats were quoted locally at 59c per bushel. Detroit's last Tuesday's quotations were: Standard oats 89c; No. 3 white 88½c.

Chicago.—January oats 84c; March 82½c; May 80c.

RYE.—Millers want rye, which, with limited stocks pushed values to \$2.05 per bushel for cash No. 2 on Monday.

BEANS.—Market is unchanged and inactive. Prices are steady at \$12.40 per cwt. for immediate and prompt shipment on the local market. At Chicago the trade is fair with Michigan pea beans, hand-picked, in sound dry condition quoted at \$13 per cwt; fancy red kidneys \$14@15; fair to choice do \$12@13.

PEAS.—Prices steady. Field peas at Chicago quoted at \$6.50@7 per cwt.

SEEDS.—Strong at higher prices. Prime red clover \$19.85; March \$19.30; alsike \$15.85; timothy \$4.30.

FLOUR AND FEEDS

FLOUR.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Standard patent \$11.10@11.15; straight winter \$10.30; spring patent \$11.20; rye flour \$10.50@10.70 per bbl.

FEED.—The government is regulating the prices of bran, shorts, "middlings," mixed feeds and flour middlings. The prices of these products will hereafter be based upon price of wheat to millers. 100-lb. sacks jobbing lots: Bran \$34.50; standard middlings \$36.50; fine middlings \$43.50; cracked corn \$79; coarse corn meal \$77; corn and oat chop \$66 per ton.

HAY.—In carlots at Detroit: No. 1 timothy \$25.50@26; standard timothy \$24.50@25; light mixed \$24.50@25; No. 2 timothy \$23.50@24; No. 1 clover, \$21.50@22 per ton.

Pittsburgh.—No. 1 timothy \$30.50@31; No. 2 timothy \$28@28.50; No. 1 light mixed \$28.50@29; No. 1 clover mixed \$30@31; No. 1 clover \$30@31.

STRAW.—In carlots on track at Detroit: Wheat and oat straw \$10.50@11; rye straw \$11.50@12.

DAIRY PRODUCTS

BUTTER.—In fresh butter market is firm. The fresh creamery firsts are quoted at 47@48c per pound; fresh creamery extras 48½c.

Chicago.—Receipts fair and trading slow. Creamery extras 49c; extra firsts 48@49½c; packing stock 36@37c per pound.

CHEESE.—Michigan flats 23½@24c per lb; New York flats 26c; brick 27½@28c; long horns 27½@28c; Michigan daisies 25@25½c; Wisconsin daisies 25½c; domestic Swiss 32@42c for the prime to fancy; limburger 29@30c.

DRESSED CALVES.—Fancy 20@21c; choice 18@19c; common 16@17c.

POULTRY PRODUCTS

POULTRY.—(Live).—Poultry market is dull and steady. Best spring chickens 27@28c; No. 1 hens 27@28c; ducks 27@28c; geese 26@27c; turkeys 26@27c.

Chicago.—(Live).—Receipts small, with little demand. Fowls 25c; ducks 24@25c; geese 22½@23c; turkeys, good 24c. (Dressed).—Fowls 25c per lb; ducks, fancy 26c; geese 24c; turkeys 32@32½c.

EGGS.—Market is firm and fresh eggs continue scarce. Fresh firsts are 55@59c per dozen.

Chicago.—Market steady and the receipts fair. For fresh Michigan firsts 58@59c; ordinary firsts 53@56c; miscellaneous lots, cases included 50@57c.

FRUITS—VEGETABLES

POTATOES.—There were 21 cars of potatoes on the Detroit market Monday morning. Supplies in the city are very light and prices have recently advanced. Round whites in good condition, sacked, sold to jobbers at \$2.70 early this week. Jobbing prices for Michigan round whites sacked, United States grade No. 1 were \$2.50 in Cleveland on Monday morning; \$2.25@2.50 in Buffalo; \$2.60@2.75 in Columbus; \$3.10@3.25 in Pittsburgh; \$2.15 in Chicago; \$2.50@2.60 in Indianapolis.

At Grand Rapids the same grade is quoted at \$2.10@2.25; at Rochester, New York, \$1.90@2.05, and in Wisconsin farmers are getting \$1.20 for this grade from wagon loads at sidetrack.

CABBAGE.—Danish stock sold recently in Detroit at \$70 per ton to jobbers. The same variety brought \$65 in Cleveland and Cincinnati; \$60@65 in Pittsburgh, while the Holland stock brought \$60@65 in Chicago. Farmers are being paid from \$40@45 around Rochester, New York.

APPLES.—This market is not entirely satisfactory, and the movement has been rather slow of late. Considerable stock is arriving at destination in a frozen condition. Prices remain about steady. Comparatively few shipments are being made from Michigan.

WOOL

Wool values are as strong as ever, notwithstanding the uncertain factors which have disturbed woolen manufacturing recently. Sales have been small with fleece quotations ranging from 56@85c per pound. Many expect the government to ultimately commandeer the wool stocks, for which reason dealers and consumers are reluctant about going ahead on any large scale.

LIVE STOCK

BUFFALO.

January 28, 1918.

Cattle.—Receipts 150 cars; the best grades are steady; medium and common 25c lower; best shipping steers \$13@13.50; fair to good \$11.50@12; plain and coarse \$10.50@11; yearlings \$12@12.50; best handy steers \$11@11.50; fair to good \$9.50@10.50; handy steers and heifers, mixed \$9@10; light butcher steers \$9.50@10.50; western heifers \$9@10; best fat cows \$9.50@10.50; butcher cows \$6.75@7.50; cutters \$6.25@6.50; canners \$4.50@5.75; fancy bulls \$10.50@11; butcher bulls \$8.50@9.50; common bulls \$6.50@7; best feeding steers \$8.50@9; medium feeders \$7.50@8; light common \$6.50@7; stockers \$6.50@7; milkers and springers \$65@125.

Hogs.—Receipts 60 cars; market is strong; heavy and yorkers \$16.75@16.85; pigs \$16.50.

Sheep and Lambs.—Receipts 35 cars; market 50c lower; top lambs \$18.25@18.50; yearlings \$15@16.75; wethers \$14@14.50; ewes \$12.50@13.

Calves.—Receipts 800; market 50c lower; tops \$18.50; fair to good \$17@17.50; grassers \$7@9.

CHICAGO.

January 28, 1918.

Cattle. Hogs. Sheep.
Receipts today.. 5,000 24,000 10,000
Same day 1917.. 23,853 69,419 13,287
Last week..... 84,616 270,557 83,690
Same wk 1917... 62,679 230,060 76,831

The unusually meager cattle supply for Monday caused advances of 25@40c, buyers taking all they could get hold of. The moderate receipts of hogs were helped out by 11,656 head carried over from last week, but the demand was so strong, especially on speculative account that prices advanced 10@25c, the smallest advance being in the best hogs. Sales were made at \$14.90@15.90 for ordinary very light hogs to prime heavy offerings. There was a stronger lamb market, with the best selling at \$17.85, an advance of 10c. The hogs received here last week averaged 217 lbs. Only 14,639 hogs were shipped from here last week, comparing with 83,900 a year ago. Obtaining cars today for eastern shipment of live stock was no easy matter.

Cattle were marketed more liberally last week than during the preceding week when the country was snow-bound, and prices were largely 75c lower during the latter part of the week, exceptions being made of the best kind and the cheapest, there being a scarcity of the choicer kinds. Heavy bullocks fit for the new York kosher

trade were scarce and \$1@1.25 per 100 lbs. higher than three weeks earlier, while cattle selling below \$10 were not numerous and sold \$2 higher than a year ago. A large share of the steers sold at \$11@13, with the choicer class selling at \$13@14, and the commoner light weight steers at \$8.35@9.90. Fair to middling grades of short-fed steers of light weight sold at \$10@12.20, with medium to good class selling at \$12.25 and upward, desirable yearlings \$12.50@13.75 and \$9.75@10.75 for cheaper lots. Butcher stock weakened following an advance early in the week; cows \$7.65@10.75; heifers \$7@12.25; cutters \$6.90@7.60, canners \$6.25@6.85 and bulls at \$6.75@11. The calf market was active and high for the best light vealers, sales ranging at \$15@16.50 for fair to prime lots, and \$6.75@12 for ordinary to choice heavy calves. The stocker and feeder branch of the market was slow and of light volume on the basis of \$7.50@11.75.

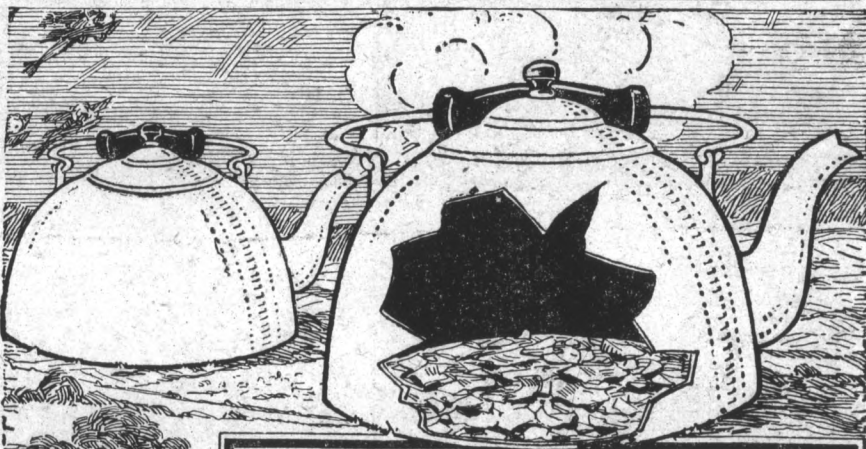
Hogs suffered some sharp declines in prices during the last week as a result of resumption of reasonably good railroad service, many delayed country shipments coming in after the snow embargo was removed. Eastern shippers found it difficult to obtain cars, and on some days big numbers of hogs came in too late for the day's market and had to be carried over to the following day. Undoubtedly, the worst feature of the market is the tendency

to ship in too many hogs at one time, 60,000 hogs arriving on Thursday. Late in the week prices had a big slump, with hogs selling at \$15.25@16.20 and the best light hogs at \$16.10, while pigs brought \$12@15. A week earlier the best hogs sold at \$16.90.

Lambs, yearlings and sheep were marketed decidedly more freely last week. Many of the lambs were too heavy in weight, these selling at a big discount. Most buyers refused to bid for lambs weighing over 95 lbs., and the call centered on 80 to 85-lb. flocks. Choice native ewes sold for \$13, and this is a high January record. Prime little yearlings advanced to \$15.50, and prime lambs brought \$17.85. Late sales were as follows: Lambs \$15@17.75; heavy lots \$16@16.50; yearlings \$12@15; wethers \$12@13.25; ewes \$9@13; breeding ewes \$11@14; bucks \$8.75@10.

Horses were in normal supply last week. The principal activity centered in army horses. Farm chunks of inferior to good grade were salable at \$60@150; drafters at \$185@265 and expressers at \$75@210.

More than twenty thousand head of feeding cattle were reported as scheduled for the big annual Denver stock show, and it was stated that the show would be larger than ever, including carload exhibits of feeding and breeding cattle.



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Steam that escapes through a tea-kettle spout, if caught and condensed, would be pure water—distilled water.

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THIS IS THE LAST EDITION.

The first edition is sent to those who have not expressed a desire for the latest markets. The late market edition will be sent on request at any time.

DETROIT LIVE STOCK MARKET.

Thursday's Market.

January 30, 1918.

Cattle.

Receipts 808. Market dull at last week's close. There is an embargo on the Grand Trunk and Pere Marquette Railways which caused the light receipts.

Best heavy steers \$11@11.50; best handy weight butcher steers \$10.25@10.50; mixed steers and heifers \$9.50@10; handy light butchers \$8.50@9.50; light butchers \$7.75@8.25; best cows \$8.50@9; butcher cows \$7@8; cutters \$6.50@6.75; canners \$5.50@6.25; best heavy bulls \$9@9.25; bologna bulls \$8@8.50; stock bulls \$6.50@7; milkers and springers \$5@10.

Bishop, B. & H. sold Sullivan P. Co. 10 cows av 992 at \$8.25, 17 steers av 1016 at \$10.25, 6 cows av 866 at \$8, 2 steers av 850 at \$9.50, 5 cows av 850 at \$6.75; to Hammon, S. & Co. 20 steers av 907 at \$10.25, 4 cows av 782 at \$8.50, 8 do av 1000 at \$6, 13 do av 703 at \$7.50, 6 do av 800 at \$6, 4 do av 1002 at \$6.65; to Parker, W. & Co. 23 butchers av 766 at \$9, 39 steers av 821 at \$10, 4 do av 907 at \$10, 5 cows av 880 at \$6.50, 3 do av 917 at \$6; to Sullivan P. Co. 1 bull wgh 1340 at \$9; to Newton P. Co. 2 steers av 1205 at \$11.50, 2 do av 1175 at \$11.50, 3 do av 1043 at \$11, 12 do av 960 at \$9.50, 1 cow wgh 1110 at \$8.50, 5 do av 896 at \$6.25, 2 do av 900 at \$6, 3 do av 1087 at \$9, 14 steers av 960 at \$10.75, 2 cows av 990 at \$8.40; to Ratner 20 butchers av 484 at \$7.50; to Thompson 17 steers av 925 at \$7.75, 24 do av 934 at \$10.40; to Bresnahan 7 canners av 793 at \$6, 4 cows av 817 at \$8.50, 3 do av 950 at \$7.50, 3 do av 883 at \$6; to Sullivan P. Co. 8 steers av 831 at \$9.50, 5 cows av 982 at \$8, 2 do av 1000 at \$8.75.

McMullen, K. & J. sold Thompson 1 steer wgh 730 at \$7.75, 1 bull wgh 1380 at \$8.75, 7 steers av 890 at \$9; to Bray 5 canners av 954 at \$6.25, 3 do av 870 at \$6.25, 2 oxen av 1865 at \$9.75; to Bordina 25 feeders av 962 at \$9.75; to Fineman 6 cows av 1050 at \$7, 4 do av 837 at \$6.40; to Newton P. Co. 7 steers av 870 at \$10.25, 2 do av 1160 at \$10.50, 13 butchers av 600 at \$8.

Sandel, S., B. & G. sold Newton P. Co. 3 cows av 1073 at \$7.25, 1 do wgh 740 at \$6, 1 do wgh 820 at \$6.50; to Applebaum 2 steers av 795 at \$11, 1 do wgh 710 at \$8.50, 2 do av 505 at \$8.50, 2 butchers av 850 at \$7.75, 10 do av 460 at \$7; to Parker, W. & Co. 9 do av 731 at \$8.75, 5 cows av 928 at \$6.25 to Breitenbeck 14 steers av 970 at \$10.90; to Garber 7 do av 420 at \$8, 7 do av 564 at \$8; to Sullivan P. Co. 3 cows av 940 at \$7.25, 2 do av 825 at \$8.50, 5 do av 980 at \$8.50, 4 butchers av 885 at \$9.50, 15 do av 817 at \$9.50, 6 cows av 980 at \$8.50; to Dombowsky 4 do av 905 at \$7.25; to Sullivan P. Co. 10 butchers av 979 at \$9.75, 3 do av 870 at \$8; to Nagle P. Co. 2 cows av 1080 at \$9, 14 steers av 1046 at \$10.75, 14 do av 993 at \$10.75, 25 do av 946 at \$10.55, 2 cows av 1255 at \$8.75; to Thompson 17 steers av 875 at \$9.60, 9 do av 770 at \$8.75.

Veal Calves.

Receipts 289. Market steady. Best \$15.50@16; others \$7@14.

Sandel, S. B. & G. sold Sullivan P. Co. 2 av 145 at \$15.50, 8 av 155 at \$16; to Parker, W. & Co. 12 av 125 at \$15, 3 av 145 at \$13, 10 av 161 at \$16, 5 av 150 at \$16, 6 av 115 at \$14.50, 2 av 130 at \$12, 7 av 145 at \$16, 12 av 125 at \$15, 2 av 125 at \$8.

Bishop, B. & H. sold Parker, W. & Co. 26 av 145 at \$15.50; to Hammond, S. & Co. 11 av 160 at \$16, 8 av 130 at \$15.75, 2 av 155 at \$16, 4 av 155 at \$15.50, 5 av 150 at \$15.75, 12 av 155 at \$16, 3 av 150 at \$16.50, 2 av 125 at \$13.

Sheep and Lambs.

Receipts 3021. Market is dull and steady. Best lambs \$17.50@18; fair lambs \$17@17.25; light to common lambs \$15@16; yearlings \$14@15; fair to good sheep \$10@12; culls and common \$7@8.

Bishop, B. & H. sold Swift & Co. 123 lambs av 85 at \$17.50, 186 do av 78 at \$17.75, 61 do av 80 at \$17.50, 108 do av 85 at \$17.75, 21 do av 75 at \$17.50, 82 do av 77 at \$18, 230 do av 83 at \$17.60; to Wilson & Co. 80 do av 67 at \$17.60, 230 do av 80 at \$17.60; to Sullivan P. Co. 52 sheep av 95 at \$10.50; to Hammond, S. & Co. 26 lambs av 75 at \$17.75, 12 do av 70 at \$17, 10 do av 82 at \$17.75, 27 do av 83 at \$17.75, 36 do av 75 at \$17.75, 17 sheep av 110 at \$11.50.

Hogs.

Receipts 2234. Market very dull. Pigs \$15.75@16; mixed grades \$16@16.40.

How Much Feed Are You Wasting Every Day?

NOW, WHEN FEED IS SO HIGH in cost—when the government is urging everyone to conserve food and feeds, closer attention must be given to the feeding of farm animals.

EVERY OUNCE of feed must be made to produce the greatest possible return. Every ounce of feed heretofore wasted must be saved.

THAT IS WHY we ask, "How much feed are you wasting every day?"

WE WANT TO DRAW your attention to the importance—to the necessity of making sure you are not wasting feed. We want you to make sure that your stock are in condition to get the fullest benefit from the feed you are giving them and thereby prevent "waste" of feed.

THE MOST COMMON "waste" of feed on American farms today is the feeding of high priced feed to stock which are infested with worms.

THESE DISEASE-BREEDING, blood-sucking pests impair the animals' digestive system, sap their vitality, stunt their growth, eat your high priced feed and rob you of expected profits.

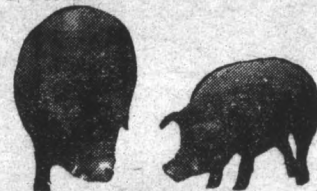
WORMS WORK while you sleep. You can't see the feed they are devouring; nor the destruction they are causing; nor the diseases they are breeding until too often it is too late.

SAL-VET IS THE LIVE STOCK owners salvation—the oldest and best known worm destroyer and live stock conditioner on the market. It will stop this costly feed waste and increase your profits. It is the safest, surest and cheapest worm destroyer and conditioner you can get.

FOR THE SMALL SUM of 2½¢ per month for each hog and sheep and a trifle more for horses and cattle, you can make sure that your stock

are free from worms—that you are not wasting feed and at the same time make them thrive better and fatten quicker on no more feed.

HERE'S AN ACTUAL DEMONSTRATION



THESE TWO PIGS are from the same litter. They were fed the same feed, cared for the same way, excepting the larger one was fed SAL-VET to free it of worms; to keep its digestion healthy and enable it to get the fullest benefit from its feed.

THE OTHER WAS FED as the majority of farmers feed their stock. Nothing but the usual feed—nothing to get rid of the worms and insure a healthy digestion. The difference is plainly evident. Here is a plain case of "wasting" feed and losing profits.

DON'T MAKE THE MISTAKE of thinking your stock are free from worms. Few animals escape them. You will be surprised at the difference in the growth and thrift when SAL-VET is fed regularly. Feed it to all your stock—horses, cattle, sheep and hogs.

YOU WILL SEE a wonderful change in them. You will then realize as thousands of America's best known feeders have—that SAL-VET is the live stock owners best profit-maker and feed saver—the cheapest, safest and most profitable live stock remedy you can use.

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Gentlemen:—We have used "Sal-Vet" for several years, and are well pleased with results. At the Iowa State Fair at Des Moines, we showed 12 pigs, under one year of age, which we sold for \$1320.00; for two of these, we received \$500.00. The pigs shown in the accompanying photo are from the same litter. The larger, one received "Sal-Vet" regularly from birth, and weighed 560 pounds; the smaller one was not given "Sal-Vet" and weighed 270 pounds. These pigs are registered Durocs.

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THE FEIL MFG. CO., Dept. 80

Cleveland, Ohio

Sal-Vet Poultry Tonic Makes Hens Lay Better. Sal-Vet Lice Powder Gets Rid of Lice Instantly
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WE CURE PILES, FISTULA and all other DISEASES of the RECTUM (except cancer) by an original PAINLESS DISSOLVENT METHOD of our own WITHOUT CHLOROFORM OR KNIFE and with NO DANGER WHATSOEVER TO THE PATIENT. Our treatment has been so successful that we have built up the LARGEST PRACTICE IN THE WORLD in this line. Our treatment is NO EXPERIMENT but is the MOST SUCCESSFUL METHOD EVER DISCOVERED FOR THE TREATMENT OF DISEASES OF THE RECTUM. We have cured many cases where the knife failed and many desperate cases that had been given up to die. WE GUARANTEE A CURE IN EVERY CASE WE ACCEPT OR MAKE NO CHARGE FOR OUR SERVICES. We have cured thousands and thousands from all parts of the United States and Canada. We are receiving letters every day from the grateful people whom we have cured telling us how thankful they are for the wonderful relief. We have printed a book explaining our treatment and containing several hundred of these letters to show what those who have been cured by us think of our treatment. We would like to have you write us for this book as we know it will interest you and may be the means of RELIEVING YOUR AFFLICTION also. You may find the names of many of your friends in this book.

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Pine Crest S. C. White Orpingtons, special sale
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My Young's strain bred-to-lay S. C. White Leghorns are great money makers. 100,000 baby chicks for 1918 delivery at \$15 and up per 100. Satisfaction guaranteed. Write for free catalogue. W. VAN APPELDORN, R. 7, Holland, Mich.

RHODE ISLAND REDS and plymouth Rocks Males 1.5 to 12 lbs. according to age \$2 to \$5; P. R. hens weight 5 to 10 lbs. eggs 15 for \$1. 100 \$5; 120 \$4. Mammoth Bronze Tom Turkeys 8 to 35 lbs. according to age \$6 to \$25, 10 eggs \$3. J. Morris & J. Barsan, Vassar, Mich.

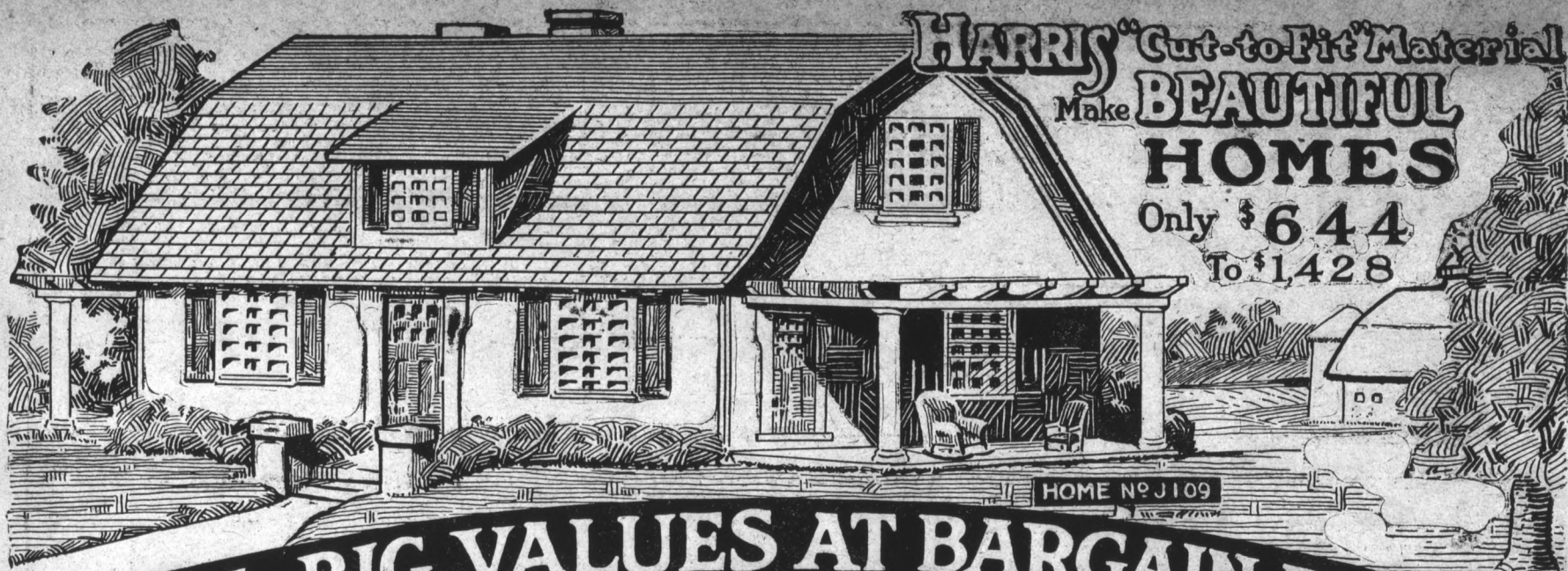
R.I. REDS, both combs. Day old chicks, eggs for hatching. Write for catalog. INTERLAKES FARM, Box 39, Lawrence, Mich.

R. C. Br. Leghorns Cockerels, large birds at \$2 each, only a few left, some hens at \$1.25 each. Orders promptly filled. E. HIMEBAUGH, Coldwater, Mich.

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Last Call For This Great Cream Separator Sale! Tremendous Price Reductions!

The "world's best" Cream Separator—Sharple's famous original Tubular "A" is now within your reach at a price so low and conditions so liberal, you cannot possibly refuse. Don't put off buying your Separator another day. The time to act is here, for our limited stock is going fast.

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GL-20	No. 2	300 lbs.	\$55.00	\$32.75
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GL-40	No. 4	500 lbs.	75.00	45.00
GL-60	No. 6	700 lbs.	90.00	52.50
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Special discount of 3% if cash accompanies order.



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Buy This Modern High Grade Bathroom

Combination, consisting of the following articles illustrated above: Bath tub, closet outfit, and lavatory. If you are figuring on furnishing your bathroom you could make no better selection than this offering. The bath tubs are 5 feet to 5 1/2 feet long, in the rim enameled style, with No. 4 1/2 Fuller Bath Cock, connected waste and overflow and nickel-plated supply pipes. The lavatory is in a handsome deep apron style, high grade white enameled iron of the best quality. Complete with "hot" and "cold" china index faucets, nickel-plated pipe connected to the floor. The Closet Outfit has a high grade golden oak tank and seat with syphon action closet bowl.

No. 5 GL 102, Complete as described above. Bathroom Outfit, \$49.50
Individual Items: Bath Tub, \$25.50; Closet Outfit, \$18.50; Lavatory, \$14.75
Other outfits up to \$150.00

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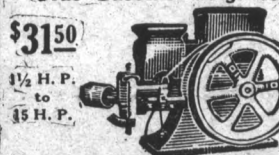
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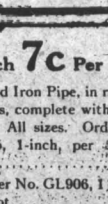
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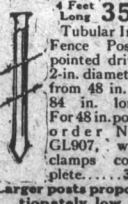
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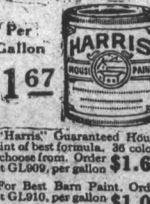
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