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THE ROUND-UP INSTITUTE.

A cold, drizzling rain seriously affected the attendance at the first session of the 14th Annual Round-up Farmers' Institute which convened at Mt. Pleasant, Isabella county, last week. However, as the day progressed the numbers steadily grew until the interest and enthusiasm was in marked contrast to the disheartening weather. It was nearly 10 o'clock when Supt. Taft formally opened this great annual meeting by introducing, as chairman for the opening session, Mr. E. R. Waldron, president of the Isabella Co. Institute Society. After prayer by Rev. Hugh Kennedy, a cordial welcome to Mt. Pleasant was extended by the city's youthful and hustling executive, Mayor Walter L. Snider. Brief responses, on behalf of the delegates from country institute societies, were made by Messrs. Oviatt and Dittman.

With the preliminaries out of the way the meeting settled down to solid work, "The Preparation of the Seed Bed for Farm Crops," being the first topic. Mr. J. P. Davis, of Indiana, responded by describing his method of preparing land for corn, maintaining that a system which will properly fit a seed bed for corn will answer pretty well for most other crops. In evolving his method he has given the greatest consideration to the problem of retaining and controlling moisture. His work along this line has made him an advocate of disking land before plowing. He finds that, by disking, the surface of the soil is not only fined so as to prevent undue escape of moisture before plowing is begun, but that vegetable matter, manures, fertilizers, etc., become well mixed with the surface soil. Thus, instead of forming a thin sheet upon the surface, to be buried at the bottom of the furrow when plowed under, this vegetable matter is sufficiently well distributed so that a good proportion of it will not be placed out of the reach of the plants during the early part of the season by the process of plowing. Neither does it place a layer of vegetable matter down deep in the soil to seriously interfere with the capillary attraction, as is frequently the case where disking is not practiced. He also disks before plowing when preparing for fall crops, asserting that oats stubble disked shortly after the removal of the crop will retain moisture and plow much more easily than if not disked. While Mr. Davis did not say so, there is no doubt that he would not recommend this method of preparation for light soils. When time to plow he plows very deep—considerably deeper than many of his hearers thought practicable—and conserves moisture by harrowing or dragging almost immediately. The land is worked with float and roller until well compacted and the surface is level and fine—getting it in the best possible condition to hold moisture and to give the plants a quick, strong start.

In leading the discussion Mr. J. W. Hutchins, of Jackson Co., confined his remarks to one point, that of the advisability of working soil immediately after plowing. In preparing land for wheat or other fall crop he has found that by closely following the plow with float or roller, the moisture conditions in the land are appreciably affected. He believes that this point deserves more than passing notice, especially upon soils where the moisture problem is a serious one. His argument was strengthened by the experience of a man in the audience who told how he had practiced harrowing just after plowing and had compared results with those of his neighbors who did not practice immediate harrowing.

The first musical feature came at this

A FEW LEADING ARTICLES OF THE WEEK.

- The Round-Up Institute.—A comprehensive report of the first half of this important meeting, commencing on first page, continued to248-272-274
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time—a baritone solo by Mr. Chas. Vowles, who was warmly encored.

Cement and Its Uses on the Farm
was next presented by L. J. Smith, of the Agricultural College. Going briefly into the history of cement he asserted that the Egyptians used this valued building material 4,000 years ago, while the Romans of 2,000 years ago built immense aqueducts and in other ways demonstrated their skill and proficiency in handling cement.

While in chemical constituents cement and commercial lime are much the same, in their physical properties and action they differ greatly, cement hardening under influence of water while the hardening of lime is induced by its coming in contact with carbon dioxide. The superiority of Portland cement lies in the fact that in this product the various constituents are present in more nearly the right proportions than is the case in the natural product. Engineers

the product be fine, as this condition not only indicates quality but makes the complete envelopment of every particle of sand and gravel, and the thoro filling of all interstices easier and surer.

One of the things desired in cement is that it shall not set too quickly. The time required depends upon the quality, or the proportions in which the various constituents are present, some of the natural cements acting very quickly. In explaining the methods of testing cements for soundness and strength the fact was brot out that these qualities improve with the life of concrete until, after 28 days from time of setting, it requires a weight of 5,500 to 6,500 lbs. to crush a square inch of pure cement.

Since cement is now used to some extent upon nearly all farms the matter of proportions for mixing is common knowledge. Mr. Smith asserted, however, that the tendency is to use too small, rather than too large a proportion

of cement. After defining a wet mix as one that can be poured from a wheelbarrow, and a dry mix as one containing only enough to admit of slight molding with the hands, he said that mixing should continue until the color of the mixture should be uniform. Water, when added to the mixture should not be applied with force, since this tends to wash particles of cement from the coarser gravel, thus destroying the evenness of the mixture.

When properly mixed the concrete should be gotten into the forms as quickly as possible. After setting 24 hours it is a good idea to wet it down well two or three times a day while hardening, and especially so if the days are sunny. Lack of water at this time, or too much troweling when finishing, is apt to result in air cracks.

In reply to a question, Mr. Smith said that where stone are used in building a cement wall it is best to have the concrete quite wet as this insures a better covering of the stone and consequently a stronger wall.

Asked as to whether water would penetrate a cement walk or floor if applied for a considerable time, he stated that it would, altho its imperviousness to water depends upon the richness of the finishing coat.

Tuesday Afternoon Session.

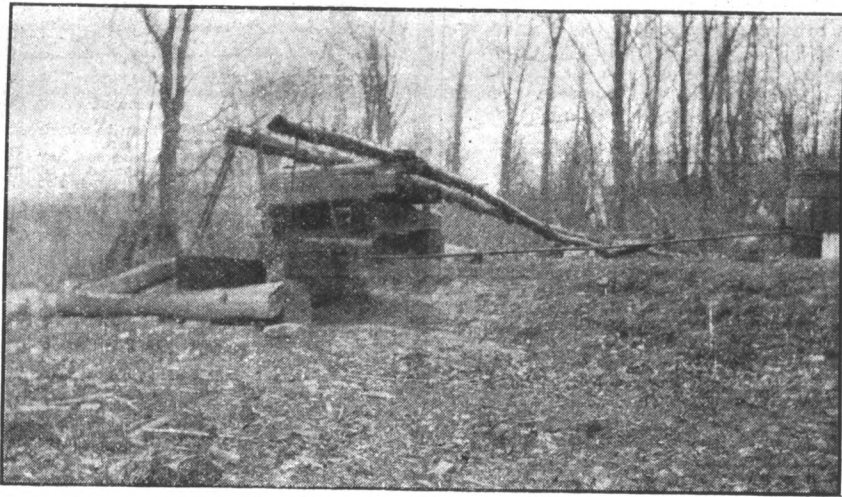
A good audience, considering the weather, greeted the speakers. Mr. N. P. Hull, Master of the Michigan State Grange, presided, and the program opened with a musical selection by Mr. Frank Cowdrey. "Fertilizer Facts" then claimed attention for a brief period, Prof. H. A. Huston, of Illinois, giving one of his popular talks. While a firm believer in the utility of fertilizers, Prof. Huston declared that the fact that a soil does not produce crops satisfactorily is not conclusive evidence that the application of fertilizer is the thing most needed. He then enumerated some of the causes of unproductiveness in soils aside from the lack of the necessary elements, suggesting that drainage, physical condition, rotations, responsiveness to proper cultivation, etc., are matters which may very properly be looked after before resorting to the use of fertilizers.

However, it must not be forgotten that while much can be done in the way of keeping up soil fertility by returning humus and nitrogen it is impossible to return the mineral matter which is constantly being extracted from the soil without it is put back in the form of commercial fertilizer. He advised using a good grade of fertilizer as a supplement to other means employed in building up soil fertility.

A tenor solo by Mr. Wm. Cooper came next, followed by an excellent talk on

The Rational Treatment of Sandy Soils by Prof. C. B. Smith, Assistant Agriculturist, U. S. Department of Agriculture. Prof. Smith showed an intimate acquaintance with problems which must be met by sandy land farmers. He dealt exclusively with Jack pine plains or white sand lands usually covered with brakes, briars, vines, etc. Generally the first thing done with this land is to burn it over, which, he declared, is the worst thing possible. Instead, he would turn under (very shallow, not over four inches deep), all the vegetable matter possible. Then he would sow to clover without a nurse crop where it will not be damaged by winds. Where there is danger of blowing he would use rye or oats as a nurse crop, clipping this crop as soon as a fairly good root growth had been secured and giving the land up entirely to the clover. He believes there is more

(Continued on page 248).



Maple Sugar and Syrup Making on the Farm, (see article on page 247).



FARM NOTES.

Concrete Foundation for Barn.

I wish to build a barn this spring 40x80 feet. Now my land was cedar and tamarack soil before cleared. Where I build there is no muck but I find water about three or four feet from surface. I desire to put a wall under this barn. Should I use lime or cement in foundation and how is it best to build same? I do not care to have the foundation extend more than 12 to 16 inches above surface. How far down should the wall go and how heavy a wall will it take to hold up a barn on this kind of soil.

Gladwin Co.

C. H. LEE.

Good concrete makes the best and cheapest foundation material, especially in soft soils of this kind. In such case it is customary to make the foundation below ground or at the bottom of the wall somewhat wider than the wall itself. This is known as a footing and the width of this footing is determined by the weight of the building and contents, proportioned to the lineal, or running foot of wall and then considered as to the nature of the soil upon which the footing is built. For instance, if it is figured that a building and contents will average weight of two tons per lineal foot of wall, it will require a footing in quicksand four feet wide, and soft clay 1½ feet wide. In hard clay or gravel no footing will be required if the wall is one foot wide. With this example as a basis, it will be comparatively easy for you to determine how much footing will be required for a foundation in your kind of soil. If the foundation is clay probably an 18 or 20 inch footing would be necessary, provided a tile can be put around the outside of the foundation to carry the water off to some suitable outlet, otherwise it might be safer to make the footing wider. This footing, of course, only needs to be of sufficient depth to insure strength after which the wall may be carried up above the surface to the desired height. In this connection it might be of assistance to many readers who have to figure on foundations to know the carrying capacity per square foot of different soils. In dry clay this capacity 5 tons per square ft. in soft clay, 1½ tons; in gravel, eight tons; in solid sand, four tons; loose dry sand, two tons; loam, one ton; quicksand, ½ ton, muck, ¼ ton.

It is essential to have the foundation of a building adequate so that the building itself will prove satisfactory and durable, hence the wisdom of figuring this proposition out carefully before erecting a permanent building of any kind.

Seeding Wet Land.

What would you advise me to do with a black ash swale. The fire burned us out last fall and I have cleared up. The land is black clay the muck having been burned off. I can drain it with a couple of dead furrows. I would like to put in something from which I could get feed and seed down with alsike clover. I thought of putting in millet but the seeding is not sure with millet. What would you advise me to use with the clover-timothy or red top and how much to the acre?

Arenac Co.

J. R.

If you desire to seed this down without further drainage than such surface drainage as can be secured by the use of dead furrows as suggested, it would be better not to undertake to grow a crop on it this year. Simply prepare the ground well and sow it to timothy, red top and alsike clover, using plenty of seed. The soil would not be well suited to the growing of millet nor would the chance of getting a first-class seeding with any crop which might be grown on this soil be good unless same was thoroughly drained, when it may be used successfully in the regular crop rotation for the growing of general farm crops. Providing sheep are kept upon the farm, it might be a profitable experiment to sow Dwarf Essex rape at the rate of about 4 lbs. per acre, pasturing same lightly with sheep but even this pasturing, should the season happen to be a wet one, would injure the stand of the grass and would probably not be profitable in the long run.

TESTING THE SEED CORN.

There are three things the farmer who desires to get the most out of his corn crop must have and one thing he must do. He must have a fertile soil in good physical condition, well-bred seed of a high germinating power and a season that is at least fairly well adapted to the welfare of the corn plants. He must do all of the work connected with the proper preparation of the soil for the seedbed, with the planting of the seed and the growing of the crop in the right way at the right time.

How few farmers there are who test

their seed corn in an up-to-date manner. Many do all of the other things that make for a good crop well, but fall short here.

There is only one right way to test seed corn and that is to test each ear by itself. By so doing all ears that are of low vitality and germinating power or grow weak plants may be discarded. This is the only way we can know accurately what ears we should use for seed and it means much at the time of harvest if we have used only one ear of poor or worthless seed on each acre.

I have an ear of corn with 24 rows of 52 kernels per row, 1,248 kernels in all enough seed to plant 416 hills, three kernels in a hill. Suppose I use the seed from this ear and enough more ears to plant one acre of corn and the seed from this ear fails to grow. What are the results on my corn crop?

In an acre of land there are 43,560 sq. ft., or 2,722½ hills four feet apart each way, and as I have enough seed from this ear, we are supposing to be worthless for seed, for 416 hills, 15.28 per cent of the hills on the acre will be planted to this poor seed.

If I had had a perfect stand of corn, which I would have, had I not used the seed from this ear, I would have had 100 bushels per acre, but by using this ear the yield has been lowered 15.28 per cent, or 15.28 bushels per acre.

Can we afford to test each ear? At 30 cents per bushel those 15.28 bushels of corn would be worth \$4.58, which is pretty fair pay for all his work, to say nothing about the value of the fodder. We can test each ear by itself by taking a shallow box, 1, 1½ or 2 inches deep and as long and wide as convenient, driving tacks in the edges of the sides and ends every 1, 1½ or 2 inches, running wrapping twine from tack to tack across the box each way, thus laying the box off in little squares.

Put the ear to be tested on the corn rack or on the floor in some unused room one ear deep, side by side. Begin at one end of the row of ears and, picking up each ear, take one kernel from the butt one from each side in the middle, and one from the top, four kernels in all.

Put these four kernels in a corner check of the box, marking the check as the place of the beginning. Next choose four kernels from ear No. 2 and place in check No. 2, and so on until the box is filled.

Take pains that the ears are not tampered with after they are left, as we must know just what ear furnished kernels for each square.

The kernels should be covered with soil and watered after they are all in their proper places and the box put where the temperature is from 70 to 80 degrees, and in five or six days one can tell just what ears to use and what ones to throw away.

Now is the time to do this work, while there is but little else to do and while there is still plenty of time to procure other seed if what one has is no good.

Eaton Co.

W. C. ECKARD.

Spencer's Hay and Straw Presses, patented and manufactured by J. A. Spencer, Dwight, Ill., are fully described and illustrated in the literature which Mr. Spencer will mail on request, to any reader of this paper. These presses are made in many styles and sizes, but all are covered by a general guarantee that they will have as great a capacity as claimed for them. This guarantee provides for a trial of the press shipped and a test to determine its capacity before final acceptance. While Mr. Spencer makes "perpetual" presses for those who want them his specialty is box presses of different types suited for all kinds of work, and for which he claims superiority on the ground that they turn out bales of better appearance and a higher market value; that they are of lighter draft, and easy to feed. These claims are fully explained and substantiated in the catalog and folders sent on request to those interested, in which the guarantee of capacity also appears. Write Mr. Spencer for literature telling all about this new type of hay presses and his plan of selling them.

Users of Light Powers

on the farm should be interested in the cut which is shown herewith. While this mill has just recently been put on the market, it is in nowise an experiment, but a new size of the well-known Bowsher "Combination" line. It was built in response to a call for a smaller machine which could be run successfully with very light and medium powers; feed itself on ear corn, and also be first-class on small grain. There have been some very gratifying reports from users of this new size, of which the following from a Michigan party is a sample: "We have showed the miller in town a sample of our work and he pronounces it good, both in quantity and quality. Could find no fault at all." As many of our readers already know, this firm makes a full line of mills to be operated by from two to 25 H. P., also sweep mills for either two or

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CURIOUS CORN FACTS.

In a series of tests at the Iowa Agricultural College it was found that with three stalks in a hill, the yield was 82.2 bushels per acre; with two stalks in one hill and three stalks in the next, the yield was only 68 bushels.

Few people realize what even a little improvement in corn culture means. During 1906 the United States grew ninety-five million acres of corn. This area produced 2,880,000,000 bushels of corn, worth in round numbers \$1,300,000,000. By simply adding one kernel to each ear \$1,620,000 is added to the returns from the area producing corn.

This increase is infinitesimal in itself and very few farmers who have not adopted improved methods, or use pure-bred seed, will believe that the yield can be increased two or three bushels per acre. Figure a little further. As stated above, in 1906 the corn crop covered ninety-five million acres. By increasing the yield five bushels per acre and figuring this at forty-five cents a bushel, it amounts to the stupendous sum of \$213,750,000.

A cracked or broken kernel will not germinate. Had every acre of the ninety-five million been perfectly planted—three perfect kernels in each hill—and had it all germinated so that three stalks would have grown in each hill, the mind of man cannot grasp the magnitude of the increase in the corn crop.

Twelve to fourteen ears of corn will plant an acre. Can a farmer afford to use poor seed? Is there anything he can do that will profit him more than selecting good seed? Is there an implement he can buy that will pay him better than a good corn planter—a machine that will plant just the right number of unbroken kernels in a hill, bunched so that none of them will be plowed up by the cultivator? Figure out the loss or gain of a good or poor stand of corn.

If interested in improved corn culture, write to the undersigned and ask for a free copy of the "Curious Corn Facts" Booklet. It contains much valuable information and describes fully the Sure Drop Corn Planter.

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The development of the country has made marvelous strides. It is a revelation, a record of conquest by settlement that is remarkable. Extract from correspondence of a Missouri Editor, who visited Canada in August last.

The grain crop of 1908 will net many farmers \$20 to \$25 per acre. Grain-raising, Mixed Farming and Dairying are the principal industries. Climate is excellent; Social Conditions the best; Railway Advantages unequalled; Schools, Churches and Markets close at hand.

Lands may also be purchased from Railway and Land Companies. For "Last Best West" pamphlets, maps and information as to how to secure lowest Railway Rates, apply to Sup't of Immigration, Ottawa, Can., or to the authorized Canadian Government Agent.

M. V. McInnes, 6 Ave. Theatre Block, Detroit, Mich.; C. A. Laurier, Marquette, Mich.

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MAPLE SUGAR AND SYRUP MAKING ON THE FARM.

A pleasant portion of farm-work on the farm is that which comes at sugar and syrup making time, especially for the younger folks who always look forward with great anticipation to the opening of the sugar camp. When maple sugar and syrup are made on an extensive scale it is by no means an easy part of the farm work, but on account of the comparatively short time in which a certain amount of tapping, gathering, and boiling is to be accomplished, it is tedious work and requires constant attention. When only a small quantity is to be made for home use it is not so important as when it is made on a commercial scale. There is no syrup so palatable to eat on griddle cakes or with warm biscuits as fresh maple syrup, and even tho it may be considerable bother to boil down the sap, it is repaid by the few gallons of maple syrup that is had as the result.

The time for tapping varies with the season. The most favorable time is when cold nights, followed by a thaw during the day, will cause a large flow of sap, and the oftener these conditions are repeated during the run, the larger will be the return from the sugar camp. Whenever these conditions exist, either in early spring or late winter, is the time for tapping. The metal spiles are best and can be purchased very cheaply. Trees should be tapped on the sunny side and two spiles for each pail. If it is a large tree, two pails should be allowed. A new spot on the tree should be found each year and the tree never tapped in the same place the second time.

The quality of the sap from different trees varies just as the milk from different cows varies in its butter-fat content. The sap from trees will be sweeter and contain a greater amount of sugar than sap from other trees. There is an individuality in maple trees for syrup making the same as there is an individuality in dairy cows for butter making or milk production. Those who have had considerable experience in camps can usually pick out these trees and judge them on their merits.

The sap must be collected several times during the day. This is a hard part of the work and horse power should be employed as much as possible. One horse hitched to a stone boat on which are several milk cans or a sufficient number to hold the sap is a convenient way of getting it to the refining point which should be situated in about the central part of the camp.

The old fashioned way, which is still used by the small producers, is to boil it down in large kettles. It is always best to strain it before boiling for, be as careful as one can, a certain number of bugs, pieces of bark and other matter will find a way into the sap. The picture which appears on the front page illustrates a desirable method of hanging the kettles if an evaporator is not available. The sap is not poured into the kettle direct, but is strained into the barrel seen at the right. From here it is run thru an iron pipe or hose to the kettle, the pipe being connected with the barrel by just an ordinary wooden spigot. If the boiling is brisk a small flow of sap may be kept running from the barrel into the kettle. In boiling sap by this method, one must be careful to watch that it does not boil over when it is nearing the syrup stage. This may be prevented by greasing the top of the kettle, or by immersing a piece of pork into the boiling mass whenever it begins to boil over. Of course, it will be necessary to finish the boiling in the house where it can be cleared and watched more closely.

A large, clean boiler or kettle is adapted for this. The syrup should be cleared by adding a beaten egg or a small quantity of milk. Unless this is done, the syrup will not have so desirable a color. Some makers simply allow the syrup to settle and do not clear it with anything, but this method is not to be recommended. When the egg or milk is added, a thick skum will collect on top of the syrup and this should be skimmed off with a milk skimmer.

With the enforcement of the pure food laws, comes a restriction on the manufacture of maple syrup and sugar, and the product must be sold for what it is. It must give a certain specific gravity test and weigh so many pounds to the gallon. If it tests less than 34 and does not weigh eleven pounds to the gallon it cannot be classed as pure maple syrup. A few years ago it was not uncommon

to buy a syrup that bore the label of pure maple syrup, but in reality a substance that had never seen a maple tree or at most, contained a very small percentage of the maple syrup. With the present pure food laws in force, one may feel reasonably sure that if the article bears the label of pure maple syrup or sugar, it is the genuine or undiluted syrup or sugar.

If any quantity of syrup is to be made, an evaporator should be used. The sap can be boiled down much more quickly and easier in an evaporator than is possible in kettles. A larger surface is exposed to the heat from below, and the evaporating surface above is larger. An evaporator is partitioned off into several divisions, each one of which is connected to the one next to it by a syphon arrangement. The sap is fed to the evaporator by an automatic device somewhat similar to a float to regulate the flow of milk in a milk separator. The first partition of the evaporator where the sap enters contains the sap only, while the last partition contains almost pure syrup. In traveling from the first partition where it enters as sap, to the last where it is drawn off almost as pure syrup, the liquid goes a distance of about ninety-six feet. The principle of physics, that any liquid seeks its level, is made use of in an evaporator. On evaporation more sap from the supply tank will force its way thru the automatic feed to the evaporator and the slightly evaporated sap already in there, will be syphoned to the next division of the evaporator where the process continues. As it travels from one division to the other it becomes more condensed and when it finally reaches the last partition, it is almost pure syrup. At this division a small stream of syrup may be allowed to run continuously or as is generally practiced, it may be left here until a larger quantity collects, when it is emptied or drawn off. The principle of an evaporator is simple and it has solved to a degree the taking care of a large amount of sap at the minimum of expense for labor, fuel and time, besides making a more refined and a cleaner syrup than is possible by the old fashioned kettle method.

The tendency a few years ago was to make considerable sugar, but now the demand calls for a greater amount of the syrup. One gallon of standard syrup will make about eight pounds of sugar. There is not a great deal of difference of profit in favor of either syrup or sugar as far as the producer is concerned. If sugar is made, it is poured into buttered moulds and there is no expense for cans, but on the other hand it requires more time and fuel and is quite a bit more trouble. The syrup, if intended for sugar, must be boiled down more and stirred while cooling to improve the color and make it finer grained.

The amount of sugar or syrup to be made from one tree depends upon the season and individual tree: We were talking with one maker who tapped 380 trees in his camp. That season he made 153 gallons of syrup besides a quantity of sugar. This would give nearly a half gallon of syrup or the equivalent of four pounds of sugar to the tree, but I am inclined to believe that this is slightly above the average, taking one season with another. This maker boiled the syrup to a test of 36, which, with can, weighed 12½ lbs. to the gallon. It required 36 gallons of sap to make one gallon of syrup. One could count on 100 barrels of sap making practically 80 gallons of syrup and in a favorable season making nearly one-half gallon, or four pounds of sugar to the tree. Those who have a grove of maple trees, or even a few trees on the farm, are making a mistake if they do not tap them, especially if it is a favorable season.

Pennsylvania. L. J. HAINES.

Good Pumps In Demand.

The glass valve pump is a thoroly modern, sanitary and lasting invention. It is rapidly being adopted by up-to-date farmers all over the United States, and even in some of the foreign countries. The story of the glass valve pump is an interesting one. The invention is in the hands of F. E. Myers & Bro., of Ashland, Ohio, distributors of well known makers of hay tools, barn door hangers and hay rack clamps. They have prepared a little booklet telling the story of the glass valve and its uses. Persons interested in the modern methods of rural sanitation can obtain the booklet for the asking, and are assured of learning valuable facts from it. It is a great help in the solution of the pump problems.

I. N. Kramer & Son, Cedar Rapids, Iowa, make an attractive offer in our columns. Their 1909 illustrated catalog is mailed free to our readers who write for it.

Johnston Mowers

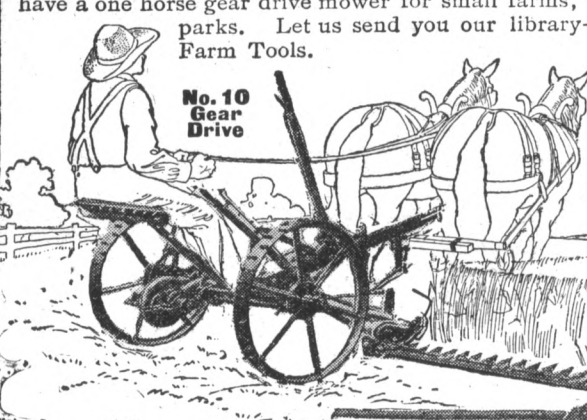
NOT IN THE TRUST

Make Friends by Working Well

When "cutting" begins, everybody and every horse on the farm is busy. Quick-working and light running Johnston mowers make farm work easier because we have eliminated everything that usually causes trouble. Roller-bearing throughout.

High wheels with three pawls, insure motion without jar or jerk and high power. Draft is evenly divided between the pole drawing the truck and the draft rod pulling the cutting mechanism, making lightest draught on horses and least taxing on operator.

Hand and foot levers give perfect control at all turns, when cutting on a side hill or raising cutter bar over obstructions. Rigid cutter bar and shear cutting knives prevent clogging and insure a clean smooth swath in light or heavy grass. Chain or gear drive and "Lever Fold" as preferred. We also have a one horse gear drive mower for small farms, orchards, lawns and parks. Let us send you our library—all about Johnston Farm Tools.



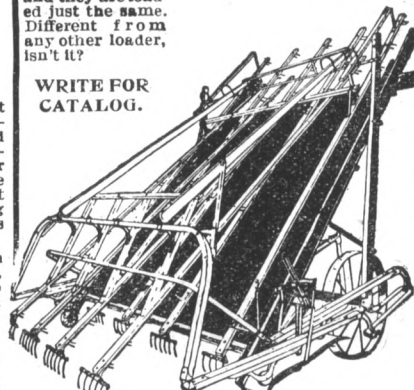
No. 10 Gear Drive

The Johnston Harvester Co.
Box 619
Batavia, New York

GEARLESS HAY AND BEAN LOADER

RAKES AND LOADS WITHOUT WASTE
Handles crop without rough usage. If some few beans are threshed, solid deck catches them and they are loaded just the same. Different from any other loader, isn't it?

WRITE FOR CATALOG.



Rakes without threshing—loads without wast ing. You couldn't do it more carefully by hand—in fact, the long, slow raking stroke, close and parallel to the ground is the same as hand raking—not the jerky, twisting motion as with cylinder loader, or other rake bar loaders which have shafts, gears, sprockets, chains, etc., which must run at high speed, consuming power, putting heavy work on horses, and shaking themselves to pieces.

No gears, sprockets, shafts, chains, etc., on the Gearless to get out of order, and wear. Rakes with long, slow strokes, handling crop gently, yet rakes a field and loads quicker than any other.

Solid deck on Bean Loaders saves all the shattered beans. Unequaled for hay or beans; rakes clean from either swath or windrow.

Saves time and labor, yet costs no more than the common loader.

LA CROSSE HAY TOOL CO., 406 Vine St., OTTUMWA, IOWA.

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WE WANT AN AGENT For our Fertilizer in every neighborhood in Michigan.

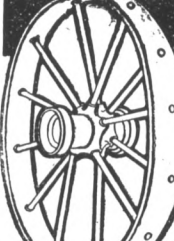
We will ship to responsible parties on a consignment contract; that is, the agent only pays for what he sells. We will take farmers' notes for pay.

Our prices are right, our goods are extra. Write for prices and terms.

THE CINCINNATI PHOSPHATE CO., Station P, Cincinnati, Ohio.

Easy to load-Close to Ground

Your wagon is always in use. It is loaded day after day, week in and week out. It's no small job to put an average load of anything on the ordinary wagon. The **EMPIRE FARMERS' HANDY WAGON** has wide-tired low wheels and and back-ache. It is so close to the ground that it is 50 per cent easier to load and unload. Wide tires make lighter draft—twice the load can be hauled. Built for strength and the hardest and longest wear. "Good-Roads" Steel Wheels are the strongest and most perfect made. Spokes rigid with hub, can never get loose or pull out. Put a set of these wheels on your wagon and let it down for easier work. All sizes, all widths of tire, plain or grooved; fit any hub. Send for Free Wheel and Wagon Book—"Good-Roads" Steel Wheels Make All Roads Good." Address **EMPIRE MFG. CO., Dept. 714, Quincy, Ill.**



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We offer the best goods for the lowest prices and most reasonable terms. We also sell **NITRATE OF SODA, ACID PHOSPHATE, SULPHATE and MURIATE of POTASH, AGRICULTURAL LIME.**

Write for Prices and Terms.

THE BUFFALO FERTILIZER CO., Sta. A, BUFFALO, N. Y.

When writing to Advertisers mention the Michigan Farmer.

THE ROUND-UP INSTITUTE.

(Continued from first page).

money to be made in growing clover seed on these lands than from any other crop, stating that the average yield from such land is about five bu. per acre. After working humus into the land by this method it will be possible to change to some other crop for a year, going back to clover seed the following year.

The speaker also advocated farming this land in strips running north and south and not over 40 rods wide, such strips to be protected by windbreaks. He also said that a roller should not be used upon such land under any circumstances as the soil will blow and drift badly when the surface is perfectly smooth.

The Potato as a Market Crop

was the subject of an entertaining address or lecture by Prof. L. G. Dodge, of the Bureau of Plant Industry, U. S. Department of Agriculture. Prof. Dodge made use of the stereopticon in presenting a number of excellent views secured mainly in the potato-producing section of Maine. These brought out, in an interesting way, the methods employed by Maine potato farmers. In his remarks he stated that their rotation is potatoes, oats and clover, with fertilizer applied for potatoes; that from \$12 to \$28 worth of fertility, or from one-half to one ton is used to the acre; that the average cost of producing an acre of potatoes is \$45, due largely to the very liberal use of fertilizer, and that the average yield is 100 bbls., or 275 bu. per acre.

Tuesday Evening.

Forestry and agricultural education, the topics for the first evening session, brought out by far the largest attendance of the day. Hon. Chas. W. Garfield, President Michigan State Forestry Commission, presided and, after a selection from the U. S. Indian School band, Mr. Chas. W. Ward responded to the subject, The Problem of Our Cut-Over Lands.

This gentleman, having traveled extensively and seemingly made a study of forestry conditions in this and other lands, was able, thru the aid of the stereopticon, to make some startling comparisons as regards methods of lumbering in different countries. The wasteful practices of American lumbermen were forcefully presented and contrasted with the careful, economical handling of timber and the cultivation of forests in older countries. He admitted that our lumbermen have shown too little deference to the good of the country at large but held that the seemingly undue haste of lumbermen to get rid of their timber was largely due to the failure of the state to return, in the form of protection, a fair proportion of the taxes imposed upon the property. He predicted that public sentiment will gradually demand more strict enforcement of laws designed to bring about the adoption of more rational methods by timber owners.

Practical Farm Forestry

was the next topic. It was in the hands of Prof. J. Fred Baker, of the Agricultural College, who declared that forestry is one phase of the great conservation problem which is puzzling the country just now. His subject had to do with a small part of the great forest area of the country, but not such a small part after all, when we realize that Michigan contains 210,000,000 acres of farm woodlots. This area is not so insignificant from the lumber standpoint either as the elm of the state comes mainly from the woodlots and in 1907 Michigan led the states in the production of elm.

Speaking of bettering the condition of the woodlot he said that the ideal way would be to trim up and clean up until a complete canopy is obtained giving a percentage of shade sufficient to keep out grass and weeds.

To prevent damage from wind he recommended planting one of the coniferous species of trees on the windward side of the woodlot for a windbreak. An effective windbreak of this kind can be grown in a few years. It prevents the drying out of surface soil and the blowing down of standing timber, particularly old and mature trees. He emphasized the importance of keeping all live stock out of the woodlot, contending that the only animals allowed in it should be the owner and his hogs. The latter may be turned into the woodlot about August 1st. They will root the ground over and cover the seed as dropped from the trees, and should be taken out when freezing begins in the early fall.

Trespassing by careless hunters is a menace to the woodlot. The careless

hunter runs over the woodlot, often setting fires by carelessness in lighting or emptying his pipe, and kills birds and animals that are not only useful but a pleasure to the owner. The young growth in the woodlot should be protected, and timber should not be cut promiscuously. A judicious system of selection should be followed, cutting weak trees and those which are injuring others. An estimate of the needed amount of cordwood, barn timbers, posts, etc., should be made, and the process of selection should be followed until the desired amount of each is secured. Then make a new planting to compensate for this harvest. Another good way is to cut and replant a strip on the leeward side of the woodlot sufficient to satisfy your needs for the year, and continue this process each year.

Seeds for planting should be collected after the first severe frost. They should be dried and pitted, using a layer of seeds, then a layer of sand or mould, etc., until the whole are thus stored for the winter. Seeds from coniferous trees should be collected and hung in bags, as in the natural state at the tops of trees. If there are no squirrels or other rodents to destroy them, nut seeds may be planted directly in the woodlot. Otherwise they should be planted in a garden, cultivated one year, and then set out in the woodlot. In growing the conifers, the seed bed should be prepared and the seeds rolled into the surface. Then a mulch of white pine needles not less than four inches deep should be added and left on ten days, after which, screens of brush, or slats should be provided and left on until fall. After transplanting, they should be cultivated the same as other crops.

Prof. Baker, commenting on the forestry work being done at M. A. C., stated that a forester would be sent from the college to advise the owner of a woodlot, with regard to its proper handling, varieties to plant, cultural method, etc.

After a song by the Central Normal Ladies Trio, the last number for the evening was announced, the same being an address on

The Teaching of Agriculture in the Public Schools

by Prof. W. H. French, of the Agricultural College. Prof. French gained quick appreciation and applause from the audience by stating that it was his business to promote the teaching of agriculture in the rural schools, and that after listening to Prof. Baker's address, he was satisfied that forestry should be included in such instruction.

Prof. French referred to the fact that in Michigan, there are three million men and women; that the girls and boys of today will be the men and women of the next generation, and the mission of the public schools is to train these future citizens, and is thus of the most vital importance to the state itself. He referred to the value of object lessons in teaching and impressed his hearers with the importance of teaching the practical in the common schools, and that the three R's are not all that is necessary in the way of instruction. He declared that everything that touches human life is practical. As to whether agriculture can be taught, he referred to the fact that Michigan began the teaching of scientific agriculture, which is now taught in every state in the Union, and that those who criticize the work of the agricultural colleges simply do so because they have not a clear knowledge of what those colleges are doing, and do not appreciate the value of the experimental and educational work which they are carrying on. In our own agricultural college, there are 1,100 students, but there should be 5,000. There is a great necessity for the general teaching of agriculture. Farmers are producing only about 50 per cent of what they might produce, because of their lack of skill and a thorough understanding of intelligent methods. If every farmer were a trained farmer, we would not need an agricultural college. The way to make every farmer a trained farmer is to begin with the boys, and in this connection, Prof. French asked his hearers if they took the boys to the Farmers' Institutes this winter. Farming is both a business and a profession, notwithstanding the fact that very many farmers do not make such of it.

Speaking of the great need of the public schools today, Prof. French declared that the urgent demand is to fill up the gap between the 6th and 12th grades in school work, in which the course of study should be so shaped that there

(Continued on page 272).



**"THIS IS
THE ROOFING
THAT NEEDS
NO PAINTING"**

And below them all is another layer of strong felt. That makes two roofs in one.

If the storms wore away the mineral surface and dug through the pitch and destroyed the felt, they would still be only half way through. And if the weather then removed the next sheet of pitch, you would still have left a final layer of felt—nothing more or less than an ordinary smooth surfaced roofing which could keep off the rain very nicely if painted every year or two.

But as a matter of fact the weather never gets past that mineral surface securely gripped in its matrix of pitch.

The mineral surface is there to stay. No painting—no bother—no further expenses after the roof is once laid.

We should be glad to send you a free sample of Amatite, and you can see for yourself how much better it is than the smooth surfaced kinds.

Address our nearest office.



THERE was a time when everybody bought roofings that required painting. It was the regular thing to do. In fact, there was nothing else to do, for all roofings were "smooth surfaced" and required painting regularly to keep them from deteriorating.

Now there is Amatite, an improvement over painted roofings, having a real mineral surface imbedded in pitch—making a kind of flexible concrete.

This mineral surface needs no painting. The waterproofing material, Coal Tar Pitch, is the greatest enemy to water known. It is the base of many waterproof paints. Only in a paint the pitch is diluted and made into a thin film, whereas the Amatite waterproofing is solid pure Pitch—two layers of it. It would take something like a dozen coats of pitch paint to equal in thickness that upper sheet of pitch in which the Amatite mineral surface is buried. And under that heavy sheet of pitch is a layer of wool felt and under that another sheet of pitch,

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A proved necessity for every property owner

Brother Farmer: The season of electrical storms is again dawning. Make safe your life and property before lightning gets busy. Thousands of buildings are protected by the

Look for
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Over 98% pure copper. Officially endorsed by mutual and state-wide insurance companies. Get our reports. The quality of Barnett Rods is guaranteed to the purchaser. Sold through dealers and reliable agents. Our rods are in demand and there is an honest profit in handling them. Live agents wanted. It is to your interest to know what you can do with our line. Investigate our agency proposition for this season. Do it now! Write at once for Catalog and Booklet explaining the Barnett System and prices.

JOS. BARNETT & CO., Dept. 26, Riverside, Iowa



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IN EACH TOWN and district to ride and exhibit a 1909 model "Ranger" bicycle furnished by us. Our agents everywhere are making money fast. Write for full particulars and special offer at once.

NO MONEY REQUIRED until you receive and approve of your bicycle. We ship to anyone, anywhere in the U. S. without a cent deposit in advance. Prepay freight, and allow **TEN DAYS' FREE TRIAL** during which time you may ride the bicycle and put it to any test you wish. If you are then not perfectly satisfied or do not wish to keep the bicycle you may ship it back to us at our expense and you will not be out one cent.

FACTORY PRICES We furnish the highest grade bicycles it is possible to make at one small profit above actual factory cost. You save \$10 to \$25 middlemen's profits by buying direct of us and have the manufacturer's guarantee behind your bicycle. **DO NOT BUY** a bicycle or a pair of tires from anyone at any price until you receive our catalogues and learn our unheard of factory prices and remarkable special offers to rider agents.

YOU WILL BE ASTONISHED when you receive our beautiful catalogue and study our superb models at the wonderfully low prices we can make for 1909. We sell the highest grade bicycles for less money than any other factory. We are satisfied with \$1.00 profit above factory cost. **BICYCLE DEALERS**, you can sell our bicycles under your own name plate at double our prices. Orders filled the day received.

SECOND HAND BICYCLES. We do not regularly handle second hand bicycles, but usually have a number on hand taken in trade by our Chicago retail stores. These we clear out promptly at prices ranging from \$3 to \$8, or \$10. Descriptive bargain lists mailed free.

TIRES, COASTER-BRAKES, single wheels, imported roller chains and pedals. parts, repairs and equipment of all kinds at half the usual retail prices. **DO NOT WAIT**, but write today and we will send you free by return mail our large catalogue, beautifully illustrated and containing a great fund of interesting matter and useful information; also a wonderful proposition on the first sample bicycle going to your town. It only costs a postal to get everything. Write it now.

MEAD CYCLE COMPANY Dept. B 77 CHICAGO, ILL.

LIVE STOCK

SHEEP AND THEIR CARE.

This subject I consider quite an important one, as there are so many methods adapted in the caring of sheep. I will mention briefly in regard to the choice of the different breeds that we have the privilege of selecting from. Each flock master thinks he has the best breed. I believe that there is no all around best breed that suits every shepherd and the conditions of his farm, but when he has made the choice of his fancy, let him not forget one essential, and that is to buy good rams for the breed chosen, and one fact should not be lost sight of, and that is quality must under no consideration be sacrificed at the expense of quantity.

One most important feature in the selection of our sheep is constitution. Be observant that both rams and ewes carry the true signs of constitutions. Usually a sheep on low legs, well sprung ribs, deep chest, strong in twist carries a constitution that will meet all ordinary requirements.

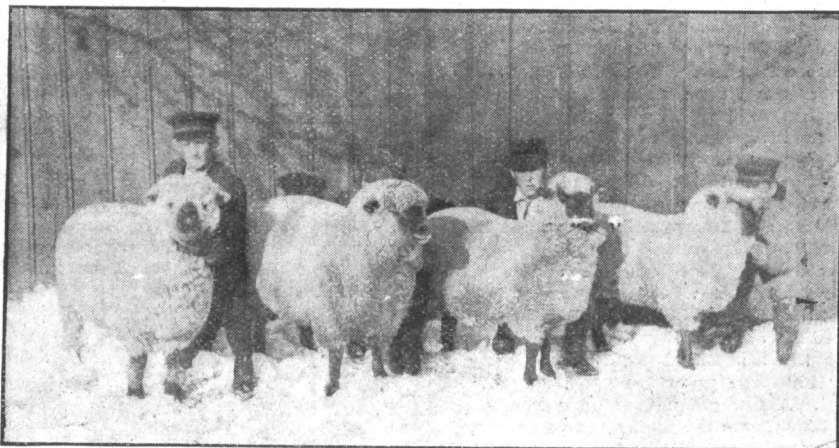
One great error that comes under my observation is that flock owners are too easily persuaded to change and cross one breed with another; the result is the diminishing in the value of the flock, and in this case, you will find anything but a uniform flock. Do not forget the one important point. Purchase good rams of the type you select.

The sheep barn need not be a costly structure, providing that it is able, well ventilated, has plenty of light and is reasonably warm, especially during lambing time. The doors of the sheep barn should be made wide enough to

placed near the flock will avoid this. A pen about six feet square to protect the lamb for two or three days is sufficient. Considering pasture, my judgment is that frequent changes from one field to another cannot be overestimated. True, they may keep alive and appear thrifty, but place a flock in a certain pasture in the spring and compel them to remain there until fall without any change and you will find that they will never attain the size they would had they been permitted frequent changes. Sheep love a change of pasture, even if the change be to a poorer one.

We should not neglect to supply the flock during the months of July and August, with some succulent food, such as Dwarf Essex rape, or other good forage plants. Rye makes a good pasture when sown early in the fall. If you are planning on raising a crop of beans the next year I would advise that you sow the rye this fall and you will secure a large amount of pasture before it is time for you to plow the ground for the beans. I have found that by sowing two pounds of rape seed per acre in the corn fields during the last cultivation, will afford abundant feed for late pasture.

Sheep have many natural advantages over other kinds of live stock and they are very prolific and raise their young on the most inexpensive feed, and with the least care, and you can therefore produce mutton for the market more cheaply than beef or pork and it brings a higher price. Another advantage, they grow from seven to ten per cent of their normal live weight in wool, which usually sells for more than three times as much as the flesh of any other animal, and the manufacture of wool into clothing and other valuable articles of commerce gives employment to thousands of skilled laborers throughout the world. Sheep will return more fertility to the soil than



Prize-Winning Oxford Downs at State Fair, Shown by J. J. England.

allow the sheep to enter the barn without crowding. I have heard many farmers say that sheep will do fairly well without any water. It is true, however, that you will not notice the neglect as quickly with sheep as you would in the case of other domestic animals, but my observation goes to prove that plenty of good, pure water at all times is a very essential factor in the health and comfort of the sheep. Salt should be kept before your sheep always, as it is a great preventive against worms and kindred diseases.

While feeding in winter quarters, my experience has been to allow them plenty of exercise and to feed out of doors whenever the weather permits.

In this locality, (Tuscola county, Mich.), clover hay and bean fodder is plentiful and they make ideal feeds, the best results are obtained where these fodders are fed alternately. As a grain for breeding ewes, the bran and oats with a little oil cake is ideal.

During the past seven years I have sown about two quarts of flax seed per acre, mixing it with the seed oats to be fed to all stock is a great improvement, as the flax seed will ripen at the same time as the oats, and when the oats are threshed there will be about the right amount of flax seed with the grain. The flax straw is eagerly sought after, especially by cattle.

I have always considered that sheep fed regularly is one of the most valuable secrets, and I believe that in irregular feeding is where a large margin of profit is lost.

In regard to lambing time, which means a great deal to the flock owner, a suitable place should be provided. I am not in favor of stationary lambing pens, for various reasons. Among them being the fact that a ewe taken from the flock and placed in a strange pen is apt to worry and fret, but a temporary pen

any of our other domestic animals, and they are more easily managed and cared for during both summer and winter, and they will eat more of the weeds and other waste materials that other animals will not. They will thrive and fatten on pasture without grain, but the owner of the "Golden hoof" will not thrive in a pasture without grass.

Tuscola Co. J. J. ENGLAND.

LETTING CALF SUCK THE COW.

Will you give me the best method of feeding for fattening a calf up to four or five weeks of age. What harm, if any, does it do to let the calf suck the cow? Would it be best to milk the cow and then feed the milk to calf, or could I give it skim-milk with some kind of ground feed like middlings?

Berrien Co. F. H. HARTER.

It is not considered a good plan to let the calf suck the cow to fatten it, where you intend to veal the calf. Of course, it is a good thing for the calf, and you can get better veal in this way as it makes a better growth, but it is not good for the cow. Now, the idea is this. The cow produces milk solely for the use of her offspring, and what we want to do as dairymen is not to allow the cow to get her affections too strongly fixed upon the calf. If we do, then when the calf is removed the cow will refuse to give as much milk as formerly. If you allow the calf to suck but once or twice and then a careful milker takes its place, the attention and affection of the cow becomes fixed upon the milker. He takes the place of the calf and the cow gives her milk down readily. But if you let the calf suck for four weeks the cow becomes attached to this calf and, when you take it away, it is almost impossible to get her to give as much milk as before.

You cannot fatten the calf on the skim-milk. You will have to milk the cow and feed the whole new milk to the calf. In this way you can get the calf in good

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It costs you nothing—at our risk—to test the Detroit Tongueless on your work for a month.

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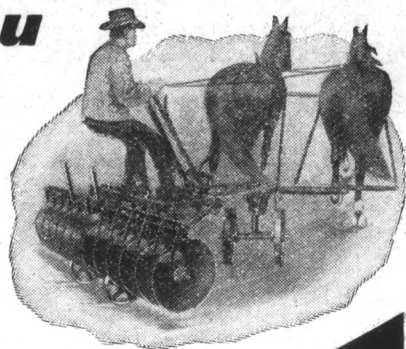
DETROIT Tongueless Disc Harrow

The Forward Truck does away with all of the annoyance on the team of the old "tongue"—all neck weight—side draft and sore necks. Note back of the Disc Blades the TRANSPORT TRUCK—an extra attachment—upon which you can mount the machine, taking the Disc Blades off the ground, so you can drive over stony ground, rough and sandy roads, bridges, etc. Write today for our price—proposition to you and new 1908-9 Catalog sent FREE.

AMERICAN HARROW COMPANY
102 Hastings St., Detroit, Mich.

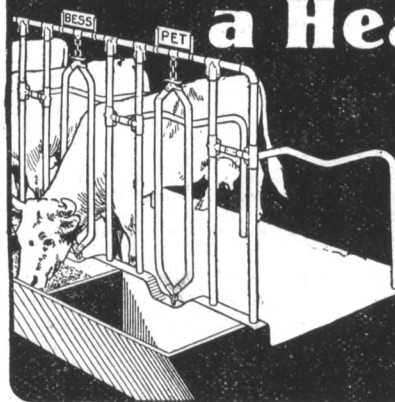
Branch houses in all trade centers enable us to make prompt shipments. Get an American Manure Spreader or Detroit Tongueless Disc Harrow by ordering early.

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Write To The AMERICAN HARROW CO.

Does the Cows a Heap of Good



Cow comfort and cow sanitation result in more cow profits, and that alone should induce any farmer or dairyman to seek these conditions. Louden Sanitary Steel Stalls and Stanchions double the light and air in a barn and insure perfect ventilation, perfect sanitation—a result impossible with any wooden equipment. Yet

LOUDEN STALLS AND STANCHIONS

are actually cheaper. Louden stalls of heavy tubular steel, with malleable fittings, have no flat surfaces for dust to accumulate—easy to keep clean and almost indestructible.

Louden stanchions give cows more comfort than other makes, yet keep them perfectly lined up. Throat chains prevent cows from lying down when milking. Simple and very durable. Latch easily opened or closed with gloved hand, but can't be opened by animal. Send today for free catalogue of sanitary, money-saving barn equipment.

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LUMBER

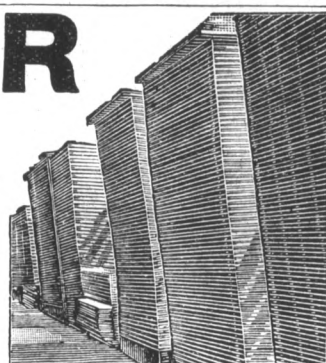
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condition in four weeks' time, but of course he is not as smooth and nice as he would be if he nursed the cow, which is the natural way. COLON C. LILLIE.

ABUSING THE SHEEP.

Recently there was a young lady at my home who stated that her father was shearing sheep. It looks to me to be the height of folly to be shearing sheep the first of February. The man that is having it done, argues that it will give the lambs a better chance to get their dinner; the tag-locks are out of the lamb's way; there is more room for the sheep and lambs in the barn when the wool is off the sheep; I can get a man to shear them now, while if I waited till warm weather it might be hard work to find anyone to shear sheep; the lambs coming early will be ready for market earlier, etc.

Now, for the abuse. The most of us like to get in between good woolen sheets with two or three quilts over us besides, and in a comfortable bedroom at that. How would any of us like to have someone come in and pull the clothes all off and we be obliged to lie there all night in that condition.

That is just about the condition of the sheep. The wool is his covering; and when it is taken off in mid-winter he suffers more or less all the time till warm weather.

I don't believe that early shearing and early lambs will pay much better, if as well, as to shear the sheep the first of May, or later if the season is cold and backward.

Lambs dropped when the ewes can get plenty of green grass, will grow just as fast and faster without grain, than the early February lambs with grain and clover hay, and a basement barn for shelter. One does not have to watch them night and day, either. The ewes will raise a larger percentage of their lambs in warm weather than in winter and at less expense.

Another practice I have seen flock-masters follow is to turn their sheep into a briar patch—or a woodlot, and keep them there till there was not a green thing that they could reach, without any water to drink. Again, in the winter I have seen them where they got only the snow for water. I have seen them turned into swamps or on marshes where the flies were a continual torment. Another kind of abuse is their being frightened, if not killed, by worthless dogs. The sheep is too often but half fed, half watered, half salted, and half sheltered, and abused in many ways. The best of care is none too good for the sheep.

Clinton Co. M. A. DUNNING.

RINGING AND CASTRATING PIGS.

These are two jobs which nearly every farmer and stockman is very prone to put off, but which procrastination only makes them harder and the losses greater. After a pig has learned to root he will tear up the ground until stopped, and the only way to prevent him from so doing is to cut the pig's nose or to ring him. I shall call both "ringing."

Until the past spring we have always used the old style rings to keep our hogs from rooting. A year ago we got one of those new arrangements which cuts a sort of V out of the hog's nose and leaves two points at either side, which points are in such place that the hog's snout is exceedingly sensitive, so much so that it is of no use for digging dirt. The use of the instrument takes quite a piece of flesh from the snout and at first notice seems mighty severe. We really couldn't get up enough nerve to do it last year until spring, when we steeled our feelings and proceeded to go at some 60 pigs which had been picked up last winter and which we were turning out on clover.

It wasn't so bad after all. It was fairly easily done, and the snouts were entirely healed inside of five days. Indeed, the hogs did not seem to mind it as much as they did the old-fashioned rings. The worst objection to the ordinary brass ring is that they will work out, and that it then becomes necessary to do the whole job over again. There are hogs which one cannot keep rung, even the five or six be used. With this new method all future trouble is avoided.

The only rule which can be given as to the age at which to ring is to do it as soon as they begin to make trouble. Then, too, the smaller the animal the easier it is to ring him, as waiting only makes him harder to handle. Often it is handy to await a rainy day, when we

may ring and castrate at the same time.

The latter is a job which is usually dreaded, hence is put off as long as possible. But, as with the ringing, the older the animal, the larger and harder to handle. But the ease with which it may be done is not the only thing to be considered. The barrow that has been castrated at three weeks of age usually loses less on account of the operation than the one attended to at two months. The "setback" caused by such an operation should be carefully considered.

Ohio.

CLYDE A. WAUGH.

A PIG RECORD.

On February 17, I butchered six hogs which were farrowed August 2, 1908. The following were their weights when dressed: 230, 228, 217, 189, 187, and 185 lbs. With these weights at this age, the farmer can afford to raise pigs. Altho corn is very high, still if the hogs are fed good rations of milk along with the corn, they ought to thrive. Another essential in hog raising, is a good, clean pen. The pen need not necessarily be an expensive one, if it is kept thoroughly cleaned each day, and the hogs given a good bed of wheat straw.

Monroe Co.

W. L. WINSLOW.

INFLUENCE OF THE SIRE UPON PROLIFICACY.

There seems to be a prevailing opinion among the majority of writers upon swine breeding that the breeding boar exercises but little, if any, influence upon the prolificacy of the sows that are kept in the breeding herd. They have an idea that all that is necessary is for the breeder to select the sow pigs that are to be kept for breeding purposes from large litters, in order that he may increase the number of pigs farrowed at a litter. Now, the practical point that I wish to discuss is whether or not the breeding boar exercises a tendency to create an increased prolificacy as the result of a singly mating, or whether he can transmit an increased tendency in the female progeny of the same, because of inheritance.

I have frequently discussed this phase of swine breeding with many successful breeders and I have discovered that there is a wide difference of opinion among them as to just how important a factor a breeding boar is, in the work of increasing the prolificacy of a herd of breeding swine. Some confidently claim that the breeding boar does not exercise any influence upon the prolificacy of the herd. A few claim that he does exercise an influence that is far reaching, but as a general proposition the majority hold to the view that the sow exercises an influence that is far greater in establishing fecundity of the progeny, as well as the result of the single mating.

First, it will be my purpose to attempt to show how the breeding boar may increase prolificacy in procreation, and second, how this influence compares with the influence exerted by the sows. Of course, if you decide that he does not exert any influence in prolificacy it will be useless for me to discuss the second phase of the question.

With a herd of breeding sows the different results in the number of pigs farrowed is the outcome of some influence exercised in procreation in the dam, rather than the result of chance. To the careful observer it is self evident that this influence must come from one of three sources: From the sow entirely, from the breeding boar entirely, or partly from both.

The sow that is capable of producing ten or twelve pigs at a birth, often brings but three or four. Why should there be such a variation? That the sows do influence the size of the litters is generally conceded among all of the leading swine breeders. Some sows will produce eight to twelve pigs at a litter, while others will produce but three or four, tho mated with the same breeding boar. Some may ask if this does not prove that the breeding boar exercises no real influence upon the size of the litter. I would say that it does not. The most it can possibly prove is that he does not exercise as much influence upon the outcome of a single mating as the sow. But even such evidence is not conclusive, for the same breeding boar, if mated with other sows, will in some instances bring large litters and in other instances small litters. This makes it possible in the absence of evidence to the contrary, that the breeding boar does exercise an influence upon prolificacy in procreation.

I have noticed that many times when



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a breeding boar is mated with a large number of sows during one breeding season, that the first litters are usually larger than those that come later in the season. Some will claim that this is due to the greater vigor possessed by the breeding boar. But if vigor in the breeding boar exercises an influence upon prolificacy then it is only fair for me to assume that vigor in the sow exercises the same influence, thus we can see that it is easy to reason that the result stated may come chiefly from the sows, as the most healthy and vigorous sows will come in heat before the less vigorous ones. It is almost certain that some of the influence resulting in large litters comes from the breeding boars, for if we were to breed a herd of good, vigorous sows to a breeding boar that had become enfeebled by exercise of service, it is almost certain that there would be an increased proportion of small litters.

It has been claimed by many intelligent breeders that a bunch of corn fed sows that have had their breeding powers impaired by heavy feeding will produce larger litters when they are mated with a Large Yorkshire or Tamworth breeding boar. This fact has been noted by many breeders in the corn belt states who have used these types of breeding boars in their herds. If this is correct it would be easy to prove that the breeding boars do exercise an influence in the size of the litters. Thus far I have only discussed the subject of vigor as a source of increased prolificacy. To this must be added rational feeding. The sow that has been pastured on clover, alfalfa or blue grass for a few weeks before she is bred will be more prolific than one that has been confined to a narrower ration of carbonaceous foods, thus we see that vigor and food are important factors in increasing prolificacy in procreation. No modern breeder will deny this. The important question is, do these influences operate thru the boar as well as thru the breeding sows. Once granted that the breeding boar does exercise such influence as the outcome of a single mating when properly fed, then it is plain for us to see that this influence on the part of the boar will be strengthened or weakened, as the case may be, by inheritance.

There are some breeders who assert that the sow exercises an influence upon certain parts of the organization and that transmission in the male influences certain other parts. This is wrong according to my views of breeding. It has never been proven, and until it is the conclusion is justifiable that both parents exercise an influence to every feature of the organization, including breeding tendencies, not always in the same degree and not necessarily in equal degrees. Now if my views of this phase of breeding are correct and I believe that they are, then it follows that the tendencies to transmit these tendencies to prolificacy or the opposite inheres in both breeding boars and brood sows, but there are many who doubt it in the case of the breeding boars.

If it is true that the breeding boar does exercise an influence on every part of the organization, including capabilities in the line of performance, as well as physical features, then it is fair for me to assume that he does exercise an influence on the tendencies to increased prolificacy. The influences that govern reproduction may be effected by the degree of inheritance, but of course this may be to some extent modified by the influences of the quality of foods and the kind of environment. To increase prolificacy in the herd it would be essential that we select breeding boars that are descended from prolific ancestry.

While it is obvious that breeding boars should have the power to transmit tendencies to prolificacy as well as to beget prolificacy in the female progeny, it is of course, impractical to attempt to determine the degree of this influence which they will thus exercise absolutely, or relatively, since, as previously mentioned, it is quite certain to be a varying quantity because of the influence from the sources mentioned, but one thing we should keep in mind is the fact that the influence on increased prolificacy will be greatest when the influence exercised by the breeding boars and the sows operate in harmony rather than in opposition. To speak more plainly, select both the breeding boars and brood sows that are to be kept for breeding purposes from fair sized litters. To me it seems the height of folly to assume that these influences of prolificacy come from one parent.

New York.

W. MILTON KELLY.

VETERINARY

CONDUCTED BY DR. W. C. FAIR,
CLEVELAND, OHIO.

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Spinal Disease.—I have a cow coming 10 years old that is thin, her appetite good, does not show symptoms of sickness, but has not been able to get up for the past three weeks. What can be done for her? D. H. B., Benzonia, Mich.—Give 1 dr. ground nux vomica, 1/2 oz. ground gentian, 1 oz. ginger and 1/2 oz. powdered rosin at a dose in feed three times a day for three weeks, also apply equal parts tr. cantharides, aqua ammonia, turpentine and raw linseed oil to back every other day. Her bowels should be kept active. This is best done by feeding vegetables or well salted bran mash. She has a fair chance of recovery.

Colt Has Wart on Shoulder.—I have a colt that has a large wart on his shoulder which I would like to have removed. How can it be done? J. J. P., Shelby, Mich.—In my practice and at my hospital I always cut them out, they are usually only skin deep, and if you find it bleeds much sear the blood vessel with a red hot iron or apply tr. chloride iron; apply equal parts boric acid and calomel to sore daily.

Surfeit Buds.—I have a colt that has bunches on back somewhat like grub in cattle. The hair sloughs out of some, others remain, and some go away. How shall I mix turpentine, aqua ammonia and sweet oil so that it will not separate? M. S. J., Oswego, N. Y.—Give 1 dr. Fowlers solution and 1/2 oz. baking soda at a dose in feed three times a day for 30 days. Put sweet oil in bottle first, add aqua ammonia, shake well, then add turpentine; this is as good as you can do by hand.

Splint.—My 5-year-old mare has a bunch on foreleg below knee. It causes no lameness but I should like to have it removed without leaving any blemish. Can it be done? T. B., Marine City, Mich.—It is not good practice to treat such cases for the results are not generally satisfactory. When mineral acids are applied they reduce bunch but generally leave a scar. Try iodine ointment and apply some every day.

Knee Sprung—Springhalt.—I have a horse that is kneesprung and lame on left foreleg. I also have a horse that has the lifts, which shows but little when he is in harness. C. H. S., Isabella, Mich.—Blister tendons with cerate of cantharides once a week. Are you sure the lameness is not in foot? Leave the stringhalt horse alone, drugs will do him no good. A surgical operation would.

Horse Perspires Too Freely.—I have a horse that sweats altogether too easily and too freely, but is not sick. What shall I do for him? H. F., Lansing, Mich.—I would clip him, also give him 1/2 oz. powdered rosin in feed once a day for 15 days.

Surfeit.—I have a cow that began to shed off hair in patches some four weeks ago. She also licks herself, but does not rub. I have looked for lice and found none. She will come fresh in two weeks. F. R. M., Fennville, Mich.—She has some stomach trouble and will soon recover if you will give 1 oz. bicarbonate soda and 1 oz. powdered charcoal at a dose in feed three times daily for three weeks.

Spasmodic Colic in Sheep.—Some of my sheep are troubled with the stretches. It is not unusual to see them stretch and belly almost touch the ground. These spells are liable to happen twice a day and then not occur for some time. They are in fairly good condition, am feeding them timothy clover, oat straw, and some bean straw. W. H. K., Smith, Mich.—Timothy and oat straw are not as good food for them as clover and bean straw. Feed some carrots if you have them also salt their feed. Mix equal parts ginger, baking soda and charcoal and give each sheep 1/4 of a teaspoonful at a dose in feed twice a day.

When to Castrate Lambs and Calves.—Do you consider it unsafe to castrate lambs and calves in the winter season and should part of the pouch be removed when castrating lambs six to ten months old? A. E. H., Kalamazoo, Mich.—If animals are kept in a clean place and it is not too cold weather they do fully as well in cold as hot weather; in fact, I never hesitate to castrate animals in winter time and the death rate is no higher than in summer. Yes, cut off bottom of pouch; this allows scrotum to drain. Put a little iodoform gauze in wound after operating, this will assist the healing process. Apply iodine ointment to bunch on colt once a day.

Pigs Have Influenza.—I am anxious to learn what ails my pigs. Three sows farrowed the latter part of November, giving birth to 24 nice pigs. They did well until four weeks old. Then they began to look bad. Symptoms: Turned black around the head and would sneeze as if suffering from a cold on lungs, head seemed to fill up, would not nurse on sow nor drink milk. They would last in this condition for several days. Thinking perhaps the trouble might be with the sow I took pigs off, some at five weeks old, fed them new milk, and middlings and bran, also kept them clean and dry in a warm place. I am still losing some. Have lost 18 pigs since December 15th. I employed a Vet. who opened some of them but he was unable to tell what caused their death. W. G. H., Detroit, Mich.—I am inclined to believe your pigs die as the result of influenza.

(Continued on page 269).



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Butter Makers' Session.

This session convened with a large attendance, particularly of creamerymen. The opening number consisted of well rendered music by Misses Wilson and Magill.

"Is it Necessary to Ripen the Cream Before Churning?" was the first topic on the program. This subject was assigned to Dr. C. E. Marshall, of M. A. C. Dr. Marshall was unable to be present, but was ably represented by Dr. Otto Rahn, assistant bacteriologist at the college. By way of introduction Dr. Rahn said that he hardly knew, from the statement of the question, how it should be answered. In the making of sweet cream butter the cream is not ripened, but as Michigan buttermakers are principally interested in the manufacture of sour cream butter he would answer it in the affirmative. Dr. Rahn explained that in the ripening of cream in the natural way lactic acid is produced by the bacteria which develop in the cream, and that the peculiar and delightful aroma of good butter is a by-product evolved in the chemical laboratory of these bacteria which the chemist is wholly unable to produce in an artificial way. But in order to secure this pleasant aroma which is so essential to good butter, the cream must be ripened at a proper temperature. If the temperature is too high this by-product may become an undesirable one. For this reason when butter is made from gathered cream the acid may be present, but an undesirable flavor may be developed. This may, in a measure, be removed by adding freshly skimmed milk to dilute, and separating again. Then pasteurize the cream and use a pure commercial starter to ripen the cream and develop a better flavor or aroma. Some buttermakers contend that it is not necessary to ripen the cream, claiming that the desired results can be as well obtained by adding the starter to the butter when it is worked. Dr. Rahn contended that this practice is not a commendable one as it is necessary to add so much starter that the casein added in it tends to injure the keeping quality of the butter.

As to the necessity of using a commercial starter the speaker contended that there are so many kinds of bacteria, both good and bad, developed in the natural ripening of cream, depending upon the temperature maintained, and other conditions noted, such as a lack of uniformity in the raw material from which the butter is made, that it seems essential to the production of the best quality of butter. He gave a brief history of the origin and use of the commercial starter, an outline of which should prove of interest to the reader. Pure bacteria cultures were first produced artificially about 50 years ago. They were first found to be useful in producing a uniform ferment in the production of beer, and about 20 years ago came into general use by brewers for that purpose. A few years later Danish and German bacteriologists applied the principle in the production of pure cultures of the lactic acid bacteria for use in the ripening of cream. These pure cultures in the form of commercial starters soon came into universal use in those countries, and Danish and German butter quickly gained a merited reputation for the finest aroma and a degree of uniformity which was before unknown. From these facts, and speaking as a bacteriologist, Dr. Rahn was emphatic in his declaration that pasteurization and the use of pure culture commercial starters are essential to the manufacture of the best butter under the conditions which usually prevail at the average creamery.

Dr. Rahn's address provoked a general discussion of this topic by the creamerymen and buttermakers present, many questions being asked which brought out interesting points. One of the questions raised was whether whole milk or skim-milk should be used as a medium to develop the starter from the pure culture, the point being raised as to whether it would make any difference in the development of a desirable flavor. Dr. Rahn explained that it seemed to make no difference, as the bacteria do not attack the fat in the milk at all.

Another method which has gained favor in recent years was brot out in this discussion. This method consists in adding a starter to the cream when it is placed in the churn instead of ripening it before churning, and upon request of several of the buttermakers present this method was explained by Mr. Credicutt, U. S. Inspector on the Chicago market, who has scored the butter at the official scoring contests conducted under the auspices of the State Dairy and Food Department during the past year. Mr. Credicutt said that the method had given universal satisfaction when properly used. By adding a larger quantity of the starter in the churn than is used in ripening cream, and then churning at a sufficiently low temperature so that the process will require from an hour to an hour and twenty minutes, excellent results may be attained at all seasons of the year. The butter will not have quite as good a flavor when just made as that made from ripened cream, but by the time it reaches the consumer the desirable aroma and flavor will have developed and the butter will be as good or better than that made from ripened cream. It will also keep just as well as this method is free from the objections of adding the starter directly to the butter since the casein in the starter will not be incorporated in the butter. When asked if a good grain could be secured in the butter in this way, Mr. Credicutt explained that it was entirely practicable, since by churning at a low temperature the butter would come in fine granules, and would be sufficiently hard in warm weather, and by warming the wash water to temper it before working the grain could be properly controlled in winter.

Altogether, this discussion was most interesting to the novice as well as to the professional buttermaker, and will furnish profitable food for thought to the housewife who makes butter on the farm, especially insofar as it impresses her with the important part that temperature plays in the making of a good quality of butter, not alone at churning time, but in the handling of the raw material as well.

"Evolution of Creamery Butter Making." This topic was next taken up by C. E. Lee, in charge of the department of Dairy Manufactures of the University of Illinois, a transposition of the program having been made to accommodate Mr. Lee, who was obliged to catch an early train. This speaker presented a number of charts showing facts which have been demonstrated in the dairy work carried on at the Illinois College of Agriculture. In commenting on the doubtful quality of creamery butter, Mr. Lee said that the creamerymen made him very tired in one way. They are always complaining about the poor quality of cream delivered at gathered cream factories. His answer always is the question, "What makes you take the rotten stuff?" He contends that the remedy lies with the creamerymen, who might remedy this condition by concerted action, and by insisting that cream be delivered to the factory in good condition, under penalty of rejection.

Touching the quality of butter made from ripened cream and cream churned at a low temperature immediately after adding the starter, Mr. Lee declared that they had found no difference at Illinois. Another point made by Mr. Lee with which a number of other experts present did not agree was that pasteurization of cream does not materially better the quality of the butter. He stated that he had tried the proposition out by dividing a vat of cream, pasteurizing one half and not pasteurizing the other and that when scored by five judges at New York they were unable to distinguish which packages were made from pasteurized cream.

Mr. Lee presented many interesting facts and figures from the charts used to illustrate his talk but which cannot be reproduced in this report. His talk provoked considerable discussion and many questions, some of which took a humorous turn, but was well received by the good audience present.

Election of Officers.

As the time fixed for the election of officers arrived the program was suspended for the time and this order of business was taken up, resulting in the following choice for the ensuing year: President, T. F. Marston, Bay City; vice-president, F. H. Vanderboom, St. Ignace; secretary and treasurer, S. J. Wilson, Flint; chairman of board of directors, Leonard Freeman, Fenton; members of board of directors, Henry

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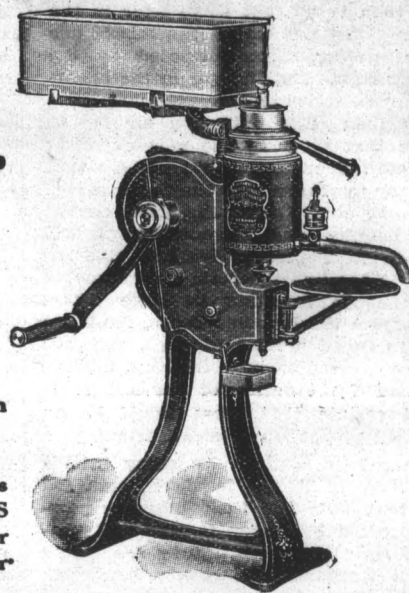
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A pleasant feature of the afternoon worthy of special mention, was the piano solo rendered by Miss Jones, of Penn Yan, New York, and the humorous reading with which she responded when warmly encored by the enthusiastic audience.

The Social Session.

The afternoon session was closed with the election of officers, but a few features worthy of notice should be mentioned in passing. One of these was the unanimous passage of a resolution thanking the retiring president, Colon C. Lillie, for his untiring efforts in behalf of the association which have aided in the up-building of the association so materially. President Lillie thanked the convention in a few well chosen words and assured the members that the organization would continue to have his loyal support and best efforts as a member, which he has given it as an officer.

Another interesting phase of this session was the introduction of Mr. Schillings, of Chicago, who spoke of the determined fight which is being waged for the repeal of the Grout bill, providing for a tax of 10 cents per pound on oleomargarine colored in imitation of yellow butter. He had a sample of the oleo which is being manufactured at the present time, and which has as rich a color as some butter, and is really a better product. He warned the dairymen present that vigorous preparations should be made to fight this effort, which is thoroughly organized and will be vigorously pushed.

The evening following this session was devoted to social chats, and closed with a banquet, spread for 300, by the supply men, which has come to be an annual feature of this meeting. This banquet was spread in the spacious dining room of the Cody Hotel, and as usual on such occasions, the serious and sparkling humor which passed over the tea-cups was the most pleasant feature of the evening, if not of the entire meeting, and this entertainment afforded by the commission and supply men represented at the meeting was most highly appreciated by all who partook of their hospitality.

Dairy Farmers' Day.

Friday, February 19th, the third day of the convention was given over to subjects of particular interest to the dairy farmers. The first subject discussed was the one which probably created more genuine interest than any subject presented to the association,

Is It Advisable to Register Grade Cows Upon Performance?

This subject was presented by Mr. Herbert A. Jones, secretary of the International Consolidated Record Association. President Lillie, in introducing Mr. Jones, stated that for a long time this subject had been of much interest to dairy farmers generally. There is a widespread feeling that if we had some authentic way of registering grade cows upon performance, and breeding only from those which were capable of producing profitably, that a great step would be taken in the rearing of a race of dairy cows which would be more profitable to the dairy farmer. The records of cow-testing associations reveal the fact that while there are many cows that are profitable producers, that there are also many that are not, and those that are not economical producers ought not to be kept for breeding purposes, or in fact, for any other purposes. It was learned that the International Consolidated Record Association was willing to register grade cows upon performance, providing authentic records could be produced. President Lillie stated that he became so much interested in this question and that this cow has produced him 365 spring, together with Mr. Rabild, of the Dairy Division of the Department of Agriculture, to investigate this record association, and found that they seemed to be a reliable institution, that they had a practical way of registering cattle and marking them which prevented any possibility of substitution as can be practiced by unscrupulous men of the various breeding associations, and that consequently Secretary Jones was invited here to talk upon this question.

Mr. Jones stated briefly the system used by the Association in recording cattle, and explained the tattoo marks. His system is to have a vice-president for a state, and a supervisor for each county, then the records of the cow-testing associations can be used as a basis for registration. When a cow makes a record coming up to the standard, the county supervisor visits the herd and

takes the description of the cow and gives her an official number, with a tattoo dye for the ear. The tattoo dye is never in the hands of the breeder, but always kept in the hands of the county supervisor. He holds the dye number until he is assured that work has made a legible number. Then the dyes are returned to the association headquarters, never to be used again in that series. Consequently no other cow can have the same number, and one is absolutely certain that there can be no such thing as substitution. Mr. Jones stated that a number of dairymen had met the evening before and had gone thoroly over the question of a standard and had recommended the following standard: For a two-year-old heifer with first calf, 200 lbs. of butter-fat during the first period of lactation. For three-year-olds, 225 lbs. of butter-fat and a calf during the year. For a four-year-old, 250 lbs. of butter-fat and a calf. For a five-year-old, 275 lbs. of butter-fat and a calf, and for six-year-olds or over, 300 lbs. of butter-fat and a calf during the year, and any cow producing or coming up to this standard, which must be shown by the official record of the cow-testing association, will be subject to registration. At the close of Mr. Jones' remarks, Mr. Henry Rosema, of Newaygo county, offered a resolution recommending that such a system be adopted in the state of Michigan and also recommending that the above standard be adopted, which was unanimously carried. The question is now up to members of the cow-testing associations. They feel that this idea of work is worthy of being put into effect. It was the opinion of all those present that the idea was practical and that it would be a great help to the dairy interests in general to have this system put into practical operation.

Improvement in Dairy Cattle.

Prof. Shaw, of the Agricultural College, gave a very interesting talk on "Improvement in Dairy Cattle." He put great stress upon the co-operative breeding associations which are being formed by the Agricultural College at the present time throughout the state. He also gave a good word to the cow testing associations which are being organized by the Dairy and Food Department, and stated that the two, selection and breeding, formed the basis for the improvement of our dairy cattle.

Cow-Testing Associations were discussed by Helmer Rabild, of the Dairy Division of the Department of Agriculture. It will be remembered that Mr. Rabild was instrumental in forming the first cow-testing association in Michigan and that afterwards he became connected with the Dairy Division of the Department of Agriculture for the purpose of introducing this system of cow-testing into other states in the Union. Mr. Rabild told of his forming cow-testing associations in other states. He also told briefly the great benefits the farmers of Denmark had received thru the work of these cow-testing associations. How the average annual yield in butter-fat in Denmark had increased from 125 pounds per cow a few years ago until now the average annual yield in Denmark is 240 pounds.

Mr. A. S. Hawley, of Ottawa county, a member of the North Ottawa Cow-Testing Association, led in the discussion of this subject. He told how the cow tester had shown him conclusively the first year that he was feeding a too expensive ration. He followed the advice of the cow tester and produced his butter-fat for a considerable less amount. In fact, he said he had saved enough in the ration to pay for testing his cows for a number of years. He compared the records of his herd for the last year with the first year of the association, and showed that he had produced butter-fat for the last year for his whole herd on an average, 2c a pound cheaper than he did the first year. This certainly is a fine record. Mr. Hawley also told of buying a cow from the slaughter house that was too poor in flesh to be slaughtered, that he went to New York last pounds of butter-fat in a year. This shows conclusively that you cannot tell without testing a cow how valuable an animal she is.

Mr. Clayton Deake, of Washtenaw county, discussed the question,

How to Make Dairying Profitable.

He put great stress upon proper feeding and care of the animals and working out careful details in all the work connected with the dairy. He expressed the opinion that the great reason why most cows did not bring a profit to the owner was because they were not fed a liberal enough ration. A great many of the best dairymen have the same opin-

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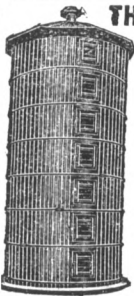
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ion, and yet cow-testing associations show that you can feed a too expensive ration, just as well as one too cheap. That is, you can overfeed and make the ration too costly, just as well as underfeed. The cow-testing association puts dairying on a business basis and shows you just exactly what you are doing. Henry Rosema, of Newaygo, discussed this paper, and that Mr. Deake put too much stress upon feeding and not enough upon the selection of cows. Mr. Rosema has made a great success of dairying. Proper Ventilation and Lighting of Cow Stables.

was discussed by Prof. L. J. Smith, of the Agricultural College. Prof. Smith, after discussing fully in his paper what ventilation is, and how to ventilate, explained that the King system was the only reliable system that we have today. This system, he explained, consisted in admitting the fresh air up next to the ceiling by means of pure air inlets which opened on the inside next to the ceiling and on the outside of the barn down next to the foundation. This admitted pure air without allowing the warm air up next to the ceiling to pass out. Then it also consisted in drawing off the cold, impure air from near the floor of the stable by means of a ventilating shaft which extended up thru the stable and up thru the storage part of the barn and above the roof, so as to give a good draft. The size of the ventilating shaft should have the same capacity as the combined capacity of the pure air intakes.

With regard to lighting stables, he stated that the average barn did not contain windows enough, but it was not good to have plenty of windows and then not have them clean. It was a great deal better to have fewer windows and have them clean, than to have many windows that do not accomplish the purpose of letting in light. In answer to a question, if the direct rays of the sun should enter the stable, he stated that he saw no harm from this. In cold weather he believed this would be a benefit. Of course, in the hot weather of the summer time, when it would make the cow uncomfortable, this could be prevented by putting up a shade at the window.

A score card system of scoring the dairies supplying milk to Grand Rapids was discussed in a paper by Dr. Wm. Delano, health officer of Grand Rapids. He explained that the score card in use in Grand Rapids was one devised by Prof. Pierson, of Cornell University, who is now Commissioner of Agriculture of the State of New York. Dr. Delano explained fully with regard to this score card. He stated that it was used by their milk inspector in scoring the city dairies of Grand Rapids. He explained that the board of health required that all cows furnishing milk to Grand Rapids should be tuberculin tested and that all dairy barns should be in a sanitary condition. And he claimed that since the board of health had adopted this system, that there was a marked improvement in the quality of milk being delivered.

THE VENTILATION PROBLEM.

I have had a dispute with my neighbor as to the location of the foul air in a stable. I maintained that it was at the bottom, and that the foul air escape should open at a point near the floor, while the fresh air should be admitted thru pipes near ceiling, with proper shut-offs to regulate it. Am I right or wrong? Neighbor maintains that foul air is at top of stable.

St. Clair Co. ALEX. COWAN.

You are absolutely correct. Carbon-dioxide gas (CO₂) is heavier than air and tends to settle to the floor. We know this because it settles in wells and cisterns and sometimes causes the death of people going into them to clean them out.

Cold air is heavier than warm air and tends to settle to the floor. Warm air, being lighter, rises to the ceiling. The problem in ventilating a stable is to draw off the cold, impure air at the floor and save the warm air at the ceiling. It can be done in the way you so clearly explain in your letter. That is the King system of ventilation.

The warm air at the ceiling cannot escape thru the pure air intakes because it would have to pass down thru a column of cold air, which is heavier. The intakes should be boxed up and should open on the outside of the stable near the ground.

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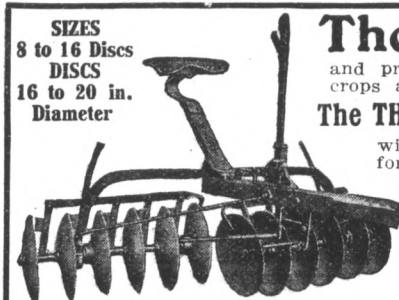


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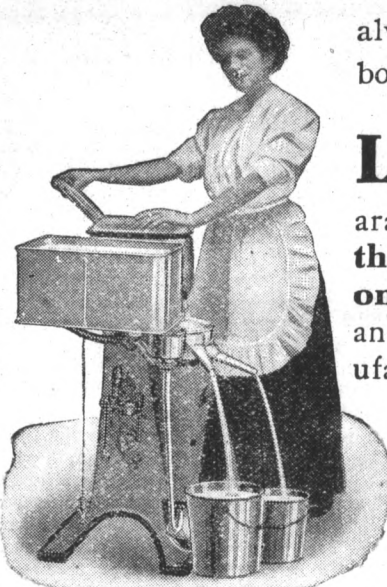
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33 Delaine Ewes, 3 to 6 years old. All safe in lamb. 33 (April 15.) Big boned, big ewes, heavy shearers. Price \$6.00 each. L. R. KUNEY, Adrain, Mich.

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DUROC Jersey of size and quality. 40 Boars ready for service. 50 sows at Farmers Prices. Satisfaction Guaranteed. J. C. Barney, Coldwater, Mich.

SPECIAL SALE of large, good style, prolific, young S and mature Poland China Sows bred to extra heavy boned boars. Robert Neve, Pierson, Mich.

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The Lawrence Pub. Co.,
 Detroit, Mich.

DETROIT, MARCH 6, 1909.

CURRENT COMMENT.

The state Round-
 Important Farmers' Up Institute, held
 Meetings. at Mt. Pleasant last
 week, and the ear-

lier sessions of which are reported in this issue, was the last of a series of most important farmers' meetings to be held in the state during recent months. Such meetings as this round-up, the state dairymen's meetings, the live stock breeders' and feeders' meeting, the state horticultural meetings, the state meetings of granges and farmers' clubs, and the lesser meetings of a similar nature which are held during the winter are important events, not only to those who attend them, but to the agriculture of the state and to a large percentage of its best citizens as well. Unfortunately, however, but a comparatively small number of people are able to attend these important meetings. At the Round-Up, for instance, there were sufficient present at every session to fill the hall in which the meetings were held, and plenty left for the women's section and the corn show, and yet out of the hundred thousand farmers in the state but a few hundreds were present at this meeting or could have been accommodated if they had been there. What is true of the Round-Up in this respect is also true of the other important farmers' meetings enumerated above. And yet at each one of these meetings the best speakers obtainable upon the various topics included in the program were secured, and the ideas which they expressed had as great a value to the thousands of farmers who could not be present at the meetings as to the few hundreds who were there.

In this connection the Michigan Farmer recognizes that it has an important mission to perform in presenting the best thoughts and the most advanced ideas brot out at these meetings to the thousands of its readers to whom they are just as valuable as to those who are able to be present and get them first hand. For this reason the Michigan Farmer has for years made a specialty of giving a full report of all the more important farmers' meetings held in the state at the earliest possible date after the meetings are held, covering the program of each fully and giving the central idea advanced by each speaker or brot out in the discussions which follow the addresses given on the several topics included in the programs.

If the reader will refer to the report of the State Dairymen's Association in this and the preceding issue; the report of the Round-Up in this and succeeding issues; the report of the winter meeting of the State Horticultural Society, which will be begun in the next issue, or to the reports which have appeared in these columns covering any one of the important farmers' meetings held in the state during the winter, he will find them to be more complete and comprehensive, yet as brief and condensed as accuracy will permit, than any similar reports given by any other paper covering a like series of meetings in any other state or section of the country.

In thus taking to our readers the best thoughts and most advanced ideas as expressed in these important meetings we feel that we are rendering them an important service, and we bespeak from them a careful reading of these reports, which contain in a nutshell, as it were, the result of years of careful experimentation and investigation on the part of those who were chosen to participate in the various programs because they could speak with the authority of personal knowledge on the topics which were assigned to them.

While the congress which Important has just adjourned has not Legislation. been conspicuous for the enactment of new legislation of especial importance to the farmers of the country, a number of matters have been under consideration by its committees which are of grave importance to the agricultural interests of the country which will be taken up in earnest by the next congress. Chief among these will be the revision of the tariff, upon which committees of the two bodies have been working industriously for months. It is practically certain that President Taft will call an extra session of congress to consider this important matter at an early date and that a revision will be made, based on the information collected by the committees of the last congress and the compromises which may be made in the deliberations of the new. It is to be expected that many if not most of the changes which will be made in this revision will be in the nature of a compromise, for the reason that congress is confronted not only with the problem of satisfying the different interests demanding that changes be made, but with the problem of conserving and maintaining the revenues of the country as well.

That the organized interests will be on the ground to further their own ends in every possible way it is needless to assert. For this reason it is important that the farmers who have studied these problems and have reached conclusions as to what is best for their interest and protection should lose no time in communicating those opinions to their representatives in congress. As producers many of them profit by the duty on wool, potatoes and beans, as well as on other minor products and to some extent on manufactures for which they produce the raw material, and are consequently interested in the maintenance of these schedules. On the other hand they are interested in the reduction of the duty on raw materials which enter into the manufacture of goods which they consume and in the making of such reciprocal agreements as will extend the market for their live stock and breadstuffs in foreign countries.

But our farmers, as a class, are prosperous and to the end that such prosperity may continue it is essential that their interests should be fully considered in any and all compromises looking to the general revision of the tariff. It is not a simple problem, this tariff making, nor is it to be expected that the reader will be able to solve it as a whole, but if he is urgent in his demands of what seems to him to be essential to his best welfare, he will not be forgotten in the final compromise, nor should he feel that he has been sacrificed to our "infant industries" if he does not get all that he asks for or expects in the final adjustment of this vexed question.

With the opening of
 The Spring March commences the
 Migration. spring migration, not only

of the birds that wend their way to the northland after wintering in the sunny south, but as well of the people whose lot it is to be tenants of rented farms. To one who closely observes this annual migration of tenant farmers from one farm to another it holds a lesson of no little significance, and one which we cannot refrain from commenting upon at this time. The trend of this annual moving about seems to be directed and controlled by a natural law akin to that of gravitation,

which so effectually separates the cream from the milk, whether shallow or deep setting is practiced. It will generally be noted in any community that the tenant farmers who have "made good" generally better their condition and opportunities with each move. Their methods and the results to which they have attained are advertisements of their ability, and their services are sought by the owners of the best class of farms that are for rent. With the betterment of their opportunities they make more money for the owners of the farms which they rent, and incidentally for themselves, until within a few years they quit the renting business, buy farms of their own and become a part of that great body of home-owning farmers that are the bulwark of the nation.

On the other hand it is equally noticeable that the men who have not made the very best of the opportunities before them, and who, while they may not have made an actual failure in the business, yet have not made themselves sufficiently conspicuous by success to attract general attention, have generally failed to better their condition by the moves they make, and after a series of years find themselves no better off than at the start, and generally worse, because the farms they occupy are less productive and afford them less opportunity to get ahead.

Probably every reader is familiar with these two classes of tenant farmers and all the gradations between them. Possibly the individual reader will recognize his own condition as somewhere between the two extremes. If so there is for him profitable food for earnest thought in this analysis. If he does well the things which lie nearest his hand, he will surely find better things to do in the future. Ability and energy are the great determining factors in all commercial enterprise, and the man who "does things" will find himself appreciated.

Of course, there are often discouragements to contend with such as sickness or accidental misfortune, which must be borne as best one can, but the man who uses all of his talents to the very best of his ability all the time will survive even these discouragements immeasurably better than the man who gives up the struggle because "it is no use." It will always be found true that if we do our best in the condition in which we are placed, we will make that condition but a vantage point from which to climb higher up the ladder of prosperity, until in the end we are able to command at least the essential comforts of life for ourselves and our families, and generally many of the luxuries which we will more than likely be surprised to find are not so essential to human happiness as we had thot.

HAPPENINGS OF THE WEEK.

Foreign.

An agreement has been signed by Germany and France settling the boundary line between the countries of Togoland and Dahomey, of West Africa, a long-standing controversy thus being closed.

The provisions of the new naval convention held in London, Eng., last week finally settled on a code of regulations said to be particularly advantageous to the United States.

The German government is now revising its tax laws and there is much sentiment against the government over some of the items to be changed. It is possible that some of the duties on imports and a few other minor changes will be raised so that a lowering of the death duties may be made to satisfy a large number of persons who are opposed to this latter tax.

The convention called upon the initiative of Americans at Shanghai, China, and which convened there February 1 for the purpose of discussing the opium trade, has closed without apparently accomplishing its object, every effort of the American delegates to curb the trade in opium being defeated by the British delegates present.

A military court at Kieve, Russia, sentenced three persons to death, 21 to penal servitude and ten to prison for various terms, last week. Among the prisoners was a former member of the Russian duma.

Russia is urging upon Serbia that she await the decision of the powers as to the question of the annexation of Bosnia and Herzegovina to Austria before declaring war. This Serbia seems of a mind to do but she announces that she will not recall her demand for compensation for the claimed loss of territory.

Mexicans are suffering severely from the unusually cold weather that is prevailing over that country and from the heavy fall of snow.

National.

While the full amount of the appropriations made by the present Congress will not be known for some days it is evident that it will exceed that of any previous session of our national legislature, even exceeding \$1,000,000,000 allowed by the last Congress.

Wrecking firms all over the country are trying to make a contract for the raising of the battleship Maine in the Havana harbor, the sinking of which was perhaps the direct cause of the war be-

tween the United States and Spain. The vessel is a menace in the harbor and the fact that the government is permitting it to remain brings disgrace upon the nation for the negligence.

The results of the elections in several counties of Indiana the past week upon the local option questions are very satisfactory to the anti-liquor interests, all of the counties going "dry" that voted upon the proposition and most of them by very heavy majorities.

The home of Joel Chandler Harris who is better known to the children of the country as Uncle Remus, has been purchased and will be presented to the public as a memorial to the author by several of his friends. The home is situated at Atlanta, Ga.

The battleship Ohio was awarded the prize as the most economical of all the ships that took part in the great journey around the world. This test consisted of a comparison of the amounts of coal and water consumed by the boilers during the voyage. The results are the more noticeable because of the fact that the Ohio is one of the oldest vessels of the fleet.

The jury hearing the evidence in the famous Pittsburg graft case disagreed and were sent back the second time by the judge.

The Ohio senate passed a measure last week providing for the taxing of all life insurance policies whether the premiums are payable to agencies in the state or

Of a total of more than 38,000 bills introduced during the life of the Congress which adjourned last Thursday, only about one and a quarter per cent have become laws. This small percentage includes a large number of pension bills for the benefit of individuals. Less than 300 public bills will become laws.

A large number of treaties with foreign countries were ratified by the senate during the sessions of Congress just closed. The extradition treaty with Honduras removed the last haven of refuge for criminals fleeing from this country.

At each session of the sixtieth Congress, two giant battleships have been authorized.

The president and two members of the Pittsburg council have been convicted of a conspiracy to secure the passage of an ordinance providing for the pavement of certain streets with wooden blocks. The evidence leading to the conviction was secured by the payment to the officials of a sum of money by a detective, posing as a wood block contractor, for the purpose of securing their influence. The verdict of guilty was rendered only after the jury had been out 53 hours.

THE ANNUAL CORN SHOW AT THE ROUND-UP INSTITUTE.

The fifth annual meeting and contest of the Michigan Corn Improvement Association was held last week at Mt. Pleasant, in conjunction with the Round-Up Farmers' Institute. With 85 samples of corn on exhibition the show proved the largest yet held, while in many other ways it was the most satisfactory. It was probably the most even lot of corn that has been brot together in the state. There were, of course, a few samples that might be described as poor, but there was none of the large immature corn seen at previous shows, indicating that growers are learning the distinction between size and quality—that the largest ears in the field are not, as a general rule, of the highest quality or the best suited to the conditions under which corn is grown in Michigan, and therefore not the ears that should be selected, either for seed or for exhibition purposes. President Jeffery, in his annual address at the opening of the principal corn session of the week, asserted that Michigan has made greater relative progress in corn improvement during the past five years than any other state. He found much encouragement in the fact that while this progress has been slow it has been steady and consistent, and that thru the annual shows conducted by the association there have been brot out a number of varieties which have shown themselves peculiarly well adapted to certain sections of the state. The general adoption of these varieties by growers in such sections, which will come about naturally in the course of a few years, will not only bring about a very rapid and marked improvement in the product of those sections but will stimulate interest and action along this line on the part of growers in other parts of the state. The formation of local or county corn clubs or associations was deemed desirable, the work of the associations now in existence in Lenawee, Muskegon, and Mason counties being cited as instances of how such organizations may enlist the interest of growers, especially the younger growers, in the betterment of the conditions having to do with the production of corn in their several sections. In asserting that, in his opinion, the time is not far distant when this association should enlarge its sphere of activity and extend to other grains and to farm seeds in general the same encouragement and support that it has thus far given to corn alone, President Jeffery referred to the various lines of work being carried on by the Wisconsin Agricultural Experiment Association. The membership of that organization is made up largely from the short course graduates of the Wisconsin College who, under the direction of their association, try out different varieties of grains and seeds upon their own farms, thus proving their adaptability or non-adaptability to conditions as they exist in the various sections of the state.

Coming back to last week's successful show, it should be said that no little credit is due to Isabella Co. Institute Society for the excellent accommodations furnished, the show room being the best ever placed at the disposal of the association. The judging was done by Mr. J. P. Davis, of Indiana, who also dis-

(Continued on page 265).

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

MICHIGAN FARMER
AND **LIVE STOCK**
PUBLISHED WEEKLY
JOURNAL
ESTABLISHED 1843

The FARM BOY
and GIRL
SCIENTIFIC and
MECHANICAL

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

FARMING BY IRRIGATION—BY JAMES N. McBRIDE.

TO the eastern farmer, where the rain furnishes moisture, farming by means of irrigation is not generally understood. Nor can one appreciate local problems of soil conditions in a distant place. The arid country escaped the great smoothing plane of glaciation which left the humid section what might be termed unevenly smooth. The arid land susceptible to irrigation is largely valleys with an occasional table land. These lands are higher than the stream beds and the more general problem is to tap the streams near the source and carry the irrigation ditches on the outer edges of the valleys and discharge the water into laterals carrying it to the crops at some lower point.

The system of water rights is a complicated one and the cause of much litigation. Stealing water is a common offense, and severely punished. The public service water systems, like gas or electric companies, sell water by standard units of measurement, so many cubic inches under a certain head or pressure. The head gates leading to the respective farms or ranches, form the main canal or a large lateral, are raised to permit the necessary flowage and locked to prevent their being illegally raised. Ditch riders are hired whose duties it is to distribute the water in accordance with the priorities or contracts. Where there is water in abundance, as it is usually in the spring, there are no difficulties, but later in the season as the water becomes more precious, man's selfishness crops out to secure special advantages. In Michigan all the litigation and ill will engendered by ditches to drain the water away is in the arid country multiplied in trying to secure the water from the ditches. In strictly Mormon sections in Utah the bishop is the power in water distribution, and often the church conference discusses the conservation and uses of water. The weather talk in the arid country is almost wholly confined to the one thing, viz., early and continued fall of snow in the winter so it will be well packed and melt slowly, which means plenty of water and a good season. The local weather prophet in the east who is "weather wise," with innumerable signs, and knows the occult influences of the moon, is without an occupation in the irrigated sections. He is, however, compensated by knowing some place in the mountains where there is vast storehouses of mineral, the knowledge secured from the "Injuns."

In preparing ground for any of the grain crops in the spring there is usually

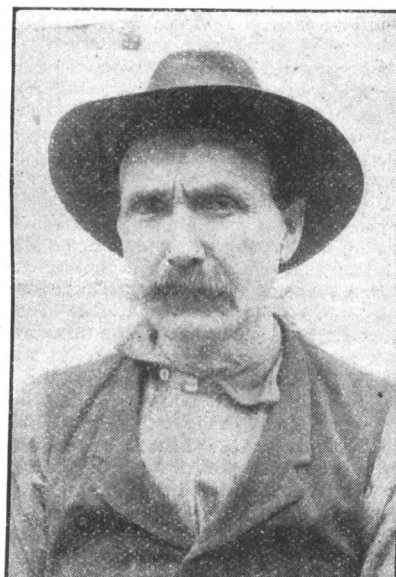
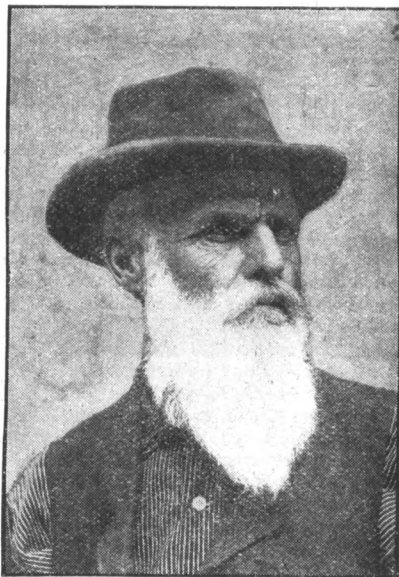
sufficient moisture left from the winter snows and spring showers, to plow the land, which is all made soil in the sense that bottom lands are derived from erosion and easily worked. After the crop is drilled or sown, an implement like a rigid wide-tooth cultivator makes tiny furrows about 18 inches apart, all leading down grade toward the center of the valley. These furrows may be 40 or 80 rods long. If longer, another lateral ditch forms the head ditch which runs at right angles to the furrows. The irrigation season is a busy one and the farmer opens up each furrow tapping the lateral, and selects, say, several acres to be irrigated first. With his shovel a dam is thrown across the lateral, raising the level of the water until it overflows down the tiny furrows, taking several hours

have got used to farming under irrigation claim to greatly prefer it to farming under the uncertainties of rainfall.

In the final analysis a season in Michigan is good or bad, owing to the rainfall, which may be limited, excessive or untimely. Farming conditions approach the ideal when the control of the moisture is in the hands of the farmer. The extra work of letting the water on the land is perhaps more than offset by waiting on the soil in the humid section when it is too wet or too dry. These conditions of more nearly absolute control of moisture tend to more intensive farming in special crops like fruit, sugar beets, potatoes, etc., where the element of certainty of crop exceeds the rainfall product. There is, however, drawbacks to these peaceful, happy valleys under

chemist is that some day nitrogen will be taken from the air by means of electrical disassociation, and the sodium carbonate and sulphate salts—the compounds mainly existent in the alkali, will be displaced by sodium nitrate, the base of nitrates so valuable in the arts and as a source of fertilizer nitrogen. The soil of these valleys is very deep and contains an excess of phosphoric acid, potash salts, and lime, and the addition of one element, water, not only figuratively but literally makes it "blossom like a rose." With all this latent fertility, the accumulation of ages with scarcely any opportunity of waste, an eastern farmer can readily imagine how the wonderful crops that are reported from the irrigated sections, can be grown when water has been applied in liberal quantities.

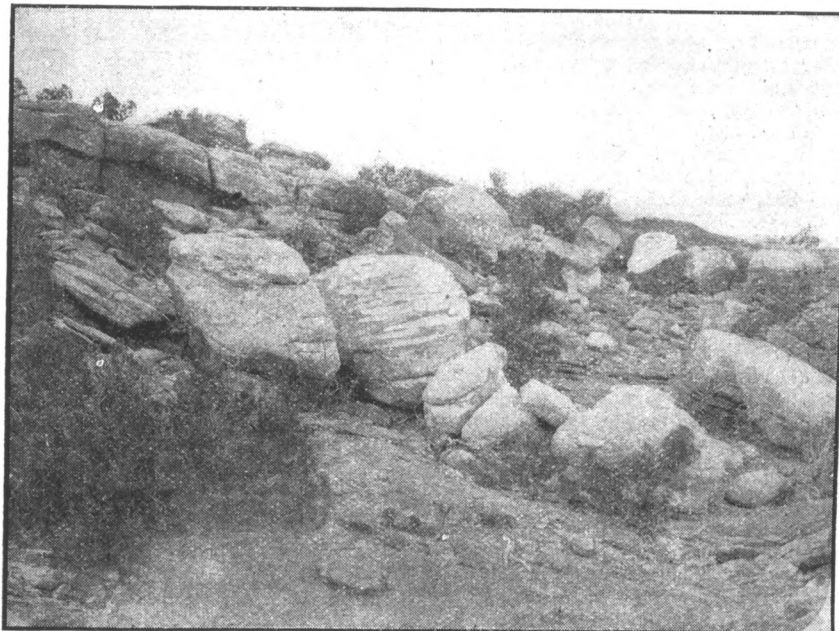
The various government irrigation projects are worked out with systematic exactness. The funds derived from the sale of public lands in the arid states is segregated into a fund for reclamation projects. The cost of the project is determined and the cost per acre of land for which water is provided made a lien upon the land in ten annual payments after the water is provided. The land was valueless before and the United States makes it valuable and limits the amount of land to actual settlers who, in turn, reimburse the government for the expenditure, and new projects are then undertaken. Some of these reclamation projects means an added cultivated area equal to nearly a whole Michigan county and fully equal to a county in total production. The mountains carry large numbers of cattle and sheep, but are limited to the valley for winter feeding. The added area of cultivated land allows the pasture lands to be used to the maximum. The making of a new country is interesting and its growth very rapid. Orchards valued at \$1,000 per acre were Indian reservations but a trifle over two decades ago. The Indian was an unprofitable servant who buried his talent and then was taken away from him what he seemed to have. And it is thus ever so. As the implement of civilization the long handled shovel for drainage in the east, and to construct irrigation ditches in the west, deserves well of mankind and the man with the long handled shovel is superior to the man with the hoe. Trainloads of wagons and farming tools are shipped in and quickly disposed of. With that propensity for noting where the necessities of civilization come from one sees Michigan products of almost every description.



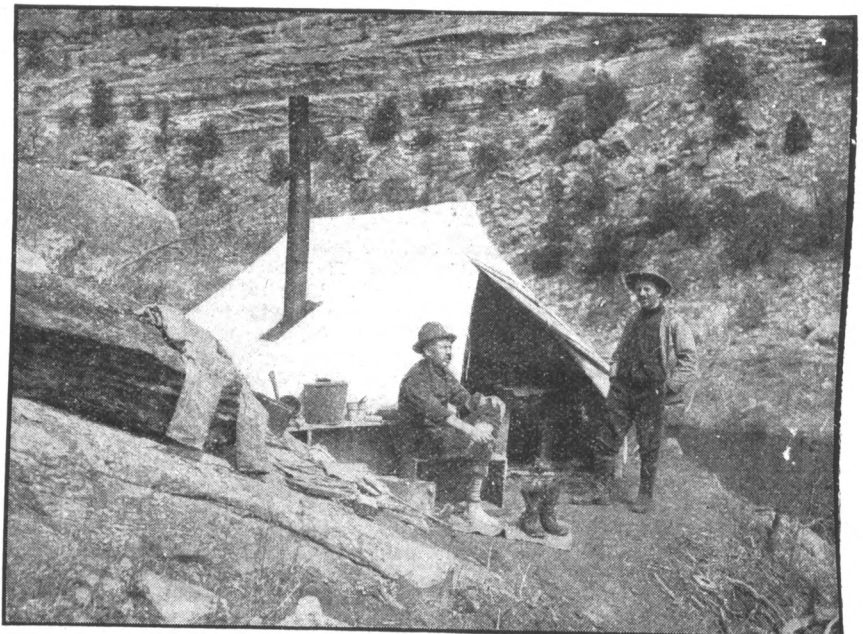
Types of Men Who Wield the Long Handled Shovels.

or possibly a half day, to soak and moisten to the lower end of the field. The dirt dam is removed and another made for the next station, and thus the work of the man with the long handled shovel continues until the whole field is watered. Alfalfa fields are furrowed in the same way and the man who rides the mowing machine endeavors to follow parallel with the furrows as much as possible, to avoid the jolts in crossing the furrows. In the low valleys around 5,000 feet elevation, corn is raised in a limited way and the irrigation furrow must follow close to the corn row. Farmers who

irrigation. Occasionally a slight snowfall in the winter and the destruction of timber in the mountains permits the rush of spring waters; and a dearth in the later season, while the fields wither and burn, the farmer has not even the hope of a timely rain to save his crop. Then, seepage occurs, when the water leaches from the higher level thru strata of alkali impregnated soil to the lower levels. "Gone to seepage," is the term used to express utter destruction, where all vegetation is destroyed but the black-sage, which alone can withstand the caustic alkali. One of the dreams of the



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The Hop Picker From Port Simpson

BY ANNA GIRMUS.

(Concluded from last week.)
 The young Siwash produced a simple, plain timepiece.

"That will do nicely," assured the doctor. "You must give her a teaspoonful of this every two hours and one of these every three hours." He laid a box of white tablets on a large box standing nearby. "I'll come again in the morning. Be sure about the medicine." He made Dan repeat the directions.

"That's right. Take good care of her. Stay right here."

The injunction was not necessary. Dan had never seen much sickness and the tossing and moaning of the girl, who was always so quiet, so self-contained, filled him with a great fear. His only trouble was that he could do so little for her.

"Is it anything serious?" inquired Grace of her silent companion as soon as they were away from the tents.

"I can tell better in the morning. You must not go there before I see."

"What do you think it is?" Grace persisted.

"I am not certain. There is some typhoid in the neighborhood."

"Oh, Robert! Not in that tent!" Grace remembered her own dismal struggle with the disease.

"Well, it certainly is not the best of quarters. I'll see that she has a cot tomorrow, and that Dan, I know, will look to it that she gets care. What I am afraid of is contagion with the rest of them. They are a careless lot."

"I can't bear to think of her lying there in that tent," Grace persisted. "There is plenty of room at the house, but—"

"Grace, you put all such notions out of your mind. Do you think I'd permit you to run any such risk, even if your parents were willing. You have scarcely recovered from that attack of a year ago."

"But you know that I am careful, and if we use plenty of carbolic acid, the danger is not great." But he would not be won by her arguments.

Grace Smith, however, was a resourceful person. Alice was only a half-breed, but she liked her and it was inhuman to let her lie there in that tent. It was past midnight before any plan presented itself to her, for she knew well that her father would not consent to her bringing the sick girl to the house. A relieved sigh escaped her lips. "Just the thing," she murmured, and fell asleep.

"How is Alice?" she inquired of the Siwash who came to the house the next morning.

"She heap sick," answered that individual. "The doctor there last night."

"I know, but how is she this morning?"

"No better. Heap sick."

"Papa," Grace turned to her father. "Robert thinks she has typhoid fever."

The rancher looked interested. "That so? Alice, which one is she?"

"The tall one. If she wasn't dark and had such black hair you'd never think she was a Siwash."

"Oh! I know. She's a breed. She has typhoid? That's too bad. I'm afraid for the rest. If they get it our hop crop will be lost."

Grace grasped the psychological moment. "If she's taken away from there and the tent destroyed the others need not get it."

"But where could they take her? We can't get her to a hospital."

"There is the little house down in the orchard; why can't we fix up a room in it and move her there?"

"Do you think they would take care of her there?"

"I don't think they know enough. Dan might. I'll help."

"You! You'll stay away," almost shouted her father. "Give it up. Leave them alone. If Robert looks after her that's enough. They're tougher than we are. They're used to it. Just leave them alone."

When the doctor came and pronounced it typhoid, without any doubt, Grace redoubled her efforts. First she talked her mother to her way of thinking and when the two men, to whom she stood for a large part of this world's happiness, saw how in earnest she was, they, too, began to think of the feasibility of her plan.

"It was cleaned and tinted this spring," Alice pleaded, "when we thought that family would move in. It will not take much time to move down a bed, a few chairs and a little table. It's all screened so that no flies can get in and there will be

almost no food around. I'll see that there is a bottle of carbolic acid on hand and that it is used."

As a result, by ten o'clock a neat iron bed stood near one window in the sitting room of the little house. Two or three plain wooden rockers were placed about. A few simple rugs to deaden the sound of steps were laid on the clean board floor. Near the bed stood a white enameled table with a bouquet of sweet peas in a clear glass vase.

Grace brot a simple, dainty night-dress of her own to slip on the sick girl.

When Dan brot her in his arms as tenderly as if she were a babe and laid her on the cool clean sheets, his eyes rested on the group waiting to receive them with such gratitude that the eyes of the physician grew misty.

"We must let her rest awhile now," ordered the doctor as he saw that Grace would like immediately to remove the other girl's dress. He left medicine and instructions as to care. "You may give her a sponge bath in about an hour," he said to Grace, and another at about four o'clock, but remember that you are not to do the work, only the superintending. Dan, here, and this woman will do the work."

Then commenced the battle that is familiar to those who have struggled with the treacherous disease. It seemed as if her splendid physique must bring Alice safely thru, yet the temperature from the first hovered about 104 and she grew delirious, always murmuring about "the chair that rocks, the white bed, the white curtains and learning to cook as the white people cook." Sometimes the babbling was in Siwash and again in quaint, broken English.

Poor Dan; day and night found him either at the bedside or in the adjoining room, where he could hear if anything was wanted. He did not sleep or seem to feel the need of sleep. Gently he would lift the sick girl when her bed was being made and murmur to her as if she were a child. He smiled gratefully at Grace one morning when she appeared with plain white muslin curtains for the windows.

"I do not know that she realizes," explained Grace, "but I cannot listen to her talking so of those curtains and then see only plain shades at the windows." The room appeared much like the white room of the sick girl's imagination.

The doctor looked more anxious each time he came. He no longer insisted that Grace must not help. He only watched that she had the necessary rest and exercise.

"She can't stand this much longer," he said one evening as they stood by the bed. "I shall stay for a part of the night; at least."

There was a look about the face on the white pillow that alarmed the group. Dan's eyes were hollow with anxiety and lack of rest, but he would not lie down.

At twelve the doctor ordered Grace to the other room. There will be no change for a time," he insisted, "and you can do nothing now, so lie down for a while. We may need you later."

Toward morning the sick girl ceased tossing and fell asleep. Dan's eyes were riveted on the doctor's face as he arose, silently gazed at her and then resumed his chair. The daylight stole softly thru the window and a gentle breeze stirred the curtains. She moved slightly. The doctor was by her side instantly. The great dark eyes opened and rested on him. "Quick, Dan," and the Siwash was at his side.

"It's you Dan?" the voice was pitifully weak. "And the white curtains—and a white bed?" there was a world of wonder in the tone. The doctor was already holding a glass to her lips. She drank obediently.

A contented sigh escaped her lips as they laid her back on the pillow. Her eyes wandered over the room. "And a white table," the voice was so low that the doctor bent hurriedly to feel the heart. He turned to the table for medicine. She raised the thin weak arms toward Dan. "Be good man, Dan," she sighed. With a low cry the Siwash bent over her. The doctor joined him instantly, but all that he could do was to rest his hand kindly, sympathetically on the strong man's shoulder.

In another moment Grace came, but there was nothing more to do only to try to comfort the big, silent fellow.

"Come to town with me, Dan," pleaded (Continued on page 260).

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A SAILOR'S WORK-BOX.

BY I. G. BAYLEY.

This unique little work-box was made by one of Uncle Sam's Jack-tars, in the year 1874, for his sweetheart, whose name was evidently Mary.

The box itself was made by a friend, the sailor doing all the fancy work, with nothing else than a knife.

When the box is closed, the outside dimensions are nine inches wide, fourteen inches long, and seven and a half inches deep. The box is six inches, and the lid one inch and a half deep.

The cabinet maker who made the box, nailed it up solid, and then cut the lid all around as shown.

Fig. 1 shows the box complete, open. A looking glass was put in the back part of the lid, and a tray with a number of divisions fitted the box. As will be seen in the details A and B, this tray rests upon lugs in each corner, about half an inch from the top of the box when open. The tray is five-eighths of an inch deep on the outside, projecting above the level of the box, as shown in detail B, so that when the lid is closed it comes down on this ridge, forming a dust-proof seal.

The box is made of half-inch stuff, walnut, or mahogany, or any dark colored wood. The tray is made of one-eighth inch wood.

Figs. 2, 3 and 4, show the decorations in the top, front and two sides of the box. The bottom and the back not being decorated, are not shown.

The shears, spoons, hearts, letters, and star ornaments, are made of holly, except those portions shown black, which are ebony, or other wood stained a jet black.

A border, one-quarter of an inch wide, is shown on the top, sides, and front, one inch from the edge of the box all around. This border is made of holly wood, too.

The decorations were cut out first, and then laid in correct position on the box, and outlined with a fine bladed knife. The wood was then carefully dug out, not more than one-eighth of an inch deep, and the decorations let in.

The whole was then sandpapered down and given an oil finish, the outside having particular attention paid to it.

Two hinges and a lock and key were added, before the varnishing was done.

The middle division of the tray was filled with sawdust, and covered with cloth, for a pin-cushion.

To prevent the lid falling too far back, and bringing a strain upon the hinges, a piece of tape was tacked to the inside of the box and lid, as indicated.

HOW THEY NAMED HIM.

BY CARL S. LOWDEN.

When Stubatoe was a very wee little baby bunny, he was very curious. He wanted to see everything, and to touch everything, and to know all about everything and one time he said he wished he could fly. But his big brother and his small brother and his father and his mother all laughed at him, and told him rabbits had no wings, and that God did not intend for them to fly. When he heard this, Stubatoe almost cried for he wished very much he might soar in the air like a hawk, and flit about like he had seen Robin Redbreast do every day.

Stubatoe thot a great while. Then he said in very low, firm tones: "I will learn to fly I am sure if I ask friend robin, he will tell me how and give me lessons."

Then suddenly the little bunny's ears stood so straight that the points of them touched and he leaped away, and sat down on the cool grass that grew under a large tree, close to a small stream.

"Won't it be nice," he exclaimed, "to fly about the clouds and the tree-tops; and then when night comes, I can sail very far away to the stars, and set down on one, and stay until the sun rises in the east."

This wee little rabbit was sleepy, so he shut his round, beady eyes, and very soon was in Dreamland. As he slept he dreamed of the joys he should have when Robin Redbreast had taught him how to fly.

But it was not long until some queer sound woke Stubatoe; he arose and looked about him. Across the little stream, which ran by the large tree, he saw a real little bird. Stubatoe knew it was a robin, for it had a pretty red breast, and hopped about just like all the robins he had ever seen.

So the little rabbit called to the little bird: "My dear Mr. Robin, will you please teach me how to fly?"

The robin turned his pert, saucy head, and answered: "Tut, tut, of course I will. Come over here; I will give you your first lesson right now."

Stubatoe was very, very glad. Indeed he was so eager that he forgot all about his mother's warning to always cross the stream at a point much farther down, where it was shallow and narrow so he ran very fast right up to the stream, and jumped very hard. As he did this his left hind foot struck a stone, which rolled away, and the dear little rabbit fell into the middle of the stream.

In some way Stubatoe climbed out; his foot hurt so much that he began to cry. Then on three little legs he hopped home just as fast as he could.

When he arrived, his mother and his

regard than a backwoodsman has for a mosquito.

But if the boy fails to have constant experience with the growing animal and only sees him increase in size, his surprise is large indeed, when after reconnoiter has been made of the situation to see whether "pa" and the rest of the "folks" are busy entertaining company or at some work, he and his boy friends succeed in getting the calf in the barn and a rope about its neck. Then the doors are opened and the experiment begins. It is an experiment full of fun and everything usually goes well until the question arises as to how the rope can be gotten from the calf, which almost every time gets away, and how the doings will be kept a secret, for "ma"

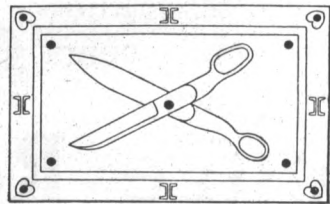


Fig. I.

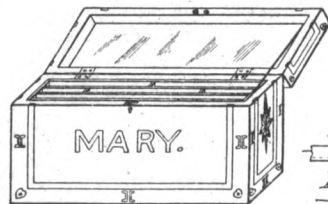


Fig. II.



Fig. III.

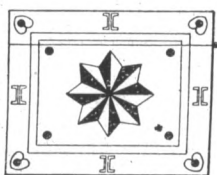


Fig. IV.

Design of Box made by a Jack-Tar for His Sweetheart.

father and his big brothers and his small brother all asked him what was the matter. He cried a great deal; then told them all about it.

The little rabbit's father laughed. "My dear son," said he, "you have disobeyed your mother, and because you did so you stubbed your toe. Now 'Stubatoe' shall be your name."

The little rabbit's big brother and the small brother smiled. "Yes," they agreed, "he stubbed his toe, so let's call him 'Stubatoe.'"

And the little rabbit's mother said "Yes," also; and after that everybody called him "Stubatoe."

COUNTRY BOYS AND CALVES.

BY A. HAYMAKER.

What does the picture of the cutter party on this page suggest to the farm boy? That is hard to tell. A hundred boys will think of a hundred different things when they see the jolly girls and their confident driver in the cutter.

No doubt some of them will recall how much they were surprised at the strength of a yearling calf when they attempted to lead or drive it for the first few times. Teaching a young calf to drink from a pail is a revelation to a city boy, but the husky country lad is usually capable of overcoming the youngster of the bovine tribe. But the way that calf develops

will be inquiring how the mud and dirt got on her boy's clothes, which, of course, would give a clue to the whole affair. This is usually overcome by staying away from the house till the clothes are dry and the worst of it is rubbed off by himself and his companions. However the matter may end, there is one thing certain, the boy has a good impression that a calf which he could hold when but a few days old is, at the age of a few months, real stout.

"Breaking steers" is not so common as it was when the farmers used oxen more, and much of the fun and danger connected therewith is gotten by boys today from other sports. Then, too, the fathers now forbid the youngsters from exercising the animals too much, as they say the profits from them will be lessened if handled so by the "kids." But even now it is not impossible to find boys who keep the community from forgetting the luxury of this sport and the pleasure the city cousins are finding from a ride after a well broken heifer calf, is typical of the true and pure sporting instinct as it develops in the boys of the country.

But boys, the experience we have with the calves gives us a big heart. An ill-tempered boy usually will not bother with the calves. He can't. For his experience will be disastrous. The calf will not allow itself to come under the



Master Knott Cobb has Driven His Young Calf to the City to Give His Lady Friends a Novel Sleigh Ride.

control of a person who gets mad, if he can help it, and he usually can. Not many ventures teaches us that the animal knows when his rights are not respected. And he is as ready to resist as were the American colonists when the British government that they could tax the colonists without allowing them to be represented in the English parliament. And when the calf has taught us to respect his rights then we get along better, unless the calf is of an aristocratic nature himself, and goes so far as to trespass on our rights when our ingenuity must be used to straighten things out. But putting all of our experiences together, we find that in a few months we have grown to really act more and more kindly towards animals. Nothing tells us of this fact more plainly than when, after we have gone to the pains of breaking a pair of steers, father decides that he will dispose of them. The girls usually shed the tears around the home but I venture to say that many of our manly boys have grown to feel so attached to a pair of steers that they must give away to their grief when they think that soon their boon companions, the steers, will be on the way to the large stockyards where men will handle them roughly, and finally they will be used with thousands of others for feeding the millions of people in our large cities.

LET THE TOADS HELP.

BY O. I. FOOL.

Some of the boys and girls who read the Michigan Farmer will plant gardens this spring. There are a large number of things to do before the plants are growing in the straight, clean rows. These things must be thot over carefully.

A few boys and girls do not like the plan of putting out a garden because they think the bugs will eat everything up anyway, and there will be nothing left to show. But right here is where they lose a whole lot of sport. There is more fun in handling the bugs than in following around an old threshing machine in the fall. All one has to do is to raise a "flock" of toads. They will get after the bugs and destroy them by the wholesale.

The toads can be raised from the eggs. Next spring place a pair of toads on a stone which has been placed in a bucket partly filled with water, allowing the stone to be dry on top. After the eggs are laid watch them hatch into tadpoles. These will make their way to the water where they should be fed. Bits of meat or bread is a proper food for the little fellows. Continue this until they change into toads, when they can be turned loose in the garden. Here they will do no damage and will destroy thousands of bugs and insects that are apt to do damage to the plants.

It is thot that the toads will cause warts on the hands. But this is not true. The toad is perfectly harmless to anyone who may choose to handle him.

IN GRAN'MA'S ATTIC.

BY ELLA E. ROCKWOOD.

A jolly place it is to go
Way up in gran'ma's attic,
But she don't go there very much
'Cause she is so rheumatic,
And climbing stairs so dark and steep
Is most too hard, for gran'ma, she
Is short and stout,
It puts her out of breath, you see.

But when it comes a rainy day
The girls just love to play there,
There's such a lot of things to see
That's why we like to stay there,
Such hats and bonnets stored away,
And gowns almost a score;
And we dress up and let our skirts
Trail all around the floor.

There's boneset, sage and tansy, too,
And other herbs a-plenty,
All hung in bunches round about
I counted much as twenty,
And gran'ma says when she was young
They steeped 'em up an' took 'em,
The smartweed when they had a cold,
Boneset when ague shook 'em.

Then there's that queer old spinning-wheel;
She showed us how to turn it,
With band, and head, and spindle sharp,
Each of us tried to learn it,
In her day every little girl
Knew how to knit a stocking
And wore those horrid pantalettes
I think it is quite shocking.

And there's a box of little clothes
Just right for baby brother,
And gran'ma cries and looks so sad
When e'er she lifts the cover,
The sweetest little boy she says,
Once wore those cunning dresses,
A little boy with big blue eyes
And fair and shining tresses.

And then she showed us other things—
Embroideries, silks and laces,
She took them out to let us see
Then put them in their places,
And gran'ma says when I am big,
And Fred is big, and Harry,
She'll give her wedding gown to me
If ever I shall marry.

EVEN AS A FLOWER.

BY EUGENE C. DOLSON.

As blossoms, rich in dews from heaven,
With heads bowed earthward some-
times be,
So, unto sweetest lives are given
The quiet ways of modesty.

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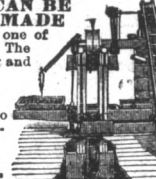
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Dear Sir:—I wish you would send me your New Discovery for the Cure of Rupture.
Name.....
Address.....

(Continued from page 258).

the doctor. "It will be better for you." But Dan would not, could not, listen.

After they had done what was necessary, and she lay silent, unresponsive under the spotless sheet, he came back to the room and sat down by her side in one of the chairs that rock. There he kept his vigil until they carried her to her last resting place.

The doctor again pleaded with the strong, silent man to come with him. He felt a peculiar interest in him and was not willing to leave him alone in his misery. The greater part of the doctor's life had been lived on the coast and he understood the tragedy of the races. He had no patience with, no respect for the white man who, to gratify an appetite, would marry, or possibly not even go thru that sacred ceremony, one of a different race and entail to his posterity the struggle of reconciling the antipodes. For just as surely as the most civilized of men, in the proper environment, hears the call of the wild, so, too, are the habits and traits of the civilized ancestors revealed in the following generations.

That night Dan stole softly to the newly formed mound and covered it with blossoms. Then he sat down at its head. For hours he did not stir. At the house the clock struck twelve. He arose and silently walked toward Puyallup. Finding the railroad track he turned in the direction of the ocean and plodded on. He did not feel any weariness, any weakness. He only wanted to get away from the place where he had been so cruelly hurt, and he wanted to go back to the big water which had been a friend since his early childhood.

How long he walked he did not know, but he reached Tacoma and here, for the first time in days, hunger, appetite asserted itself, but alas it was the hunger for alcohol, not for bread.

It was only a glass, but in his weakened condition it was enough. He tried to walk; the ground, however, insisted on coming up to meet him. In this plight an officious policeman came upon him and with his club brutally struck the poor fellow. Dan turned in his fury and with one blow sent the officer whirling against the opposite curb. A second policeman appeared on the scene, but before he attacked the Siwash a clear whistle sounded on the air and in a moment five or six blue-coated figures joined in the struggle. They handcuffed the offender, slung him into the patrol wagon and hurried him away.

When the time came for his trial a charge was made that took the case from the police court. Dan stood before his judge silent, gloomy. He made no plea. He cared but little for what they might do with him. A lawyer was appointed to defend him, but Dan turned from him in disgust. The trial was short, the sentence three years in a state prison.

Only one person appeared to take any interest in the proceedings. The young doctor from the hop fields had found time to trace the unfortunate man, and keen pity stole to his heart when he heard the sentence. Three years of walls for the active restless fellow whose entire life had been in the open!

As soon as possible he visited the prisoner. Dan was apathetic. It did not matter. Nothing mattered.

"You must not give up, Dan," pleaded the doctor. "There are things worth striving for left in life, and even this may be a help to you. I have a friend where you are going. You must let him be your friend and these three years may be very useful to you."

Dan remained unresponsive. That night, however, the doctor wrote to an old classmate who was now chaplain at the prison and when Dan arrived there was one person to whom he was something more than an offender of the law—one who knew his story and sought earnestly to help him.

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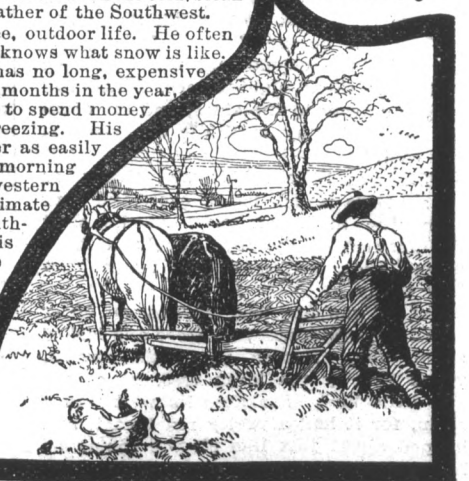
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JAMIE AND JEM.

BY CORA A. MATSON DOLSON.

On some days, when the weather's fine,
I go, in this wheel-chair of mine,
Out on our lawn; from there I see
Some other boys, that's bigger'n me.
As they go by they laugh, and run,
And push, and have a lot of fun.

I watch them all; but one of them
I know, and that one's name is Jem.
He talks to me, when he will come
Sometimes, to bring our laundry home.
He brot me once, some nuts 'twere brown,
He found, himself, where they fell down.

His face has freckled spots, and he
Is just as good as he can be.
His hands are big, and red, and stout,
Sometimes he wheels my chair about;
And once he said to Mamma, he
Would like real well to carry me.

And it's so funny: both our names
My Mamma says that they are "James."
But I am Jamie, he is Jem—
And neither one is James, of them.

And one day, under our elm tree,
With Mamma sitting side of me,
When we had watched to see the boys
Go by, all making lots of noise—
I said, "I'd like to be like that;
To bounce a ball, and throw my hat."

"I like my boy to gentle be,"
She said, with both arms round of me.
Then she laughed queer, with catch, and sighs,
And two big tears stood in her eyes.

I wave my hand when they go by,
But since that time—I don't know why—
My Mamma never looks at them,
Nor talks to any, 'cept to Jem.

KINKS.

Kink I.—Hidden Picture.



The little son saw the artist kiss his
wife. The sun saw another couple kiss
each other. Where is the other couple?

Kink II.—Dairy Riddle.

This is the name of a great dairy market;
For prices on butter we all daily hark it.
In calves but not in cows,
In stables but not in mows,
In "grades" but not in scrubs,
In pails but not in tubs,
In Holsteins but not in Jerseys,
In "slickers" but not in kerseys,
In milk but not in butter,
In tall but not in udder,
In strainer, but not in vat,
In casein but not in fat,
In loppered but not in curd,
In dairy but not in herd,
In silo but not in fodder.
Get it, and you'll be odder
Than a hundred others.

Kink III.—Words Within a Word.

See who can make the most words out
of the word "ensilage," using the letters
no oftener than they occur in "ensilage"
in making up the other words, but you
need not use all the letters in each new
word.

Prizes for Straightening Kinks.

To the first 25 who send us correct
answers to Kinks I and II and also the
largest lists of words made for Kink III,
we will give choice of a package of 50
post-cards representing a trip around
the world, a copy of the rapid calculator
or a pair of shears. Where contestant
or some member of his family is not a
regular subscriber a year's subscription
(75c) must accompany answers. An-
swers must reach us not later than
March 27, as correct solutions will be
published in issue of April 3. Address
answers to Puzzle Dept. Michigan
Farmer.

Answers to Feb. 6 Kinks.

Kink I.—Beheaded Words.—Splash—
plash—lash—ash—sh.

Kink II.—Hidden Recipe.—Sunflower.

Kink III.—Carpenters' Tools.—Spoke-
shave, plane, mallets, saw, chisel, ham-
mer, turncrew, adz, ax.

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kinds and wind mill. No waste land and in high
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ing, has been a dairy
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1,000-ACRE FARM BARGAIN in Merosta
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150 acres cleared; buildings; fine running water; on
railroad; all woven wire fenced; \$12,000, easy terms.
Also 208 acres adjoining; 55 acres cleared; \$1,800, easy
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soil, two miles new wire fence, splendid water, 200
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H. F. Smith, Traf. Mgr., N. C. & St. L. Ry. Dept. P, Nashville, Tenn.

MICHIGAN FARMS.

75' acres—Near Ypsilanti, Mich.: good ten-room
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120 acres—20 acres timber; 10 room house, fur-
nace, cellar-barn 30 x 40, all necessary outbuild-
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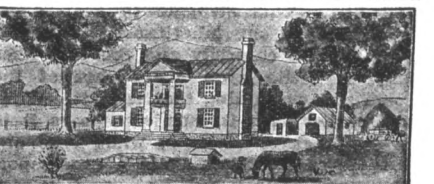
A BIG SNAP—160 acres—2 miles from good
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barns, 1200 rods new wire fence; 12 room brick house;
hip roof barn 55x103 with "L" 40x45, basement under
all, 150 ton silo, all necessary outbuildings.....\$8,500

160 acres—5 miles from town; 10 acres of timber;
8-room house, painted and in good condition; barns
30x50 and 20x40, all necessary outbuildings.....\$4,000

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Cheap Excursions Twice a Month.

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OF INTEREST TO WOMEN

HOME CHATS WITH FARMERS' WIVES.

BY ELLA E. ROCKWEED.

The Spring Cleaning.

With the advent of the first robin the average housewife begins to get the house-cleaning fever. She fairly aches to attack the winter's accumulation of dust and dirt and bides her time with impatience until she can get at the job.

In spite of one's best endeavors to keep the rooms clean dust will settle in draperies and carpets, gaining such secure lodgment that something more than an ordinary sweeping and brushing is required to remove it, and this becomes an increasing source of annoyance as the weeks go by.

Whether to clean early in the season or later is a mooted question. Some believe in one way, others practice the opposite. To wait until the fires are out so that stoves may be stored away means delaying the cleaning until quite late, in this climate. To take them down and shiver for a month or more is not very pleasant, so what is a body to do? It gives a room a rather better appearance during summer to dispense with the heater, yet there are times even in the warm months when a little fire is appreciated. Many of our best housekeepers leave at least one stove, aside from that in the kitchen, where a fire may be started at any time of the year. This seems a wise policy, especially when there are old people or children in the family.

The amount of help at ones' command should decide whether the work of cleaning is to be rushed thru or taken in a more leisurely manner. To make a short job of it and clean one room, or possibly two a day, robs this disagreeable task of half its terrors. At the same time so strenuous a method demands strong arms and plenty of them, to successfully carry it out. With hired help so scarce and so high-priced as it is, many are compelled to do as they can, not as they would, and these will wisely adjust the labor to the strength of the workers, endeavoring so to distribute each as to bring least inconvenience to all concerned.

It is extremely doubtful if it is advisable to set the household in an uproar, depriving the family of regular meals while the energetic leader and her helpers carry the warfare of soap and water from garret to cellar. A better way is to plan to do about as much each day and not interfere any more than is absolutely necessary with the routine laid down at other times. Certainly, little is gained by being first in the neighborhood to finish cleaning if this means a tired-out house-mother with nerves and body at the exhaustion point, and possibly a cold which may develop into something serious.

There are many places about the house where a man's strength is needed at such a time. A little assistance of this kind cheerfully rendered when called for will be greatly appreciated in moving the heavier pieces of furniture, carpets and so forth. To meet with frowns or excuses when a strong arm is needed is disheartening, while the hearty assent to such a request from husband or son goes a long way toward making the whole day brighter and the hard work more easily borne. In fact, the services of a capable man would lighten woman's share of house cleaning thruout.

So far women who keep house as houses are kept today have been up against a life-long struggle with dust and dirt. This struggle to keep clean is a part of our inheritance. Sweep a floor ever so carefully and the dust rises only to settle upon every part of the room and everything that is in it. Walls are coated with it, furniture bears it in every crack and corner, while rugs and carpets receive back again a goodly portion even after broom and sweeper have done their best. The dust problem is never settled or, more properly speaking, refuses to remain settled. Wet paper, salt, corn meal, damp brooms, all these things are helps but they cannot entirely overcome the element which silently and stealthily follows in the wake of the sweeping.

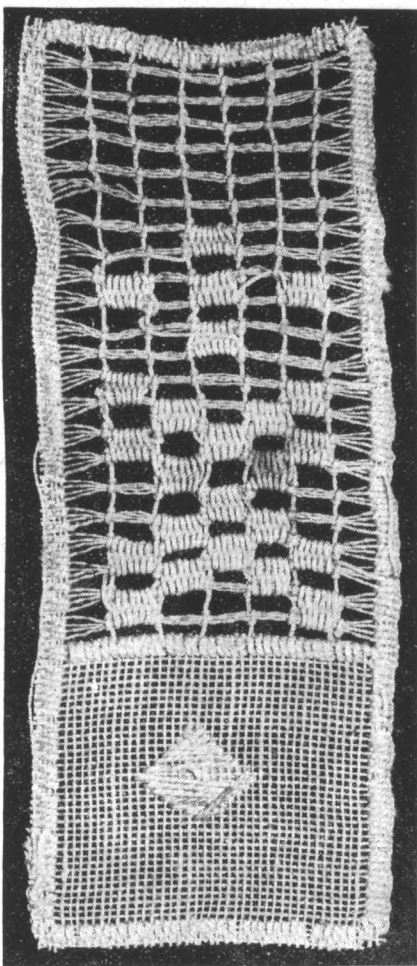
There is a long-handled brush upon the market which does good work on bare floors as well as on carpets. Its cost is moderate, only a dollar, and by its use one reduces the dust nuisance to

a minimum. Besides that, the brush requires less strength in using than a broom. In this way it becomes a boon to weak women.

What appears to be a real solving of the dust question is the vacuum cleaner, a comparatively recent invention. In the larger cities these may be hired by the hour, with an operator to run them. For those who do not live where they can take advantage of this privilege the machines are made in family sizes. The latter will, no doubt, come into popular use after a time as the price places them within the reach of people of moderate means.

These cleaners, operated by machinery, cleanse by suction. Floors, curtains, draperies, furniture, every portion of the room, can be gone over and the dust carried away thru tubes connecting with the machine.

The fresh and clean appearance which follows the use of the paint brush is generally known. To paper and paint a



Sample of Drawn Work Border.
(See next page).

room means its complete transformation and makes it attractive in a manner which nothing else can approach. Farm women, as well as others, are not so dependent upon men for this kind of renovating since the great variety of finishes for woodwork and walls has come into popular use. A woman can, with a little practice, wield a brush as effectively as a regular workman. The ready-mixed paints leave little to be desired in effectiveness and the ease with which they can be applied. Besides, the variety to be obtained in such a pleasing variety of shades, there are the stains and varnish finishes also popular and convenient to use. Old furniture is made to look like new under the magic of can and brush. It is surprising how this alters the appearance of even the shabbiest pieces, making them look like new. To go over the articles with sandpaper before applying the finish increases the amount of work but the wood will look far better if this is done. That is the workmanlike way of doing it.

There are in many homes, pieces of furniture which are family heir-looms. Some of these are well preserved but others have had their beauty marred by successive coats of stain and varnish. In the case of any solid wood like mahogany, cherry or walnut, of which so much of the earlier furniture was made, the natural wood is far more beautiful if this old varnish is removed and a new

finish applied. It brings out the grain and makes of the piece an object of admiration never before fully appreciated. It seems a pity that cabinet-makers of those days should have relied so much upon veneer in constructing their work, for this usually flakes off by the loosening of the glue by which it was attached and unless the detached portion is replaced leaves an unsightly spot.

Anyone possessing old mahogany will be wise to preserve it, whether in the form of a table, a chest of drawers, a bedstead, a sofa, chair or even a mirror frame. Such pieces find ready sale at good prices whenever they can be located and the owner induced to part with them. In many parts of the country there are, in back chambers or attics, articles of furniture of this description, unappreciated by the present owners who are half-ashamed of them because of their old-fashioned shape. In almost any city or town are plenty of people who would be gratified to exchange a goodly number of dollars for the privilege of possessing them. The value of such things increases in proportion to its age.

Probably one of the greatest difficulties connected with housecleaning on the farm is that of paperhanging. It means indefinite waiting to get a man from town to do it and few outside the regular workmen understand it. In the days of whitewashed ceilings nearly every household boasted of some man or woman who could do creditable work with the broad brush still occasionally seen. To be able to coat the overhead expanse of a room so it showed the fewest possible number of "streaks" was the laudable endeavor of the operator. It was clean and wholesome when the job was finished. We may say that much for the white-washed room.

Now that ceilings must be papered the overhead finishing has its complications. The side walls are easy conquest in comparison. Yet by watching a skillful workman, noting just how he manages the slippery lengths which, in the hands of the amateur are so prone to prove exasperatingly unmanageable, sufficient knowledge may be gained to enable anyone of ordinary intelligence to do it successfully.

Your paperhanger first cuts the ceiling lengths, allowing five or six inches additional at either end. He marks off overhead with a yard stick and pencil about 16 inches from the side wall clear across one side of the room, following the course the strips are to go, and pastes the first strip so the edge just comes to this line. This allows for about one inch which rests on the side wall. In putting on this first strip he faces the wall.

By cutting the strips longer than the actual measurement the work is simplified, since the paper is easily held to the overhead wall if the end of the length is stuck against the side. This hint, a paperhanger says, is of great value to the beginner. It is the loose end hanging which pulls the rest of the strip off. By getting the paper where it is wanted and as soon as possible sticking the end fast the work progresses with greater ease.

Paper hanging is not considered a woman's work, yet many women have, and more can, do it if they try. Where it is out of the question to secure the services of a professional the natural resourcefulness of the sex can accomplish much. Aside from the inconvenience of doing overhead work there is nothing about paper hanging which any intelligent woman cannot master, and while I do not recommend it as a regular part of the housekeeper's duties, I do say that in many instances one may far better rise to the occasion by means of the step ladder and do her own papering than depend on securing somebody else to do it. Barring accidents, which might easily happen, it is true, she will be none the worse off for her experience and add another to the list of her accomplishments.

New curtains for some of the windows are usually needed in the spring. Nothing could be daintier or in better taste than muslin for those in bedrooms or dining room. Plain net with a narrow lace border is another favorite material among inexpensive ones. Straight, scant widths hanging from brass rods distinguish the up-to-date curtain which continues to show the lower edge at the sill. Muslin curtains are frequently tied back at either side. The material for either these or the net ones may be purchased and the curtains made at home at less expense than would be required to buy them outright. The quality will be enough better to pay for doing so.

Health Officer Davis says he is unalterably opposed to the filtration of water by the use of alum, as recommended by Expert Fuller in his report to the new Water Works Commissioners. He said: "Not only does it attack the plumbing in buildings and eat away the pipes, but when taken into the stomach produces a form of gastritis, sometimes lasting for days."—Cincinnati, O., Post.

And yet that is the stuff which they make the cheap baking powders of. If alum will eat away the water pipes, what will it do to the stomach?

REFRIGERATORS—Send for free booklet on their selection and management. Also price list of the Leonard Cleanable and free sample of real porcelain lining. G. H. REFRIGERATOR CO., 209 Clyde Park Ave., Grand Rapids, Mich.

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To Stop a Cough In a Hurry.

Of all the "best things" to do for a cough, the following home-made remedy will be found by far the most effective. The sooner it is taken, of course, the better; but even deep-seated coughs usually yield readily after a few doses. Here is the recipe:

Granulated Sugar Syrup ... 13 1/2 oz.
Pinex ... 2 1/2 oz.

Put the 2 1/2 ounces of Pinex (50 cents' worth, in a clean pint bottle and fill up with Granulated Sugar Syrup, made as follows: Take a pint of Granulated Sugar, add 1/2 cup water, heat and let boil just a moment. Take a teaspoonful every one, two or three hours, as required.

Simple as it is, there is positively nothing better for the purpose. The recipe makes a full pint, enough to last the whole family a long time. Kept well corked, it never spoils. The taste is so pleasant that children take it readily without the usual struggle.

Pinex, as you probably know, is the most valuable concentrated compound of Norway White Pine Extract. It is rich in guaiacol and other elements which have made the pine woods of Norway famous in the cure of consumption. Your druggist has it, or if out of it, will gladly get it for you on request. In making this recipe avoid the many weaker pine oil and pine tar preparations, use the real Pinex itself. Granulated Sugar makes the best syrup.

A New Kind of Washer Costs Only \$2

The Flood City Washer isn't clumsy, awkward and hard to work, like the big machines people buy and soon stow away in the cellar. It doesn't twist, rub, grind or otherwise wear out the clothes. It doesn't even make you change your way of washing, except to automatically do the hard work you have been doing yourself on the washboard.

The Flood City Washer takes the dirt out of the every fibre of the clothes by compressed air automatically forcing and sucking the water back and forth through the clothes. Easy on the woman, easy on the clothes—both wear much longer. One woman writes, she wouldn't do without this washer for 20 times its cost. You are bound to have it sooner or later. Why not now?

Simply enclose \$2 with your name and address. We will ship Washer at once. Try it a week and if you don't find it all we claim return (stand) get your money back. Write for free booklet: "The Wonderful Washer." Agents make big money selling the Flood City Washer. Write for terms and earn a good income introducing it to your neighbors.

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Armor Brand Tinware

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Are you going to the Pacific Coast?
Do you want to save money?
Do you want to be extra comfortable on the trip at no extra cost?
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Just write today and let us tell you about our special parties to California, Washington and Oregon, which the best people have patronized for the past 30 years. A postal card will do.

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The Perfect Roof Preserver, makes old, worn-out roofs new. Satisfaction guaranteed or money refunded. Our free roofing book tells all about it. Write for it today. The Anderson Manufacturing Co., Dept. 30, Elyria, Ohio.

Please mention the Michigan Farmer when you are writing to advertisers.

Yes, if only it would stay clean, what a relief it would be. And there are some homes where just such a state of things exists for pretty nearly the year around. You have seen them, have visited in them, haven't you? And so have I.

But the woman who presides over these immaculate homes are slaves to their work. They have no time to read, no time to visit their friends, no time to do anything but clean and scrub, sweep and wipe up dust. That is, they work like slaves unless they are able to have servants to do it for them. Speaking of women in moderate circumstances, we assume that they do the most of their work themselves or with the aid of others of the family.

Then in these immaculate homes there are usually no little children. In a family of adults it is easier to keep everything in order. Even then it is quite an undertaking to have all parts of the house always in apple-pie order. At least, very few women are disposed to claim the honor of doing so.

The fact that the home should be for use and not merely for exhibition should impress itself upon our minds. We do not want a house so prim and precise that the family must be kept in the kitchen lest they disarrange it. We want to take the good of it and enjoy it to the full.

Yet, withal, there is much that may be done to preserve desired conditions. One thing is to have a regular system for all work whereby certain days are set aside for certain tasks. A regular weekly or bi-weekly time for thoroughly going over the rooms and removing every evidence of dirt and disorder does wonders toward maintaining cleanliness. This is routine work, but if kept up its effects will be evident. Once a month if curtains and draperies are hung on the clothesline for several hours they will keep fresh to a surprising degree. Rugs are better than carpets because they are more easily carried out of doors and more easily cleaned. Bare floors are open to certain objections, even when rugs are scattered about but they are not difficult to keep clean. We will admit that, which is more than we can say for one that is carpeted.

It seems to me that we ought to try to maintain a course which seems best fitted to our particular circumstances and environment and therewith be content. It would be folly for the busy wife of the farmer, with her numerous duties to attempt what might be entirely possible and profitable to one differently situated.

The same with the mother of small children, whose time is fully occupied without any attempt at the exceptional. To do faithfully the duty which lies nearest frequently means leaving undone many things which might be desired, yet it is this very duty lying near at hand that we are first to undertake. Let us not forget that, if a choice must be made, it is better to be a loyal and companionable home-maker than to be the most immaculate of housekeepers.

DRAWN WORK BORDER.

BY MAE Y. MAHAFFY.

A good drawn work border design is shown in the accompanying illustration, both from the standpoint of utility and attractiveness. The sample is of scrim, tho any material from which threads may readily be drawn is suitable. Scrim, canvas, and such coarse meshed fabrics are appropriate for curtains, scarfs, and the like, while finer materials are better for small articles. The work may be done in all white or colors, as one prefers, and with silk, linen or mercerized floss.

As shown, the border is one and three-fourths inches wide. The threads are drawn lengthwise of the border only. Six consecutive rows knot the remaining threads into groups of four each, or six if finer materials are used. This forms an allover block-like background, into which the pattern is woven or darned, by going under, then over the groups. Various designs may be followed, two alternating in the illustration.

An unusual idea is suggested by this border for corner devices. As a rule, the threads are drawn entirely from corners, the openings afterward being filled with woven figures. In this case no threads are drawn at the corners, the square left being overcast or buttonholed along the edges, and its plainness relieved by an embroidered diamond in the center. Disks, circles, or other small designs may be substituted for the diamond. Corners of this kind will be found much more durable than the open ones.

"PRISCO" COLD BLAST LANTERNS—DON'T SNEEZE

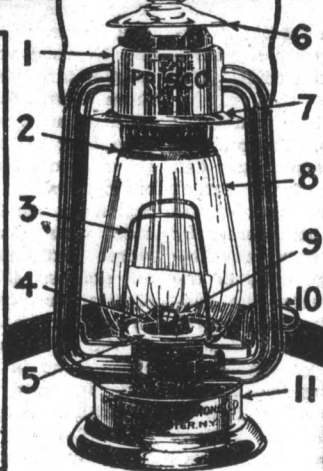
1—Patented wind-break inside of solid one-piece dome. "A Prisco Lantern don't sneeze."

2—Reinforced metal here—no raw edges to cut or scratch the hands.

3—These wire clamp guards hold globe secure when tilted back for trimming wick or cleaning burner.

4—Large brass burner, with one-inch wick ready for lighting. Not a cheap tin burner.

5—The horizontal perforations in globe-plate keep wind from striking flame—therefore, prevent flickering.



6—The dome sheds water—prevents rusting of tin.

7—The heavy flange plate with incured edges sheds moisture.

8—Heavy, specially selected Prisco globes—crystal clear.

9—Patented flame expander gives 25 per cent. more light.

10—Lift is positive and entirely behind tube—does not project to catch on clothes, obstacles, etc.

11—Larger, stronger oil fount—contains more oil, lasts longer, makes lantern burn better.

Above are a few of the good reasons why it is worth your while to get a new lantern.

You can depend on the Prisco to give you real lantern comfort because its every detail has been planned after a close study of your lantern needs.

Isn't the work you do by lantern light important enough to have the best lantern to do it by?

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It not only tells why Prisco Lanterns don't sneeze but it has page after page of facts and information about lantern uses and lantern care that will interest you.

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Choice of Golden Oak or Genuine Mahogany.

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FILL IN—CUT HERE—MAIL TODAY
Larkin Co. Mail, postpaid. Product and Premium List No. 107 and tell how I can furnish my home out of present cost of living.
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SOME THROAT DISEASES.

BY CHARLOTTE A. AIKENS.

A Canadian farmer's wife writes to inquire what is best to be done for her seven years old boy who has very frequent attacks of tonsillitis and a hacking irritative cough. Lately she has noticed that he breathes mostly thru his mouth instead of his nose. He is pale and seems lacking in energy and is generally "run down." He has been taking medicine of various kinds for over a year—tonics, cod-liver oil, and such things, but does not improve.

It is quite likely that the trouble is what is known as adenoids. It would be wise to take him to a physician and ask for a careful examination of the throat and nose. In such cases removal of the adenoids by scraping is considered by most physicians as the only effective treatment. Adenoids are growths in the throat which in time obstruct the passage of air thru the nose, making breathing thru the mouth a necessity. Usually such children snore loudly at night, and night terrors and disturbing dreams are common. If the trouble is allowed to go on the whole general health suffers. Quite often the sense of hearing becomes impaired and many parents will consult a physician because of the progressive deafness, when otherwise, as long as the child is able to run around they would let the trouble go on without interference. The impairment of hearing is so gradual and insidious that permanent damage has resulted before the real danger is appreciated. Such children nearly always, in cold weather especially, have a catarrhal inflammation of the nose, constant "running" from the nose, and a tickling cough.

In most cases the growths shrivel up as the child approaches adult life, but by that time irreparable damage has been done. In many cases general physical and mental development have been arrested or interfered with chronic deafness may result, and all such children are more liable to become victims of infectious diseases. The natural resistance to disease is lessened. The normal child who is exposed to scarlet fever, diphtheria or tuberculosis may expect to effectively resist the invasion of the germs of these diseases, but the child with adenoids is not so likely to escape.

These unfortunate children often have a miserable time if they are sent to school. In course of time a dull, vacant expression of the face develops, and the mouth being always open, they are often either laughed at for general stupidity, and branded as "dunces," or actually punished by teacher and parents for neglecting to learn.

When the real condition becomes known the parents will often object to the slight operation needed for the removal. It is surely a foolish and false affection that will lead parents to run the risk of permanent impairment of hearing and of general health rather than have the child suffer a very short period of discomfort.

In some cases the growths have been removed with the fingers, but as children usually do not bear such procedure well it is better to give a few whiffs of chloroform or some other anaesthetic. Even if, in many cases, the growths do disappear in adult life the effects produced by them do not disappear.

Quinsy.

Quinsy is a common name given to a certain form of tonsillitis. It rarely occurs after thirty years of age and is most common between the ages of twelve and twenty. Various causes are assigned for it. Usually the individual will think he has "caught cold." Some persons are susceptible to inflammation of the throat or tonsils and very slight causes tend to bring on an attack. It is true that exposure to cold or wet sometimes precedes an attack of quinsy but unhealthful food or imperfect excretion of the waste products of the body have a good deal to do with it in a great many cases. It has been stated that those who have quinsy are more likely to have rheumatism, and vice versa, but that fact has yet to be clearly proven. There is no real need of a patient who has quinsy lying awake at night and worrying for fear he may have rheumatism.

In the ordinary case of quinsy a physician is rarely called. The attack sometimes begins with a chill and there is likely to be headache, some fever, soreness of the throat or of one tonsil, and difficulty in swallowing. In all cases the patient ought to be kept in bed in a room not too warm. A temperature of 65 to 68 degrees F. is warm enough. A dose of salts or an injection to clear out the

bowels should be given. A good sweating bath that will open the pores of the skin may help to relieve the fever. Ice cold cloths applied to the throat externally will help to check the inflammation. Small bits of ice may be swallowed. A good gargle is made by mixing a half teaspoonful each of baking soda and borax, with six teaspoonfuls of glycerine and adding a pint of water. A few drops of peppermint may be added to it simply as a flavor. This is a simple gargle which can be used with benefit in all cases of simple inflammation of the throat. If there is an atomizer in the house it may be used as a spray.

So long as the fever lasts, fluid foods or very soft diet, such as gruel, custard, broths, junket, etc., should be given. Occasionally the inflammation does not subside with simple measures, but gets worse and worse, and it is found that an abscess is forming. Hot poultices of bran, or flaxseed meal, or cloths wrung out of hot water will hasten the ripening of the abscess. The suffering in these cases is so intense that it is not always wise to wait for the abscess to break naturally. A doctor should be called to lance the part and relieve the condition. There are very few local diseases which cause such rapid exhaustion of strength as this does.

Tonsillitis.

Tonsillitis very often makes its appearance in the spring, and in many homes several members of the family are attacked in quick succession. Unlike measles one attack not only does not protect from future attacks but renders the individual more liable to contract the disease on the slightest cause. It is quite generally accepted that tonsillitis is infectious. In many cases the disease so closely resembles diphtheria that the experienced physician is often at a loss to decide which he has to deal with. Whitish, cheesy looking spots appear on the throat, and there is fever, quick breathing and difficulty in swallowing and rapid loss of strength. The first time it is quite likely the physician will be called as the spots on the throat are sufficient to alarm. The diphtheritic membrane is of a darker color—more of an ashy gray, and when it is removed usually leaves a bleeding surface. In tonsillitis the white cheesy spots may be easily separated and there is no raw surface when the membrane is removed. In the average case of tonsillitis, rest in bed, frequent gargling of the throat, and liquid or soft foods while the fever and soreness of the throat are present will be all the treatment that is needed.

A SUGGESTION FOR THE SEASON.

BY HELEN MORGAN.

During all the cold weather, every farmer's wife should keep an old warm cape or shawl and a pair of rubbers or overshoes handy in the kitchen, to slip on quickly when she steps out of doors to get water, to empty kitchen slops, or to go to the mail box.

In houses that have modern improvements, fuel and water are, of course, inside, and all waste water is carried off by a drain, but even then, many hasty trips must be made to the barn, hen house, or clothes line.

Some women never can take the time to put on wrap and rubbers, and many a serious cold is taken in consequence. It is positively dangerous to fly out bareheaded, and with nothing extra around the shoulders, from the heat of the kitchen into the cold air. Especially is this the case if the feet are gotten damp at the same time.

When there is snow, paths should be kept swept. If one must go where there is no path, leggings or high gaiters should always be put on.

By all means, get out into the fresh air all that the weather and indoor duties will permit, but do not make the serious mistake of running out for even two or three minutes without being properly protected.

FREE BOOK ABOUT CANCER.

CANCEROL has proved its merits in the treatment of cancer. It is not in an experimental stage. Records of undisputed cures of cancer in nearly every part of the body are contained in Dr. Leach's new 100-page book. This book also tells the cause of cancer and instructs in the care of the patient; tells what to do in case of bleeding, pain, odor, etc. A valuable guide in the treatment of any case. A copy of this valuable book free to those interested. Address, DR. L. T. LEACH, Box 105, Indianapolis, Indiana.

Our
1909
ModelPat.
Dec. 4, '06
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FREE

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Book, "The
Sole of Steel,"
or order a pair
of STEEL SHOES
on the blank below.

There's more good wear in one pair of Steel Shoes than in three to six pairs of the best All-Leather Shoes. And comfort! The very first time you slip your foot into Steel Shoes, they feel fine. They need no "breaking in." And the longer you wear Steel Shoes the better you like them, for they keep your feet warm, dry and comfortable—though you work in mud or slush up to your shoe tops. Steel Shoes are shaped to fit the foot, and the rigid steel bottoms and sides force them to keep their shape. No warping, no twisting, no leaking possible. And they are light shoes, too.

How Our 1909 Model Steel Shoes Are Made. The Wonderful Steel Bottoms

Steel Shoes solve the problem of the Perfect Work Shoe for all time to come.

The soles of Steel Shoes and an inch above the soles are stamped out of a special light, thin, rust-resisting steel. One piece of seamless steel from toe to heel. As a further protection from wear, and a means of giving a firm foothold, the bottoms are studded with adjustable steel rivets.

The adjustable steel rivets of the 1909 model Steel Shoes add the finishing touch of perfection. Practically all the wear comes on these steel rivets. When steel rivets wear down, you can instantly replace them with new rivets. And the rivets at the tip of toe and ball of foot are the only ones that wear. Steel Shoes never go to the Repair Shop, for there's nothing to wear but the rivets. And the Steel Soles shed mud almost as easily as they shed water. The cost is only 30 cents for 50 extra steel rivets. No other repairs are ever needed.

The uppers are made of the very best quality of pliable waterproof leather, and firmly riveted to soles. There is greater strength and longer service and more foot comfort in steel shoes than in any other working shoes in existence. It's in the steel and the pliable leather, and the way they are put together.

Throw Away Rubber Boots, Felt Boots and "Arctics"!

Rubber or felt boots heat the feet and make them sweaty and tender. Nothing more uncomfortable or more harmful to the feet. One pair of Steel Shoes will outlast at least three pairs of felt or rubber boots.

A man who wears Steel Shoes doesn't have to own three different styles of working shoes. No arctics or felt boots necessary.

Secret of Steel Shoe Elasticity

Steel Shoes have thick, springy Hair Cushion Insoles, which are easily removable for cleansing and airing. They absorb perspiration and foot odors—absorb the jar and shock when you walk on hard or stony ground. They keep your feet free from callouses, blisters and soreness.

Steel Shoes Save Doctor Bills

Wear Steel Shoes and you need not suffer from Colds, Rheumatism, Neuralgia, Lumbago, Stiffness of the joints and other troubles and discomforts caused by cold, wet feet. Keep your feet always warm, dry and comfortable in Steel Shoes. They protect your health and save doctor bills, while adding to your comfort.

\$4 24 Paints this House with "Tower" Paint

Best Paint in the World Body and trimmings, two coats. Your choice of colors. Then you will not need to paint again for about 8 years. That is 53 cents a year for improving the looks and value of your property. This low priced and long lasting paint is only procurable of us. It is the highest grade paint in the world. We have other paint much cheaper than this and much cheaper than any other house can sell, as low, in fact, as \$2.50 for a house like this. But it will not look as good nor last as long as our reliable "Tower" paint at \$4.24, though fully as good as other firms sell for their best paint at a much higher price.

Before you buy get our big 1909 Paint Book and Color Card

It tells you how to estimate cost of paint for any building, how to combine colors, how to save money and do the job right—in fact what you ought to know about buying and using paint. Color Card shows about 125 actual samples of our paint.

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THE WORLD'S GREATEST DISASTER.

The Complete Story of the Italian Earthquake Horror

Graphic accounts of this most awful catastrophe in which two hundred thousand people lost their lives—tens of thousands of homes crumbled to dust in a few seconds—terrible tales of suffering in the kingdom of death—personal experiences of survivors and thrilling escapes from death—tragic tales of suffering—daring deeds of heroism—United States first to send help—the nations of the world aid the afflicted—the U. S. Battleship Fleet to the rescue.

By J. MARTIN MILLER.

Author, Writer and Traveler; Ex. U. S. Consul General; Member of the National Geographical Society, Washington D. C.
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A History of Italy and Sicily; Other Great Disasters of the World, both by Earthquakes, Volcanoes and Tidal Waves; Scientific Explanations of their causes. Illustrated with Reproductions of Photographs taken Especially for this Volume. 400 pages, size 7x9½ closed. Price to subscribers only \$1.00 delivered, or with the Michigan Farmer a year, only \$1.50, or sent free for 3 subscribers at regular price, 75c for 1 year, \$1.20 for 2 years, or \$1.50 for 3 years. Send all orders to this office.

THE MICHIGAN FARMER, Detroit, Michigan.

Wear STEEL SHOES

Absolute Protection Against
Colds, Rheumatism, Stiffness, Discomfort
No More Blistered, Aching Feet
GOOD-BYE to CORNS and BUNIONS!

Off With the Old, Rough, Wrinkled Leathers! On With the Comfortable STEEL SHOES!

There's more good wear in one pair of Steel Shoes than in three to six pairs of the best All-Leather Shoes. And comfort! The very first time you slip your foot into Steel Shoes, they feel fine. They need no "breaking in." And the longer you wear Steel Shoes the better you like them, for they keep your feet warm, dry and comfortable—though you work in mud or slush up to your shoe tops. Steel Shoes are shaped to fit the foot, and the rigid steel bottoms and sides force them to keep their shape. No warping, no twisting, no leaking possible. And they are light shoes, too.

Low Prices on Steel Shoes

Sizes, 5 to 12. 6 inches, 9 inches, 12 inches and 16 inches high.

Steel Shoes, 6 inches high, \$2.50 a pair, are better than best all-leather \$3.50 shoes.

Steel Shoes, 6 inches high, extra fine grade of leather, \$3.00 a pair, excel any \$4.50 all-leather shoes.

Steel Shoes, 9 inches high, \$3.50 a pair, are better than the best all-leather \$5.00 shoes.

Steel shoes, 12 inches high, \$5.00 a pair, are better than the best all-leather \$6.00 shoes.

Steel Shoes, 16 inches high, \$6.00 a pair, are better than the best all-leather shoes, regardless of cost.

One Pair of "Steels" Will Outwear 3 to 6 Pairs of Leather Shoes

The comfort of Steel Shoes is remarkable. Their economy is simply astounding! Practically all the wear comes on the rivets in the bottoms and the rivets can be replaced very easily. Don't sweat your feet in rubber boots or torture them in rough, hard, twisted, shapeless leather shoes. Order a pair of Steel Shoes today. Sizes, 5 to 12.

Satisfaction or Money Back

We strongly recommend the 6-inch high, at \$3 a pair, or 9 inches, at \$3.50, as they give best satisfaction for general service.

In ordering, state size shoe you wear. Enclose \$3 a pair for 6-inch size, and the best and most comfortable working shoes you ever wore will promptly be shipped to you. Your money refunded if you are not delighted when you see the Steel Shoes. Send today.

STEEL SHOE CO., Dept. 95 Racine, Wis.

Canadian Branch, TORONTO, CANADA

Order Blank for Steel Shoes

Steel Shoe Co., Dept. 95, Racine, Wis.

Gentlemen:—

I enclose _____ for \$ _____

In payment for _____ pair Steel Shoes,

Size _____

Name _____

Town _____ State _____

County _____ R.F.D. _____

(Continued from page 256).
cussed corn topics at Wednesday's sessions of the Institute.

The awards in District 1, comprising the lower four tiers of counties, were made as follows, names of exhibitors and scores being given:

Class A—Yellow Dent.
Jesse W. Pickett, Kent Co.....86.6
Geo. W. Pickett, Kent Co.....84.5
Earl Pickett, Kent Co.....80.9
A. W. Jewett, Ingham Co.....75.7

Class B—White Dent.
Geo. W. Pickett, Kent Co.....79.0
J. M. Harvey, Van Buren Co.....75.0
R. I. Vandercok, Livingston Co.....67.5
Geo. J. Friedrich, Jackson Co.....56.3

Class C—White Cap Dent.
Frank E. Baker, Oakland Co.....80.0
Geo. W. Clapp, Lenawee Co.....78.5
Wm. Folks, Jackson Co.....78.1
Chas. H. Sudborough, Lenawee Co.....76.9

Class D—Other Dents.
J. W. Pickett, Kent Co.....81.0
A. W. Jewett, Ingham Co.....68.1

Class E—Flint Corn.
Geo. J. Friedrich, Jackson Co.....81.5
A. W. Jewett, Ingham Co.....75.5
F. V. Judson, Lenawee Co.....71.0
R. I. Vandercok, Livingston Co.....55.0

In District 2, comprising the remaining counties of the Lower Peninsula, the awards were made as follows:

Class A—Yellow Dent.
W. H. Wood, Isabella Co.....76.2
E. L. Salisbury, Isabella Co.....73.7
John Walton, Isabella Co.....71.6
I. A. Kerstead, Montcalm Co.....71.5

Class B—White Dent.
G. A. Arnold, Montcalm Co.....75.9
Victor Spike, Gladwin Co.....61.2

Class C—White Cap Dent.
Hugh Watson, Isabella Co.....73.1
Jas. Watson, Jr., Isabella Co.....72.8
Chas. Tonkin, Isabella Co.....71.5
A. L. Hopkins, Manistee Co.....70.7

Class D—Other Dents.
The exhibits in this class were not scored, there being but two entries. First prize was awarded to W. A. Hess, and second to W. C. Vowles, both of Isabella Co.

Class E—Flint Corn.
The only entry in this class was an excellent sample shown by Robt. Horsell, of Ogemaw Co., which was awarded first prize.

Sweepstakes Awards.
The sweepstakes for District 1 was awarded to Jesse W. Pickett's sample of Pickett Dent which won first in the yellow dent class. W. H. Wood's sample, also of the Pickett Dent variety, carried off the sweepstakes for District 2.

Junior Special Class.
This class was open to boys under 20 years, and awards were made as follows:
Aldo Moore, Oakland Co.....76.0
Ralph Jewett, Ingham Co.....73.9
Earl Pickett, Kent Co.....73.5
Glenn Pickett, Kent Co.....68.0
Wilfred L. Jewett, Ingham Co.....67.3
H. E. Waldron, Isabella Co.....43.3

Associational Class.
The two prizes offered for exhibits by local corn clubs or associations were awarded as follows:

Mason Corn Improvement Ass'n.....78.7
Lenawee Co. Corn Improvement Ass'n.....74.4

The Association's Annual Meeting.
At the annual meeting of the Michigan Corn Improvement Association, held on Wednesday evening of institute week, a proposition to divide the lower peninsula into a larger number of corn districts was referred to the board of directors for further consideration. A proposed amendment touching the number of classes in which any member may enter exhibits for prizes was referred to a special committee. This committee, at an adjourned meeting the following day, reported the following amendment which received the necessary two-thirds vote:

No exhibitor shall make more than one entry in any one class, nor shall he be allowed to make entries in more than two classes. No entry shall compete in more than one class except for sweepstakes.

It was voted to hold the next annual meeting of the association at the Agricultural College. All of the officers were re-elected with the exception of vice-president, Mr. E. M. Moore, of Orchard Lake, being chosen vice-president for the ensuing year.

CROP AND MARKET NOTES.

Grand Traverse Co., Feb. 22.—We are having a very mild winter so far; we have had only two or three bad storms, and we have hardly enough snow now for sleighing. Farmers are busy getting up wood and harvesting the ice crop. Stock of all kind is looking good on account of the mild winter. Many farmers are hauling manure and spreading where needed, which is a great improvement over letting it lay in the barnyard till spring work comes on. The markets are: Potatoes, per bu. 70c; butter, dairy, per lb. 26c; eggs, per doz. 25c.

Kent Co., Feb. 22.—The potato situation in Michigan is easily and accurately told by the price paid at home on the local market. Good stock sold up to 80c last week. As a rough estimate I would say that two-thirds of the merchantable stock is gone and it looks reasonable and natural that the one-third is to be held for all there is in the advance. It was but recently suggested that a greatly increased acreage will be planted the coming year, but high priced grain will be more than likely to step in and assert its right to a place on the farm. Corn meal sells at \$1.60; bran, \$1.50 per 100 lbs. Butter is high, but feed is higher.

Mecosta Co., Feb. 25.—We have had a very mild winter as a whole so far; we have only had a few days when we couldn't turn our cattle out in the yard. Most cattle are looking well and are bringing good prices; the same with horses. Potatoes are a better prospect now than formerly, and are now worth 70c per bu; wheat, \$1.12; rye, 70c; corn, 35c per basket; hay, \$10 per ton; eggs, 20c per doz; butter, 20c per lb.

Wrought Iron Special Top Buggy

Direct To You From Factory
The Old Reliable Columbus
Quality—None Better

Direct to You

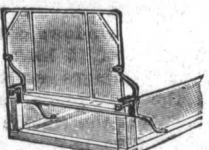
Write for Free
Catalogue
102 Pages
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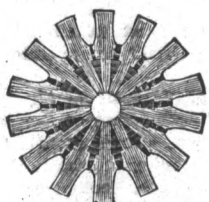
See how Strongly Seat is Ironed and Braced.



You Never Rode on Springs that Ride Like These.



Impossible to Bend a Dash Over or Break it with our Special Brace.



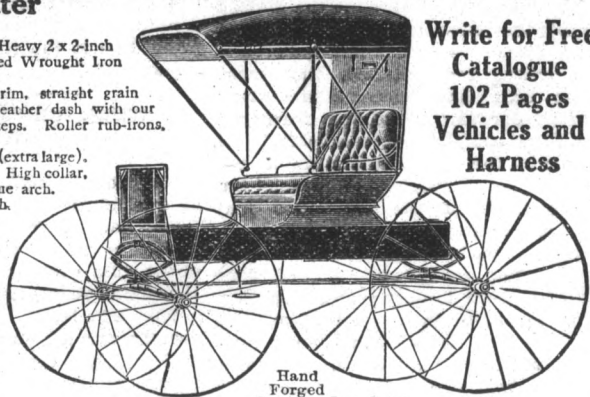
Sectional View of Hub Showing Special Construction. No better Wheels Made.

OVER 100 points of merit, all popular body—Heavy 2 x 2-inch ash sills—Hardwood bottom. Hand forged Wrought Iron fifth wheel and gear.
Bradley quick shift couplings, screwed rim, straight grain hickory wheels. Elegant high padded patent leather dash with our special dash brace. Three prong wrought iron steps. Roller rub-irons. Fine full length (extra long) top.
All curtains reinforced. Plaid back rain apron (extra large). The finest, easy riding springs you ever rode on. High collar, dust proof steel axles with the latest handsome true arch. Upholstered in the finest all wool broadcloth. Finest workmanship—Latest Improvements—Proper proportion—Style—Strength—2-year Guarantee—Sent anywhere on one Full Month's Trial.

Write for Our Free Catalog Today
—A Postal Will Do But Do It Now

Our two-year guarantee covers everything—just say on a postal—"Send me your free catalogue"—we pay the postage. Columbus quality costs no more than the unknown kind—don't take any chances. 20 years' experience building the old reliable Columbus grade.

Columbus Vehicles and Harness are the Standard for Quality Everywhere
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Hand Forged Wrought Iron Gear

No Middleman's Profits—Our Prices Save You 40%, Think of It—We Sell Direct to You



Our Never Wear Out and Unbreakable 6th Wheel.



Only Hand Forged Wrought Iron would Stand being Hammered and Bent Cold like This.



Also built with Auto Seat at a slight advance in price, with quick shifting top, which can be taken off in one minute, making an open runabout.

How You, Yourself, can do Four Men's Lifting with the Burr Automatic Safety Tackle Block



Pays for Itself on One Job

You don't know what you are missing—how much unnecessary work you are doing, and how much money you are losing—by not having one of these wonderfully convenient Automatic Safety Tackle Blocks on your farm. You can alone do nearly all the heavy lifting required about your place with our block—shifting wagon boxes, stretching wire fences, moving stones, logs, sick or injured animals, etc.

The Burr is the only rope block made that is as adjustable as a chain block. It is the only rope block made without teeth wedges, springs, etc., to wear, tear and chew up good rope.

Actually preserves rope, yet locks as unfailingly and rigidly on wet or greasy rope as on dry. Locks at an angle or upside down. So accurate in locking that load can be raised and lowered a hair's breadth.

The Burr Automatic Safety Tackle Block

is made of best steel. Positively can't wear it out. In fact, works better with age.

You can pay for the Burr in extra hired help saved on one job. No farmer should be without it a minute.

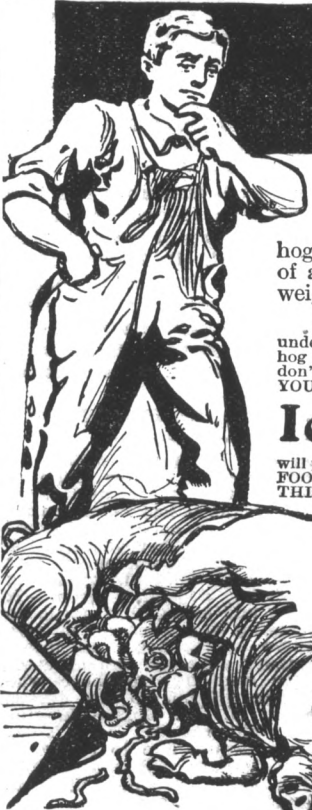
Prices range from 70 cents to \$4.25.

Let's tell you how many uses and advantages over all other blocks. Write today for full information, sizes, capacities, etc. Don't wait. Write now.

Learn what it means to own one. Surely you can afford to pay from 70 cents to \$4.25 for an article that saves many dollars a year, and an enormous amount of hard work.

Just a postal now to—
BURR MFG. CO., 133 Viaduct, Cleveland, O.

WORMS



THAT'S the cause of your hog losses—NOT cholera. WORMS—WORMS—WORMS—hundreds of them, thousands of them, gradually, surely killing your hogs; killing their power of digestion, killing their power of assimilation—STARVING them so they CAN'T make weight—so they're a prey to all kinds of disease.

If you could SEE the intestines of most of your hogs—THEN you'd understand why you lose them. It's been PROVEN that 90 per cent of hog losses are due to worms, and YOUR hogs will not escape if you don't feed to prevent or kill the worms right from the start. SAVE YOUR HOG PROFITS.

Iowa Worm Powder

will positively kill the worms with one to three feeds, and IOWA STOCK FOOD will keep your hogs in a prime, healthy condition until marketed. THIS man knows:

Iowa Stock Food Co.,
Jefferson, Iowa.

Gentlemen:—I received sample of your worm powder—got it into action and GOT RESULTS. I am now prepared to believe anything you say about worms.

F. W. HUBBARD.

FREE—If you've never used Iowa Worm Powder you can secure a \$1 package of it FREE by sending us 25c for postage and packing. Take advantage of this offer NOW and insure your hog profits.

Iowa Stock Food Co.,
Dept. M, Jefferson, Ia.

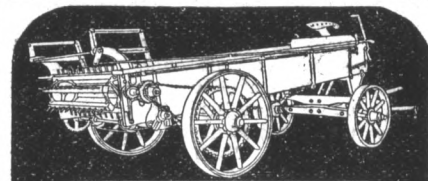
SO EASY—SEEMS LIKE PLAY Your Boy can work all Day without Fatigue if you have a KRAUS Pivot-Axle Sulky CULTIVATOR

A delight to the farmer. Works so easily, operator is always in a good humor. The horses furnish the power. Wheels and shafts act together. The driver merely guides. A slight foot pressure, with no lost motion, moves the wheels and shafts simultaneously to the right or left. Responds to pressure as easily as piano keys. Width between gangs and depth of shovels instantly and easily adjusted while machine is in motion.

No Tired Feeling if You Use the KRAUS all Day

Hillsides, Uneven Land and Crooked Rows Cultivated as Easily as Level Ground.

Simplest in construction—least number of parts—nothing to get out of order. Steel frame. All castings malleable iron. Every part accessible. Built for wear and work. Light draft and perfect balance. Made in high and low wheel and Kraus Pivot Gang. Accept no substitute. If your dealer does not handle the KRAUS write us for our free descriptive catalogue, **AKRON CULTIVATOR CO.** DEPT. 12 AKRON, OHIO



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from your manure. Cover two acres to every one by hand, spreading with better results and do it as fast as 10 men with forks.

...MILLER... Manure Spreader and Pulverizer

is the only low down spreader, easy to load. Handles all manure, pulverizes thoroughly, spreads evenly, thick or thin, as wanted. Right width to straddle corn rows. Solid bottom box scraped clean every load. Automatic drag return, safety end-rate, double drive. Send for catalog B and know every reason why you should own a Miller modern spreader.

The NEWARK MACHINE CO., Newark, O.

PERFECT POTATO PLANTING

Every farmer knows the importance of proper potato planting. Here's a machine that does it perfectly. Has none of the faults common with common planters. Opens the furrow perfectly, drops the seed correctly, covers it uniformly, and best of all never bruises or punctures the seed. Send a postal for our free book.

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BATEMAN MFG. CO., Box 104 P GREENLOCH, N. J.

POULTRY AND BEES

THE GUINEA HEN.

Recent issues of magazines unite in deploring the decrease thruout the United States of the once abundant feathered game. To such an extent has indiscriminate butchery been carried, that most stringent laws have become necessary to prevent our few remaining feathered friends from complete extermination. In consequence, the markets can no longer offer for sale delicacies to which the profitable trade of the big cities had become accustomed.

Partridge, quail, and the various wild ducks on the restaurant bill of fare commanded from a dollar and a half a plate up to three dollars and more, and a small hot bird has always been a favorite for suppers of all sorts. No form of entertainment can ever take the place of the dinner and the banquet, and here again the small hot bird is in demand. Since the passing of the feathered game, what has taken its place? Not chicken broilers, not to any great extent squab. We are told that the answer to the question is, "guinea hen, which is just as good."

And this brings us to our point. As the natural supply of small birds decreases or fails entirely, it is left to the farmer to supply, thru legitimate channels, the crying demand. The intelligent farmer watches for the signs of the times. The straws of popular fancy show which way the wind blows profits towards him. He must not always "do as Dad did," for many a chance comes along that Dad never had.

The men who cleared much of the Michigan lands we plow today, could not possibly have foreseen the present value of game so abundant in their time. It is just as hard for many of us, accustomed to the fresh, wholesome, appetizing products of the farm, relished with the piquant sauce that comes from labor, to imagine the cloyed appetite of the luxurious city dweller, jaded with innumerable dainties. But the appetite is there, and for it the sea sends oysters and clams, lobsters and terrapin, and the hothouse its rarest fruits and vegetables, and the farm its finest poultry at the highest price. The critical taste of the rich city pays well the few who can satisfy it. For it we fatten the choicest turkeys and plump the finest broilers and squabs.

And now, because there is a demand in the big city restaurants for game birds when there are no game birds to be had, our farms may sell, to supply that demand, the long despised guinea hen.

But, I think I hear you say you never eat guinea hen. You don't like them. They are tough. Also, the meat is dark—and tastes too wild.

Now, that is just the point. It is dark, and it does taste wild. Therefore, it makes a fine substitute for really wild birds. The guinea hen shares with the turkey the distinction of being a wild bird in captivity. Both will stay on the farm—part of the time. They will come home to roost—if not in midsummer, wait till fall. They may miss the feeding hour, but still know where their home is. While we must admit the old birds are tough, the young ones make food fit for a king.

The young guineas, which are properly called keets, should be marketed at the broiler age. Guinea broilers are not to be spoken lightly of. Properly reared, they are as tender and toothsome as chicken broilers, while they have in addition the flavor of the wild, resembling partridge and quail, which they imitate in their feeding habits. Being just now fashionable, it behooves us, as our political friends say, to at least get acquainted with the fowl, if we have not heretofore. As farmers, let us for the time, drop our prejudices, and look at the guinea as a farm crop, a money proposition. Let us stop denouncing the screeching, screaming fowl of our fancy, useless and a nuisance, and investigate habits, cost of production, and marketable possibilities.

Saginaw Co. E. H. McDONAGH.

HOW GOOD RETURNS ARE SECURED.

As many women give their experience with poultry in your columns, I thought I would tell you about my nice flock of 60 White Leghorn hens, and how I handle them. They have a nice warm house and are fed a variety of grain, such as wheat in the morning, oats at noon and corn at

night, all scattered in chaff so as to keep them at work. For drink I give them water and skimmed milk. They also have a good supply of gravel and oyster shells. Vegetables of various kinds are tied to strings and hung up in their house just high enough from the floor to give them plenty of exercise in getting them. They are doing well and I am getting a good supply of eggs; as eggs bring a good price, this is the time to have them.

Macomb Co. MRS. WM. CAMPBELL.

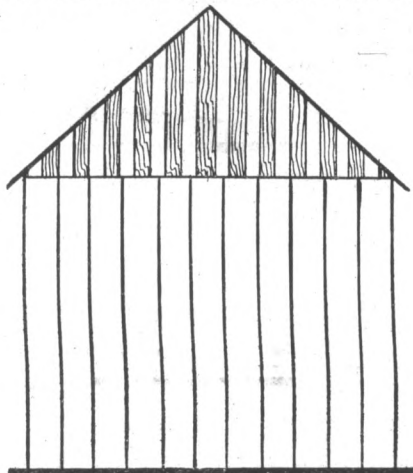
A WELL VENTILATED CHICKEN COOP.

The accompanying cut shows one end of a chicken coop which I found on the farm here which we bot this spring. There is nothing out of the ordinary about this coop except its size and the thorough ventilation possible.

We all know that chickens suffer greatly for air during hot summer and fall nights, especially when they are nearly grown and crowded for room.

This coop is about four feet square and can, of course, be built any height from one and one-half feet up. The coop is boarded solid to the eaves while the gables are slatted with lath. To keep out night marauders a front is built which is removable. This is built of boards not fitted too closely. Back of this is a slatted front to confine the hens but thru this the chickens can pass in and out.

If the cockerels are sold as broilers this coop affords ample room for the pul-



lets until ready to place them in their permanent winter quarters.

In this coop the foul, warm air rises and passes out thru the slatted gable and when the coop is opened in the morning one does not notice the sickening odor such as results from too close cooping.

Another idea practiced by a neighbor works well. In setting his hens he sets them in the coops in which they are to remain and bring up their brood. This method gives the hen room to get off the nest, but still she is confined. This reduces the liability to break eggs or foul the nest, and the hen is right at home when the chicks arrive and does not have to be moved. Of course, this method is practicable only after moderate spring weather has arrived.

Maine. D. J. RYTHUR.

FOWLS AND THEIR QUARTERS.

If you will only take the figures and see what the eggs and poultry are worth in the United States for one year, you will see that it is enormous.

I am a strong advocate of the pure-bred fowl. They are kept well bred up, are vigorous, have a uniform appearance, and are better layers and are also superior as poultry over the barnyard fowl found more or less in every locality. Aside from having vigorous fowls, which are indispensable to a large number of eggs and good poultry, these are the only qualities I care for in the hen.

I am proud of the fact that in pure-bred poultry culture, the utility fowl has profited largely by the attention that has been given to breeding for fine points, and I think that it can be well said that sufficient work has already been done along that line for the practical poultryman to devote his attention to the hen which lays the most eggs.

Starting out with healthy, vigorous, pure-bred fowls I will give what I consider about the best way to raise chickens.

My brooder houses and colony houses are eight feet wide and 12 feet long. The front side is seven feet high and the rear side is 5½ feet high. I have found it better to have them high enough so that the attendant will not be bumping

his head. I like a house high enough so that a man can just about stand straight in the lowest part. All these colony houses are built on runners 14 feet long which makes the runners extend one foot beyond each end. Holes being made in the ends of the runners so they can be hitched to and drawn about when desired.

Houses when so made can be placed anywhere to suit the desire of the individual. These houses may be floored or not, however, if there is much danger of the chickens being bothered with small wild animals they should be floored with something good and tight. The roof may be made of any kind of roofing that is available, something, however, should be used that the snow will not go thru. I have tried boards, shingles, and prepared roofing and am led to believe that the prepared roofing is the best, as nothing will go thru it. I am now using prepared roofing altogether. In the high side of these houses some windows should be made and a small door. I have my windows fastened with hinges so they will turn down on the outside so as to provide ventilation. On the inside of these windows I have wire netting over the windows.

A slide door a foot square is made at the floor near each end of the house in the front of the building for the chicks to pass thru into a yard (a small yard while they are too little to go into the larger yard).

These small yards are of small mesh chicken-wire with a covering of the same to prevent hawks and crows from carrying off young chickens. I have these small yards in four parts, hooked together so that at six weeks of age or when I consider my chicks large enough to find their way back to the brooder house, I can fold these pens and lay them away. This arrangement I have found to be very convenient.

The months of April and May are the most desirable for hatching, of course. However, I prefer April. Chicks hatched in this month will make broilers in June, and they always bring a good price in the market. I always dispose of all cockerels early except those for breeding purposes and a few for family use. It reduces the feed bill.

In my poultry yard I have a natural growth of trees, with quite a few trees of apples and plums. And this brings us right up to the raising of poultry in connection with horticulture. I often have this question asked, will they work well together? My answer is always that they surely do. This I know from my own personal experience. There is no other way for any man to know just how well they work together. I can say yes, they do work well together, but that is not the other fellow realizing it. He must try it, and then he can know for himself. Poultry is a great advantage to fruit raising. The work that chickens will do in ridding the orchard of insect pests is great. The healthy chickens and biddies are after the insects all the time. Always ready to make an effort. The droppings of poultry are also very beneficial to the orchard. Well, I might go on and preach several sermons along this same line and then I would just be getting started on what there is to say. So the best way that I know for anyone to realize such things is just to try them for himself.

Illinois. R. B. RUSHING.

A HOUSEWIFE'S SUCCESS WITH POULTRY.

I would like to tell farmers' wives how much profit there is in keeping poultry, especially winter layers. I have 19 hens, 5 Buff Oringtons, 14 B. Rocks. Have had 300 eggs since first of December, (Feb. 17). I sell eggs to farmers' wives who have more hens than I have and only get two or three eggs this winter, when eggs are 34c per dozen. I feed table scraps and wheat.

Alcona Co. MRS. M. M. HECOX.

Asbestos as a Roofing Material.

The advantages of a roofing made of mineral fibre will suggest themselves to our readers. The world has nothing that can take the place of asbestos as fire-proofing material, no other material is such an effective non-conductor of heat and cold, and being a mineral, its lasting qualities may be depended upon. It makes a roofing and siding that needs no painting or coating to preserve it or give it an attractive appearance. An interesting book about asbestos and asbestos roofing will be sent free to those who request it, so we will not go into details here. Address, H. W. Johns-Manville Company, 100 Williams St., New York, stating that you would like to receive a free sample of Asbestos Fibre and their free book, No. 69. You will find them interesting and instructive.

What Ails You?

Do you feel weak, tired, despondent, have frequent headaches, coated tongue, bitter or bad taste in morning, "heart-burn," belching of gas, acid risings in throat after eating, stomach gnaw or burn, foul breath, dizzy spells, poor or variable appetite, nausea at times and kindred symptoms?



If you have any considerable number of the above symptoms you are suffering from biliousness, torpid liver with indigestion, or dyspepsia. Dr. Pierce's Golden Medical Discovery is made up of the most valuable medical principles known to medical science for the permanent cure of such abnormal conditions. It is a most efficient liver invigorator, stomach tonic, bowel regulator and nerve strengthener.

The "Golden Medical Discovery" is not a patent medicine or secret nostrum, a full list of its ingredients being printed on its bottle-wrapper and attested under oath. A glance at these will show that it contains no alcohol, or harmful habit-forming drugs. It is a fluid extract made with pure, triple-refined, glycerine, of proper strength, from the roots of native American medical, forest plants. World's Dispensary Medical Association, Props., Buffalo, N. Y.

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If any of the following Poultry Remedies fail to give the results claimed for them.

Harding's Positive Cholera Cure, 25c. By mail 40c.
Harding's Successful Roup Cure, - By mail 50c.
Harding's Lice Killer 25c. - By mail 40c.
Harding's Scaly Leg Cure, 25c. - By mail 35c.
Harding's Sheep Dip, - \$1.25 per gallon

If your dealer cannot supply you, I will. Catalogue free.

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RED BABIES—Rhode Island Reds 15c, \$15 per 100. Prize winners Chicago, Cleveland, Indianapolis, Detroit. Barred Rock, Black Minorca, Leghorn chicks 10c, \$10 per 100. Prompt, safe delivery.
EDWIN R. CORNISH, Edwardsburg, Mich.

Michigan Best White and Golden Wyandottes, Barred Rocks, Rhode Island Reds, Rose and Single Comb White, Brown, Buff Leghorns, S. B. Hamburg, Bronze, White and Buff Turkey Toms, \$4.00 each. Toulouse, Embden, Gray African, Brown and White China Geese. All varieties of ducks.
E. J. HASKINS, Pittsford, Mich.

Barred Plymouth Rocks—Eggs for hatching. Price, 15 for \$1; 26 for \$1.50; 50 for \$2.50; \$4 per hundred. Satisfaction guaranteed. Colon C. Lillie, Coopersville, Mich.

BARRED PLYMOUTH ROCK & White Wyandotte Cockerels for sale at reasonable prices.
E. D. BISHOP, Route 38, Lake Odessa, Mich.

EGGS—M. B. Turkey, Pekin Duck, Bar Rock. Also M. B. Turkey Toms.
HUPP FARM, Birmingham, Mich.

MINORCA cockerels at \$1 and \$2 each. Am booking orders for P. C. pigs, sired by boars of extra breeding and great quality. R. W. Mills, Saline, Mich.

White Wyandotte Cockerels only a few left. \$2.50 each. A. Franklin Smith, Ann Arbor, Mich., R.R. 9.

White Wyandottes—Eggs for hatching. Price, 15 for \$1; 26 for \$1.50; 50 for \$2.50; \$4 per hundred. Satisfaction guaranteed. Colon C. Lillie, Coopersville, Mich.

BUFF ROCK COCKERELS—Healthy, handsome. Farm raised. Good size and color. Price \$1 up.
WILLIS S. MEADE, R. No. 3, Holly, Mich.

SINGLE COMB WHITE LEGHORNS—Eggs for hatching. Price, 15 for \$1; 26 for \$1.50; 50 for \$2.50; \$4 per hundred. Satisfaction guaranteed. Colon C. Lillie, Coopersville, Mich.

SILVER, Golden and White Wyandottes. A nice lot of good cockerels still left. Satisfaction Guaranteed. C. W. Browning, Portland, Mich.

PURE White Holland Turkeys—healthy farm raised. Kind that stay at home. Prices right. Mrs. Mae Whitbeck, "Two Pines," Montague, Mich.

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of the best English strains in America; 40 years experience in breeding these fine hounds for my own sport. I now offer them for sale.
Send stamp for Catalogue.
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COLLIES—Bred bitches and puppies for sale. Stud dogs for service.
W. J. ROSS, Rochester, Mich.

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RENDERING BEESWAX IN COLD WEATHER.

Wax as produced by the bees and worked into comb is almost pure white but after being melted and cooled, on the other hand, is of a yellowish cast. There are different ways of getting beeswax out of old combs, but there are some preliminary steps to be taken that should be the same in either case. The cells of old combs contain cocoons left by successive generations of young bees reared in them, and these cocoons act as a sort of sponge in soaking up the wax when it is melted. To prevent this the cocoons should be soaked as full of water as possible, so that they will have no room for any wax. This can be best accomplished by breaking the combs up fine. You can not do this when the combs are warm; they must be cold and brittle. It is good weather for that now, so break up the combs fine, then put them in water and let them soak perhaps two or three days. If you have them in too cold a place the water will not soak into the cocoons so rapidly, but you must not have the water much above blood heat or the wax will melt and defeat your object.

After being well soaked you can get out the wax in different ways. One of the easiest is by means of a cook stove and an old dripping pan. Tear open one corner of the dripping pan, put it in the oven of the cook stove, with the door of the oven left open, the split corner of the pan projecting out. Put something under the corner of the pan on the floor ready to catch the wax as it runs out; also something in the oven under the inner end of the pan so as to raise it half an inch to an inch, thus allowing the wax to run down hill when it melts. Now put your soaked combs in the dripping pan and the heat of the stove will do the rest. It may be a good plan to put a little water in the pan that rests on the floor, so the wax will more easily come out of the dish.

Another way which does not call for any elaborate appliances is to put the old combs into a burlap sack, tie the mouth securely, put the sack into an ordinary wash boiler, set it on the fire, fill it two-thirds full of water, and then, while it is boiling, take a common garden rake and push and punch and turn the sack of combs about. By throwing a good share of the weight of the body upon the rake quite a lot of pressure can be brot to bear while the combs are hot under water. Finally set off the boiler and lay some stones or bricks upon the sack to keep it down in the bottom of the boiler. Nearly all the wax will rise to the top and form in a cake. While this method may not secure quite so much wax as may be obtained with a wax press, it answers very well for the man who keeps bees in a small way.

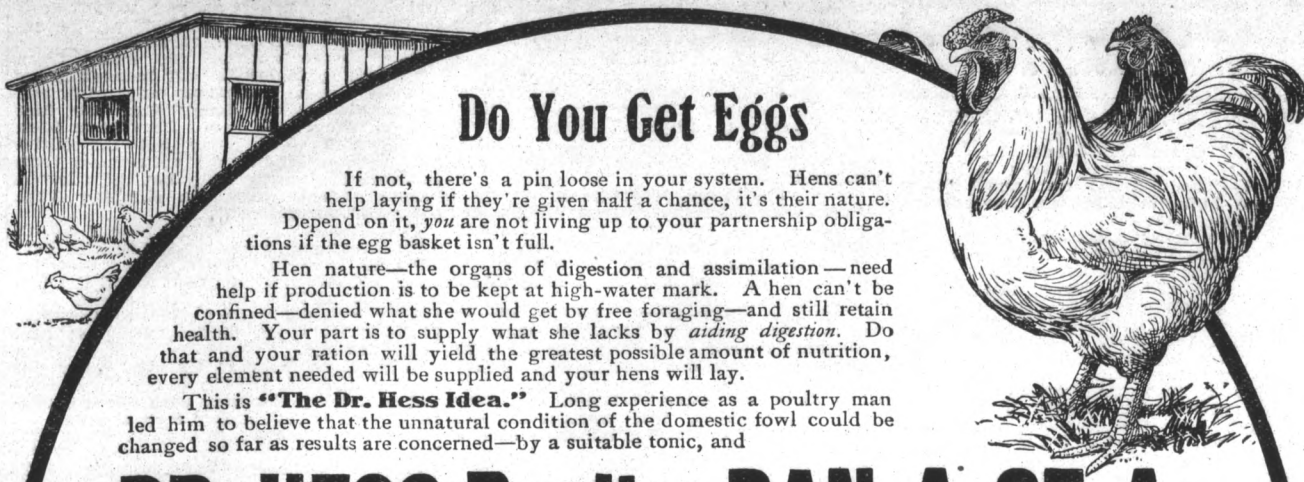
The Solar Extractor Works Well in Summer.

Again, another way to render combs and cappings into wax is by the use of a solar extractor. The solar extractor is an invention which separates the wax by the sun's rays. In a bright sunny climate there are many days in the summer when it can be used to excellent advantage and every beekeeper who has a few colonies of bees should be the owner of one. To get the best results from the machine, it should be placed in a sheltered place where it will have the reflection of a fence or building. The machine should be loaded in the morning, with the glass and pan tipped to the south, by placing in the pan a layer of broken comb cappings from extracting honey, or the scrapings of sections, etc. The sun will do the rest, and at night a beautiful yellow cake of beeswax will be secured. One of the difficult problems has been to keep the residue from sliding on the pan, and either going into the wax-pan or damming up the screen and preventing the wax from going thru. To prevent this I have found it an excellent plan to place a piece of wire cloth on the bottom of the pan, with a few small cleats under the wire to give drainage. The roughness of the screen prevents the residue from sliding, and lets the melted wax drain thru.

New Jersey. F. G. HERMAN.

Take Notice.

If you have a case of lame, blemished or sick horse, write me today. I am always glad to assist my customers by giving free veterinary advice. Absorbine has been successful in curing any cases of thoroughpin, bog spavin, strained tendons, cocked, ankle, lymphangitis, ringbone, lameness, etc. \$2 a bottle at druggists or sent postpaid to any address upon receipt of price. W. F. Young, P. D. F. 63, Monmouth St., Springfield, Mass.



Do You Get Eggs

If not, there's a pin loose in your system. Hens can't help laying if they're given half a chance, it's their nature. Depend on it, you are not living up to your partnership obligations if the egg basket isn't full.

Hen nature—the organs of digestion and assimilation—need help if production is to be kept at high-water mark. A hen can't be confined—denied what she would get by free foraging—and still retain health. Your part is to supply what she lacks by aiding digestion. Do that and your ration will yield the greatest possible amount of nutrition, every element needed will be supplied and your hens will lay.

This is "The Dr. Hess Idea." Long experience as a poultry man led him to believe that the unnatural condition of the domestic fowl could be changed so far as results are concerned—by a suitable tonic, and

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was formulated for the purpose. Thousands of poultry keepers are doubling their egg production by the use of this tonic. It is composed of most helpful ingredients—bitter tonic principles, iron for the blood and the necessary nitrates to keep the system free of harmful, poisonous matter. Dr. Hess (M. D., D. V. S.) guarantees this prescription. If you use it as directed and do not get more eggs, your money will be refunded. It feds a market bird in the shortest time; carries fowls safely through moulting, helps chicks to early maturity and cures gapes, cholera, roup, etc. All poultry men endorse Dr. Hess Poultry Pan-a-ce-a. A penny's worth a day is enough for 30 fowls.

1 1/2 lbs. 25c, mail or express 40c;
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Except in Canada and extreme West and South.

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It is "The Dr. Hess Idea" that digestion in animals can be improved. That is, the greater part of food can be made to assimilate and so form good flesh on the fattening steer or rich milk in the cow. Dr. Hess Stock Food, formulated by Dr. Hess (M. D., D. V. S.), acts so positively upon the digestion that this end is brought about. It lessens the time required to fit a steer for market or to fat a hog, and it positively increases milk production, besides relieving minor stock ailments. It is endorsed by such leading medical men as Professors Quimman, Winslow and Finlay Dun. Sold on a written guarantee.

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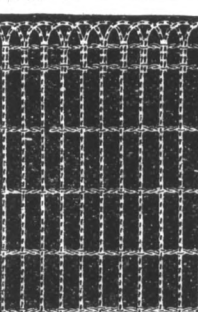
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Stahl "Wood-on-Hen" and "Excelsior" incubators assure big hatches. Well-built, reliable, practical—thousands in use. Catalogue free. GEO. H. STAHL, Box 506 Quincy, Ill.

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guaranteed to hatch highest percentage of eggs. Liberal Free Trial Plan. Best Incubator Proposition on the market. Postal brings all printed matter and prices at once. Address Racine Hatcher Company, Box 54, Racine, Wis.

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is our new book for the use of poultry raisers. Keep account of your eggs, chicks and profits. Our Diary shows how and also tells about our new Incubators. It tells why our prices are so low. The Diary is free. Better write for it today. Tell us if you are thinking of buying an incubator and what size you want. We pay freight. Geo. Ertel Co., Quincy, Ill.

\$7.55 Buys the Best 140-Egg Incubator

Ever Made \$4.50 Buys the Best Brooder Both Incubator and Brooder, ordered together, cost but \$11.50. Freight Prepaid. The Belle City Incubator has double walls and dead air space all over, copper tank, hot-water heat, self-regulator, thermometer, egg tester, safety lamp, nursery, high legs, double door. The Belle City Brooder is the only double-walled brooder made, hot-water heat; platform, metallamp. No machines at any price are better. Write for our book today, or send the price now under our guarantee and save waiting. Satisfaction Guaranteed Box 14, Racine, Wis.

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loss so common with all other incubators. CERTAINTY OF RESULTS VS. GUESSWORK explains the difference between the

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and other makes. In our machines you know what your hatch will be after the first test-out. Heat, Ventilation and Moisture are ideal at the eggs during each of the 21 days of incubation. That is why we can guarantee more, stronger and better chicks from the Mandy Lee than any other maker can. Our brooders both fireless and lamp heat, raise practically every chick. Send for catalogue and booklet "Incubator Hygrometry" today—both free.

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MARKETS

DETROIT WHOLESALE MARKETS.

Grain and Seeds.

March 3, 1909.

Wheat.—The market continues active with the bulls still in the ascendancy. There have been no large sales of futures, there being a general feeling that the bulls are in control of the market. The cash wheat situation is most interesting. The millers have quit buying temporarily on account of the high prices, but the holders of cash wheat are not in the least alarmed, realizing that holding it firmly will only make the demand greater when necessity brings buyers back into the market. Receipts for the present are larger than for a year ago and the export business is small. Liverpool had a decline on Tuesday which was later recovered and the foreign outlook is not less bullish than that on this side of the water. Buyers of flour are also playing a waiting game preferring to use up stocks on hand than to purchase at present prices. One year ago the price paid for No. 2 red wheat was \$1.02½. Quotations for the past week are:

	No. 2	No. 1	No. 3	Red.	White.	Red.	May.	July.
Thur.	1.22½	1.22½	1.19½	1.21½	1.07			
Fri.	1.25	1.25	1.22	1.22½	1.07½			
Sat.	1.25	1.25	1.22	1.22½	1.07½			
Mon.	1.24	1.24	1.21	1.21½	1.06½			
Tues.	1.25	1.25	1.22	1.22½	1.07½			
Wed.	1.25½	1.25½	1.22½	1.23	1.08½			

Corn.—The corn market is firm and unchanged with trading only moderately active. The selling price for No. 3 corn was 62c one year ago. Quotations for the week are:

	No. 3	Yellow.
Thursday	66½	67½
Friday	67½	68½
Saturday	67½	68½
Monday	67½	68½
Tuesday	67½	68½
Wednesday	68	69

Oats.—An advance of one cent was a feature of the oat market for the week. The demand for the grain continues strong, and the price holds steady at the advance noted. At this date last year No. 3 white oats were selling at 55½c, which is the same as the closing quotations for the current week. Quotations are:

	No. 3	White.
Thursday	55½	55½
Friday	55½	55½
Saturday	55½	55½
Monday	55½	55½
Tuesday	55½	55½
Wednesday	56	56

Beans.—There is little doing in the bean market, values holding steady at last week's closing quotations.

	Cash.	May.
Thursday	\$2.40	\$2.45
Friday	2.40	2.45
Saturday	2.40	2.45
Monday	2.40	2.45
Tuesday	2.40	2.45
Wednesday	2.40	2.45

Cloverseed.—The market is active and firm at unchanged prices. There was quite a wide spread in values on sample also, which sold a little higher at the close of the week. Ruling prices for the week were:

	Prime	Spot.	Mar.	Alsike.
Thursday	\$5.40	\$5.40	\$7.50	
Friday	5.40	5.40	7.50	
Saturday	5.45	5.45	7.50	
Monday	5.45	5.45	7.75	
Tuesday	5.45	5.45	7.75	
Wednesday	5.42½	5.42½	7.75	

Rye.—Rye has advanced 1½c since last week, but the advance failed to bring sellers to the surface. 82½ was bid for No. 2 rye, with no sellers on Tuesday.

Visible Supply of Grain.

	This week.	Last week.
Wheat	38,214,000	39,968,000
Corn	6,254,000	6,464,000
Oats	9,026,000	9,361,000
Rye	574,000	675,000
Barley	3,302,000	3,503,000

Flour, Feed, Provisions, Etc.

Flour.—Prices steady with last week on all grades. Quotations are as follows:

Clear	\$5.50
Straight	5.65
Patent Michigan	6.10
Ordinary Patent	5.75

Hay and Straw.—Prices unchanged. Carlot prices on track are: No. 1 timothy, new, \$10.50@11; No. 2 timothy, \$9.50@10; clover, mixed, \$9@10; rye straw, \$7@7.50; wheat and oat straw, \$6@6.50 per ton.

Feed.—Prices are steady for all feeds.

Bran, \$28 per ton; coarse middlings, \$29; fine middlings, \$31; cracked corn and coarse corn meal, \$27@28; corn and oat chop, \$25.

Potatoes.—There has been little change in the potato situation during the week, prices remaining at last week's lead. Good stock is quoted at \$5@90c per bu. New Bermudas, \$2.75 per bu.

Provisions.—Family pork, \$17.25@17.75; mess pork, \$16.50; light short clear, \$18.75; heavy short clear, \$18.75; pure lard in tierces, 10½c; kettle rendered lard, 11½c; bacon, 12½c; shoulders, 8½c; smoked hams, 11@11½c; picnic hams, 8c.

Dairy and Food Products.

Butter.—The market is easy and a cent lower than last week, and there is still a general feeling that prices are too high, buyers holding off and making the market easy at the decline. Quotations: Extra creamery, 29c; firsts, 27c; packing stock, 17c; dairy, 20c.

Cheese.—Michigan, 15½@16½c; brick cream, 17@17½c; schwelzer, 18@19c; limburger, June, 15c; Oct., 17c per lb.

Eggs.—The egg trade has been on the decline the past week, the price dropping sharply on Monday, which decline was due to sharp breaks in Chicago and New York and the fact that St. Louis was offering eggs direct to this market in

considerable quantities. Fresh stock is quoted at 20½c per doz.

Poultry.—Offerings of poultry were light and demand small during the past week. The market was steady. Quotations: Dressed chickens, 15@15½c; fowls, 14@14½c; ducks, 13@16c; geese, 13@13½c; turkeys, 20@22c. Live—Spring chickens, 14c; fowls, 13@13½c; ducks, 14@14½c; geese, 11@12c; turkeys, 19@20c per lb.

Fruits and Vegetables.

Apples.—Market firm. Best grades are quoted at \$4.75@6 per bbl. Western apples in bushel boxes, \$2.25@3.25.

Onions.—Spanish, \$1.90 per bu; home-grown at 75c per bu; Bermudas, \$3.50 per crate.

Cabbage.—Home-grown selling at 4c per lb.; new cabbage, \$2.75 per crate.

Vegetables.—Green onions, 15c per doz; radishes, 30c per doz; cucumbers, \$2.25@2.50 per bu; lettuce, 16c per lb; head lettuce, \$3.50 per hamper; beets, 45c; turnips, 40c; carrots, 50c; watercress, 45c per doz; celery, 40@45c; spinach, \$1 per bu; parsnips, 90c per bu.

OTHER MARKETS.

Grand Rapids.

The local wheat market has been up to \$1.19, but has slipped back to \$1.18. Oats and corn are also off 1c. Beans are 10c lower, buyers now offering on a basis of \$2 for hand-picked stock. Butter, both dairy and creamery, are off 1c this week, while the egg market is 2c lower. Hay is being offered quite liberally by farmers and is bringing \$9@11, loose in loads. The market on dressed hogs and other meats is quiet, with prices a trifle lower. Growers are being paid 60@65c for their dry onions. Glass farmers are getting 12@15c for lettuce, 20@22c for radishes.

Quotations follow:
Grains.—Wheat, \$1.18; corn, 67c; oats, 54c; buckwheat, 75c per bu; rye, 75c.

Beans.—Handpicked, \$2 per bu.
Butter.—Buying prices, Dairy, No. 1, 21c; No. 2, 16c; creamery in tubs, 29c; prints, 29½c.

Cheese.—Michigan full cream is selling at 15@16c per lb; brick, 17c; Swiss, 17c; limburger, 17c.

Eggs.—Case count, 20c; candled, 22c.

Apples.—New York, \$5@6 per bbl.

Potatoes.—70@75c per bu.

Cattle.—Cows, \$2.50@3.50 per cwt; steers and heifers, best quality, \$3@5; dressed mutton, 7@8c; dressed veal, 7@9c; dressed beef, cows, 5@6½c; steers and heifers, 6@8½c.

Hogs.—Dressed, 8@8½c.
chickens, 13@14c; roosters, 9@10c; turkeys, 18@19c; young ducks, 13@14c; geese, 10@11c; capons, 20@21c.

Live Poultry.—Fowls, 12½@13½c; young

Chicago.

Wheat.—No. 2 red, \$1.23@1.25; May, \$1.17½; July, \$1.04½.

Corn.—No. 3, 63½@64½c; May, 65½c; July, 65½c.

Oats.—No. 3 white, 53@54c; May, 54½c; July, 49½c.

Butter.—Steady. Creameries, 22@28c; dairies, 21@25c.

Eggs.—Weak and much lower. At mark, cases included, 19½@20c; firsts, 20½c; prime firsts, 21½c.

Potatoes.—Easy. Car lots in bulk. Fancy, 88@90c per bu; ordinary to good, 85@87c.

Pittsburg.

Potatoes.—Michigan, \$3@85c; in small lots, 85c.

Apples.—Steady. King, \$6.50 per bbl; Spy, \$5@5.50; Spitzenburg, \$5@5.50.

Other Potato Markets.

Cleveland.—White stock, 85@90c per bu.
St. Louis.—Northern stock quoted at 85@90c per bu.

Philadelphia.—For good offerings, \$3@85c.

Boston.

Wool.—The feature of the local wool market is extreme dullness. Old domestic stocks are practically exhausted; foreign arrivals have fallen off, and there have been only light receipts of new wool from Arizona. On the lightest kind of sales, the leading domestic quotations range as follows: Ohio and Pennsylvania fleeces—XX, 34@35c; X, 32@33c; No. 1 washed, 38@39c; No. 2 washed, 38@39c; fine unwashed, 28@29c; half blood combing, 30@31c; three-eighths blood combing, 30c; quarter blood combing, 29@30c; delaine washed, 38@40c; delaine unwashed, 30c. Michigan, Wisconsin and New York fleeces—Fine unwashed, 22@23c; delaine unwashed, 27@28c; half blood unwashed, 28@29c; three-eighths blood unwashed, 28@29c; quarter blood, 28@29c.

Elgin.

Butter.—Market is firm at 29c per lb.

THE LIVE STOCK MARKETS.

Buffalo.

(Special report by Dunning & Stevens, New York Central Stock Yards, East Buffalo, N. Y.)

March 1, 1909.

Receipts of sale stock here today as follows: Cattle, 120 loads; hogs, 12,000 head; sheep and lambs, 18,800; calves 1,000.

The only change today in the cattle trade from last week was on the best heavy cattle. There was more competition on this kind today than any time in the last four weeks. Medium to good butcher cattle sold about steady with last week while the prime heavy cattle sold 10@15c higher with a good demand. Owing to the light run in Chicago there was a number of orders here for the eastern market but it was hard to advance them more than 15@25c over last week and in most of the cases there was fully that much advance. In order not to mislead shippers we will say there were a few cows and heifers here today which were entered in the Chicago stock show but owing to the quarantine were shut out. They were on this market today

and were as prime as you would want to see. Cows sold from \$6.50@7, heifers at \$6.15 and one steer at \$7.25.

There were entirely too many fresh cows and springers on our market today as under recent conditions only a few can be handled, altho today was the first setback they have had. They have been selling well until today but the outlet for them is small and with more than usual on the market they bot them lower. Would advise caution in shipping fresh cows and springers.

Best steers, \$6.25@6.65; best 1,200 to 1,300 lb. shipping steers, \$5.75@6.25; best 1,000 to 1,100 lb. do., \$5.60@6; best fat cows, \$4@4.75; fair to good, \$3.75@4; trimmers, \$2.40@2.75; best fat heifers, \$5.25@5.75; butcher heifers, 800 to 900 lbs., \$4.25@5; light fat heifers, \$3.50@4; best bulls, \$4.50@5.

With 62,000 hogs in Chicago today our market opened 10@15c lower than Saturday and closed steady with about everything sold except a few late arrivals.

We quote: Best mixed, medium and heavy, \$6.70@6.80; best yorkers, \$6.60@6.70; light yorkers, \$6.35@6.50. Pigs, \$6.25@6.35; roughs, \$5.70@5.80; stags, \$4.50@4.75.

The lamb market today was about the same as Saturday. We look for a little better prices the balance of the week on the handy lambs.

We quote: Top lambs, \$7.95@8; fair to good lambs, \$7.40@7.90; cull lambs, \$6.75@7.50; skin culls, \$5.50@6.25; yearlings, \$6.50@7.25; wethers, \$5.75@6.25; ewes, \$5.25@5.75; cull sheep, \$3.50@4.50; best veals, 11@11½c; medium to good, \$7.50@10.75; heavy, \$4@5.50.

Chicago, March 1, 1909.

Cattle.

Cattle. Hogs. Sheep.
Receipts today 24,000 60,000 25,000
Same day last year. 22,639 49,606 19,888
Received last week . 45,575 149,721 71,396
Same week last year. 61,326 190,895 68,969

Cattle were marketed unusually sparingly last week owing to the big decline in prices a week earlier, and while the demand continued restricted owing to the dearth of beef and the beginning of the Lenten season, sellers were in a position to mark up quotations. By Wednesday prices had been advanced 25@35c on an average, with a respectable showing of \$6.50@7 cattle, the poorer light weight killers selling at \$4.40@5.50. Of course, conditions were of a temporary nature, and no one looks for a continuance of such prices, as there are plenty of stockmen who are eager to part with their holdings on any good rally in values. Cows and heifers shared in the activity and advanced prices with ready buyers at \$3.30@6, while canners and cutters had a good outlet at \$2@3.25, bulls selling at \$3@5.

Cattle were in lively demand today, after a week of meager supplies, and prices were strong to 10c higher, with a top sale of 49 prime 1,633 lb. steers at \$7.10. These were Missouri-fed cattle. Hogs were offered liberally on Monday last week, but the receipts on most days were unusually small as compared with recent weeks and a year ago, and this enabled sellers to get several sharp advances in prices. The eastern shipping demand was again the strongest bull factor, and the lighter weights were apt to be discriminated against by buyers, as has been the case for a long period. Hogs are coming to market good in quality to a marked degree, but the recent average weight has been but 201 lbs., compared with 212 lbs. a year ago and 223 lbs. two years ago. The surroundings of the market seem to be encouraging for stockmen, and there is every reason to believe that the production of marketable swine will continue profitable in spite of dear feed. As long as farmers can get \$6 per 100 lbs. for hogs on the farm they are free sellers, bad country roads being the principal obstacle to marketings. The market was active today on both local and shipping account, and despite the exceptionally large receipts, the average decline was not more than 5c. Hogs sold at \$6@6.55, compared with \$5.90@6.50 a week ago.

Sheep and lambs with good quality have been in strong demand for another week, and such descriptions were apt to sell at higher prices as a result of their decided scarcity at all times. The feeder demand was especially strong at firm prices, heavy shearing lambs going to the country at \$7@7.25 per 100 lbs. and lighter shearing lambs at \$6.50@6.90. With country buyers fleeces are the big factor at present, as the lambs will be returned to market after being finished off minus the wool. Shorn fleeces are being marketed in steadily increasing volume, and clipped sheep have been selling with 50@75c of woolled stock of the same kind, while there was a difference of 75@85c in sales of clipped and woolled lambs. The market stood the strain of today's greatly increased receipts surprisingly well, and for the most part prices were steady, with a good general demand. Lambs sold at \$5@7.85, ewes at \$2.75@5.50, wethers at \$5.10@5.80, rams at \$3@4.50, and yearlings at \$6@7.25.

A recent proclamation issued by the State Live Stock Sanitary Commission has further modified the quarantine regulations in force, and permits the free movement of live stock within the state except from the townships of Washington, Shelby, Sterling and Warren, in Macomb co; the townships of Oakland, Avon, Troy, Royal Oak, Southfield, Farmington, and Novi, in Oakland county; the townships of Northville, Plymouth, Livonia, Redford, Greenfield, Hamtramck, Gratiot, Grosse Pointe, Springwells, Dearborn, Nankin and Canton, and the City of Detroit, in Wayne county, which are still quarantined under the same penalties and regulations as noted for restricted territory in a recent issue.

Michigan Quarantine Again Modified.

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AUCTION SALE

40 head Shorthorn Cattle, 10 head Horses and Farm implements at the Oakdale Stock Farm, Grattan Township, Kent Co., Mich., Thur. March 11, 1909.

W. J. LESSITER, Belding, Mich.

S. C. BROWN LEGHORNS.

Our Egg Circular now ready, it's free. Big Birds—Greatest Layers. 15 cockerels yet for sale. FRED MOTT, Lansing, Mich.

THIS IS THE LAST EDITION.

In the first edition the Detroit Live Stock markets are reports of last week; all other markets are right up to date. Thursday's Detroit Live Stock markets are given in the last edition. The first edition is mailed Thursday, the last edition Friday morning. The first edition is mailed to those who care more to get the paper early than they do for Thursday's Detroit Live Stock market report. You may have any edition desired. Subscribers may change from one edition to another by dropping us a card to that effect.

DETROIT LIVE STOCK MARKETS.

Thursday's Market.

March 4, 1909.

Cattle.

Receipts, 1,151. Market 10@15c lower than last week.

We quote: Extra dry-fed steers and heifers, \$5.50@6; steers and heifers, 1,000 to 1,200, \$5@5.25; steers and heifers, 800 to 1,000, \$4.50@5; steers and heifers that are fat, 500 to 700, \$4.25@4.60; choice fat cows, \$4.25@4.35; good fat cows, \$3.75; common cows, \$3@3.25; canners, \$1.50@2; choice heavy bulls, \$4.25@4.50; fair to good bolognas, \$3.75@4; light bulls, \$3@3.25; milkers, large, young, medium age, \$4@5; common milkers, \$2@3.

Roe Com. Co. sold Mich. B. Co. 5 cows av 920 at \$3, 4 do av 805 at \$2.75, 1 do weighing 900 at \$2, 2 steers av 1,000 at \$4, 2 cows av 965 at \$3, 3 butchers av 880 at \$3, 3 bulls av 1,313 at \$4.25, 1 do weighing 900 at \$4; to Bresnahan 2 butchers av 1,060 at \$4, 1 cow weighing 1,060 at \$3.50; to Goose 8 do av 991 at \$3.75; to Kamman 8 butchers av 680 at \$4.35; to Mich. B. Co. 19 do av 680 at \$4.50.

Bishop, B. & H. sold Bresnahan 3 cows av 1,093 at \$4.50, 2 do av 990 at \$3.50, 17 steers av 1,040 at \$5.50, 2 do av 950 at \$4.25; to Hammond, S. & Co. 3 butchers av 610 at \$3.50, 4 do av 900 at \$4.50; to Kamman B. Co. 18 steers av 830 at \$5, 10 do av 693 at \$4.40; to Mich. B. Co. 1 bull weighing 1,230 at \$4.25; to Rattkowsky 3 cows av 890 at \$3.75; to Kamman 4 steers av 895 at \$4.75; to Hammond, S. & Co. 1 do weighing 1,000 at \$5, 1 cow weighing 1,130 at \$4, 3 heifers av 786 at \$4, 8 steers av 875 at \$5.25; to Newton B. Co. 2 do av 1,300 at \$5.60; to Bresnahan 1 cow weighing 1,100 at \$4.25, 1 do weighing 940 at \$3.50; to Newton B. Co. 5 steers av 1,124 at \$5.25, 3 cows av 1,090 at \$3, 2 do av 865 at \$4; to Fitzpatrick Bros. 1 do weighing 720 at \$3.50, 2 do av 1,250 at \$4, 6 steers av 910 at \$5.10, 2 canners av 825 at \$2, 1 cow weighing 850 at \$3, 6 do av 1,033 at \$3.50; to Newton B. Co. 7 heifers av 783 at \$4.10.

Spicer, M. & R. sold Hammond, S. & Co. 5 cows av 1,024 at \$3.25, 3 do av 890 at \$2.75; to Kamman B. Co. 4 steers av 932 at \$5.10; to Regan 4 heifers av 512 at \$3.90; to Rattkowsky 2 bulls av 890 at \$3.75; to Goose 1 cow weighing 1,000 at \$3; to Laccalt 4 do av 945 at \$4; to Bresnahan 6 do av 1,183 at \$3.75, 1 steer weighing 840 at \$5; to Laboe 17 butchers av 703 at \$4.35; to Mich. B. Co. 1 bull weighing 1,630 at \$4.20, 1 do weighing 1,450 at \$4.20, 4 cows av 750 at \$3.50, 1 bull weighing 800 at \$3.50, 1 do weighing 1,080 at \$3.75, 1 do weighing 920 at \$3.50.

Adams sold Hammond, S. & Co. 1 steer weighing 1,270 at \$6, 1 cow weighing 1,100 at \$3, 3 do av 1,133 at \$4, 5 butchers av 730 at \$4.65.

Stephens sold same 2 heifers av 815 at \$4.65.

J. Smith sold same 2 cows av 1,100 at \$4.40.

Haley sold Regan 5 heifers av 640 at \$3.90.

Bergen sold Goose 5 cows av 1,014 at \$3.

Haley sold Fry 4 steers av 805 at \$4.65.

Johnson sold Sullivan P. Co. 10 steers av 1,030 at \$5.50.

Regan sold Newton B. Co. 8 steers av 1,046 at \$5.30, 6 butchers av 861 at \$4.35.

Johnson sold same 6 steers av 913 at \$5.10.

Haley sold same 3 heifers av 616 at \$3.75.

McAninch sold same 24 butchers av 900 at \$4.65.

Belheimer sold Bresnahan 1 cow weighing 930 at \$3.50, 4 do av 1,105 at \$4.

Veal Calves.

Receipts, 600. Market steady at last week's prices. Best, \$8.50@8.75; others, \$4@7; milch cows and springers, steady for good; common, very dull.

Bishop, B. & H. sold Markowitz 14 av 120 at \$7.25, 12 av 140 at \$8.10, 2 av 100 at \$6; to Nagle 5 av 125 at \$8.50, 4 av 150 at \$8.50, 11 av 120 at \$7.50, 15 av 125 at \$8.15; to Rattkowsky 1 weighing 150 at \$6; to Hammond, S. & Co. 1 weighing 130 at \$7.75, 3 av 100 at \$6; to Cannon 6 av 135 at \$8.50; to Nagle 5 av 140 at \$8.25, 1 weighing 130 at \$8.50, 6 av 155 at \$8; to McGuire 13 av 125 at \$8; to Mich. B. Co. 20 av 130 at \$7.75.

Spicer, M. & R. sold Rattkowsky 2 av 145 at \$5.75; to Sullivan P. Co. 3 av 150 at \$8.50, 6 av 125 at \$7, 1 weighing 110 at \$5; to Nagle 9 av 150 at \$8.50; to Cannon 3 av 160 at \$8, 1 weighing 150 at \$9, 12 av 130 at \$8.50; to Parker, W. & Co. 4 av 140 at \$8.

Roe Com. Co. sold Rattkowsky 4 av 150 at \$6, 14 av 130 at \$6; to Cannon 45 av 125 at \$8.25, 8 av 150 at \$8.50.

Adams sold Nagle 7 av 135 at \$8.

Worthley sold same 6 av 125 at \$8.

Heeney sold same 5 av 125 at \$8.

Weeks sold same 13 av 130 at \$7.50.

Fenton sold Newton B. Co. 3 av 135 at \$7.50.

Haley sold Eschrich 3 av 110 at \$7.25.

Johnson sold Sullivan P. Co. 15 av 135 at \$8.

McAninch sold Hammond, S. & Co. 7 av 125 at \$7.75, 2 av 255 at \$3.50.

Stephens sold Burnstone 10 av 131 at \$8.

Sheep and Lambs.

Receipts, 2,689. Market steady with Wednesday; 25c higher than last week.

Best lambs, \$7.50; fair to good lambs, \$6.50@7.25; light to common lambs, \$5.50@6; yearlings, \$5.50@6; fair to good sheep, \$4@5; culls and common, \$2.50@3.50.

Spicer, M. & R. sold Sullivan P. Co. 32 lambs av 60 at \$6.85; to Mich. B. Co. 13 sheep av 80 at \$4.25, 73 mixed av 58 at \$6.75, 2 sheep av 160 at \$4, 60 lambs av 90 at \$7.50; to Young 12 sheep av 140 at \$5; to Mich. B. Co. 32 lambs av 80 at \$7.35.

Roe Com. Co. sold Barlage 4 lambs av 95 at \$6.50; to Harland 20 do av 80 at \$7.25, 5 sheep av 105 at \$3.50.

Bishop, B. & H. sold Nagle 191 lambs av 93 at \$6.50, 42 do av 95 at \$7.50, 8 sheep av 135 at \$4; to Mich. B. Co. 16 lambs av 60 at \$6.25, 9 do av 75 at \$6.50, 18 do av 75 at \$7, 6 sheep av 105 at \$4, 60 lambs av 77 at \$7.50; to Sullivan P. Co. 19 do av 70 at \$7.60; to Fitzpatrick Bros. 2 sheep av 155 at \$4, 7 do av 85 at \$5, 64 lambs av 77 at \$7.25, 32 do av 73 at \$7.25, 10 sheep av 98 at \$5, 1 buck weighing 160 at \$3.50; to Mich. B. Co. 21 lambs av 70 at \$7.25, 15 yearlings av 105 at \$5.25; to Harland 2 sheep av 130 at \$3.50, 32 lambs av 67 at \$7.25, 18 do av 90 at \$7.50; to Parker, W. & Co. 78 av 70 at \$7.25.

Taggart sold Young 6 sheep av 95 at \$4.50, 73 lambs av 65 at \$7.

Miller sold Newton B. Co. 2 sheep av 130 at \$4, 7 lambs av 90 at \$7.

Bergin sold same 44 lambs av 80 at \$7.40, 3 sheep av 125 at \$4.

Fenton sold same 6 sheep av 100 at \$4, 78 lambs av 65 at \$6.50.

Adams sold Robinson B. Co. 9 lambs av 65 at \$7.25.

Shephens sold same 5 sheep av 100 at \$4.

Worthley sold Nagle 1 buck weighing 180 at \$4, 25 lambs av 90 at \$7.50.

Heeney sold same 31 lambs av 83 at \$7.50.

Hogs.

Receipts, 3,092. Market steady with Wednesday, 10@15c higher than last week.

Range of prices: Light to good butchers, \$6.50@6.65; pigs, \$6; light yorkers, \$6.25@6.35; stags, 1/2 off.

Sundry shippers sold Hammond, S. & Co. 297 av 138 at \$6.40, 55 av 165 at \$6.55, 128 av 201 at \$6.65.

Bishop, B. & H. sold same 355 av 200 at \$6.60, 165 av 210 at \$6.65, 191 av 180 at \$6.50, 64 av 175 at \$6.55, 253 av 180 at \$6.45, 216 av 190 at \$6.40, 31 av 171 at \$6.30.

Sundry shippers sold Parker, W. & Co. 89 av 139 at \$6.40, 191 av 160 at \$6.50, 110 av 199 at \$6.60, 28 av 172 at \$6.55.

Roe Com. Co. sold same 53 av 142 at \$6.25, 56 av 180 at \$6.60.

Spicer, M. & R. sold same 85 av 190 at \$6.65, 160 av 180 at \$6.60, 80 av 160 at \$6.50, 140 av 160 at \$6.50.

VETERINARY.

(Continued from page 251).

which is, of course, an infectious disease. When it attacks pigs a few weeks old and they have a high fever they will not suck their mother. This obliges one to change their food supply, which is always done at considerable risk, for if sick pigs are fed infected food or much solid food it very often disturbs the stomach of pigs a few weeks old and they die of weakness because they fail to digest enough food to properly nourish the body. It is possible for them to have catarrhal fever. This is also fatal to young pigs and may be infectious or it may be epidemic. Give them small doses of quinine three times a day, not more than 1/4 gr. at a dose three times a day. Wash sow's udders twice a week and disinfect or whitewash pens.

Enlarged Knees.—Have a mare that has bunches on both knees that I would like to have removed and if you know of a sure remedy I would like to try it. T. S. St. Louis, Mich.—If the bunches you speak of are fibrous or bony and do no harm leave them alone for you will find it troublesome to remove them.

Congestion of Lungs.—I have a dog that was suddenly taken sick Feb. 19th. He breathes very short and quick, seems to have lost his appetite but does not suffer any pain. I am inclined to believe that he has pneumonia and am at a loss what to do. He is a dog that we think lots of and would dislike very much to lose him. P. J. E. Adrian, Mich.—Give your dog 3 drops traconite, 2 grs. acetanilide and 5 grs. murate ammonia at a dose four times a day. Also give 2 grs. quinine at a dose three times a day. He should be clothed warm or kept in a comfortable heated place.

"SAVE THE HORSE" SPRAIN CURE.



C. F. PETERSON & CO.

New Windsor, Ill.—Last fall I ordered from you a bottle of spavin cure to treat a puff upon a horse's leg, which I had been endeavoring to remove for some time, but without success. A few treatments of your medicine did the work. I lost the book you sent me and would ask you if you will kindly send me another one. EUGENE F. PETERSON. Cassopolis, Mich., Nov. 24, 1908.

Troy Chemical Co., Binghamton, N. Y. Enclosed \$5.00, please send me a bottle of "Save-the-Horse." My first bottle was used on a pacing horse with two bad spavins that had received no and of treatments (before I got him), such as blistering, firing, etc. He was very lame. I used one bottle, treating both spavins at the same time, and "Save-the-Horse" entirely cured the lameness. I used another bottle of "Save-the-Horse" on a ringbone and am more than pleased with results. You need not send any Guarantee, for, having used two bottles, I know pretty well what it will do; consequently the guarantee is useless to me. H. D. RADGLEY.

\$5 a bottle, with signed guarantee or contract. Send for copy, booklet and letters from business men and trainers on every kind of case. Permanently cures Spavin, Thoroughpin, Ringbone, (except low), Club, Splint, Capped Hock, Windpuff, Shoe Blisters, Injured Tendons and all Lameness. No scar or loss of hair. Horse works as usual. Dealers or Express Paid. Troy Chemical Co., 20 Commercial Ave., Binghamton, N. Y.

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Different from all others. 4 or 2 horses. Geared 10 to 1 or 1 to 1. Grind Corn with chucks or without. And all small grains including Oats and Wheat. (Also make 7 sizes belt mills.)

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On the outside all rubber boots look very much alike—the difference is inside. Go to any dealer and put your feet inside a pair of Buffalo Brand boots and you will immediately notice the difference—the snug comfort, easy fitting. Why all this unusual satisfaction? There is not one ounce of shoddy and no remelted "old junk rubber" in the Buffalo Brand. New, lively, pure Para rubber only is used. Para rubber is tough—it stretches. Its elasticity gives the ease. Its long life makes it outwear other boots. Buffalo Brand boots don't flop about, because they are made over aluminum lasts which hold and keep a perfect shape during vulcanizing—the intense heat of which warps, shrinks and twists the commonly used wooden lasts. Thrifty careful buyers insist upon getting the Buffalo Brand. Every boot has our Supreme Quality Trade Mark at the top. It's a yellow rubber label. Insist on your dealer telling you all he knows about these boots—INSIST.

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Syracuse, N. Y.

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30 Days' Treatment (60 doses) by mail \$1.00

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HORTICULTURE

THE FARMERS' GRAPEVINES.

Their Pruning and Training.

Within the next month the pruning of grapevines should be done. Most authorities agree that the best time is near the end of winter after the most severe weather is past and while the vine is not solidly frozen nor the sap so active as to bleed.

The question then arises as to how the pruning is to be done. We shall not attempt to discuss this from the standpoint of the commercial grower, but from that of the farmer who has from ten to a hundred vines and wishes to have some good fruit for his own table and for his friends, and perhaps a few for market.

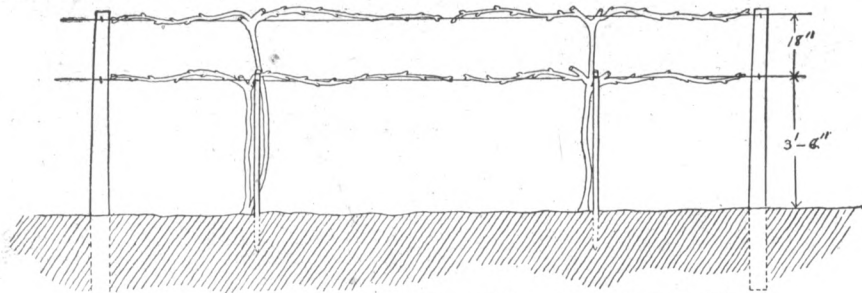
We will start with the young vine and later consider the old, neglected one. It is preferable in planting the vines to set in a row or rows lengthwise across the garden or other place where the vines can be cultivated. The rows should be about eight feet apart, and plants eight feet in the row. After setting the young plants should be cut back to two or three buds, and if there are several canes formed all but one should be cut away.

The second season this cane should be cut back to perhaps two or three feet and

season which bore the fruiting canes. These are cut above the first good cane and this trained along the wire to take its place. The buds on this cane will produce shoots the coming season that will bear two to four clusters of grapes at their base, but continue their growth sometimes for many feet, and when ripened in the fall are known as canes and will be trained to take the place of the present horizontal canes, that is those nearest the trunk will be retained, the rest, together with the arm from which they grew, being cut in pruning. A rough estimate of the number of clusters of fruit the vine will bear under favorable conditions can be made by multiplying the number of buds left by two.

The amateur may think this is pruning the vine too severely, but it is about what the commercial grower practices and what is necessary for the farmer to practice to get the best fruit and keep his vines in control. If each of the buds left, or even half of them, produce shoots the trellis will be plenty full enough, and the fruit shaded enough for best results.

Of course, it is not necessary for the farmer to train all grapevines in this way. Many may be set in places that do not admit of such training. Porches, arbors, wire fences, etc., form a support which allows of shade and beauty, and often much fruit if not as large fruit as the more restricted methods. Some pruning should be done here also, the object being to remove as much of the old



Two Methods of Training the Grape Vines to Horizontal Wires.

the lower shoots rubbed off as they start, the plan being to let two of the uppermost buds form shoots to make horizontal canes for the next year. Up to the third season a small stake will be sufficient support, but if one can set the posts in the spring of the second season and stretch the lower wire it will save some labor in staking. The cut shows how we arranged this for a row of vines across our fruit lot. The line posts shown are cement, seven feet long and extending five feet above ground. If the posts could be secured longer we would have set them a little deeper and let them extend a little higher, but we used what we had on hand. The end posts were large cedar, well braced. One wire was stretched three and one-half feet above the ground. Some old cedar posts that had rotted off were split into stakes four feet long or more and driven down beside the plants and in a straight line with the wire, and far enough so their tops were a couple of inches above the wire. The stakes were secured to the wire with a machine to put pickets on line wires, but it could not be done with the pincers, and some soft wire, the ends being twisted about the line wire so the top of the stake cannot slip endwise of the wire. Staples will not be satisfactory as they will not hold the stake firm after a few years.

The second season the young vine was tied to the stake, the third season two canes were trained along the lower wire shown in the cut. In the spring of the fourth season the top wire was added, and a cane brot up to it and trained along it for a distance. The fifth season after planting two shoots from the base of this cane were trained along the wire for about four feet each, thus completing the form of the vine as in the right hand vine shown in the figure. The left hand vine is trained similarly except that two trunks are brot from the ground instead of one. Some argue that the latter training is best, claiming that most of the growth will go to the upper canes when trained as is the right hand vine. We are trying both systems, but have noticed little difference as yet.

It will be noticed that the lower wire is farther from the ground than is usually advised. It was so placed because we use this fruit lot as a hen park much of the year and we wish to keep the grapes up out of their reach. If desired another wire could be put below these or the space could be made two feet between wires instead of eighteen inches.

The stubs at the base of the horizontal canes in the cut are the arms of last

wood as possible and leave enough of the new wood with the buds produced last year to produce the fruit for the coming season. In this pruning it is well to attempt to keep the trunk as short as possible as a long curved trunk is useless and makes a longer journey for the sap. By saving some shoots that occasionally come out on the trunk and arms the part above these shoots can, in time, be cut off and the top formed from the new growth.

In starting in to prune an old neglected vine one cannot get it to the ideal shape in one or two or even three years, but he must plan out his ideal and work toward it a little each year. By leaving shoots where he wishes the arms to be and leaving some wood not desired until the canes can be formed in the proper position the operator can gradually form the vine to suit his taste, but it is some thing like the work of the sculptor, slow and requiring much foresight and judgment.

Calhoun Co. S. B. HARTMAN.

MUCK AS A FERTILIZER.

We wish to set out strawberries, raspberries and blackberries this spring on a light soil. I have some good black muck close by that was thrown out of a ditch. Would it do to take this muck and apply it to a light soil where I am to set out my small fruit? Should it be put in the rows where plants are set, or broadcast? What crops do best and pay best on muck land?

Calhoun Co. H. N.

The inquirer will find no cheaper method of supplying his soil with nitrogen than by using this muck. It will not supply potash and phosphoric acid; hence in order to get the best results from its use, it would be well, after adding the muck to the light soil, to apply a fertilizer, rich in these two elements. By so doing, a maximum of results should be obtained. It would be better to broadcast the muck over the soil, and thoroughly work it into the surface than to put it in the rows. Indeed, it would be detrimental to the plants to place it so close to where the roots are to be set, inasmuch as the plant food would be so near the plants, that it would discharge the production of an extended root system, which is desirable in plants of this nature. With a large root system, the plants will better withstand droughts, and extremes in climatic conditions. By mixing much with the soil, it will be necessary for the plant to extend its rootlets thruout the soil to secure the elements for its growth. Note should here be made of the fact that muck should not be applied directly to the soil after

POTASH

Sugar Beets

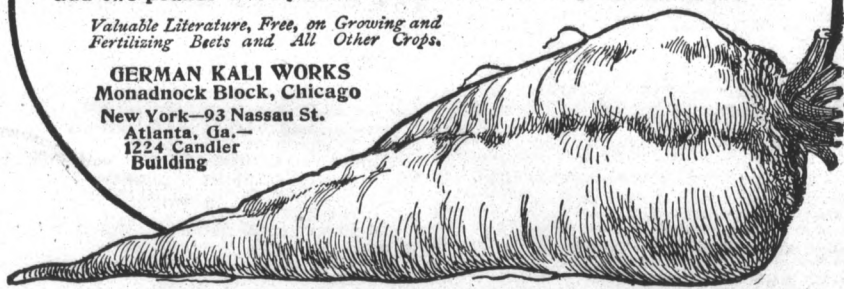
are grown, not alone for quantity, or weight, but for quality, or sugar content. This is why the grower of beets for the sugar factory realizes that

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ONION, Prizetaker, wt. 3 lbs. 1000 bush. per acre.
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Seed 20c. per packet, 3 packets for 50c. Also our Great Catalogue of Seeds, Bulbs, Plants and New Fruits for 1909, free. JOHN LEWIS CHILDS, Floral Park, N. Y.

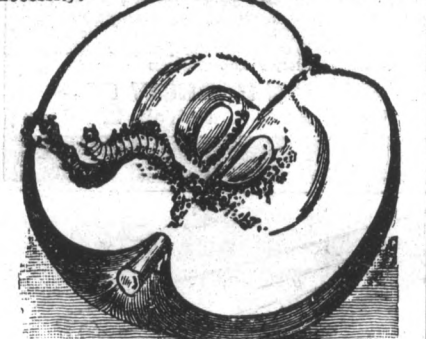
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FRUIT PACKAGES

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dug, for the nitrogen contained therein is in a very inert form and is not readily available to the plants. It would be better to weather it for six months or so, or compost it with marl, ashes or lime, and then apply it to the soil afterwards.

The best crops for growing upon muck soil are celery, and onions. This soil is very generally employed for the production of these crops, and yields that are almost beyond reason have been secured by intelligent cultivators.

IMPLEMENTS FOR CULTIVATING THE ORCHARD.

In the care of large commercial orchards special machinery can be had for doing the cultivation. With farmers the situation is different. They must make the best use of the machinery which general farming demands. If, however, the work of the orchard is in mind at the time of the purchase of the plows and harrows and other cultivating tools better service might be obtained from them in the orchard work, and perhaps at the same time they would be as well suited to the general farm work.

The average plow can be made to do service in the orchard to good advantage. The common steel beam turning plow can be supplemented with a one-horse plow with which the work next to the trees can be done. An adjustable beam which will enable the horse to pull away from the trees is advisable on the one-horse plow. Sometimes it is desirable to use a sub-soil plow. If the proper kind of rotation has been followed and the field is not under-laid with a too compact hard-pan, this work is needless. A proper rotation would include deep growing plants such as clovers which send their roots down into the soil and break it up. If sub-soiling is needed it can be done before the trees are put in, and during the early life of the plantation out in the center of the rows where the feeding roots have not grown.

The spring tooth harrow is a good tool for special purposes but its usefulness is more limited than some of the other harrows. For instance, it cannot be used to advantage on damp soil or where there are stones or trash to contend with. The spike tooth harrow is almost indispensable on the average farm and is likewise useful in the orchard. Where the ground is not too hard its use will give a good surface mulch. They have adjustable teeth. This permits the user to suit the implement to the purpose desired. The spading, cutaway and disk harrows are now becoming popular with general farmers and orchardists. Where the soil is rough, strong, or covered with weeds, trash, straw, or what not, these tools do not fail to work. The spading harrow will stir the soil deeper than the cutaway or disk but the latter are better for securing a good surface manipulation of the ground. The common cultivators are often used to advantage in the orchard, especially close about the trees.

Implement manufacturers usually provide an extension evenor, or frame, for their harrows so that they will be useful in getting close up under low headed trees from crowding with the team. Such work may be done without bruising the trees from crowding with the team. Such an evenor can be easier made by any farmer. This is a good time to provide it so that more valuable time in the spring and summer need not be wasted either in making the part or in fretting the horses about the trees.

If the farmer is to make his first attempt at cultivating his orchard this spring or if he is already in the habit of doing so, he would likely get profit from taking an inventory of his tools, seeing what he has that may be useful in the orchard, and perhaps supplying other kinds that will serve a purpose not only in the orchard but on the farm also, and further doing what he can to get these tools all ready for the work. Gratiot Co. A. HAYMAKER.

Quinces can be grown either in bush or tree form. Where borers are bad the former style is preferable as a damaged bush may be removed and others developed in its place. However, the tree form is that to produce better fruit.

Old orchards can be tiled by running the lines of drain between the rows of trees. The roots are little disturbed by the digging and few large ones are severed. In some locations a good system of drainage would go far towards bringing the orchards into prime condition.

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THE ROUND-UP INSTITUTE.

(Continued from page 248).

will be some connection between that course and the world outside the school. We now teach in our schools sciences that are related to agriculture, but agriculture itself is a science that should be taught with the others. Prof. French declared that five years hence, we will be surprised that this work was not begun sooner. The secondary agricultural schools such as are maintained in Wisconsin were mentioned, and the speaker declared that agriculture taught in the public schools would give far better results since it would reach all, whereas the special schools afford opportunities to the few. He sounded a word of caution in declaring that we must move slowly in this direction.

Prof. French outlined the work along this line which is now being conducted in some high schools in the state, and stated that the plan is working well.

WEDNESDAY.

Wednesday Morning Session.

The first session on Wednesday convened with an attendance which crowded the capacity of the opera house in which these sessions were held, with I. R. Waterbury, of the Michigan Farmer, in the chair.

The Growing of Alfalfa in Michigan

was the first topic discussed, being the subject of a very interesting address by Chas. B. Cook, of Owosso. Mr. Cook opened his address by stating that it was with great reluctance that he appeared to speak in public upon this subject, since he felt that alfalfa culture was still in the experimental stage in Michigan, and that it was impossible to speak with the authority of certain knowledge upon its proper culture. He urged the necessity of very thoro methods if we desire to succeed with this crop. He expressed the confident belief that the possible results were worth the effort, even tho it extended over several years, with repeated failures intervening. He commented upon the remarkable feeding value of alfalfa hay, which contains a nutritive ratio almost equal to bran, altho it contains more fibre, which must be considered in determining the actual feeding value. However, in feeding alfalfa hay to his dairy cows, he found that it had fully sustained its reputation and that the large yields which it is possible to obtain, are an equally strong argument in its favor.

Mr. Cook emphasized the importance of securing a good stand if good hay crops are to be produced. To this end, he urged thoro preparation of the seed bed, and the sowing without a nurse crop. As to the proper preparation of the soil for alfalfa, he tho if the soil had been manured the previous year, and planted to corn, potatoes or other spring crops, alfalfa might properly follow. He advised fall plowing, to turn the well rotted manure plowed down the previous year to the surface, and to permit the ground to settle so as to make an ideal seed bed. The following spring, he would harrow repeatedly so as to fine the soil, making a dust mulch to conserve the needed moisture for the quick germination of the seed when sown. As to the time to sow, he believed that one should wait until the climatic conditions are favorable for the quick germination of the seed, and the rapid growth of the young plant and stated that the plant is rather weak and easily discouraged at the start, and that even a hard wind at just the right time will discourage and kill many of the weaker plants. For this reason, he would not sow until the weather conditions are most favorable, generally not until late in June, altho the time of the year is not as important as that the conditions shall be all that are desired. He also advised the wisdom of inoculating the soil to insure the presence of the nitrogen gathering bacteria peculiar to this plant. As to the proper method of inoculation, he very strongly recommends the sowing of soil from an old alfalfa field upon which the crop has grown successfully, and in which the bacteria is plentiful, sowing same at the rate of two or three hundred lbs. per acre, and harrowing into the soil at the time or before the seed is sown. He sows the seed both ways, broadcast, to secure as even a distribution as possible, covering lightly with a harrow or weeder.

Mr. Cook believes a liberal seeding essential so as to have a thick and even stand to make the best quality of hay. If the preparation of the seed bed has been sufficiently thoro the weeds will bother the plants but little, and those appearing may be clipped back later in the season when the alfalfa has made

considerable growth, and left on the ground. In cutting the crop in succeeding years, he urged the importance of cutting as soon as the first blossoms appear in the field. This is essential, not only to the making of a good quality of hay, but as well in preserving the vitality of the plant for future crops. Incidentally, Mr. Cook stated that this principle might also be applied with profit in the cutting of clover as well as alfalfa.

Mr. Cook's address provoked a good deal of discussion and the asking of many questions. To those who inquired where they might secure soil with which to inoculate their fields, Mr. Cook stated that if they would look about them, they would be surprised to learn how many people were growing alfalfa successfully in their own county, and even right in their own neighborhood. In this discussion, it developed that alfalfa seed is being successfully produced by a number of growers on the west side of the state, and by a few on the east side, and that the crop is being successfully grown on all classes of soils, and that there seems to be no doubt that when our soil becomes thoro inoculated with the proper bacteria, we will be able to grow alfalfa with much greater certainty, and probably without the very thoro cultural methods which seem necessary to get it established.

The sowing of a little alfalfa seed with clover was recommended as a means of promoting a natural inoculation of our soils. The using of soil upon which sweet clover grows for this purpose was discussed, but this process was tho by Mr. Cook to be one of doubtful expediency, owing to the fact that sweet clover is becoming a troublesome weed in some sections.

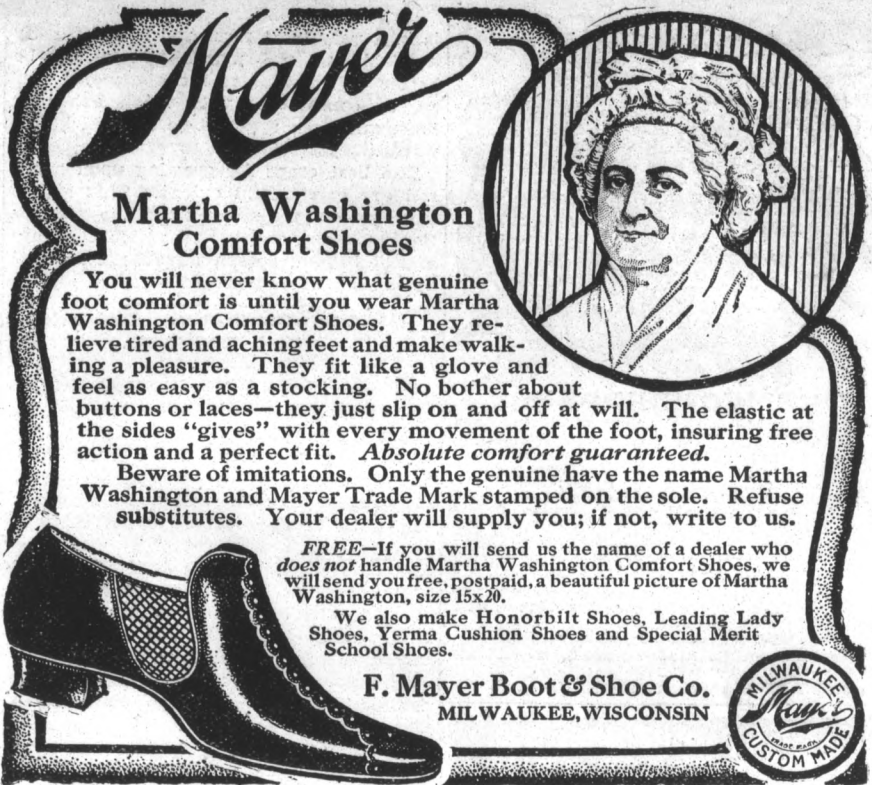
In discussion of this subject, Mr. L. W. Oviatt, of Bay county, mentioned a method which he has found most advantageous in sowing alfalfa seed, as well as clover seed, which method will be discussed by Mr. Oviatt in these columns at an early date.

At this point in the program a well rendered and much appreciated piano solo, by Miss Ruth Orser, the selection being "The Witches' Dream."

Seed Corn, Its Selection, Care and Testing.

This was the subject of an address by Mr. J. P. Davis, of Indiana, who gave a most practical and interesting talk. Mr. Davis urged the early selection of seed corn from the field, believing that corn selected as soon as the kernels are well indented, may be better dried out under natural conditions, and will retain better vitality than corn selected later in the season. As to the kind of ears to select, Mr. Davis gave a clear idea as to his conception of the proper type for Michigan. In a general way, he urged the selection of ears the kernels of which are rather rough, or at least, well indented, as, if this is not done, the corn will deteriorate in quality, producing ears with shorter kernels and of an inferior quality. He stated that this was in accordance with the great compensating law of nature; that the deep indentation and roughness of the kernel at its outer end showed that nature had provided a large pouch, or sack, for the storing up of nutrients for the corn plant, which that kernel would produce, and that the tendency would be to maintain and increase the size of the sack and the depth of the kernel by the selection of such seed ears. On the other hand, the smooth kernel shows that nature is accommodating the sack which contains the plant nutrients in the kernel to the amount produced, and the tendency will be for that sack to become smaller, the kernel shorter and generally broader, making a relatively smaller amount of corn to cob, less vigor in succeeding plants, and even a difference in the feeding value.

He believes that the best type can be secured by the selection of ears having not less than 16 nor more than 18 straight rows of corn to the ear. As to the proper preparation of the ear, its circumference at a point one-third distant from the butt of the tip should equal three-fourths of the length of the ear, and the speaker believed that for Michigan conditions, the ear should not be over nine inches long. Touching the shape of the kernel, Mr. Davis urged the importance of a wedge-shape, with a square shoulder or top, and with no space between the kernels, either at the cob or on the outside of the ear. The tip of the kernel should be about three-fifths as wide as the top, and its thickness should be such as would accommodate six kernels to the inch. As to the depth of the kernel, he stated that the Indiana



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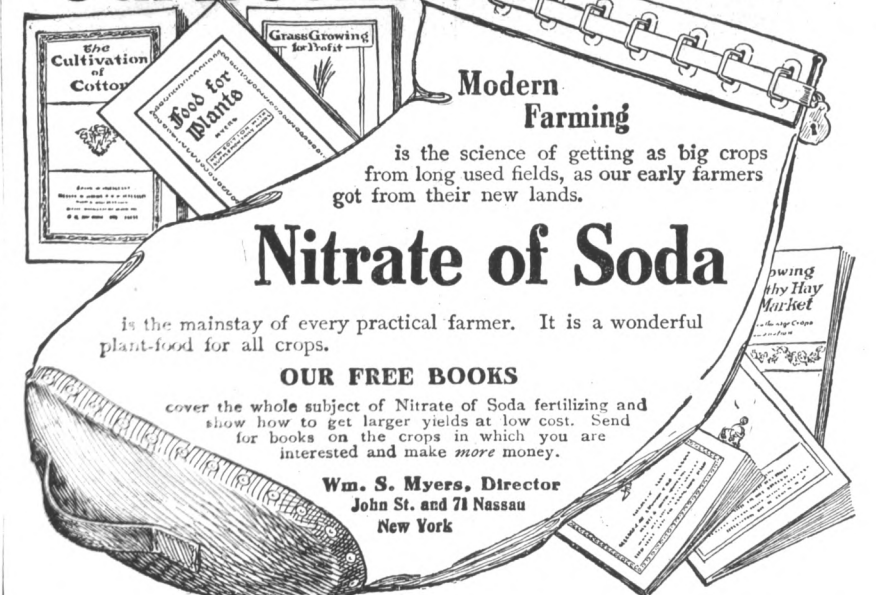
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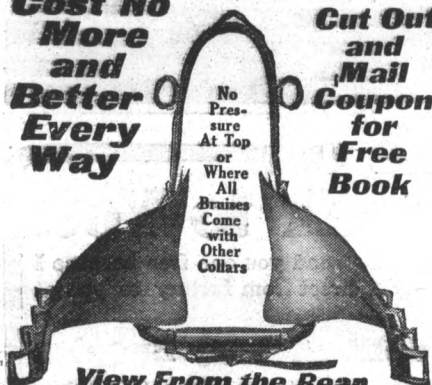
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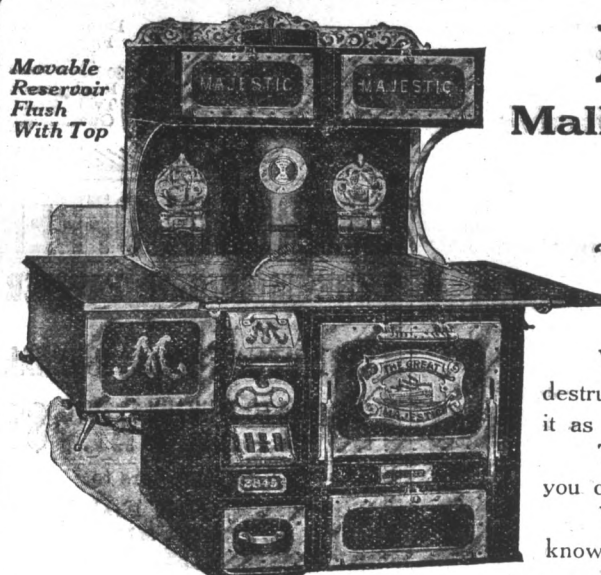
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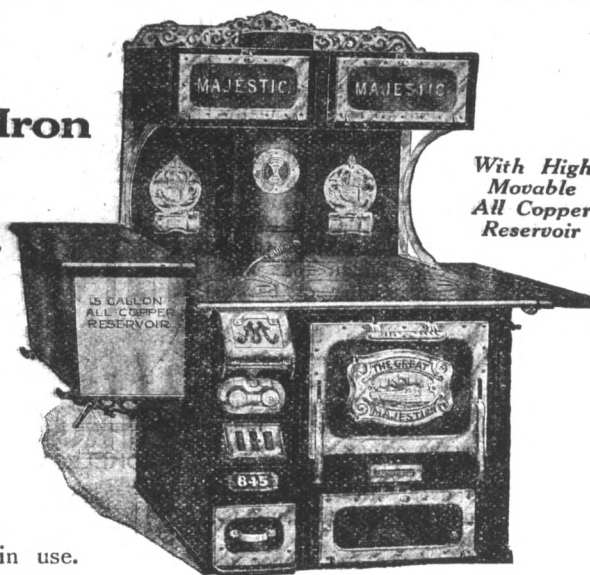
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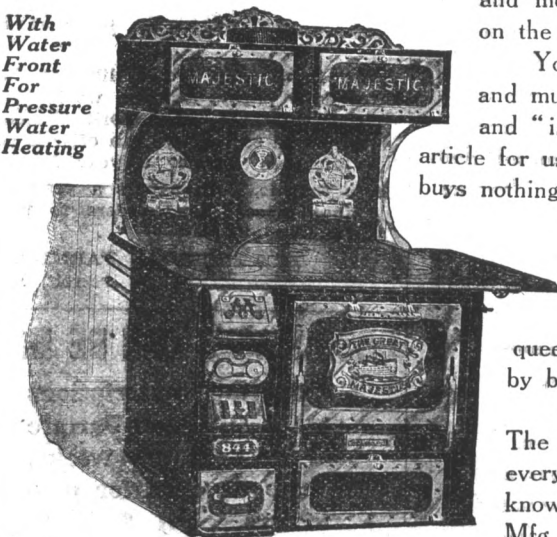
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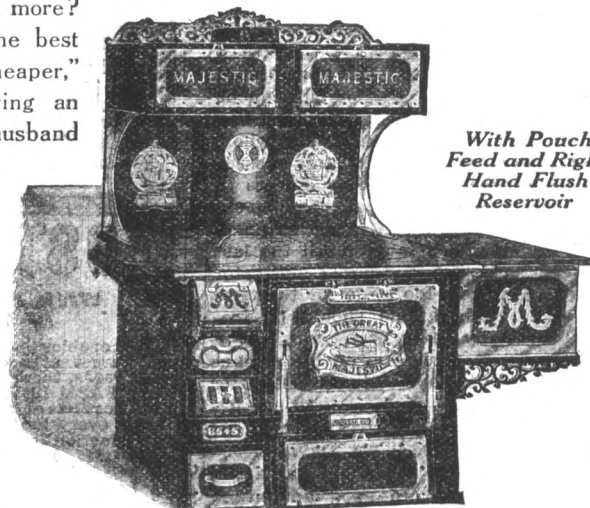
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standard for a 10-in. ear was five-eighths of an inch, which he thought to be rather long for Michigan.

After the seed is selected, Mr. Davis urged the importance of thoroughly drying it under natural conditions, and then storing it in a dry place during the winter.

In the matter of testing seed corn, Mr. Davis urged the great importance of making an ear test by taking about five kernels from different portions on each ear, planting them in the corresponding square of a testing box, such as has often been described in these columns, saving or discarding each ear as may be indicated by the results. The form of testing box which he favors is a shallow box of sufficient size and something like 2½ inches deep. This he fills with clean sand, dividing the surface off into squares by the use of strings, planting the kernels in a slight depression in these squares made for the purpose, and covering the box with a piece of old carpet or other convenient covering. In about five days germination will be sufficiently well advanced to permit the final selection of seed ears.

Wednesday Afternoon Session.

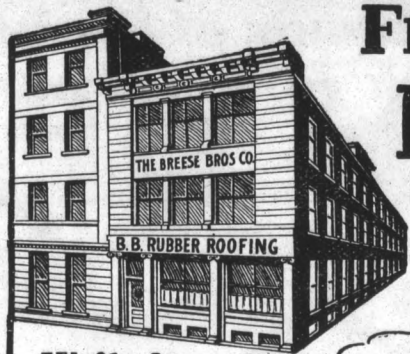
This session opened promptly at the appointed hour, with Prof. J. A. Jeffery, of M. A. C., President of the Michigan Corn Improvement Association in the chair. After music rendered by the U. S. Indian School Band, of Mt. Pleasant, came the "President's Annual Message," from Prof. Jeffery, which will be outlined in the report of the deliberations of the association, which will be reported in another column.

Growing and Handling the Corn Crop. was the subject of the next address, by Mr. J. P. Davis, of Indiana. As Mr. Davis had touched on the preparation of the soil for corn in a previous address he took up the thread of the discussion where he had left off and began with the planting of the seed. As to the proper time to plant he strongly favored early planting, as the crop is likely to be of better quality than if planted late. The seed corn should be carefully graded before planting. The corn graders will make the kernels selected of uniform size, but will not sort out cracked or otherwise damaged kernels, for which reason he handpicks his seed. After this is done the planter should be adjusted to the size of the kernels so as to insure uniform dropping. He prefers checking to drilling, since it is easier to give thorough and clean culture. Experiments have shown that there is little, if any difference in the yield secured by the two methods, but it is much easier to keep out the weeds if the corn is planted in checks. He prefers two kernels to the hill, planted 3½ ft. apart each way, and is of the opinion that the great majority of farmers plant their corn too thick, largely because they have not made an ear test of their seed and are a little doubtful of its quality. If good seed is planted thinly enough he is of the opinion that nine tenths of the usual number of barren stalks will be eliminated.

Mr. Davis also believes that most farmers plant their corn too deep. He is of the opinion that about 1½ in. is the best depth to cover. His theory is that the nutrients stored in the kernel must furnish food for the young plant until it has developed leaves, and that where it is planted too deeply the farmer will have yellow corn when it comes up, no matter if he used white seed.

The speaker urged the importance of beginning the cultivation as soon as the seed is planted, by the use of the light harrow or weeder. He would not, however, harrow when the corn is just breaking thru the ground as it is more easily broken and damaged at that time than after the tender shoot has developed more strength and toughness. For subsequent cultivations he uses a cultivator with five teeth in each gang, stirring the whole ground about 1½ in. deep, and crosses with the weeder at once. He objects to deep cultivation at any time, but would keep up this shallow cultivation so as to keep the dust mulch intact until the last of August, using a one-horse cultivator after the corn gets too large for the two-horse tool. Cultivations should be frequent, especially after each rain, but if a crust is allowed to form on the surface and remain for 10 days or two weeks after the corn is advanced in growth he believes that further cultivation will do more harm than good. Mr. Davis closed his address with the assertion that a hoe can always be used to good advantage in the corn field, even with the best of cultivation, and that at home he was "The Man with the Hoe."

(Continued in next issue.)



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Associational Motto.—

The skillful hand, with cultured mind, is the farmer's most valuable asset.

Associational Sentiment.—

The farmer; he garners from the soil the primal wealth of nations.

WHAT MIGHT BE EXPECTED OF THE YOUNG MAN OF TODAY.

Paper read at the Associational Meeting by C. B. Scully, of the Berlin and Almont Farmers' Club, of Lapeer Co.

(Concluded from last week).

I am certain that you will all sustain me in the statement, that it will be but a short time before the agriculturist and stockman will receive his share of public official appointments and elective offices as well as the lawyer, not that he is any more honest than any other business man. You, no doubt, have heard of the old saying (The Honest Farmer). I am inclined to believe that the farmer is no more honest in a business transaction or in any other way than a man in any other respectable avocation. Possibly he may have lived more remote from the vices and influences of evil and therefore his disposition for grafting be less developed. Be that as it may, we must see to it that we are represented more in an official way, which we are justly entitled to, not only from the personal disposition of our avocation, but from the fact that it has been demonstrated over and over again to us in the past sessions of our law-making bodies, both state and national, that if we expect to get representation we must be represented. Then, brother farmers, let us sit up and take notice of the misrepresentation of our interests and demand our share of attention at the various sessions of our honorable legislative bodies.

We often take too little interest in the political issues of the day or else are led on by some smooth, flattering, trained politician and do not think seriously enough for ourselves. As our friend, Colon C. Lillie says, "We do not work the part above our ears enough." Ever after hearing this remark from Mr. Lillie, it struck me so forcibly that I always remembered it as there is so much more truth than fiction in those few words, as they apply to the average farmer.

It is with due honor and such respect as the humblest should speak of the highest official of this great and glorious country of ours that I refer to Theodore Roosevelt, who without question, has done more than any other President for the welfare of the common people and who stands today with a clear and spotless record, which your children and mine will find recorded in the annals of history and who will be classed as one of the greatest of our country's many great statesmen. President Roosevelt has at present undertaken what I believe might, if properly supported by those directly concerned, be the greatest achievement of modern times—in the appointment of the Country Life Commission.

I feel that a great compliment is due the President from the country people of the Union for his endeavor to bring about this wonderful and much needed good to our nation; but can truthfully say that I am sorry to see so little interest taken in the project by the farmers whose benefit it is the sole object of the Commission to promote, and it appeals to me that without their careful thought and harmonious efforts in conjunction with the Commission, the sought-for effect which the promoter of the scheme is endeavoring to accomplish will fall far short of his expectations and but little will be attained, where great good might be our reward.

There is at least one more point, which I wish to bring out at this time, one which the young men of our state and many older ones seem mutually agreed upon, i. e., that continued terms in office of our officials is being regarded as one of the greatest stepping stones to graft. The time is now ripe when some action should be taken to relieve the suspicion of the people toward the official element of our country and place our officers again on the high standard of honor, as they should be justly recognized, instead of the disgrace of slurs toward the acquisition of graft being thrown at them as soon as elected or appointed to any position of trust, which is done in many

instances. As a correction of this state of affairs, I would recommend the introduction and passage of a bill at the coming session of the legislature, limiting the term of office of all officials, from our local town constables to our highest state elective, to two terms. At the present time the law is such as pertaining to township, county and state treasurers, also some other officials, hence it is a proven fact that it does work well with these officials in most every instance, then why not apply the same restriction to all officials, totally clearing us of what might be termed monarchical power, and safely retaining the rights of citizenship in this grand and glorious old republic of ours, where the heart of every true American beats with a loyal apprehension of sincere appreciation. Then with national and state issue, as well as in private life, perhaps the best thots I can leave with you all, but more particularly the young man or woman, may be condensed to these few lines: Dismiss the things in the rear of you; tackle the things that are up with you, and prepare for the things that are ahead of you.

I thank you.

CLUB DISCUSSIONS.

Plan Union Meeting.—The January meeting of Ellington-Almer Farmers' Club was held with Mr. and Mrs. Henry Turner in Ellington on Wednesday, Jan. 13th, and altho ideal weather prevailed, still the gathering was unusually small for this month. The new officers for 1909 were present and assumed the dignity of their positions. The president, Floyd A. Turner, made some very fitting extemporaneous remarks with regard to club work, the objects and aims of a good live club and the good results sure to follow the doing of good work, and thanked the members for their confidence in him to trust him with the leadership of this society of farmers. Mr. Turner was followed by music and then some good discussions on the fruit crop and care of the orchard. Mrs. Eva Campbell next gave a humorous reading in the German dialect that was an unusually good imitation of the genuine. Other readings followed. A happy forethot of this club was to solicit the other local clubs with a view to holding a union meeting very soon, which was done and the proposition appeared feasible. The matter was taken up and arrangements duly made, all the committees to report at February meeting. Adjournment was preceded by music.—Mrs. C. L. Wright, Cor. Sec.

GRANGE

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

THE MARCH PROGRAMS.

State Lecturer's Suggestions for First Meeting.

"A saloonless country and a stainless flag."

Fifteen-minute temperance song-service.

Progress of the Anti-Saloon Movement.

Why? Where? How?

Effect of the Anti-Saloon Movement—

Upon business; morals; politics; home life.

Types and breeds of the sheep.

Home Economics: (a) Meats, their

selection and serving. (b) Foods, their

kinds and uses.

Suggestions for Second Meeting.

"The end of government is the welfare of mankind."—Jno. Locke.

Types and breeds of the pig.

Home Economics: (a) Care of wood-

work and floors. (b) The use of oils.

(c) How to remove stains.

Discussion—Telephone companies as

common carriers.

Lecturers are urged to intersperse the

topics on these programs with appropriate music and recitations.

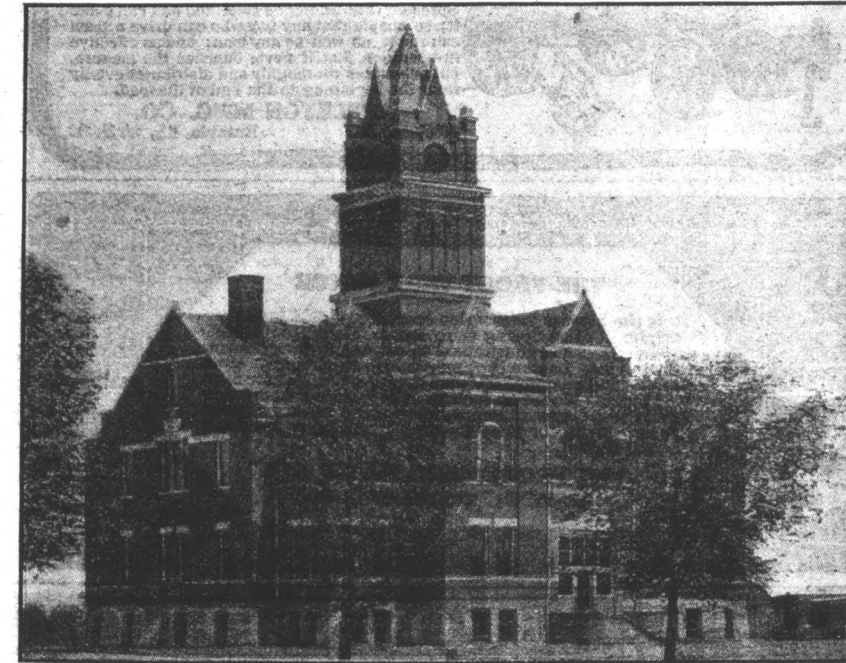
GRANGES HELP SECURE REST ROOMS.

Last August many Granges in the state discussed the topic, "Rest Rooms for Farm Women." At this time, so far as could be ascertained, rooms were provided expressly for this purpose in but three or four court houses in Michigan. Two others have since then been furnished and reported. One of these instances has a significant interest to Granges. It discovered itself to me the moment I stepped into the railroad depot at Bellaire, when I was there on institute work sometime ago. On the wall hung a sign which read, "Free Rest Room for Women in Basement of the Court House." These neat placards were displayed in the hotel and in business places. Opening the institute program, I found that the women's section was to be held in this same rest room. Here, later, more than a hundred women enjoyed the accommodations and friendly atmosphere that go far to make any public gathering successful. I asked how it had come about that this room had been made available and so comfortably fitted for the use of any woman who had occasion to be in Bellaire for an hour or a day, on errands or business. The story as told is this:

The ladies' club of Bellaire first suggested the idea of a rest room and sent out a circular letter to each women's society in Antrim county. When the women had agreed to undertake the project, a committee went before the supervisors and told them if the county would finish off a room in the new court house and put in the plumbing, the women would furnish it. The supervisors accepted the proposition and finished a large, light and airy room in the basement with neat woodwork, cement floor, and with toilet room adjoining. The women of the clubs, church aid societies, lodges and Granges over the county then raised \$100 and furnished the room with linoleum floor covering, a couch and a few comfortable chairs. Of the amount spent, the Granges raised \$38. Antrim Pomona Grange gave \$15 of this sum and the twelve subordinate Granges contributed the remainder. A "Rest Room Society," with annual dues of 50 cents a member, has been formed to maintain the room.

At the institute meeting it was voted to hold an all-day women's session next year and, more than that, to convene quarterly during the interval between now and then. The town and farm women alike enthusiastically endorsed this latter suggestion, made by one of their own number, one of the arguments in its favor being, "Why not, now we have a fine place to meet each other?"

Here is a practical public convenience that is much needed, especially by farm women, in some seventy county seats of the state. What better agencies exist,



Court House at Bellaire, in which Granges Helped Secure Women's Rest Room. ready equipped, to take the initiative and bring them into reality than the Pomona Granges of these same counties?

JENNIE BUELL.

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Pomona Meetings.
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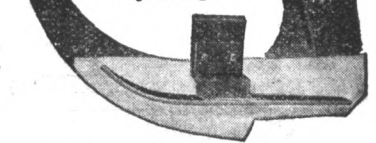
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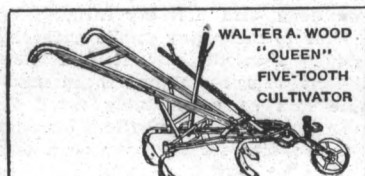
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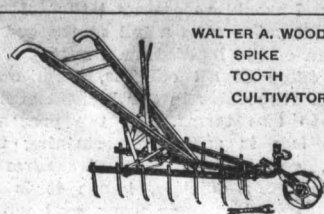
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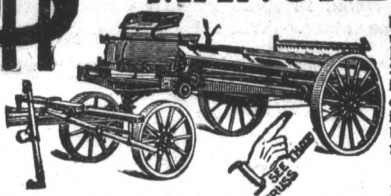
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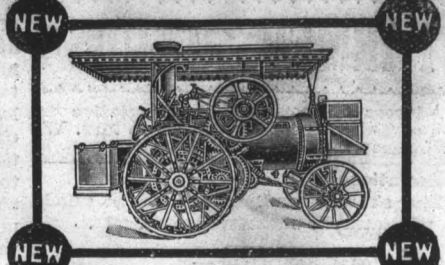
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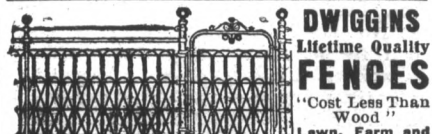
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