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DETROIT, DEC. 18, 1915

A FEW LEADING ARTICLES OF THE WEEK.

- "The Production of High-grade Seed Potatoes." A description of the methods used by one of the largest producers in Colorado...547
- "The Sugar Beet Crop." A presentation of the best cultural methods for growing beets.....548
- "Garget." A practical discussion of the cause, symptoms and treatment of this disease by our Veterinary Editor552
- "Winter Dairying Profitable." Containing reasons why the dairy production should reach its maximum in the winter season.....554
- "Making Christmas Candies." Detailed direction for the home production of choice Xmas sweets...563
- "Cereal Food Products." A discussion of the place of cereal grains in the diet565
- "Some Reasons for Failure." Why co-operative enterprises have often failed of success.....566
- "Eggs and Exercise." Emphasizing the importance to maximum egg production570

CURRENT COMMENT.

Rural Credit Legislation. Already there have been introduced into Congress at least two measures dealing with the problem of rural credits which has been so much discussed in recent years. One of these bills provides for the rediscounting of notes, secured by warehouse receipts or valid liens on staple agricultural products, with a maturity of not more than six months and bearing interest at not exceeding six per cent per annum. Under the terms of this bill the federal reserve bank would be obligated to advance the full amount of the loan at a discount of not to exceed three per cent per annum. Another bill provides for a federal farm loan board similar to the federal reserve board and creates the office of farm loan commissioner with powers to carry out the provisions of the act. It also provides for the organization of national farm loan associations as the initial units for the purpose of loaning money at a low rate of interest on farm lands. These associations would, by the provisions of the bill, be separated into twelve federal land banks to be established in various sections of the country. There will no doubt be a very large number of bills introduced with a similar object in view.

The need of a better method of financing the farms of the country is unquestionable. There is, however, danger that the method provided for the satisfying of this need may not be satisfactory. Among those who recognize the need of a better method of

financing the farms of the country are those who believe in the paternalistic idea of the government furnishing the funds for such purpose. Those who have made the closest study of the proposition, however, are almost uniformly opposed to such a plan. Farmers do not demand or need special privileges above those available to other classes of citizens. This theory has been tried out as pointed out by ex-ambassador Herrick at the national conference on marketing and farm credits held at Chicago. He showed how seventeen states have passed state aid laws extending special privileges to farmers, some of which are in the form of tax exemptions, and none of which are based on the co-operative plan. The government has failed likewise to make good under the paternalistic plan adopted by the reclamation service, under which the cost of irrigating lands was to be repaid by owners in ten yearly installments without interest, and under which plan defaults have been numerous and extensions of time necessary.

There are other reasons as well why paternalism should not enter into the farm credit proposition. If money were quickly made available at cheap rates for the purchase of lands, land values would be suddenly inflated to the enrichment of sellers and the further handicapping of settlers. The farmers do not need government aid in the matter of providing funds for adequate rural credit; they do need a degree of government supervision and a comprehensive workable law which shall insure uniform practice throughout the country. This fact should be impressed upon members of Congress from each state by their farmer constituents.

The Task Before Congress. Congress has assembled in regular session and has before it for consideration the views and recommendations of the administration relating to the unusual exigencies with which the nation is confronted at the present time. There is no question but that the European war has brought home to this country many problems which are difficult of solution, and the solution of many of these problems by Congress is not simplified by the fact that the questions to be settled are not wholly or even largely of a partisan nature, and the natural divisions of sentiment will not be along strictly party lines. Take, for instance, in the consideration of the question of preparedness; there is probably a very general sentiment in favor of preparedness in congressional circles, yet some administration leaders are avowedly opposed to a program of preparedness, while there is a very great difference of opinion as to how the necessary tax for the support of such a program should be levied. All things considered then, the task before Congress is not easy of solution, which fact may bring about a desirable degree of deliberation in the enactment of important legislation.

Agricultural Diversity. A study of the farm surveys which have been made in various parts of the country reveals the fact that the most successful farmers are those which have from two to four major sources of income. In some instances the farm which has only a single enterprise which is highly specialized may yield a larger profit, but ordinarily where one specialty is capable of high development of this kind it will increase rapidly and sooner or later the price will fall to a point where other lines of production are equally as profitable.

In this connection, it seems quite likely that the successful farmers who advocate special farming and those practicing diversified agriculture may have in mind practically the same idea. The man who has from two to four main sources of income may specialize to a desirable degree in each

and all of these special lines. He may not be able to specialize as highly as the man who has but one line of production, yet under practically all conditions from two to four specialties which fit well together in the general scheme of farming will be found not only more profitable but more workable than will the single specialty.

Often we believe the man who is strong for specialized farming looks upon diversified farming as the production of a little of everything and not much of anything. This is probably less desirable than is the extreme specialization which will occasionally be found. This is not, however, the idea of diversification, which is generally accepted by educators and investigators who advocate diversified agriculture. Their idea is rather the diversification of special lines of production than extreme specialization which will, in the language of the old maxim, "put all of the eggs in one basket."

Mobilizing Business Forces. The prevalence of a great world war is bound to have a great effect not only upon every department of world business but even upon the very language as applied to that business. Military nomenclature is now frequently applied to peaceful pursuits and sometimes quite aptly. President Wilson recently appealed to the business men of this country to mobilize their resources in preparation for the trade invasion which is sure to occur in this country upon the close of the great war now in progress.

The term mobilization, when applied to a matter of resources, conveys a valuable suggestion. In a period of comparative inactivity we should prepare for the more strenuous season to come, no matter what the business in which we may be engaged. The farmer, for instance, should prepare in winter for his next season's campaign. He should mobilize all his resources to the end that his next season's campaign may be made more successful. Among his most valuable resources will prove a knowledge of the experiences of others in the solution of problems and the working out of plans similar to his own. The maximum of helpful knowledge along this line can be best secured through the trade paper published especially for the farmers of the locality in which he operates. The trade paper which undertakes to cover a larger field or which is published at monthly intervals cannot compare as a resource with the weekly trade paper published especially for the farmers of a given section of the country. The Michigan Farmer is such a paper and every farmer in Michigan should include it in the mobilization of his resources for next season's campaign.

Aside from being a trade paper published especially for the farmers of the state, the special service feature, including reliable market reports and crop statistics, free veterinary advice, free analysis of milk and cream to determine their content of butter-fat, and of soils to reveal their lime requirement, together with the special service in the answering of any question relating to the conduct of agriculture in Michigan by a recognized authority on the subject involved makes the Michigan Farmer an almost indispensable resource to the progressive farmer of Michigan who would make maximum use of his business opportunities.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—The chief interest of the European struggle centered in the movement of troops in the Balkan states last week. Now that the Serbian armies have practically left their own soil, the occasion for the Allies pushing to the north has been eliminated, and there appears from reports to be a general retreat of Serbian, French and Eng-

lish forces across the Greek border toward Salonika. This leaves Serbia practically in control of the central powers and Bulgaria. The Austro-German forces are also pushing their campaign in Montenegro and Albania. Nothing has been heard of the intended Russian invasion of Bulgaria from the east. On the Gallipoli peninsula fighting has been renewed by the Turks, presumably upon the receipt of new guns and munitions from German sources. While Austria is reported to have declined an invitation to join the Kaiser in a campaign through Turkey to Egypt to strike at the British there, reports are persistent that such a campaign by the Germans is being planned. The Italians continue to make gains against the Austrians in the Goritz district. The Austrians have been obliged to re-enforce their positions strongly in that quarter. No activities of importance have occurred on the eastern front, except that the Germans are withdrawing their center to what is known as the Bug River line. They are also making careful preparations anticipating a new Russian offensive at that point. Although artillery engagements are continuous on the western front, no readjustment of fronts have occurred. In the Vosges mountains heavy snow storms are hindering operations.

The German government has ordered the recall of Captains Boy-Ed and von Paper, attaches of the German embassy here, who were found by this government to be connected with a wholesale interference with the manufacture and shipment of goods to the Allies.

Recruiting in England is being conducted with greater enthusiasm than during any period since the European war began.

From Switzerland comes information of much concern in Germany over financial conditions. Paper money has been circulated in such quantities as to greatly depreciate exchange so that the mark is now about equal in value to the franc.

Soldiers of General Villa are being pursued through the northern part of Mexico and no quarter is being given. In a battle at Fronteras all Villa soldiers taken prisoners were shot. It appears that the Carranza organization is gradually gaining control of the country.

An explosion in a Belgian munition factory resulted in the death of 110 persons. The cause is unknown, but presumed to be the result of an enemy's plot.

National.

The American note to Austria relative to the sinking of the Italian liner Ancona and the killing of Americans, demands immediate action in denouncing the crime which is characterized as wanton slaughter, in the punishment of the submarine commander and in reparation by the payment of money indemnity.

The post office department is now planning to resume the acceptance of parcel post matter addressed to Germany. British interference with the service caused its suspension.

Last year under the income tax 357,515 individuals paid the government \$41,046,162, or an increase of nearly \$13,000,000 over the total paid the year previous. Corporation income taxes amounted to \$38,986,952 from 229,445 concerns. This amount is \$6,627,000 less than in 1914.

The republican national committee is holding a "get together" meeting in Washington this week. Delegates from 32 states are present.

Four miners were killed and two seriously injured in industrial accidents near Ironwood, Mich., last week. The fatalities resulted from mines caving in.

The Chinese in western United are organizing to oppose the reversion of China from a republic back to a monarchy. A petition is to be submitted to President Wilson asking him to withhold recognition of a monarchy should it be restored.

Edward P. Cummings, Superintendent of the Lansing schools, was accidentally shot early this week, with the chances of his recovery despaired of.

Frauds upon the United States government through the use of artificially colored oleomargarine are said to have reached a total of \$17,692,410, of which only \$4,611,052 was assessable.

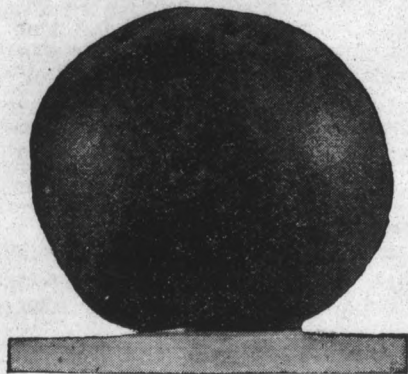
A Chicago grand jury recently indicted 54 labor grafters of plotting to intimidate property owners and contractors by compelling them to submit to extortions or have their property destroyed by raiding bands.

Vigorous opposition has been started in Detroit by manufacturers of automobiles against the move to tax autos at the factories where they are made.

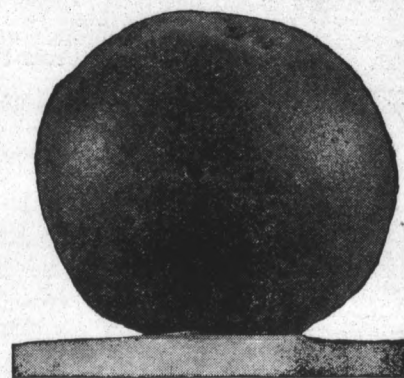
Because of extraordinary expenses in the state of Illinois incident to the fight against the foot-and-mouth disease, the tax rate will be raised from 48 to 55 cents.

The Production of High-Grade Seed Potatoes

By LOU D. SWEET.



The following is the text of a paper read before the meeting of the National and State Potato Associations, held at Grand Rapids during the early days of December, by Mr. Sweet, who is one of the largest and most successful producers of high-grade seed and market potatoes in Colorado. This paper so ably covered every phase of the subject and was so universally commended by all who heard it, that we determined to publish it in full for the benefit of Michigan Farmer readers, for which privilege we are indebted to Dr. Wm. Stuart, Secretary of the National Potato Association. The large cuts are from photographs loaned from Mr. Sweet, while the small cuts are made direct from a perfect-type Peachblow secured from Mr. Sweet's exhibit at the Potato Show.



THE test of a good seed potato is its productiveness. When planted and given proper care in the growing of the crop, a good seed potato will produce a goodly number of clean, marketable potatoes. Productiveness is the final test of all seed stock, whether of potatoes or any other farm crop. Good seed may produce a fair crop under quite adverse growing conditions, but poor seed cannot produce a good crop, even under very favorable conditions.

The subject of the production of high grade seed potatoes is undoubtedly being given increasing consideration throughout the country, and more care and attention are also being given to the proper handling of the crop; but it is also undoubtedly true, as shown by the very small average yields, that the greater part of our potato acreage is still being planted with culls or inferior seed, with the natural result that a very large part of the labor spent on the crop is wasted, as the yields are small in quantity and poor in quality.

Do Varieties Run Out?

We hear much of the "running out" of potato varieties, and the impression is quite general that any variety will run out after a few years of planting, more or less; but what is this "running out" except the natural deterioration resulting from the repeated planting of the culls and poorer specimens while the best are sent to market? Whereas, if only the best were used for seed purposes, and these planted in good ground and properly handled, this tendency would, in most cases at least, not only be entirely overcome, but a marked improvement in both yield and quality would probably be obtained.

Mr. L. H. Newman, in his "Plant Breeding in Scandinavia," states that "In Sweden there is a potato known as the Dala, which is said to have been introduced about 150 years ago and is still one of their best sorts; that the opinion held at Svalof, (the great experiment station), is that there is no period of old age in a variety of potatoes; that where suitable sorts are used, and where suitable tubers of these sorts are utilized for

seed purposes each year, the planting of the variety may be maintained indefinitely under all favorable conditions of soil and climate. The main considerations are maintenance of vigor and control of disease, and this implies careful selection of seed tubers, careful cultivation and spraying, and rotation of crops. Special emphasis is laid upon the latter point."

In our own district in Colorado the old Peachblow, (which was widely grown throughout the country some forty years ago, and which some of you knew when you were boys), has been continuously grown for the past forty years, and is as good now as it ever was, although it has "run out" practically everywhere else. That there is in the cultivated potato a strong tendency to degenerate or deteriorate where the crop is planted without any attempt to select only the best for seed, is undoubtedly true, but that this tendency can be overcome, under ordinarily favorable conditions, by the planting of only good seed and proper handling, is also true.

The Seed Breeding Plot.

In the northern potato growing districts of this country it is quite practicable for the farmer to grow his own seed, through proper seed selection and handling in a special seed plot, and there seems to be no good reason why he should not do so, and thus have good acclimated seed suited to his locality. Where this is not practicable, for various reasons, it is much better for him to obtain his seed from some recognized seed potato grower who makes a specialty of the variety he wants to plant, preferably some grower in a more northerly locality or in a higher altitude, as such seed usually has more vitality and vigor and gives better results than seed grown in a lower altitude or latitude.

The development of high grade seed potatoes is not a mysterious or difficult matter at all; it simply requires painstaking care and attention, and right methods must be consistently carried out year after year if the best results are to be regularly obtained by the grower. In illustration of this the following will be interesting: An experiment made by the U. S. Depart-

ment of Agriculture in southern Michigan, in the selection of seed potatoes from high yielding hills, resulted as follows: "Hills yielding six or more marketable tubers were saved for planting purposes. The first year 16 out of 100 hills met this requirement. This was continued up through, two three and four years. The fifth year 70 hills out of 100 reached this required standard."

Good Soil the First Essential.

The first essential to successful seed potato growing is good soil, properly prepared; the next is true-to-type seed that is strong in vitality and vigor. Without both of these essentials good crops of potatoes cannot be raised. A good soil for potatoes must contain a large proportion of humus, and this humus at planting time should be well decomposed, making a fine loose seed bed that will hold plenty of moisture without preventing the free circulation of air. This seed bed should also be deep to provide plenty of forage ground for the roots of the plant.

Archibald Findlay, one of England's greatest potato breeders, says: "The potato plant yields out of all proportion to the outlay where deep cultivation is practiced." Where humus is lacking it may be supplied by the application of manure, plowed under in the fall, but a better way is to plow under a green crop, preferably of some legume. Mr. George Sinclair, manager of the Earl of Roseberry's great Dalmeny Farm near Edinburgh, Scotland, the farm that is famous the world over for having produced the largest yield of potatoes ever recorded, (over 120,000 pounds per acre), says that on his farm "potatoes always follow the grass," and "there is no potato disease in Scotland if the crop is grown only every fourth year and on turf or sod ground."

Providing the Humus.

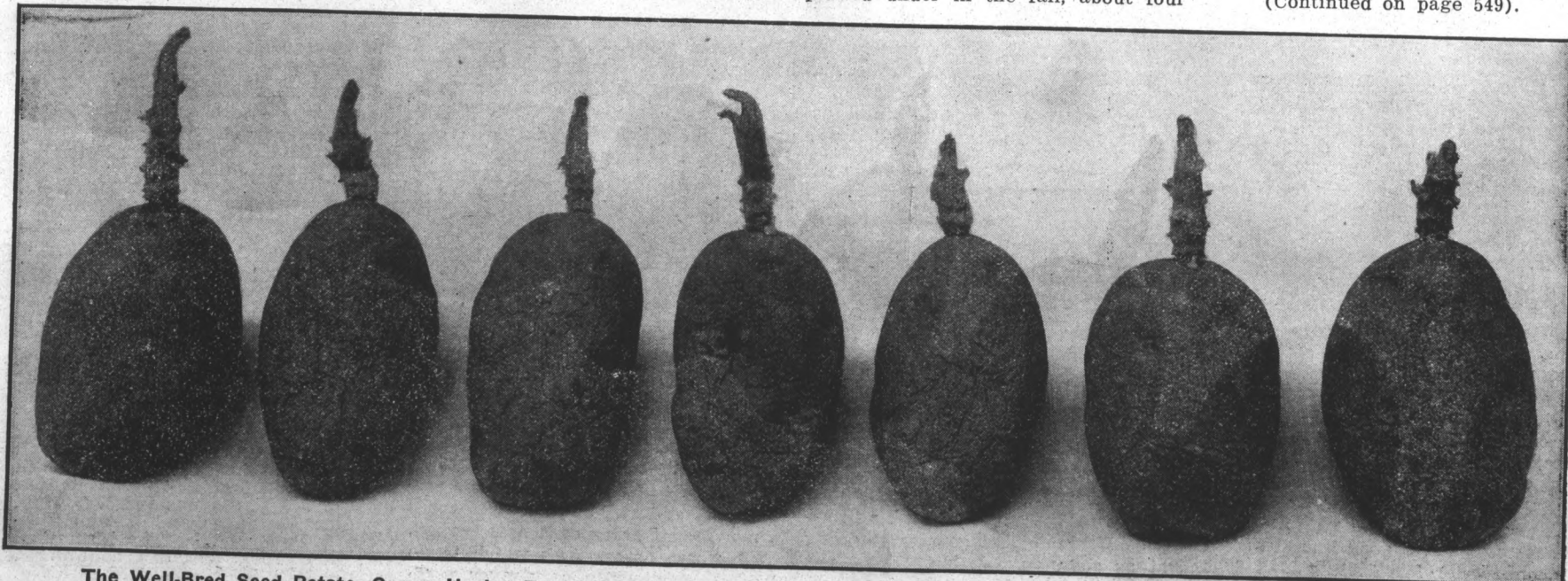
On our ranch at Carbondale, Col., we supply the necessary humus by plowing under a crop of green alfalfa in the fall, when it is about knee high. This alfalfa, which has been growing for three or four years, has filled the ground with its roots, and when it is plowed under in the fall, about four

inches deep, it supplies an amount of plant food which is equal to the application of twenty tons of manure per acre, according to government report. The land is then allowed to lie rough all winter so that the frost and the action of the elements may help to decompose the green alfalfa. As early as the land can be worked in the spring, which with us is usually in April, we again plow the ground from ten to twelve inches deep, then work it over with a disk or spring-tooth harrow to thoroughly break it up, and a leveler used to fill hollows and take down any ridges that may exist. By this time the green alfalfa has become decomposed and the ground is filled with humus ready for the potato crop. For the production of market potatoes we usually begin planting about May 5, but for seed potatoes the planting is usually deferred until about July 1, for reasons which will be stated below.

True-to-Type Seed.

The next step in the raising of high-grade seed potatoes is the selection of true-to-type seed of the variety to be grown. Where hill selection has been carefully done in the fall, and the seed potatoes properly stored in crates, they are, of course, ready for treatment and sprouting, but where seed must be selected from the bins, care should be taken to select only true-to-type potatoes, as the very fact that they are true-to-type is in itself an indication as to their quality, and they will be more likely to start the one master sprout which usually produces a stronger plant and a better yield of potatoes. Where the grower is compelled to get his seed from outside sources he should try to obtain it from growers whose average yield of market potatoes is good, say from 300 to 500 bushels per acre, and whose stock is clean and free from disease. Potatoes from such fields must have plenty of vitality and vigor or such yields could not have been obtained. After thorough treatment with corrosive sublimate or formalin, these selected seed potatoes should be placed in shallow crates and kept in a dark place until they begin to sprout.

(Continued on page 549).



The Well-Bred Seed Potato, Grown Under Favorable Conditions and Dug Before Fully Mature, Will Produce a Single Master Sprout.

The Sugar Beet Crop

We desire to put our land in shape for the growing of beets next year and would appreciate any help you can give. I have been a subscriber of the Michigan Farmer for a number of years and once or twice have seen small notes relative to sugar beets but no detailed articles.

Iosco Co.

O. S. N.

YEAR ago, in the early days of the beet industry in this state the Michigan Farmer gave some attention to this subject because it is considered that this is a great industry in Michigan and ought to be encouraged by the farm press. No territory can grow better beets than Michigan, and when properly grown they are a profitable crop for the farmer.

There is another idea that the farmer should not forget. Every acre devoted to the sugar beet is one less acre for potatoes, oats, corn, etc., in fact, all the staple agricultural products, and none of these products have been selling for any too much money to make farming profitable. We must have sugar. We don't produce enough for our own use and must spend millions of dollars in foreign countries for this product. Isn't it good business policy to increase our acreage of sugar beets, and thus help the market on other products, notably potatoes, pay the money we now send abroad for sugar, to our own farmers, and our own business men and our own laborers.

I have always agreed that every American farmer situated within marketable distance of a factory and who had suitable land should grow a few acres of sugar beets every year. He helps himself and he helps every other farmer by so doing.

Growing the Crop.

Like all crops, so far as I know, you can not grow good crops of beets on land in poor physical condition nor on land low in available fertility. You hear some farmers say it costs too much to grow beets. There is too much hard labor. Too much labor the farmer can not do himself. There is too great a risk to warrant paying out so much clean cash for labor. But you don't hear the farmer who has raised a splendid crop of beets say anything about this matter. He is satisfied because he has made money by employing this extra help. The man who gets a poor crop, of course is not satisfied. There is little or no profit. But this satisfaction, or dissatisfaction, will apply to almost any crop. In fact, there can be but little or no profit in any poor crop, and so the whole question of satisfaction or profitable farming comes down to this basic question—good crops.

If the farmer can not produce good crops he is not making very much money. He makes none too much when he produces good crops.

It is the farmer's duty as a business man to try and get his land in shape, and so plant and care for his crop to produce good crops. The man who does his part usually wins. The man who fails to do his part many times loses.

Kind of Soil for Sugar Beets.

Sugar beets can be produced profitably on soil that will produce good crops of corn or potatoes. The best soil for beets contains a little too much clay perhaps, for the best crops of corn or potatoes. Very light sand or very heavy clay is not best for beets, or for most crops for that matter, but both these classes of soils can be put in condition so they will produce profitable crops of beets. They must be filled full of vegetable matter and available plant food must be added in sufficient quantities and besides, in most cases lime must be added to correct acidity. Neutral or alkaline reaction is quite important with the beet crop.

Fertilizers for Sugar Beets.

A clover sod, covered with good stable manure and a good liberal supply of commercial fertilizers added is a good foundation for a crop of beets. And remember, you can not grow a

good crop unless they have plenty of good food to eat, any more than you can produce baby beef without plenty of food. If your soil is rich enough without clover, manure and fertilizer, then you are fortunate. Most soils are not, and if they are not don't forget that you will do a lot of work for little pay.

Preparing the Seed Bed.

Fall plow by all means for beets, if you possibly can. If you can't possibly fall plow, then plow for beets early in the spring before you sow your oats. The soil must be firmly settled down for beets. Only two or three inches on top should be fine and mellow. Below this the soil must be firmly packed. I asked a good beet grower once how I could tell when the land was properly fitted for beets. He replied that when it was so firmly packed that the horses' feet would not sink into the earth when they traveled over it, then the land was properly fitted. He was absolutely right. I proved that by experience. When the horses' feet will settle into the ground up to the fetlocks, the land is in no condition to sow to beets. It must be harrowed and rolled and packed until it is firmed down so the horses' feet will not leave deep tracks before it is properly fitted.

Beet seed should not be buried deeply. One inch deep is right. Two inches will do, but not nearly so good; over two inches is bad. You lose your chance for a good crop.

There is not much stored-up food in a beet seed, like there is in a kernel of corn or in a seed potato. There is sufficient food in this seed so that the young plants can send out roots for a considerable distance before they require food from the soil. These roots are large and vigorous and need a loose soil for best results, but the tiny roots of the little germinating beet must get food very soon from the soil. They can't pass through air spaces in the soil in search for food. Hence the soil must be fine and packed close and firm or the roots can not find food, and there should be plenty of readily available food right in the surface soil. Especially should there be available phosphorous for the young plants need it.

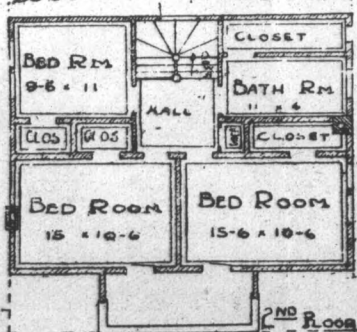
Time of Sowing.

Sow early. You can't get the best crop unless you do. You can grow a crop of beets planted as late as June. I have done it, but you will not get the tonnage you would if sown earlier.

Cultivation.

Harrow the field with a slant spike-tooth harrow before the beets come up. You may distribute some of the seed and destroy it, but remember, most of the plants have to be pulled up anyway when you thin them. By harrowing before they come up you destroy many weeds, break the crust, and give the beets the best chance.

Begin cultivating just as soon as you can follow the rows. Keep it up.



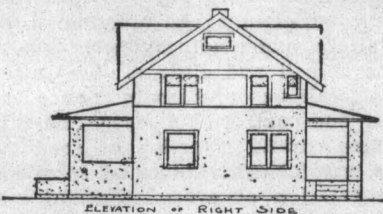
Do it thoroughly. Let the teeth in and areate the soil the first cultivation. Begin blocking and thinning just as soon as possible. Don't put this job off. Cultivate as soon as possible after thinning. Hand hoe as soon

as a weed shows. Don't let a weed show during the whole season and don't let a crust form if possible. This will make you a crop. You will have no trouble about harvesting it.

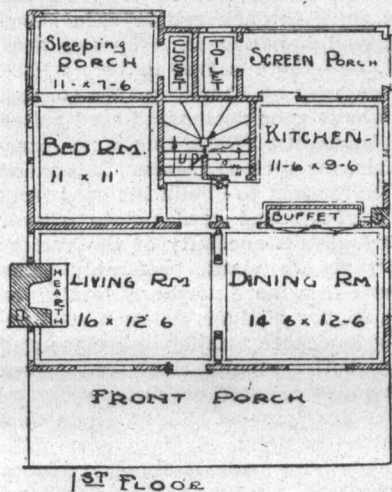
COLON C. LILLIE.

A DESIRABLE FARM HOME.

A colonade opening between the living-room and the dining-room of the home costs money, but when one considers the added improvement that it gives, the money is very well spent. The pedestals are, as a rule, three or four feet in height and are made so as to contain either books or, if the opening is from the dining-room side they often contain the housewife's fancy china. The pedestals of some



colonade openings are much lower, perhaps two feet, or only 18 inches up from the floor line. These are built solid with the panel work. Notice the floor plan of the story-and-a-half bungalow that has been sketched out on this page. The entire front of the house is opened through the dining-room and the living-room with the hearth at one end. This is a 25x33-foot house that can be built for \$2,900. There is a 11x11 foot chamber on the first floor and three rooms on the second floor. The bath room is located on the second floor in a very convenient place. The exterior of the house is sided in a rather attractive style. The base is finished with a wide eight-inch cypress lumber and the walls above are covered with a dimension cedar shingle. The cypress is stained a dark brown and the shingles



given the same treatment except that a little lighter stain is used. Then all the window frames are painted white so as to set them off in fine style.

Another possible exterior that would work out well for such a house is shown by the sketch of the elevation. The lower walls, that is, up to the bottom of the second floor windows, have a stucco finish while the walls above are shingled or covered with a narrow siding lumber.

This is a solid and compact house plan that will look good to the most conservative builder who expects big returns for the money that he puts into his house.

FALL PLOWING.

Much is being said and written for and against fall plowing. It is not my desire to discuss why we should or why we should not do much fall plowing, but wish to give my experience at late plowing last spring and one conclusion that I have drawn from it.

Did not do any fall plowing the previous fall, and as I had about 45 acres to plow, eight acres of it new ground, and but two horses with which to do it, was consequently very much rushed for a time.

I wished to put out eight acres of beans and as this was clover and June grass sod, I plowed it a little at a time when the other ground was too wet. I managed to get all but two acres plowed in good time. This was plowed about a week before planting and was harrowed once more than the rest of the fields and the beans were also cultivated once more than the rest. I could not keep the grass out of the two acres, although the rest of the field was very clean.

I had about the same experience with a field of June grass which was planted to corn. I managed to plow a few acres around the outside of the field, when other work kept me from finishing the field until about time to plant when it was plowed, fitted in good shape and immediately planted. The few acres around the outside were easily kept clean, but could not keep the grass out of the last plowing, although cultivating it five times.

From these two experiences I will hereafter do considerable fall plowing when possible, rather than be so rushed in the spring that it cannot be done, at least a few weeks before time to plant.

Montcalm Co.

M. GEORGE.

THE STATE POTATO SHOW.

The awards in the state classes at the joint State and National Potato Show, held at Grand Rapids, are reported by Secretary Wade as follows:

Early Ohio.—First, Emil Hultgren, Cadillac; second, T. Bancroft, Goodells; third, Chas. Ginter, Mesick. Award of Merit, Jacob Aten, Manton; A. Giger, Manton; Joseph Duffin, Stevenson; W. E. Wickert, Escanaba; F. W. Miller, Manistique.

Early Rose.—First, Victor Petham, Cadillac; second, Jefferson Ditty, Smith Creek; third, Fred Horton, Nessen City. Award of Merit, Wm. Whaley, Cadillac; E. Patrick, Buckley; George Tomlinson, Smith Creek.

Irish Cobbler.—First, Geo. Harrison, Manton; second, E. V. Bannison, Houghton; third, John V. Harrison, Manton. Award of Merit, Wm. Bishop, Manton; J. H. Brazee, Mesick; K. Bloomquist, Manton; John Mangum, Marquette; Geo. Basal, Marquette.

Rural New Yorker.—First, Lester Wilcox, Fremont; second, Harry Stroven, Fremont; third, Geo. Riley, Nessen City. Award of Merit, B. Beuer, Manton; Virginia Wilcox, Fremont; Frank Hill, Fremont; Stanley Stroven, Fremont; Mrs. Wilcox, Fremont; H. Hendrickson, Beechwood; William Christenson, Menominee; John Daley, Dodgeville; White Marble Lime Co., Manistique; C. R. Miller, Manistique.

Russet Rural.—First, Jos. Rozema, Fremont; second, Wm. Barson, Leer; third, Chas. Rogers, Fremont. Award of Merit, Neil Brown, Alpena; Chas. Herron, Alpena; Alex. Martin, Leer; Harry Rozema, Fremont; Henry Oosterhouse, Fremont; Nicholas Oosterhouse, Fremont; Fanny Oosterhouse, Fremont; Mrs. Oosterhouse, Fremont; Nicholas Rozema, Fremont; Henry Rozema, Fremont.

Green Mountain.—First, Chas. Mohr, Fremont; second, C. L. Mohr, Fremont; third, Geo. Millenbeck, Chasell. Award of Merit, Rasmus Olson, Sands; Hubert Perra, Medeau; Clifford Bordeau, Marquette; County Poor Farm, Marquette; A. J. Menhennick, Marquette; Adolph Bruley, Marquette; Anton Schimtggen, Iron Mountain; E. V. Bannison, Houghton; John D. Mangum, Marquette; F. L. Swihart, Burr Oak.

Graded Table Stock.—First, Lester Wilcox, Fremont; second, A. J. Menhennick, Marquette; third, Henry Oosterhouse, Fremont. Award of Merit, Rasmus Olson, Sands; Geo. Peterson, Iron River; Clifford Bordeau, Marquette; John J. Eskel, Iron Mountain, Peter Westman, Daggett; W. S. Ewing, Marquette; Jens P. Peterson, Iron River; A. W. Thompson, Vulcan.

Sweepstakes.—Chas. Mohr, Fremont. County Prizes.—First, Newaygo; second, Wexford; third, Marquette.

BOOK NOTICE.

"Diseases of Economic Plants" is a practical book suitable to the use of fruit growers, farmers and others who wish to recognize and treat diseases without the burden of long study. It treats on the diseases of all farm crops and should therefore be in every farm library. It was written by Profs. F. L. Stevens and J. G. Hall, contains 490 pages and is well illustrated. Published by The Macmillan Co., New York, and can be ordered through the Michigan Farmer office. Price \$2.

THE PRODUCTION OF HIGH-GRADE SEED POTATOES.

(Continued from page 547).

then taken outdoors and exposed to the light so the shoots may become thoroughly greened and toughened, when they are ready to plant either by hand or machine. If the sprouts are short and are well greened they will not easily be broken off, even in machine handling.

The Master Sprout.

If the seed potatoes are well bred and high grade they will, in most cases, start only a single heavy master sprout from the seed end, sometimes two, but usually one, and this sprout is the strongest and best the potato is capable of producing. If it is not broken off or injured this sprout will be the only one to grow and will produce a stronger plant and better potatoes than where a number of weaker, spindling sprouts are started. The necessity for keeping seed potatoes true-to-type is strongly emphasized by the best growers all over the world, as in that way only can the variety be kept to its highest and best development. No sensible stockman would think of trying to build up or maintain the quality of his herd by breeding from the poorest and weakest animals and sending the best to market, and the same laws obtain with regard to plant life. If we want the best we must plant the best seed. Further, we know that in human beings, as well as in the lower animals, the one who is sound in health and strong in vitality is almost immune to disease; so, is it not reasonable to conclude, as experiments have fully demonstrated, that good pure seed that is true to type and strong in vitality should also be largely immune to disease?

Immunity from Disease.

In this connection would say that most potato specialists claim that the best way to overcome potato diseases is to develop the seed potatoes through the constant practice of hill selection and planting only the best, to such a robust condition of vitality and vigor that they shall be practically immune to disease. In illustration of this an experiment was made in England with Sutton & Sons' "White City" potato, (a very high bred variety), which was planted in land badly infested with the "Black Scab" or "Wart Disease." Two other different varieties were grown, one on each side of the row of White City. In one of these rows the crop was practically consumed by the Black Scab, while the White City was absolutely free, and in the row on the other side there was a very large amount of the Black Scab.

Immature Seed Best.

It has also been demonstrated by practical experience that seed potatoes, for best results, should be lifted or harvested before they are fully ma-

ture, as they seem to have more vitality and vigor and also to be less subject to disease. It is said of Mr. A. Burns, of Dumferline, Scotland, a remarkably successful raiser of enormous crops of potatoes, that his experience is, "If seed potatoes are only partially matured when dug, only the terminal bud or eye develops. One sprout gives the best crop, and it is ten days or more earlier." There is no disease and no spraying." It is also stated of Sir Matthew Wallace, who was knighted for his successful work in the interest of the potato industry, that "He is without exception using partially grown or partially matured seed. The potatoes that are lifted in July are kept over until the next March for planting. (This is accomplished by storing in houses with plenty of light which prevents the potatoes from sprouting). He claims that he gets less disease than when lifted at maturity, the potato throws out a less number of sprouts when planted, it makes a more vigorous growth, and the sprout is stronger. Consequently, the crop ripens earlier. He is very particular to keep seed true." Archibald Findlay, the noted potato breeder, also says, "All potatoes grown for seed should be harvested before maturity. We dig these when they show the sear and yellow stage of foliage. Never allow them to get into the dead stage and become fully matured." Messrs. Sutton & Sons, after long continued experiments, have demonstrated a gain of 100 per cent for the immature over mature seed.

Plant Whole Seed.

Many tests and practical demonstrations on large fields have proven beyond question, that where whole seed true-to-type, is used instead of cut seed, much better results are obtained, as the plants are more sturdy and thrifty, resist disease better, and a practically perfect stand is obtained, which is most essential to profitable results. No grower can afford to take a loss of from 20 to 30 per cent in the stand, when it can be almost entirely avoided by the simple expedient of using whole seed, as then all the nourishment in the seed is available for the plant as required, providing ample food until the plant roots are well started; whereas in the cut seed a smaller amount of nourishment in the seed is available for the plant, and part of that is likely to be absorbed by the ground, while the cut sides are also liable to infection from any disease that may exist in the soil, which the whole seed would be much more likely to successfully resist.

"Small" Potatoes Not Fit.

This result has been the general experience wherever good whole seed has been used; that is, whole seed that was selected from high yielding hills or that was selected from true-to-type from a crop grown from seed selected from high yielding hills. To

plant just small potatoes taken from an ordinary market stock that was in turn grown from seed not hill selected, would be to invite an inferior crop, as the small potatoes from poor hills would far outnumber the small potatoes from good yielding hills, and as the potato produces like the hill from which it comes, in the resulting crop the majority of the potatoes would be small. To get the full benefit from whole seed planting the grower must make sure that his whole seed comes from high yielding hills or crops.

Plant Seed Plots Late.

For the production of seed potatoes either for the farmer's own use in his market field, or for the production of seed potatoes to be sold to other growers of table stock, it is best to plant only true-to-type, immature, whole potatoes averaging about three ounces in size. These may be planted six or eight weeks later than the regular market stock fields. We plant about July 1. At that time the warm weather and the favorable condition of the soil, in which a large amount of plant food is then available, causes a rapid growth and usually a much larger set-on than is found in the market field planted earlier in the season. On account of the short growing season, these seed plot potatoes will not grow as large as the earlier planted potatoes by the time frost kills the vines, which with us is about September 20, but do produce a larger number of smaller sized ones, say from two and a half to five and a half ounces, which are good seed sizes, and these potatoes, being immature, will have a greater vitality and resist disease better than potatoes which have fully matured.

Cultural Methods.

We usually plant in rows three feet apart and hills one foot apart in the row, which gives us about 14,000 hills per acre. We are able to do this because we build up our soil through consistent crop rotation—first year, grain and alfalfa; second, third and fourth years, alfalfa; fifth year, potatoes; then back to grain and alfalfa, etc., by which the soil is renovated and filled with plant food. We plant about four inches deep and about a week later start the cultivator, setting the shovels about eight inches deep, following this with a cross harrowing of the fields, setting the teeth at an angle of about 40 degrees, so as to level the ground as well as kill any weeds in the rows. We usually cultivate about twice, and are careful to see that the ground is kept moist enough to keep the plants growing steadily without any check. By keeping careful watch of the crop as it grows we are able to locate most of the plants that show, by an abnormal growth of vine, a tendency to degenerate, and these are promptly rogued out, as well as any hills that show indications of disease.

Some time before the potato crops are harvested, all cellars or other storage places should be thoroughly cleaned and disinfected so that no vestige of fungus or other troubles may remain to infect the new crop. This is a matter that is largely overlooked by our growers, and very many cases of storage troubles may be traced to carelessness in this respect.

Selecting the Seed.

As soon as practicable after frost has killed the vines, or if earlier maturing potatoes are being raised, as soon as the foliage is "in the sear and yellow stage," as Mr. Findlay puts it, before the vines dry up, the seed crop should be harvested, without allowing it to lie in the ground for several weeks to mature, as is done with table stock. In hill selection considerable dependence can be placed upon the appearance of the tops. A large top with one sturdy stem is usually found to have more and better potatoes under it than a hill with several weak stems. Select those hills in which there are a goodly number of tubers, all of them of good shape and most of them of good uniform size, and discard those where the shape is poor and the sizes very variable, even though there may be quite a number in the hill. Store enough of the very best selections for your next year's seed crop, and use the balance for your next year's market crop or sale, as you may wish. In this way the purity of variety and the vitality of our seed potatoes are steadily maintained, and high yielding seed produced that should be worth several times the price of ordinary seed potatoes.

Recapitulation.

In conclusion let me summarize a few of the points we consider essential for profitable potato growing; namely:

Always use true-to-type whole seed, if it can be obtained from high yielding crops or by hill selection.

Never plant seed from market stock running less than 300 to 500 bushels per acre.

Use only immature seed, sprouted and greened before planting.

Treat all seed potatoes with corrosive sublimate or formalin.

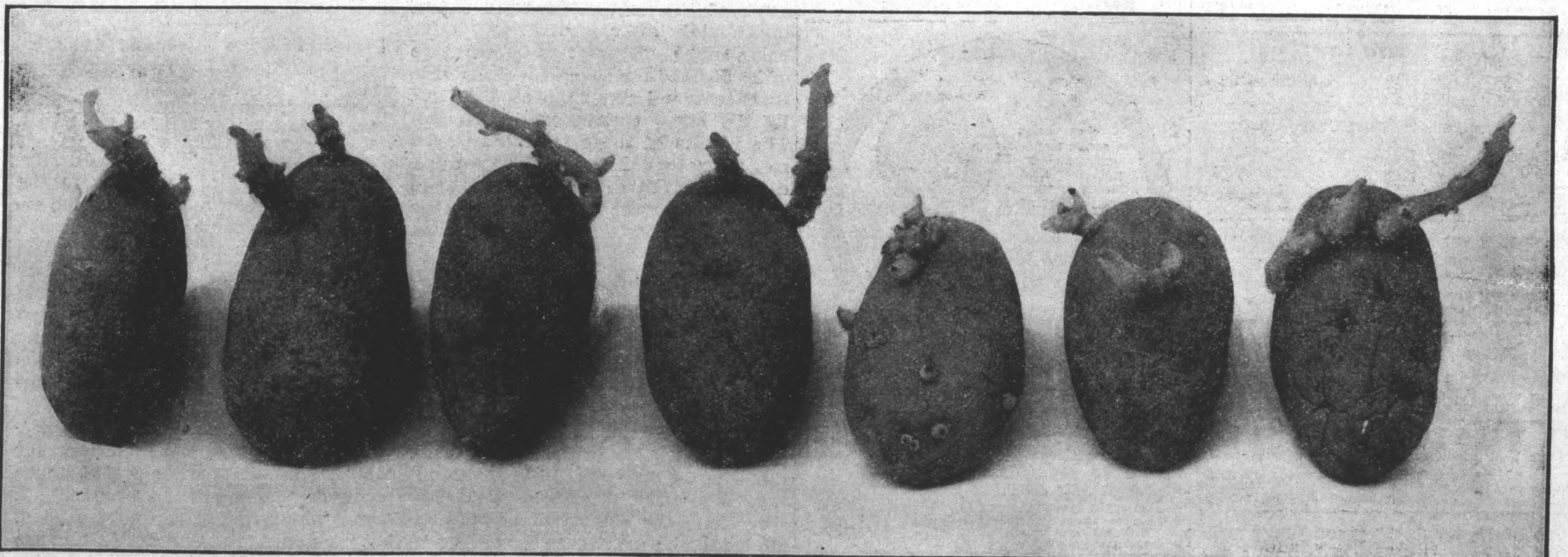
Plant seed-plot potatoes late so as to obtain a larger set-on, and harvest them before full maturity.

Don't plant potatoes on ground that has been in potatoes for a number of years.

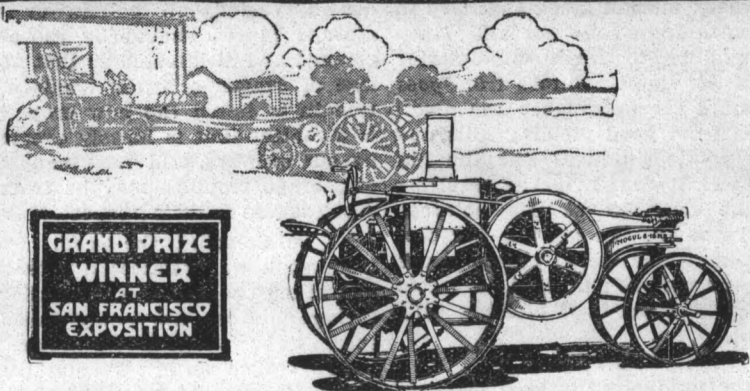
Adopt a rotation of crops that provides for potatoes only one year in five on the same ground.

Good seed is cheaper than poor seed, even though the first cost is twice as much.

Plant potatoes only on good ground that has been in alfalfa or some other legume for a number of years, and that has had a green crop turned under the fall before the potatoes are planted.



The Small Seed of Common Stock Usually Planted Produces a Number of Weak Sprouts and Less Vigorous Plants.



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The Mogul and Titan lines include larger tractors to 30-60 H. P., all operating on low grade oil fuel, and a full line of general purpose oil engines, from 1 to 50-H. P. in size. See the local dealer who handles these machines or write us for full information.

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Free for Testing A pair of mated EVERBEARING STRAWBERRY PLANTS FREE if you will report as to your success with them. Will bear loads of big, red, berries from June to November. We have counted 480 berries, blossoms and buds on a single plant. A postal will bring the plants, also enough seed of the new CEREAL FERTILIZER to plant a rod square of ground. Also a set of perennial ORIENTAL POPPY seed. Send 10 cts for mailing expense or not, as you please. Write today and get acquainted with **THE GARDNER NURSERY COMPANY Box 745, Osgo, Iowa.**

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State Horticulturists' Annual Meet

THE State Horticultural Society celebrated its forty-fifth anniversary at the place of its birth,

Grand Rapids, by a three-day session from December 7 to 9 inclusive. During the forty-five years of its existence the state society has been a potent factor in the development in the fruit industry of the state. It has also had its ups and downs, passing through periods of prosperity and depression, but in its forty-fifth year, the age for Oslerization, it came back with renewed life and a spirit which promised that it would be of even greater value to the fruit interests of the state than heretofore. Both in attendance and in the quantity and quality of the exhibits this meeting excelled the annual meetings held in the past ten years. This is especially significant because the society is now at a crisis in its financial affairs. It has been suffering from the loss of the state appropriation, but the spirit of this meeting indicates that it is passing through the convalescent stage and soon will be stronger than ever.

Discussion of Marketing Predominates.

The Tuesday morning session opened with an experience meeting in which the problems of marketing and aphid control predominated. The short talks given by the various fruit growers at this time indicated that while the season was a very unfavorable one the fruit grower has lost none of his enthusiasm for his business. These talks also indicated that the growers fully realize that the marketing of the poor stuff and the lack of systematic distribution were the chief causes of poor results in marketing the large crops of early apples and peaches.

Prof. C. P. Halligan, of the M. A. C. Horticultural Department, opened the program proper with the subject, "What the Department of Agriculture is doing for the Fruit Grower." He said that the U. S. Department and the state experiment stations were so closely allied that he could not mention the one without speaking of the other. He spoke of the value of the farm management work and its efforts toward systematizing farm work. Investigations by this department indicated that it would be more profitable if the general farm carried more live stock. With reference to horticultural work, he mentioned the cover crop tests that the experiment station was carrying on, stating that their investigations have showed thus far that there was no single crop that made the best cover crop, and therefore their efforts were chiefly confined to finding satisfactory crop combinations for various soil conditions. The experiment station is also carrying on very interesting storage experiments. Cherries and small fruits, as well as some of the vegetables, were frozen immediately after picking, and after being kept in storage at a temperature of 16 degrees for several months were taken out and given the cooking test by the home economics department. The results of these tests have been so satisfactory that Prof. Haligan predicted that this method of storage would to a great extent replace the canning methods of keeping fruits and vegetables.

Michigan Prominent as a Horticultural State. The morning session was concluded by a paper on "The Horticultural Interests of Michigan," by Hon. C. J. Monroe, of South Haven. By the use of statistics, this veteran horticultural enthusiast showed the good standing of Michigan as a fruit state. Among the interesting facts he brought out was that while Michigan was only seventh in the number of bearing apple trees, she stood second in the production and value of this fruit, this being very good proof that the Michigan fruit grower is a progressive and up-to-date one.

Mr. A. C. Carton, Secretary of the Public Domain Commission, gave a very interesting talk on "What Forestry Means to the Michigan Fruit Grower." The influence of the trees on the climate and their value in preventing erosion were well brought out. Mr. Carton said that forestry should always remain an important factor in Michigan as the state contains 600,000 acres which were ideal for forestry purposes, and has already under the control of the Public Domain Commission fifty-two forest reserves, six of which contain 130,000 acres and 350 miles of fire lines.

Problems of Co-operation.

The next subject was "Problems and Possibilities of Co-operative Marketing," which was discussed by Mr. Alfred Bentall, President of the Grand Traverse Fruit and Produce Exchange. This association has had valuable experience in co-operative work. Mr. Bentall's discussion was especially valuable because it was based on these practical experiences. He said that the greatest problem of co-operative marketing was not the handling of the fruit but the handling of the people. He found it very hard for the association to keep the members loyal, because they could not see immediate benefits from their membership in the association. It was necessary to show members the dollars and cents value of co-operation before they showed any degree of interest in it. Moral suasion and even signing of contracts apparently had no desired effect. The individualistic standpoint of the farmer was also a factor in the way of true co-operation. The farmer hates to lose his identity, and does not like to trust others with the marketing of his products. Another factor which opposed the advancement of co-operation in this state was the ease with which the fruit products can be marketed. There are available large markets to which fruit can be consigned and at shipping time there are also a large number of local buyers who are willing to pay cash for the products. This cash offer, even if it is less than co-operation would bring, appeals to the farmer, for he is inclined to think that a dollar in the hand is better than the promise of two in the future. Although the experience of the association with which Mr. Bentall is connected was not entirely satisfactory, he has lost none of his enthusiasm for the co-operative idea. He is firm in his belief that co-operation is bound to come, and thinks it will work out into community co-operative associations which will be strong enough to be able to hire a man to represent them on the market.

(Continued next week.)

TROUBLE DEPARTMENT.

Protection from Mice and Rabbits.

Will you kindly inform me as to what will prevent rabbits and mice from eating the bark from small fruit trees during winter? Would it be advisable to wrap them with tar paper? **Montcalm Co. R. N.**

One of the chief essentials in the control of rabbits and mice in the orchard is the cleaning up of all brush or other harboring places for these pests. If there is considerable sod around the base of the tree, it should be worked away and a mounding of earth which does not include sod, about ten inches high often serves very well in protecting the trees during the winter.

There are various kinds of tree protectors which are very efficient for this purpose. The writer prefers those made of woven wire or veneer. A heavy waterproof paper is also good, but tar paper is not advisable because it may have an injurious effect on tender bark trees such as the peach.

MUSKEGON CELERY AND FRUIT GROWERS CO-OPERATE.

The recent meeting of the Muskegon County Horticultural Society had a dual purpose. For the society proper, the day marked the event of their first annual apple show. For the celery growers, who were the invited guests of the society, Mr. Levin, biology instructor in the Kalamazoo High School, gave a talk on celery blight.

The apple show was a success as to the quality of fruit shown, the quantity being cut down by the fact that the season has been more or less unfavorable to the orchardist. Many of the prominent growers had good-sized exhibits. Over forty varieties of fall and winter apples were shown. An attractive feature of the fruit exhibit was the spray of red raspberries brought in by one of the local small fruit growers. These plants were set last spring and the fruit probably represented next spring's crop maturing ahead of time.

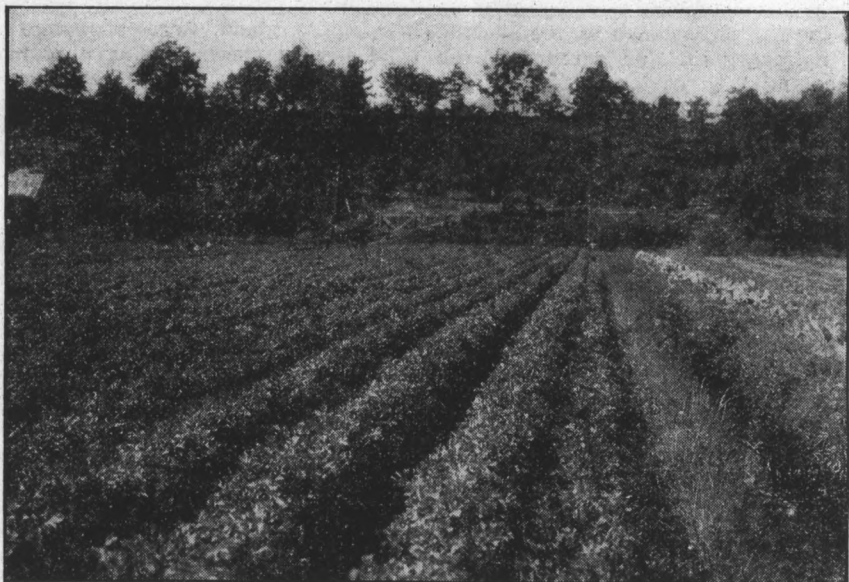
To listen to Mr. Levin's talk was interesting and instructive. For over an hour he talked to the celery growers, telling them not only that they

in the end the grapes are next to nothing, compared to the size of the vine.

There are two things which are quite essential in the production of a good crop of grapes; these are pruning and spraying.

In the matter of pruning, if the grape vine is allowed to grow as it will, it usually produces more fruit spurs than it can carry well, and the result is small straggling bunches. If your vines are grown for ornamental purposes on trellises, the best method of pruning would be to cut each past season's growth back to the spurs of two buds each. It would also be a good thing for the vine to cut the main arms back so that they are about four feet long, but very often when grown on garden trellises this cannot be done, and the spur pruning will have to suffice.

If the vines are trained on wires and used for utility purposes alone, they should consist of four arms and each year arms should be renewed. This can be done by cutting away all of the old arms and leaving well placed good strong shoots of the past season's growth to replace them. These shoots should be cut back to about



Celery Field of Mr. Joldersma, of Kalamazoo Co., Where a Small Expenditure for Spraying Resulted in Large Financial Returns.

should spray to save their crop, but giving them the how, when and why of spraying for celery blight. He dealt in some detail with the disease, showing scientific aspects of the trouble that most popular lecturers shun for fear their audience will not understand their meaning.

During the late summer Mr. Levin has been conducting a celery spraying experiment on the farm of Mr. Joldersma, near town. The result of this test has been to save some eight hundred or a thousand dollars worth of celery for Mr. Joldersma, at a cost of about \$15 for spraying. (The cut shows a picture taken of the field on October 2. In the background, across the ditch, is seen the condition of a neighboring field which was not sprayed).

Undoubtedly it was this fact that actual results have been shown by Mr. Levin, that led to the celery growers to get together after the meeting and in an exceedingly informal, but purposeful way, form what is to be known as the Muskegon Celery Exchange. On the spot they elected a president and secretary, voted to join the Horticultural Society as a body and hold their meetings at the close of the society's meeting each month.

TROUBLE DEPARTMENT.

The Care of Grape Vines.

Can you give me some information in regard to the care of grape vines? Our grape vines grow fine, but do not bear much fruit, in fact, this past summer scarcely anything was borne. They are a very sweet red grape about the size of the Concord. I have never heard the right name for them. In the spring they are full of blossoms, but it seems they disappear, for

ten buds each, so that the entire vine after being pruned will have a total of forty buds.

One cannot hope to grow good grapes unless the vines are sprayed as this fruit is so subject to insect and fungous troubles. For this purpose Bordeaux mixture is best, and is made by mixing four pounds of copper sulphate or bluestone, and six pounds of fresh lime with fifty gallons of water. Before mixing, the copper sulphate should be dissolved and the lime slaked, and care should be taken not to mix these two together when the copper sulphate is in concentrated form. This mixture with two and a half pounds of arsenate of lead controls practically all grape troubles.

The first spraying should be made when the new growths are about eight inches long, another just as the blossoms are about to appear, and still another when the bunches are through blossoming.

Judging from your description, I believe your grapes are of the variety called the Brighton, which is one of the best compact grapes we have. It has, however, the serious fault of not making compact bunches, and is quite susceptible to dropping its berries.

BOOK NOTICE.

"Manual of Fruit Insects," by Prof. M. V. Slingerland and Cyrus A. Crosby, is a very complete book on the insects of deciduous fruits and their treatment. It is especially valuable to fruit growers because the good illustrations and clear descriptions make it easy for the layman to recognize the insects mentioned. It is the insect book every fruit grower should have. Consists of 500 pages, is published by The Macmillan Co., New York, is sold for \$2, and can be ordered through the Michigan Farmer.

FORD CAR MAINTENANCE

Results of an investigation among Ford owners.
Common problems discussed.



"To what can I trace faulty valve action?"

Answer: Due almost invariably to carbon deposit. Ford owners who use Gargoyle Mobiloil "E" are remarkably free from this trouble unless the valves are out of adjustment.



"What causes power irregularities?"

Answer: Faulty carburetor adjustment is of course a common cause. But a frequent cause, too, is incorrect lubricating oil. The body of Gargoyle Mobiloil "E" correctly seals the Ford piston clearance, conserving the full force of the gas explosion for the turning of the rear wheels.



"Why does my motor pre-ignite?"

Answer: In the great majority of cases, this trouble is due to hard carbon deposit on the cylinder heads. The carbon grows red hot from the continued heat of explosion. It then fires the gas charge prematurely.

Pre-ignition trouble is rare among motorists who use Gargoyle Mobiloil "E." Of course, no petroleum-base oil will burn without leaving carbon, but the slight carbon of Gargoyle Mobiloil "E" is a light, dry soot. It expels naturally through the engine exhaust.



"Why do my spark plugs foul?"

Answer: This trouble is caused by (1) faulty carburetion; (2) too high an oil level; (3) incorrect lubricating oil. If you are troubled with fouled spark plugs first see that your oil level is correct and your carburetor properly adjusted. Then look to your lubricating oil.

If the body is too light it works in excess quantities past your piston rings into the combustion chambers. In burning it leaves carbon on the spark plugs.

If too heavy it will fail to reach all friction points.

As the body of Gargoyle Mobiloil "E" is scientifically correct for the Ford piston clearance, fouled spark plugs are infrequent among Ford owners who use this oil.



Mobiloils

A grade for each type of motor

In buying Gargoyle Mobiloils from your dealer, it is safest to purchase in original packages. Look for the red Gargoyle on the container. For information, kindly address any inquiry to our nearest office.

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Your oil must meet the heat conditions in your engine. Many oils thin out too much under engine-heat. Three troubles result: (1) Compression escapes and power is lost. (2) The cylinder walls are exposed to friction. (3) Excess carbon is deposited. The oils specified below will prove efficient.

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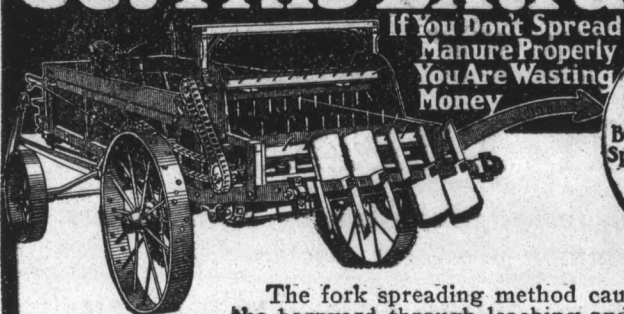
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Manure Properly
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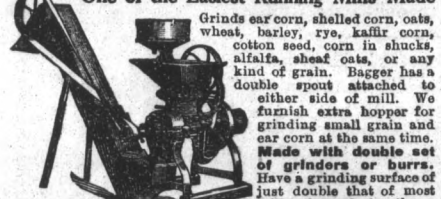
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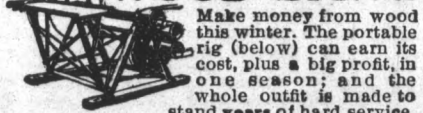
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Garget

A WEEK seldom passes that the writer does not receive several lengthy letters pertaining to udder ailments in cows, and to answer each one fully through the veterinary column, would require altogether too much space; furthermore, it would be uninteresting to readers to fill up the column with the same questions and answers fifty-two times a year. Now, this article is written with a view of satisfying our readers regarding the causes, symptoms and treatment of garget, a term which is commonly used by dairymen in describing numerous udder ailments.

Causes are Various.

Garget is really congestion of the udder, an ailment which many heavy milking cows are heir to, both before and after calving; preceding calving the mammary gland is enlarged, hot and tender; furthermore, there is often more or less swelling and oftentimes a slight exudation or pasty swelling extending from the bag along lower portion of belly. In all deep milkers, this is to be expected and usually occurs a few days before calving. This congested condition and breaking up of the bag is hastened by the sucking of a hungry calf, on account of the kneading it gives the udder with its nose. The same good work can be accomplished by gentle hand-rubbing and careful milking. The condition of the bag is greatly improved by rubbing in some lanolin, (wool fat), with some belladonna or fluid extract of phytolacca or camphor added. However, it is well to understand that this congested condition of the udder can be greatly aggravated by removing a cow from a comfortable warm stable and exposing her to a cold, bleak, raw wind or cold rain storms; or, if the milker neglects to do his work properly. It is also very important to bed a cow liberally both before and after calving for if this is not done she is apt to bruise her bag, giving rise to future udder trouble. Congestion of the udder, if not relieved promptly is very apt to merge into an active inflammation and it is not unusual to have it follow exposure. An injury to the udder, such as a blow from the kick of a horse, or the horn of another cow, or striking her with a club, or kicking her, or a puncture by a nail or snag, is almost sure to produce congestion and inflammation. An open wound in udder is quite apt to become infected unless promptly and properly treated. Sudden changes of weather from hot to cold seem to be a common cause of congested udders. The cow lying down on cold, frozen, uneven ground, is another quite common cause. Stepping over logs, rails, out of ditches or over doorills or falling and bruising udder are also common causes.

Another very common cause, over-feeding cows on rich albuminous food shortly before and after calving, is quite likely to produce some udder trouble. Failure to milk cows clean appears to be another quite common cause. This ailment frequently follows indigestion or other constitutional disturbance.

The Symptoms.

Now, regarding the symptoms, it is astonishing how they vary in different cases. If brought on by exposure we usually have considerable shivering. The coat is staring, horns cold, ears, tail and legs usually cold. The symptoms are usually followed by a sort of heat reaction and the gland invariably swells. One or more of the quarters of udder may be affected. The muzzle is usually hot and dry, the heart action increases and the temperature is elevated. Respirations are usually quickened, appetite more or less impaired, bowels usually constive, more or less suppression of urine and much less milk in quarter affected. In mild cases some of the early symptoms may be overlooked and the first

sign a deranged condition of the udder is discovered. You will also notice that the cow invariably lies down on the well side. Now, when an inflammation occurs from infection entering by the teat, you will find a more localized hard swelling in the interior part of the udder. The external portion of udder is less affected. Of course, in all cases the milk is suppressed and replaced by a watery fluid, tinged with blood and clotted casein, but these symptoms are most marked in udder infection. Later on the discharge becomes white and gives off a rather offensive odor. In no two cases do we see the disease take exactly the same course, sometimes it is rapid, other times slow. Very often the inflammation appears to subside, the bag softens, becoming less tender, and takes on an apparently healthy condition without much being done. However, the longer the inflammatory hardness of the bag continues, the less hope you must have of a complete recovery. When a portion of the bag fails to be restored to a normal condition, it usually atrophies, growing smaller and, of course, fails to secrete milk. It is very common to find a great portion of the inflammatory product seemingly remaining in the gland, developing into a solid fibrous mass, causing a permanent hardening, but in other cases this product of inflammation softens and comes away in the form of a white pus. This abscess in some cases makes its way to the surface and pus escapes externally, or, of course, it may burst into a milk duct and be discharged through the teat canal. In some cases it breaks into both, forming a sort of fistula. Now, in the worst types of the disease, gangrene may ensue and either one quarter or more may lose its vitality and slough out or have to be removed. Now, I might say that this gangrenous condition is usually the result of infection.

The Treatment.

Now, regarding the treatment, you will readily understand that this must vary with the type and stage of the disease. If you notice the cow shivering, give her copious drinks of warm water or black coffee, and it is invariably necessary to drench her. Furthermore, warm injections have a splendid effect; also, apply heat to surface of body. It is also good practice to give half an ounce of fluid extract of ginger, a pint of liquor in a quart of warm water, and if necessary repeat in an hour or two. Friction applied to the extremities and surface of the body has a splendid effect. If the udder is not hot or inflamed, apply one part iodine and twenty-five parts lard with gentle hand-rubbing, and milk her four or five times a day with gentleness, squeezing the teat, instead of pulling it, and if necessary use a milking tube, or a spring teat dilator. Injecting antiseptic, weak iodine solutions into the teat and udder has a very good effect, but this should be done with care. In cases where there is much fever, give a cathartic and about the least expensive is a pound or two of epsom salt and an ounce of ginger, given in three or four pints of tepid water. After purging ceases, give half ounce doses of powdered nitrate of potash night and morning and apply hot fomentations to udder quite frequently, or dissolve a quarter of a pound of acetate of lead in a gallon of cold water and apply this occasionally. When the udder is in an inflamed state, I have thought that suspending it slightly with a four-tail bandage relieved the bag and assisted in bringing about a recovery. A sheet with four holes cut in it for the teats to protrude can be used to advantage in steaming the udder, but, of course, it is necessary to place a few cloths or sponges between sheet and bag and occasionally wet them with warm water. After taking off this packing, dry and gently hand-rub, then apply olive oil. In these cases where there

(Continued on page 554).

WINTER MANAGEMENT OF WORK HORSES.

The important part to be borne in mind in connection with the wintering of farm horses is, are the horses being properly wintered in such a manner that they will come out in the spring in proper condition to take up the season's work and perform steady, every-day service? Those farmers who have learned that it pays to keep their work horses in good health during the winter months, so that the animals will be in prime condition to go into the spring work without suffering any serious effects, have learned the true secret of wintering their horses most economically, while those men who compel their animals to rough it through so that spring finds them long-haired and run down in flesh, have yet to learn this secret. Feed will be saved by the latter method of wintering horses, but it is costly economy to save feed in this way.

The feed of the horses that are worked more or less regularly throughout the winter should be governed by the amount of work done, and therefore their management will not differ greatly from that of other seasons. During periods of idleness the good manager will naturally cut down the rations of his horses and he will allow them to secure some exercise on all idle days. Idle horses, however, call for skillful management, particularly in regard to their feed. What is needed by this class of animals is a good maintenance ration, a ration containing sufficient nutrients to rebuild the tissues of the body as fast as they are broken down by the every-day activities of the vital organs. This can be accomplished only by regular and careful feeding on a good allowance of clean, palatable hay and a fair quantity of grain. Some bright straw and fodder may be given along with the hay, but the animals should not be confined to straw and fodder alone. From 10 to 15 pounds of hay, or its equivalent in other forage feeds is enough when given with a grain ration of from six to eight pounds per day; three ears of corn three times a day, along with a small quantity of oats or bran, is a large enough grain ration for idle horses. Of course, if the horses are exposed to the rigors of winter without comfortable shelter more grain will be required than otherwise. But shelter is always cheaper than feed.

Mares in foal need to be wintered much as the work horses, even though they themselves are not performing much work. Good nourishing food is demanded at all times. The mares may be worked at light work if necessary, and nothing but good results will follow. They should be well shod, however, when taken out on slippery roads, but this applies to all horses that are being worked.

As exercise is very essential to good health, the good manager will allow all his horses freedom of a large lot or field every pleasant day. Even on comparatively stormy days, when rain or snow is not falling, a few hours in the open air will be profitable. It pays to provide comfortable quarters for all the horses and colts during winter weather, though they need not be confined unnecessarily to their stalls in the daytime. But it is best to keep them up every night. A separate stall for each horse, and especially in the case of mares in foal, is preferable, then there is no danger of one animal inflicting injuries on another.

Use bedding in the stalls liberally, as floors are always cold and uncomfortable without it. The bedding helps to keep the animals clean, and it makes the manure more valuable, as it absorbs the liquids. The straw or poor hay which is used for bedding will pay for itself in the increased value of the manure alone.—W. F. P.



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Why?

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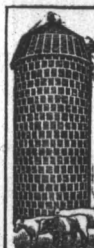
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Suppose this farmer's cows had been giving but 25 or 30 pounds each. His returns would have run over \$250 per month. Practical business farmers claim that a cow which will yield only 3,000 pounds of milk during the season following spring freshening, will do better than 4,000 pounds by freshening in the fall. But the conditions must be right. Most dairymen contend that they can produce milk more economically in the winter than in the summer. Winter milk demands silage and concentrates, and the silo is sure to pay whether used for meat or milk. In the winter your cows are not troubled with flies; and being placed in a comfortable, well ventilated stable, are more comfortable than when rummaging about in the burnt-out pasture. In winter the farmer will have more time to devote to his herd, will more carefully feed, weigh and test the cows, and so get on the way to an improved herd.

Cows Fall Freshened Most Profitable.

From all views of the case, fall freshening of dairy cows pays. There are a good many reasons for this. Probably the first and foremost is that it is from 10 to 20 per cent more profitable than to have all the cows calve in the spring. This is accounted for on the ground that the cows will yield their maximum production at the season of highest prices, under this type of management. It is true that milk and milk products can not be as cheaply produced on high-priced foodstuffs as on grass, but the increased prices and the greater ease of handling milk during cold weather with the subsequent saving in labor far outweighs the advantage of the grass.

The labor problem is a great one on a dairy farm. Fall freshening balances the work of the farm to a nicety. The cows commence to come fresh just about the time that the heavy farm work is completed for the season. By the time the last of the work is out of the way, we are ready to devote our entire time, if need be, to making the dairy pay. In this kind of management, we provide productive and profitable work for the entire year. Usually the milk flow begins to grow less by the time the spring work opens, the dairy work is therefore lighter and can give place largely to work in the fields. By June the cows begin to go dry and by the time the bluegrass pasture fails there is very little work being done with the cows. The cows quickly respond to the green grass, and the farmer is rewarded with an extra flow of milk for a few weeks just before the cows go on their summer vacation.

Fall Calves Make Better Cows.

The calves dropped in the fall are raised easier and make better cows than those born in the spring. There is no more important part of the dairy cow's life than the first six or eight months. This gives the farmer an opportunity to devote more attention to

his calves than is possible in the spring. Besides this it is a far easier matter to prevent such disastrous diseases as scours and other digestive troubles among the young heifers during the cool weather, because we are better able to supply a uniform quality of skim-milk and thus combat all forms of disease-producing germs. The calves may be carried through the winter on a skim-milk, grain and clover hay ration and be ready to be turned on the grass in the spring. New York. EARL W. GAGE.

GARGET.

(Continued from page 552).

is much pain it is a good plan to add some extract of belladonna to the oil or wool fat that you apply. Another very good application is made by mixing one part fluid extract phytolacca, one part fluid extract belladonna and eight parts wool fat, or olive oil. In some cases an abscess forms and whenever the swelling fluctuates on pressure, it should be opened, but of course this should be done carefully for fear of opening a milk duct. In most cases the wound bleeds some, but this does little harm. It is well to keep in mind that if gangrene affects the parts, the case is quite apt to prove fatal; however, if the case has been treated promptly and intelligently, avoiding infection, it does not often occur. The proper surgical work done early enough has a good effect in warding off a fatal termination; therefore, whenever you believe that the udder is infected and pus is forming it should be allowed to escape. As stated above, when the gland ducts and follicles of udder are attacked, causing a hard, deep-seated swelling, it is usually the result of infection which is a contagious ailment. Now, then, here is where a great deal of mischief can be innocently done by the milker carrying the infection from a diseased cow to other well ones and in this way it is possible to infect a whole dairy of milking cows. The dry cows in same stable usually escape this infection which is very good evidence of how the contagion is spread. The formation of pus should be a very good hint of the presence of contagious mammitis infection. Veterinarians are pretty well agreed that contagious mammitis is not a single affection, but a group of diseases which attack the udder. Dairymen should endeavor to prevent the spread of this infection and I advise in purchasing new cows to ascertain that the herd they come from are cows that have sound teats and udders. If you have any suspicion of a new cow or even one of your dairy, she should be removed from the others and either milked last or milked by someone who does not milk any of your other dairy cows. It is needless perhaps, for me to say that she should be kept in a thoroughly clean and properly disinfected stall or stable, and if taken out of your dairy, disinfect her stall before you place another cow in it. If a cow in your herd has a teat with sore end, and it is rather hard and tender, mark her as suspicious and apply iodoform to sore or touch it with some tincture of iodine. One part carbolic acid and twenty parts water is another very good application, but what should be done to prevent the disease working up into teat and udder? And here I might remind you to be careful and not use a milking tube, unless it is absolutely necessary. A safe plan is to wash the teats of your other cows with corrosive sublimate and water; ten or twelve grains to a gallon. I have always thought that good results followed giving one-half ounce doses of hyposulphite of soda once or twice a day to a cow suffering from an infected udder. W. C. FAIR, V. S.

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LILLIE FARMSTEAD DAIRY NOTES.

One important factor in dairy success is sometimes overlooked by the man who has the investment in dairying. Sometimes this factor is understood, but the owner is powerless to prevent the loss occasioned by its non-observance. The factor is cow contentment, and cow affection for her surroundings and for the herdsman or man who has immediate charge of her welfare. A cow is more than a mere machine. She is a living machine, with intellect and affection. This affection must be satisfied or the cow will not produce to her full capacity.

Take a splendid dairy cow, of whatever breed you will, feed her the best of foods and with a liberal hand, yet to do her best she must have something more. She must have contentment and to get this her cow affection must be satisfied. The affection of a cow is simple and can be easily satisfied by the man who likes her and who gives her the proper attention at the proper time.

Name the Cows.

Cows should all have names and they should know their names. To know their names they must be talked to by the caretaker so they become familiar with them. They should be taught to take their proper stalls, etc., not by using whips but by talking to them. They will soon understand. Now the manner of talking has much to do with the cow liking her attendant. This rule applies to animals higher up in the scale of intelligence as well.

By talking kindly to the cows they soon will try to do as directed. Of course, they can be taught to do things, made to do them, without talking to them in a kind and friendly voice. But that kind of talk does not satisfy the cow's affection. She is compelled to do things from fear, rather than from a desire to please her attendant. Perhaps some may think a cow is not intelligent enough to appreciate a kind voice, but she is.

I like to hear a man talk to the cows when he drives them to and from the pasture, calling them by name. I want him to act as if he was on the best of terms with each and every one of them. Sometimes he must be firm, but he can be firm and kind just as well as to be firm and cruel.

In dairy farming the cows can not and should not be separated from the farm business; they are a part of it. The farm is operated for the cows, primarily, but in some instances the cows seem necessary to keep the farm out of a bad proposition. You often feed by-products to cows that would otherwise go to waste. The cows can buy these by-products and give them a market value sufficient to pull the farm out of a hole. Sometimes the hay crop is practically made unmarketable from wet weather. The hay is so discolored that no one would buy it, yet the cows will eat it and give it a value almost, if not quite, as great as the market value of prime hay. In such cases the cows seem to be operated for the farm instead of the farm being operated for the cow.

Poor pastures should be top-dressed with stable manure or commercial fertilizers, if you haven't the manure. Both fertilizer and manure make the best dressing. Poor pastures are very expensive feed. We can not make very much money dairying with poor pasture for feed. Good pasture on rough land makes cheap feed, especially at the present price of labor.

Corn silage and pea vine silage, with clover hay, surely is cheaper feed than pasture, even adding in the cost of labor, at present prices. Fully one-half of the grass is wasted in pasturing, by the tramping of the cattle and the soiling from the droppings, both liquid and solid. Only rough land that

cannot be tilled can be pastured to any advantage. There is another question to consider and that is the health of the animals. Especially is this true of young growing animals. In the future, we are going to take care of that by providing smaller pastures and then supplementing the pasture with alfalfa hay. Why can not large racks, large enough to hold a load of hay, be provided? Have these with covers so the hay can not get wet, and keep hay in there all the time. Let the cattle eat what hay they need in addition to the pasture. These racks could be moved about in the pastures to properly distribute the droppings of the cattle and also the waste from the racks. I propose to try this system in the not distant future.

CALVES ON SKIM-MILK.

Two lots of four calves each, one fed whole milk and the other skim-milk and boiled flax seed, were used in an experiment recently conducted at the North Dakota Experiment Station. The experiment was undertaken to determine how well dairy calves could be grown on skim-milk. The first three weeks both lots were fed whole milk. From then on, Lot No. 1 was fed eight pounds of whole milk and eight pounds of skim-milk daily, while Lot No. 2 was given 16 pounds of skim-milk and one pound of boiled flax seed, which replaced the fat taken out in the cream. During the first three months Lot No. 1 made somewhat larger gains and looked a little more thrifty, but during the next three months, Lot No. 2 caught up. At six months several experienced dairy cattle breeders pronounced the calves in Lot No. 2 equal to those in Lot 1 in individual merit and dairy development. When the calves were five weeks old they were also fed clover hay and a grain ration made up of equal parts of whole oats and bran. To this was added one-tenth by weight of linseed meal. It cost \$19 less per head to feed the skim-milk calves than those fed half whole milk, to the age of six months.

BEST GRAIN RATION WITH CLOVER HAY AND SILAGE.

Could you give me a good balanced ration for my cows? I have clover hay and ensilage. My corn got frosted before I cut it so it is not just what it ought to be. I can grind oats and I can buy beet pulp at \$24 a ton, wheat bran at \$28 per ton, and linseed meal at \$2.50 per cwt. Please figure a balanced ration out of these feeds. I am selling butter at 28c a pound and my cows are graded Holsteins. How is the best way to feed beet pulp, wet or dry? A. D.

Feed all the clover hay and corn silage the cows will eat twice a day without waste.

With oats at present prices compared with other concentrates, we can afford to feed them. I don't think you could get any better grain ration than ground oats and wheat bran, and by mixing them equal parts, you would have a good balanced ration with your clover hay and corn silage. If you have plenty of oats or can get them, I would advise them.

However, you can get a good ration out of oats, beet pulp and oil meal. Feed as many pounds of beet pulp as you do ground oats, then feed each cow two pounds of oil meal a day. As you have ensilage for a succulent feed, it is just as well to feed the beet pulp dry to cows.

A good feeding rule is to feed one pound of grain for every four pounds of milk if the milk tests less than four per cent. If it tests more than four per cent, feed one pound of grain for every three pounds of milk produced. Suppose a cow gives 35 pounds of three and a half per cent milk, then give her nine pounds of ground oats and bran, or give her two pounds of oil meal, five and a half pounds of beet pulp and three and a half pounds of ground oats.

Cleaned in a Jiffy.

NO matter how carefully cleaned, separators with complicated, hard-to-get-at skimming bowls are bound to collect impurities which taint the cream and make it unfit for the highest grade butter. Countless dairy farmers—everywhere—choose the **SANITARY MILWAUKEE** because it turns out better, cleaner, more marketable cream, due to the ease with which it can be kept in wholesome condition. The bowl can be taken apart with ease—the smooth, non-rusting, interchangeable aluminum discs removed in a "jiffy," thoroughly washed in hot water, dried and they're ready for the next skimming. The women like the **MILWAUKEE**—it's so easy to operate and clean.

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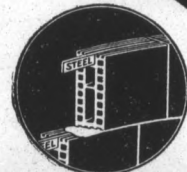
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Protect Our Good Name

GOODYEAR
AKRON

STRIPPED to the waist, his huge torso streaming with sweat, a workman swings the heavy iron core to an iron table, and wrenches off a tire which has just come steaming from the heater.

His eye falls on the legend over his head, and he smiles.

Our good name is also his good name.

The two are intertwined.

He will protect the one, while he subserves the other.

His thoughts are—as they should be—chiefly of himself, of his little home, and of his family.

Their good name, his good name, our good name—his good work will stand guard over them all.

* * *

Two thousand miles away—in Seattle, we will say—the same thought, in the same simple words.

An irritating moment has arrived—the temptation to speak sharply to a customer, to fling a slur at unworthy competition.

The salesman, or the manager, or whosoever it may be, looks up, and the quiet admonition meets his eye.

Protect our good name.

In a twinkling it smooths the wrinkles out of his point of view.

He is himself again—a man with a responsibility which he could not escape if he would; and would not, if he could.

* * *

Back two thousand miles

again to the factories—this time to the experimental room.

An alluring chance to save—to make more profit by skimping, by substitution. No one will ever know. But—the silent monitor repeats its impressive admonition:

Protect our good name.

What chance to compromise with conscience in the presence of that vigilant guardian?

* * *

Thousands of men striving to keep a name clean.

And keeping their own names clean in the process.

* * *

We Americans, it is said, make a god out of business.

Let the slur stand.

Whether it be true or not—it is true that business is our very life.

Shall it be a reproach to us that we try to make business as good as business can be made?

* * *

Think of *this* business, please, in the light of its great animating thought: "*Protect our good name.*"

We are thinking of you, always, when we say it—you American millions, and you other millions in the old world.

We think of you judging us, judging us—by what we are, by what we do, by what we make.

We think of tens of thousands of homes in which our name can be made to

stand for that which is worthy and worth while.

We must not lose your good will—we must not tarnish our good name.

* * *

You can call that anything you like.

You can call it business, or sentiment, or idealism, or nonsense.

It may be all of these.

It may even be that which our national critics call making a god of business.

But at least it gives to us a motive that is bigger and broader and deeper than money.

It makes thousands of men happier in their work and more faithful to it.

It has made of this business a democracy of united thought—a democracy of common endeavor—a democracy of purpose and principle.

* * *

And here is the oddest thing of all:—

The more we live up to this "impractical" ideal, the greater the business grows.

The more we labor for the future, the more we profit in the present.

The more we strive for character, the greater the reward in money.

The more we put into our product, the more we take out in sales.

Perhaps, after all, there is more than one sense in which it is good to make a god out of business.

We think so.

And we think you think so.

W. A. Dubalig, President
The Goodyear Tire & Rubber Co.

Visitors to the Goodyear factories are always impressed with a framed sign which confronts them at every turn.

In every room in every Goodyear building, they encounter the same message: *Protect our good name.*

It hangs on the walls of all the Goodyear branches throughout the country, and is being adopted by tire dealers everywhere as an expression of the spirit in which their business is conducted.

We believe that the public will be interested in the analysis of this simple but striking sentiment which is published herewith.

The Goodyear Tire & Rubber Co.
Akron, Ohio

W. A. Dubalig
President

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 every week. Every article is written especially for it, and does not appear elsewhere

EVER since we were big enough to set a trap, Skinny Williams and I had been trying to catch Scarlip, the sly old fox that has levied tribute on every chicken roost around Vestal Centre. He was too crafty for us, however, and although we often caught a glimpse of him trotting along the top of a distant ridge, he would never come near one of our traps. He sure did like chicken meat, and with each successive raid he became more bold and crafty, until at last he was the terror of every poultry raiser for miles around. Several years ago the

Beating the Blizzard

By K. T. HOWARD.

Farmers' Grange offered a reward of twenty dollars to anyone who would bring in his pelt, but year after year went by without the reward being claimed, and some of the best fox hunters in the country had matched their wits against the old rascal, but without any luck.

The day after last Christmas Skinny came rushing over to my house, near-

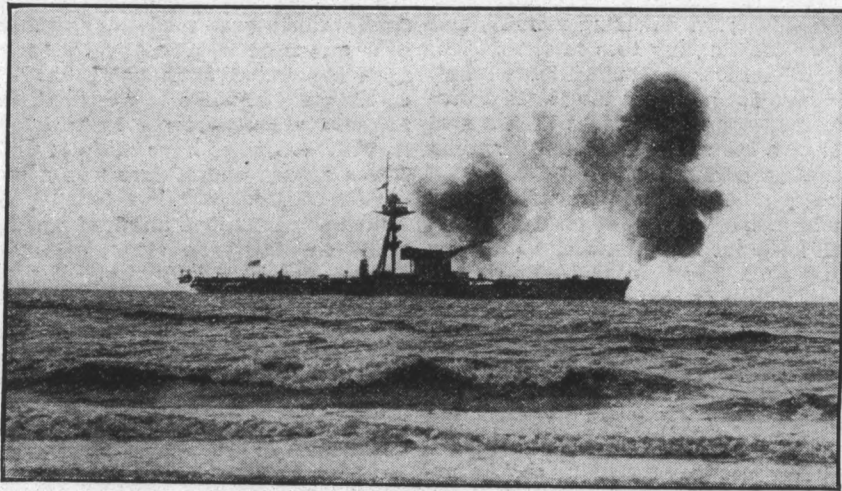
ly bursting with excitement. His father had given him a dandy twenty-two caliber repeater, and before he left, we had planned a big hunting expedition for the next day.

"There's a fine tracking snow," he said, "and if we can pick up the trail of that fox, we'll follow it until the cows come home. This rifle is sighted up to 200 yards, and if we have any

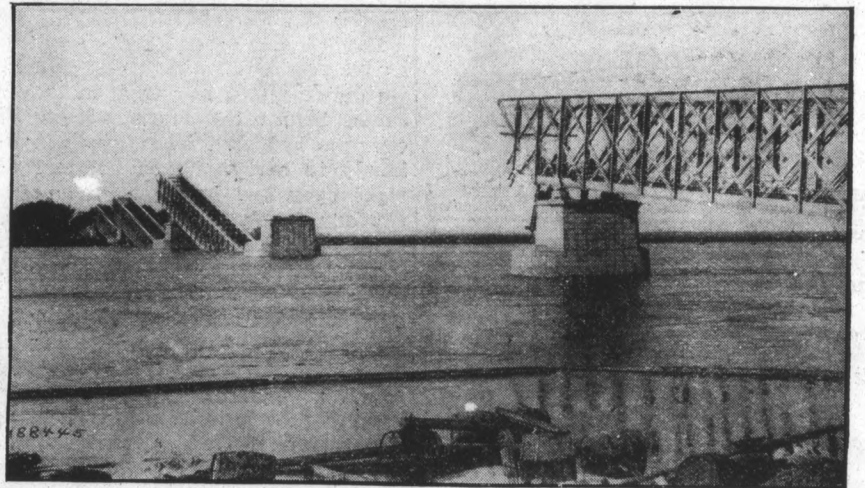
kind of luck, we should be able to sneak up that close to him.

So next morning we started out bright and early, taking plenty of grub and our ponchos, as we knew it would be late when we got back. Luck was with us from the start, for as we were passing the Harris farm, we met their hired man, and he told us Scarlip had been after their chickens the night before. Killed three fine Plymouth Rocks, the best layers in the whole flock, and the old man was so mad he offered us five dollars if we brought back that fox pelt. But we didn't

WORLD EVENTS IN PICTURES



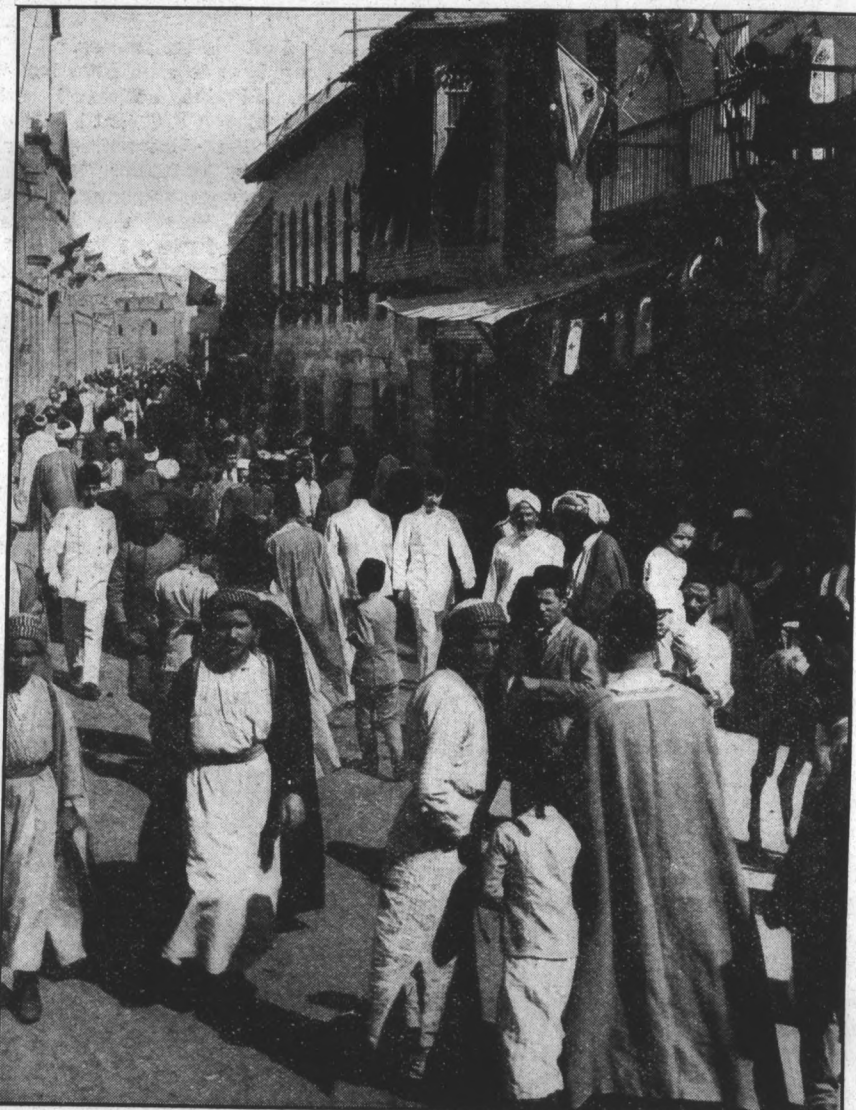
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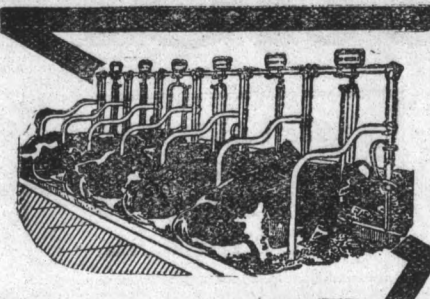


President Wilson Delighted with the Army and Navy Football Game.



Mr. and Mrs. Henry Ford Aboard the "Oscar II" Before Sailing.

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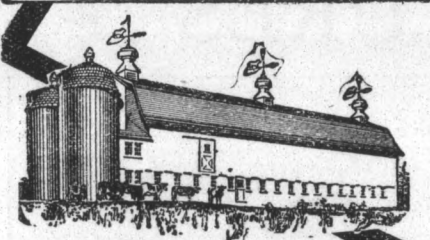
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need any inducements—we had a score of our own to pay off—but that extra five spot would come in handy all right.

We picked up the trail easy enough, it was as plain as a state road, and led around the base of Crawford's Hill, following the creek road for a couple of miles, then struck into the heavy timber, running straight up the side of Hardscrabble, and headed for the barren, thinly settled country back of Day Hollow. Mile after mile we followed the great solemn woods that were so still we were half afraid to talk above a whisper, often fighting our way through thickets so dense that our clothes were torn and our faces scratched worse than if we had tried to separate two fighting Tom cats. Then we would come out on a clearing on the crest of a ridge, and way below us stretched the valley, all white and still, while off in the distance we could see the roofs of the houses at Willow Point, nestling down at the foot of the hills like a toy village at the base of a Christmas tree. The next minute the trail would plunge down into the heavy timber again, where we would be swallowed up in a semi-twilight, for the spruce and hemlock were so thick only a few sunbeams found their way through the branches and the huge pines cast deep shadows on the unbroken carpet of snow—shadows that danced across our path like goblins when the wind stirred the boughs.

Rabbits and squirrels were as thick as flies on a rainy day, and although we didn't waste any time in hunting them, before the morning was half over we had shot as many as it was handy to carry. When the sun was right over our head, we stopped to eat our lunch, and maybe it didn't taste good, for we were as hungry as bears just waking up from their winter's nap. We didn't take time to build a fire, but after resting a short while, pushed right on. During the next hour, the trail led over mighty rough ground, and I'll admit I was getting pretty well tuckered out. I had just about made up my mind to give up the hunt, when I stepped plumb into a woodchuck hole and pitched forward on my face. As I fell, a sharp twinge of pain shot through my right leg, and when I tried to scramble to my feet, my pins doubled up under me, and I sank down with a groan.

"Are you hurt?" cried Skinny, dropping his rifle and trying to help me up. But it was no use, I couldn't put an ounce of weight on that leg.

"She's busted, Skinny," I said, "and we're in an awful pickle. Do you know where we are?"

"No, but we must be a long way from home for we have been traveling straight north."

"Well, what are we going to do?" I asked when he had helped me over to a log. "I can't walk a step and there is no telling how far it is to the next house."

"The only thing to do is for me to fix you as comfortable as possible and then start back for help."

I must have made a wry face at that, for he continued:

"Aw, cheer up, Spike, we're bound to come out all right, for when we're missed, the folks will follow our trail and find us."

Just then a few flakes of snow sifted down through the branches, and glancing up at the sky, I saw great banks of leaden colored clouds shutting down over the tops of the trees. A big lump came up in my throat, for if I knew the signs of a blizzard, one was headed our way and due to break in about an hour.

"We're in for it now," I said. "This snow will cover our tracks, and even if you could get to a house, you couldn't find your way back."

"All right, Spike," said Skinny, grinning and screwing up his face until funny little wrinkles came around the corners of his eyes. "We'll just

have to camp right here until this old blizzard of yours is over. Now, I'm going to get busy and show you how to make a howling wilderness supply us with all the comforts of home. The first thing to do is to build a fire."

So he cut a lot of brush with the little camp axe he carried in his belt, and cleared away the snow for quite a space around the base of a big oak.

"Give me a match Spike, I clean forgot to bring any," he said with a foolish grin when everything was ready to light up.

I tossed him my match safe, made from a twelve gauge shot gun shell fitted into a ten gauge one, and you should have seen the expression on his face when he opened it. It was empty. Then I was scared for sure, but Skinny only laughed.

"We're a fine pair of hunters—I don't think, but I'll show you a trick with a hole in it."

Then he broke open a dead branch and scraped out the pith, it was as dry as punk, and whittled some fine shavings, making a little pile on a dry stone. After prying the bullets from a dozen cartridges, he dumped the powder on the heap and then fished out an Indian arrowhead he carried for a lucky piece. It sure was a lucky piece for us, for when he struck the flint with his jack knife, a shower of sparks flew off, and falling on the powder, set it ablaze. In a few minutes a fire was crackling merrily, and I was toasting my toes in front of it, while Skinny set about building a hut. He sure did go about the job in a businesslike way, and in less than a half hour, a snug little hut of spruce boughs was finished.

"Not much room to spare," he said as he helped me crawl inside, "but it will keep out the snow and we'll be as snug as a bug in a rug. Now, let's have a look at that leg of yours."

Then he made a set of splints from slabs of hemlock bark, lining the inside with a thick layer of moss.

"What are you going to do for bandages?" I asked, as he fitted the splints around my leg.

"You just leave that to me," he answered, removing his coat and sweater. "There's more than one way to skin a cat," and the next minute he had stripped off his underwear.

I tried my best to stop him, but it was no use, and while I was still calling him forty-eleven different kinds of idiot, he tore his shirt and drawers into long strips, fastening the ends together with pieces of string.

"Aw, forget it, Spike, the fire will keep me warm and when I have to go outside, I'll borrow your coat," was all the answer he made to my protests. Might have thought he was a regular doctor, he was that gentle, and in two jerks of a lamb's tail, he had my leg bandaged all hunky dory.

"There, that will hold you until we get back home," he said. "Now for some supper."

We had more than half of our lunch left, and he skinned a rabbit and roasted it on a spit over the fire.

"We've enough grub to last a week," he said, but I noticed he didn't eat very hearty, although he kept passing me great chunks of rabbit meat. I didn't argue with him, knew it was no use, but I made up my mind not to let my appetite run away with me. There was no telling how long we might be snowed in, and I didn't intend to let him starve himself so I could have plenty to eat.

After supper, Skinny sallied out into the storm and cut a lot of fire wood, piling it high about the entrance of the hut. Then, as there was nothing else to do, we turned in and went to sleep. At least I did, for I was dog tired, but I was restless. My leg ached like sixty, and I awoke every hour or two. Every time I opened my eyes, there was Skinny sitting by the fire, throwing fuel on the embers from time to time. If he slept at all it must have been with one eye

open, for all night long he kept the fire blazing brightly.

By morning, two feet of snow had fallen, and the storm showed no signs of letting up. All that day and the next night the snow continued to fall, and when it finally cleared off on the third day, the woods were buried beneath four feet of snow. Then it came off bitter cold, although it was warm enough in the hut, for Skinny never let the fire die down, day or night, and the drifts kept the wind from us.

You can bet I was pretty well scared by this time, for the grub was almost gone, and I knew blamed well no one would ever find us in a month of Sundays. But Skinny was as cheerful as a big sunflower and did his best to keep up my spirits, telling me yarns about things he had read for hours at a time.

"Well, how do you feel this morning?" he asked when I awoke on the fifth day.

"Fine," I answered, which was the truth, although I was all-fired hungry.

"That's good," he replied. "Then we'll start for home right after breakfast."

"Sure," I answered, trying to scare up a grin at his kidding, "is the flying machine ready?"

"You bet she is, and she is a daisy, for I made her myself."

Darting outside, he returned with the most wonderful contraption you ever saw—a home-made sled. The frame work was made of saplings, bent and held in place by thongs of squirrel skin. Over these was stretched his poncho, while to the front was fastened a long creeper by which to haul it. He must have made it while I was asleep, and it sure was a welcome surprise.

"Overland limited all fired up and ready to start," he sings out. "All aboard for Vestal Centre. Express leaves in five minutes."

I guess I didn't look any too confident, for he dropped his bantering tone and said:

"We can make it easy Spike. The snow has frozen solid and the crust will hold a horse. You're not so heavy but what I can pull you all right, and by striking straight south, we should be able to make home by night. So come on."

I hated like fury to leave the hut, for we were warm there at least, but then I knew we would probably starve before help reached us, and if we had to die, it was better to meet our end trying to fight our way out than sitting still doing nothing. So after collecting our few belongings, I let him help me onto the sled and in a few minutes we started.

It was mighty slow traveling and it must have been awfully tough on Skinny, pulling such a heavy load. But he never whimpered once, just leaned his whole weight on the drag rope and trudged along, mile after mile, only stopping to rest a few minutes every mile or so. As the day wore on I could see the strain was telling on him, and by afternoon we were little more than crawling along at a snail's pace. Several times he staggered and nearly fell, but he wouldn't stop, just kept plugging along in grim silence.

"We dare not stop," he answered the last time I begged him to take a good rest. "We've simply got to keep moving. With no fire, and the grub gone, it means our finish if we don't reach a house before night."

Then I remembered he had no underwear and I kept my mouth shut.

On and on we went, although Skinny was getting wearier at every step. Twice he fell, but struggling to his feet, stumbled on again. As evening drew near, the air became more bitter, and a raw, biting wind sprang up, hurling fine particles of frozen snow into our faces, sharp little chunks of solid ice that cut and stung like a whip lash. But I had long ceased to mind the cold. I was numb clear

(Continued on page 560).

Land O' Nod Stories.

By HOWARD T. KNAPP

How Ants Comb.

NO matter what kind of work the ants are doing or how busy they are, they always take time to keep themselves as neat and clean as a new pin," said Tinker Teedle Tee. "Here is one of the workers who has stopped digging now to clean up a bit, so if you watch closely you will see how they do it."

Sure enough, one of the busy little workers, after wrenching an unusually large chunk of dirt from the wall of the new storeroom the ants were building had dropped the ball of clay and was now standing up straight on its hind legs and going through the motions for all the world like a lady combing her hair.

"I beg your pardon," said the merry little elf, stopping in front of the ant. "This is my friend, Billy Be By Bo Bum, who has come to pay a visit to the Queen. He doesn't see how you manage to keep so clean, so would you mind showing him your set of combs?"

"With great pleasure," replied the ant. "I was just about to spruce up a bit before carrying this load of dirt up to the gate of the city, for I can't bear to be dirty, even when I am working. These are my combs, Billy Boy, and a very fine set of combs they are, too, if I do say it myself," and the ant held out its front legs, or arms, which ever you want to call them, for they answered both purposes. They were the funniest pair of legs Billy had ever seen, for they were entirely covered with short, stiff bristles arranged in regular rows for all the world like the teeth of a real comb.

"Don't you think they are a handy pair of combs?" asked the ant proudly. "And the beauty of them is that

I always have them with me. There is no danger of me ever going away from home and leaving my toilet articles behind. Now, if you will excuse me, Billy Boy, I'll start to clean up," and the ant commenced combing herself with her front legs, removing many tiny particles of dirt that had stuck to her while digging in the earth. It was the funniest sight that Billy had ever witnessed, for the ant, standing straight up on her hind legs, twisted and turned like an acrobat in the circus, but even then she couldn't reach all parts of her body with her leg combs.

"Dear me, I'm afraid I'll have to have some help," said the ant after bending nearly double trying to get at a piece of dirt stuck in the short hair covering its back. "I nearly tied myself in a knot trying to reach that spot, but I don't seem to be able to get at it."

Just then another ant stopped digging, and after shaking itself like a Newfoundland dog coming out of the water, sat up on its hind legs and started to wash its face. Then it saw what a hard time the other ant was having, so, without waiting to finish its own toilet, it ran over to help. For several minutes it combed Billy's new friend from head to foot and then, when the last speck of dirt was combed out, went on cleaning itself.

"Thank you, I'll do the same for you some time," said the first ant, "but now I must be getting on with my work, so goodbye, Billy Be By Bo Bum," and grabbing up its load of dirt, the little fellow started off up the tunnel for the gate of the city.

Glancing about Billy saw that every ant took great pains in keeping his body clean, although much of the

work they did was of the very dirtiest kind. He was much surprised at this, for he thought boys were the only ones who had to bother about washing and combing.

All this while the sentinel ants, who were guiding Billy and Tinker to the palace of the Queen, had been waiting impatiently, so now the merry little elf and his friend made haste to resume their journey.

For several minutes they trudged on in silence, for Billy was too busy thinking of the many wonderful things he had seen to talk, but a new surprise was in store for him. Before they had gone very far the passage made a sharp turn and here they met a whole troop of ants with beautiful gauze wings folded neatly on their backs.

And next week I'll tell you more about the flying ants.

'FORE CHRISTMAS.

BY M. P. EARL.

Thanksgiving Day wuz simply great,
So many things to eat,
I tried to sample everything
But, say, it can't be beat,
The way the first stuff seems to swell,
'Till it makes the stumick ache,
An' doesn't leave one bit of room
Fer pumpkin pie an' cake.

With pickles, jam an' jelly, too,
It kep' me just a-hummin',
But still I thought I'd lots of room
Fer what I knew wuz commin',
Though Ma an' Sis both shook their heads,
I passed the plate back twice,
Fer I knew Pa wouldn't say a word,
An' things wuz awful nice.

'Cause Pa remembers how he felt
When he wuz a kid I think,
An' when Ma'd shake her head at him
He'd kind-a laugh an' wink,
An' say, he guessed 'at little boys
Know what they want to eat,
An' then I'd get more dressin',
An' a good big hunk of meat.

I kep' on eatin' all they passed,
My clothes began to pinch,
An' when the sweet stuff got aroun'
I couldn't move an inch,
But 'fore the dinner Christmas Day,
I tell you what I'll do,
I ain't a-goin' to eat a thing
Fer 'bout a week or two.

A Carriage that Saved a Queen

A CARRIAGE builder has just completed a repairing and renovating job on a vehicle which once played a prominent part in getting an empress out of the country over which her husband had ruled, into another land which promised her, if not her former high estate, at least a place of security.

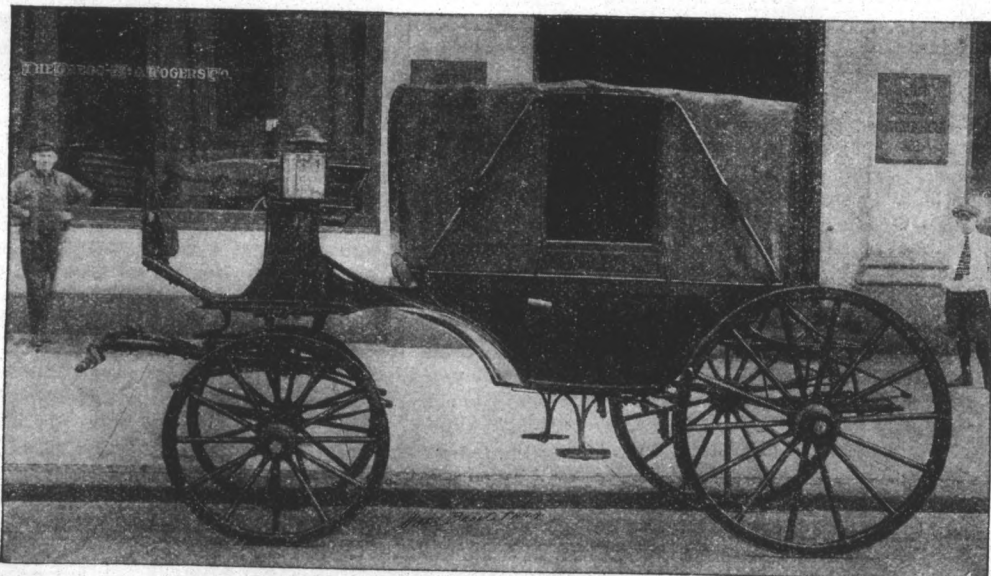
The vehicle referred to is a four-seated, covered landau, formerly the property of Dr. Evans, the famous American dentist, who gained such repute in Paris as to be summoned to Court to serve royalty in his professional capacity.

It was after the battle of Sedan, in the war between Prussia and France, and when rumors of the impending fall of the reigning dynasty became insistent, the wife of Napoleon III, the beautiful Empress Eugenie, was advised that it would be to her best interests to leave the capital on short notice, and in as quiet a manner as possible. In view of the secrecy necessary to get the Empress safely out of France, regular methods of traveling were out of the question. It was then that Dr. Evans, the American dentist, was appealed to, and he formed a plan of escape which was

successfully carried out, under conditions, however, that required care.

On the night of the fifth of September, 1870, the doctor provided a closed landau, to which the Empress was conducted. She acted the part of an invalid patient; a Dr. Crane took the

were attached. The party crossed the English channel on September 8, and the Empress was joined later by members of her family on English soil. Eugenie has resided in that country ever since the establishment of the latest French republic, her present ad-



role of her physician; Dr. Evans pretended to be a brother of the patient, while Madame Lebreton, Eugenie's lady-in-waiting, was the nurse. In this manner the party reached the open country on the road to Havre without having been subjected to undue suspicion or examination.

The landau was taken as far as Mantz, when it was exchanged for a lighter carriage, to which fresh horses

were attached. The party crossed the English channel on September 8, and the Empress was joined later by members of her family on English soil.

Eugenie has resided in that country ever since the establishment of the latest French republic, her present address being Farnborough Hill, Farnborough, England.



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(Our New Serial Story)

Light of Western Stars

By ZANE GREY

Synopsis of Preceding Chapters.

Alfred Hammond, the wayward son of a rich New Yorker, left home to become a cattle man in New Mexico and for several years had little communication with his family. His sister Madeline, known to her friends as "Majesty," possessed of a fortune of her own, suddenly decides to visit him. She telegraphs but he fails to meet the midnight train on which she arrives at El Cajon. There had been a wedding at El Cajon that evening, and Gene Stewart, a reckless cowboy, had made a drunken wager that he would marry the first girl who came to town. Encountering Miss Hammond at the station and finding she wore no wedding ring, he brings a terrified Mexican priest and forces him to hurry through some form of words which Madeline is too dazed to understand. The strange ceremony is broken off, however, when Stewart learns she is Alfred Hammond's sister. He takes her to the house of her brother's fiancée, Florence Kingsley, who lives with a married sister.

"I don't want to know. I'd tell it. Gene, aren't you ever going to learn decency? Aren't you ever going to stop drinking? You've lost most of your friends. Stillwell has stuck to you. Al's been your best friend. Molly and I have pleaded with you. And now what have you gone and done?"

"What do women want to wear veils for?" he growled. "I'd have known her but for that darned veil!"

"And you wouldn't have insulted her; but you would the next girl who came along. Gene, you are hopeless! Now, you get out of here and don't ever come back!"

"Flo!" he entreated.

"I mean it."

"I reckon, then, I'll come back tomorrow and take my medicine," he replied.

"Don't you dare!" she cried.

Stewart went out and closed the door.

"Miss Hammond, you—you don't know how this hurts me," said Florence. "What you must think of us! It's so unlucky that you should have had this happen right at first. I'm afraid you won't have the heart to stay. Oh, I've known more than one eastern girl go home without ever learning what we really are out here. Miss Hammond, Gene Stewart is a fiend when he's drunk; but all the same I know, whatever he did, he meant no shame to you. Come now, don't think about it again tonight!"

She took up the lamp and led Madeline into a little room. "This is out west," she went on, smiling as she indicated the few furnishings, "but you can rest. You're perfectly safe. Can I do anything for you? Won't you let me help you undress?"

"You are very kind, thank you, but I can manage," replied Madeline.

"Well, then, good night. The sooner I go the sooner you'll rest. Just forget what happened and think how fine a surprise you're to give your brother tomorrow!"

With that she slipped out and softly shut the door.

As Madeline laid her watch on the bureau, she noticed that the time was past two o'clock. It seemed long since she had left the train. When she had turned out the lamp, and crept wearily into bed, she knew what it was to be utterly spent. She was too tired to move a finger; but her brain whirled.

She had at first no control over it, and a thousand thronging sensations came and went and recurred with little logical relation. There were the roar of the train; the feeling of being lost; the sound of pounding hoofs; a picture of her brother's face as she had last seen it, five years before; a long, dim line of lights; the jingle of silver spurs; night, wind, darkness, stars.

Then the gloomy station—the shadowy, blanketed Mexican—the empty room—the dim lights across the square—the tramp of the dancers, vacant laughs, and discordant music—the door flung wide, and the entrance of the cowboy. Madeline did not recall how he had looked or what he had done. The next instant she saw him cool, smiling, devilish—saw him

in violence; the next, his bigness, his apparel, his physical being were vague as outlines in a dream.

The white face of the padre flashed along in her train of thought, and it brought the same dull, half blind, indefinable state of mind which had followed that last nerve-breaking pistol-shot. This, too, passed, and then, clear and vivid, rose memories of the night's later events—strange voices betraying fury of men—a deadened report—a moan of mortal pain—a woman's poignant cry. Madeline saw the girl's great, tragic eyes, the wild flight of the big horse in the blackness, the dark, stalking figure of the silent cowboy, and the white stars that seemed to look down remorselessly.

This tide of memory rolled over Madeline again and again, and gradually lost its power and faded. All distress left her, and she felt herself drifting.

How black the room was—as black with her eyes open as it was when they were shut! And the silence—it was like a cloak. There was absolutely no sound. She was in another world from that which she knew. She thought of this fair-haired Florence, and of Alfred; and, wondering about them she dropped to sleep.

CHAPTER IV.

When Madeline awakened, the room was bright with sunlight. A cool wind blowing across the bed caused her to put her hands under the blanket. She was lazily and dreamily contemplating the mud walls of the room when she remembered where she was and how she had come there.

How great a shock she had undergone was manifest in the sensation of disgust that overwhelmed her. She even shut her eyes to try to blot out the recollection of what had happened. She felt that she had been contaminated.

Presently she again awoke to the fact she had learned the preceding night—that there were motions to which she had heretofore been a stranger. She did not try to analyze them, but she exercised her self-control to such good purpose that by the time she had dressed she was outwardly her usual self. She scarcely remembered when she had found it necessary to control her emotions. There had been no trouble, no unpleasantness in her life. It had been ordered for her—tranquil, luxurious, brilliant, varied, yet always the same.

She was going out to make inquiry about her brother when a voice arrested her. She recognized Miss Kingsley's voice addressing someone outside, and it had a sharpness she had not noted before.

"So you came back, did you? Well, you don't look very proud of yourself this morning. Gene Stewart, you look like a coyote!"

"Say, Flo, if I'm a coyote I'm not going to sneak," he said.

"What did you come for?" she demanded.

"I said I was coming round to take my medicine."

"Meaning you'll not run from Al Hammond? Gene, your skull is as

thick as an old cow's. Al will never know anything about what you did to his sister, unless you tell him; and if you do that, he'll shoot you. She won't give you away. She's a thoroughbred. Why, she was so white last night I thought she'd drop at my feet; but she never blinked an eyelash. I'm a woman, Gene Stewart, and if I couldn't feel like her, I know how awful an ordeal she must have had. Why, she's one of the most beautiful, the most sought after, the most exclusive women in New York! There's a crowd of millionaires and lords and dukes after her. You can't understand what kind of a woman she is—you've not got sense enough. If you had any, you might imagine how terrible, how unendurable, it would be for a woman like her to be pawed and hugged and kissed by a drunken cow-puncher. I say it—"

"Good Heavens, Flo, I never insulted her that way!" broke out Stewart. "It was worse, then?" she queried sharply.

"I reckon it was. I made a bet that I'd marry the first girl who came to town. I was on the watch for the train, and I was pretty drunk. When she came—well, I got Padre Marcos, and tried to bully her into marrying me."

"Oh, Lord!" Florence gasped. "It's worse than I feared. Gene, Al will kill you!"

"Sure he will, and that's be a good thing," replied the cowboy, in utter dejection.

"Gene Stewart, it certainly would, unless you turn over a new leaf," retorted Florence. "But don't be a fool." She became earnest and appealing. "Go away, Gene. Go join the rebels across the border—you're always threatening that. Anyhow, don't stay here and run any chance of stirring Al up. He'd kill you just the same as you would kill another man for insulting your sister. Don't make trouble for Al. That would only make sorrow for her, Gene!"

The subtle import was not lost upon Madeline. She was distressed because she could not avoid hearing what was not meant for her ears. She made an effort not to listen, but it was futile.

"Flo, you can't see this a man's way," he replied, quietly. "I'll stay and take my medicine."

"Gene, I could swear at you, or any other pighead of a cowboy! Listen. My brother-in-law, Jack, heard something of what I said to you last night. He doesn't like you. I'm afraid he'll tell Al. For Heaven's sake, man, go down-town and shut him up—and yourself, too."

Then Madeline heard Florence come into the house. Presently she rapped on the door and called softly:

"Miss Hammond, are you awake?" "Awake and dressed, Miss Kingsley. Come in!"

"Oh! You've rested, I can see. You look so—so different. I'm sure glad. Come out now, please. We'll have breakfast, and then you may expect to meet your brother any moment."

"Wait a minute, please—I heard you speaking to Mr. Stewart. It was unavoidable; but I am glad. I must see him. Will you please ask him to come into the parlor for a moment?"

"Yes," replied Florence quickly. As she turned at the door, she flashed at Madeline a woman's meaning glance. "Make him keep his mouth shut."

Presently there were slow, reluctant steps outside the front door; then a pause, and the door opened. Stewart stood bareheaded in the sunlight. Madeline remembered with a kind of shudder the fall form, the buck-skin vest, the red scarf, the bright leather wristbands, the wide silver-buckled belt, and chaps.

Her glance seemed to run over him, swift as lightning; but as she saw his face now, she did not recognize it. The man's presence roused in her a revolt; yet something in her, the in-

comprehensible side of her nature, thrilled in the look of this splendid, dark-faced barbarian.

"Mr. Stewart, will you please come in?" she asked, after a long pause.

"I reckon not," he said.

The hopelessness of his tone meant that he knew he was not fit to enter a room with her, and either did not care or cared too much.

Madeline went to the door. The man's face was hard, yet it was sad, too; and it touched her.

"I shall not tell my brother of your—your rudeness to me," she began. It was impossible to keep the chill out of her voice—to speak without the pride and aloofness of her class. Nevertheless, despite her loathing, when she had spoken so far, it seemed that kindness and pity followed involuntarily. "I choose to overlook what you did, because you were not wholly accountable, and because there must be no trouble between Alfred and you. May I rely on you to keep silence, and to see that the lips of that priest are sealed? And you know—there was a man killed or injured there last night. I want to forget that dreadful thing. I don't want it known that I heard—"

"The greaser didn't die," interrupted Stewart.

"Ah! Then that's not so bad, after all. I am glad for the sake of your friend—the little Mexican girl."

A slow scarlet wave overspread his face, and his shame was painful to see. It fixed in Madeline's mind a conviction that if he was a heathen, he was not wholly bad. It made so much difference that she smiled down at him.

"You will spare me further distress, will you not—please?"

His hoarse reply was incoherent, but she needed only to see his face to know his remorse and gratitude.

Madeline went back to her room. Presently Florence came for her, and they were soon sitting at breakfast.

Madeline Hammond's impression of her brother's friend had to be reconstructed in the morning light. She sensed a wholesome, frank, sweet nature. She liked the slow southern drawl; but she was puzzled to know whether Florence Kingsley was pretty or striking or unusual. She had a youthful glow and flush, the clear tan of outdoors, a face that lacked the soft curves and lines of eastern women. Her eyes were light gray, like crystal, steady, almost piercing, and her hair was a beautiful, bright, waving mass.

Florence's sister was the elder of the two—a stout woman with a strong face and quiet eyes. It was a simple fare and service they gave to their guest, but they made no apologies for that. Indeed, Madeline felt their simplicity to be restful. She was sated with respect, sick of admiration, tired of adulation; and it was good to see that these western women treated her as they would probably have treated any other visitor.

They were sweet and kind, and what Madeline had at first thought was a lack of expression or vitality she soon discovered to be the natural reserve of women who did not live superficial lives. Florence was breezy and frank; her sister quaint and not given much to speech.

Madeline thought she would like to have these women near her if she were ill or in trouble. She reproached herself for a fastidiousness, a hypercritical sense of refinement, that could not help distinguishing what the sisters lacked.

"Can you ride?" Florence was asking. "That's what a westerner always asks anyone from the east. Can you ride like a man—astride, I mean? Oh, that's fine. You look strong enough to hold a horse. We have some fine horses out here. I reckon, when Al comes, we'll go out to Bill Stillwell's ranch. We'll have to go whether we want to or not, for when Bill learns you are here he'll just pack us all off. You'll love old Bill Stillwell! His

ranch is pretty badly run down, but the range, and the rides up in the mountains—they are beautiful! We'll hunt and climb, and, most of all, we'll ride. I love a horse—I love the wind in my face, and a wide stretch with the mountains beckoning. You must have the best horse on the ranges; and that means a scrap between Al and Bill, and all the cowboys. We don't all agree about horses, except in case of Gene Stewart's iron-gray."

"Does Mr. Stewart own the best horse in the country?" asked Madeline.

Again she had an inexplicable thrill as she remembered the wild flight of Stewart's big, dark steed and its rider.

"Yes, and that's all he does own," replied Florence. "Gene can't keep even a quirt; but he sure loves that horse, and calls him—"

At this juncture a sharp knock on the parlor door interrupted the conversation. Florence's sister went to open it. She returned presently, and said:

"It's Gene. He's been dawdlin' out there on the front porch, and knocked to let us know Miss Hammond's brother is coming."

Florence hurried into the parlor, followed by Madeline. The door stood open, and disclosed Stewart sitting on the porch steps. From down the road came a clatter of hoofs.

Looking out over Florence's shoulder, Madeline saw a cloud of dust approaching, and in it she descried outlines of horses and riders. A warmth spread over her, a little tingle of gladness; and the feeling recalled her girl's love for her brother. What would he be like after long years of separation?

"Gene, has Jack kept his mouth shut?" queried Florence, and again Madeline was aware of a sharp ring in the girl's voice.

"I reckon no," replied Stewart.

"Gene! You won't let it come to a fight? Al can be managed, I'm sure, but you know that Jack hates you, and he'll have his friends with him."

"I reckon there won't be any fight."

"Use your brains now, if you have any," added Florence, and then she turned to push Madeline gently back into the parlor.

Madeline's glow of warmth changed to a blank dismay. Was she to see her brother act with the violence she now associated with cowboys?

The clatter of hoofs stopped before the door. Looking out, Madeline saw a bunch of dusty, wiry horses paying the gravel and tossing their lean heads. Her swift glance ran over the horsemen, trying to pick out the one who was her brother; but she could not. Her glance, however, caught the same rough dress and hard aspect that characterized Stewart.

Then one rider threw his bridle, leaped from the saddle, and came bounding up the porch steps. Florence met him at the door.

"Hello, Flo! Where is she?" he called eagerly.

With that he looked over her shoulder, to spy Madeline. He actually jumped at her. She hardly knew the tall form and the bronzed face, but the warm flash of blue eyes was familiar. As for Alfred Hammond, he had no doubt of his sister, it appeared for with a broken welcome he threw his arms around her, then held her off and looked searchingly at her.

"Well, sister!" he began; but Florence turned hurriedly from the door and interrupted him.

"Al, I think you'd better stop the wrangling out there."

He stared at her, appeared suddenly to hear the loud voices from the street and then, releasing Madeline, he said:

"By George, I forgot, Flo! There is a little business to see to. Keep my sister in here, please, and don't be fussed up now!" He went out on the porch and called to the men. "Shut off your wind, Jack—and you, too,

Blaze! I didn't want you fellows to come here; but as you would come, you've got to shut up. This is my business." He turned to Stewart, who was sitting on the fence.

"Hello, Stewart," he said.

It was a greeting; but there was that in the voice which alarmed Madeline.

Stewart leisurely got up and leisurely advanced to the porch.

"Howdy, Hammond?" he drawled.

"Drunk again last night?"

(Continued next week).

BEATING THE BLIZZARD.

(Continued from page 558).

through to the bone and so sleepy I could hardly keep my eyes open. I knew what that meant—it was the first signs of freezing to death. Then it seemed as though the wind had suddenly become soft and warm, and instead of howling it seemed to whisper, "Just take a little nap and when you awake, it will be in a beautiful garden of roses where the sun shines brightly for ever and ever and snow was never even heard of."

Fight as I would, the fatal drowsiness was creeping over me, a thick mist swam before my eyes, through which I could see a bent figure struggling on, staggering like a drunken man; a figure dim and shadowy like a dream man, but which I knew was Skinny.

"I'll just take forty winks," I said to myself. "Then I'll get out and let Skinny ride for a while."

Just then I heard a faint shout and opening my eyes, saw Skinny standing over me, shaking me like a dog shakes a rat.

"Wake up, wake up, Spike," he yelled, but his voice seemed to come from a great distance. "Wake up, we're almost home. There's a light shining off through the trees."

"Sure, I know there is," I mumbled sleepily. "It's the good warm sun, and there's flowers and green grass and birds singing. Just lie down and go to sleep a little while and when we wake up we'll be there."

Then, as I was about to drop off to sleep again, he snatched up the rifle and began firing as fast as he could pull the trigger. As the reports died away, I heard a faint shout off in the distance, and then more shots. I opened my eyes and caught a glimpse of Skinny trying to refill the magazine, but his fingers were so stiff from the cold that the cartridges spilled onto the snow. Way off through the woods I saw a light dancing up and down like a firefly—and that's all I remember. I just couldn't keep awake a minute longer, no matter what happened.

When I awoke, it was by the side of a roaring log fire, wrapped up in a great pair of soft blankets, and someone was forcing something hot and strong down my throat. At first I thought it was all a dream and every minute expected to feel the sting of frozen snow in my face. Then I swallowed another mouthful of the steaming drink, which made me cough and choke, someone slapped me on the back, and I looked up and saw my dad bending over me. Then I knew everything was all right.

"But Skinny, where's Skinny?" I cried as soon as my wits were fully aroused.

"In the next room sleeping like a log," replied dad. "We've been looking for you ever since the blizzard started and had about given up all hope of finding you when we heard you firing. Now go to sleep son and don't worry, Skinny is all right."

"You bet he's all right," I answered, "and we're going to get that fox yet."

And we did, too, but that's another story.

Want a Christmas set of 106 pieces? See page 564.



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POSTPAID



Woman and Her Needs

At Home and Elsewhere



The Domestic Crucible—18

Grace Picks Up a Bargain.

THAT'S a bargain, lady, a great bargain," said the agent, running the cloth through his fingers to drop in billows of white on the floor. "Just think, 24 yards of pure linen for \$3.84, just 16 cents a yard! It isn't every day you have a thing like that offered you."

"No," said Grace doubtfully. "But 24 yards seems a good deal."

"You will find plenty of use for it," interrupted the man. "If you don't need it for sheets and pillow slips you can make yourself a summer dress and some shirts for the man. Think of a white linen suit next summer for less than a dollar!" Then, as Grace hesitated, "I'll let you have the whole piece for \$3.80. I couldn't do better for my own mother."

Grace's eyes glistened. She really had enough bed linen, but then, one never could have too many pillow slips on a farm where you never knew who was coming nor how long they would stay. And she could use some of the linen for dresser scarfs or doilies. It would make her a cool dress for next summer, though she could not imagine John in a shirt she would make. She smiled at the thought, and the agent, interpreting the smile as favorable, pressed the sale.

"It will be \$3.80 well spent lady," he urged. "Winter's coming on now and you'll soon have lots of time on your hands. If you buy this you can get a good start at your spring sewing right away. Good linen is something you don't buy every day."

"I believe I will take a piece," Grace agreed slowly. "I've a good notion to take one for mother, too, she added. "I heard her say the other day that she needed new bed linen."

"I'll make you the two pieces for \$3.75 each," said the agent, pulling a second piece out of his satchel with surprising quickness. "Think of it, pure linen right from Belfast for 16 cents a yard."

But Grace had reconsidered. "I don't think I'd better take the two, after all," she said. "It's nearly two weeks since I saw mother and she may have bought some herself."

"Take the two pieces for yourself," urged the peddler. "You can use 48 yards of linen, I know, and it is so reasonable."

"No," said Grace decidedly, "one is all I need."

"All right," said the man, pocketing the money, "your loss is somebody else's gain. If you take it some other woman is going to get cheated out of a bargain, so maybe it is as well you don't want it. I want to make as many people happy as possible." And shouldering his heavy case he took his departure.

Grace looked gloatingly at the cloth as the peddler walked briskly away. She loved to sew, especially for the house, and with the stimulus of a bargain like this it would be doubly exciting.

"I'll start a little white apron for Aunt Ann this very afternoon," she decided. "But no, I can't. I'll have to shrink it first. Linen should always be shrunk before you make it up. I remember mother always did."

She brought in the tub, half filled it with clean, cold water and opening the cloth into half-yard folds laid it in.

"I remember you don't shake it out, you leave it in the folds," she mused. "But I don't remember exactly how long to leave it in the water. It won't

hurt to leave it till morning, though. Then I'll hang it out and dry it and get busy right away."

The morning's work was hustled out of the way in double quick time next day, and Grace turned her attention to the cherished linen. A peculiar-looking sticky scum covered the water in the tub.

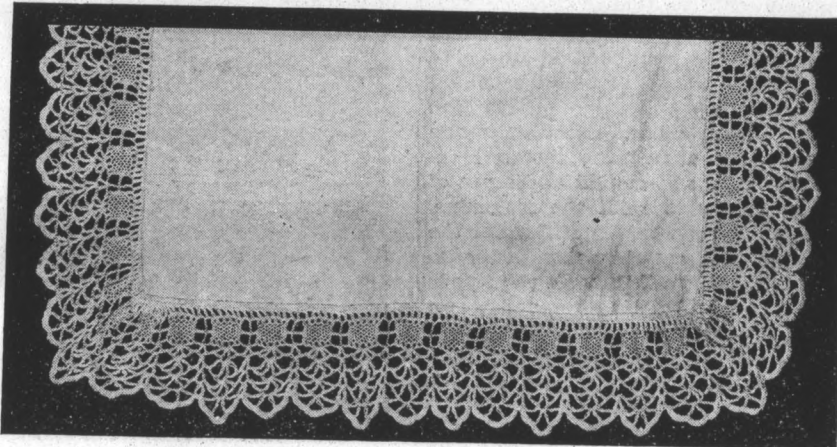
"What in the world have those men spilled in here?" Grace demanded, viewing the water askance. She scooped up a handful, and rinsed her fingers off quickly as the grayish looking stuff clung to them.

"I'd like to break their necks," she exploded wrathfully, seizing the linen and wringing it out of the water. "I must get this into clean water right away."

But the "linen," too, looked as peculiar as the water. It's sheen was gone and odd looking streaks showed here and there on the surface.

Grace shook out the cloth with a sinking heart. The outer folds resembled nothing so much as cheesecloth, though the inside, where the water had not penetrated so thoroughly, still bore some resemblance to "the cloth of yesterday." She was positive now that John or the hired man had spilled chloride of lime or some other powerful substance into the tub.

"They've ruined it," she groaned.



Buffet Scarf, with Honiton Braid, Medallion Form Edging.

"The ends are a dead loss, but maybe if I wash it out carefully with warm water and white soap I can save part of it."

But the warm water and soap only hastened the final disaster. The sticky substance which had floated on the surface of the cold water showed up more and more as Grace squeezed and patted and wrung her linen. She tried two or three clean waters, and when finally in despair she wrung the cloth dry and held it up to view, nothing remained but a coarse looking fabric fit for nothing but dust cloths.

A sickening suspicion that perhaps she had been cheated, and John and the hired man were guiltless seized her. But it was too much to admit without a struggle. She wadded the stuff up into a bundle and dashed over to Aunt Ann's.

"What would you call this?" she demanded, thrusting the cloth into that lady's lap.

"Cheesecloth," Aunt Ann announced promptly, peering over her glasses, "but what on earth do you want of so much?"

"Nothing," said Grace weakly, sinking into a chair. "I bought it from an agent yesterday as pure linen, right from Belfast and paid 16 cents a yard for it. I thought I was getting a bargain."

"But it doesn't look like linen," protested Aunt Ann. "Anyone with half an eye could see it was cheesecloth, and a poor piece at that. It's not worth more than six cents a yard, I should say," she concluded judiciously, holding the cloth up to the light.

"It looked like linen yesterday," said Grace. "But its looks were only skin deep and soaked out in water."

"Oh," said Aunt Ann, "I see. Cheesecloth treated to starch and glue. But why didn't you test it?"

"Didn't know how," said Grace.

"Put a drop of water on it. If it wets through instantly and the spot doesn't spread it's linen. If it is slow to wet through and the damp spot spreads out it's cotton. You should have known you couldn't get good linen for 16 cents a yard anyway."

"I did know the stores asked more," said Grace weakly. "But this looked good, and he talked so nicely."

"Moral, buy from your own store or send to reputable mail order house," said Aunt Ann. "If the things aren't right you can send them back and get satisfaction. We all bite some time. Mine was a warranted solid silver tea

is especially effective on a piano scarf or for bed linen.

An edge is crocheted along either side of the braid in this fashion: Sc (single crochet), into each loop of the braid, and ch (chain), once between. When the last loop of a given medallion is filled on one side ch 2 and tc (triple crochet), around the stem connecting the medallions. Ch 2 again, and proceed along the loops of the next medallion as before. This process is followed on each side of the braid, and the pleasing effect is enhanced if the thread for this part of the work is a trifle finer than that used for remainder of the crocheting.

The edge to be joined to the linen is now made of alternate chs and dc (double crochet), over each ch of the previous row.

If desired the lace can now be whipped onto the hemmed linen scarf and seamed together neatly. The outer edge can then be worked round and round without need of seaming.

For the outside edge ch 1, dc 1 into tc of previous row; ch 2, dc into same tc. Ch 1, dc 1 into central m (mesh), or open space along the medallion. Ch 1, dc 1 into same m; ch 2, dc 1 into same m, ch 1, dc 1 into next tc, ch 2, dc 1 into same tc, and on to next medallion, following this rule for the entire length. Join by sl st (slip stitch), to 1st ch of row.

Next row, ch 2, dc 1 into ch of 2 in line with medallion stem. Ch 2, dc 1 into same ch of 2. Ch 1, dc 1 into ch of 2 out from center of medallion. Ch 2, tc 1 into same place, ch 3, tc 1 into same place, ch 2, dc 1 into same place. Ch 1, dc 1 into ch of 2 in line with next medallion stem, etc.

One more round is made like the last. The next has 2 tc, with 2 ch between for the stem group, and 4 tc with 3 ch between for the medallion group. The final edge consists of 8 sc over each group of chs for the scalloped portion, with 2 sc over each ch between scallops.

FOR THE SICK.

BY OLIVE RICHEY.

To make beef tea in a hurry, run a lean piece of beef through a food cutter. Place in a pan, cover with water and set on back of stove to heat. It should not come to a boil, as boiling will coagulate the albumen. Strain and squeeze the meat dry. All the juice of the beef will be extracted and it is ready to serve immediately.

An appetizing and nourishing food for the sick is made by beating the white of an egg to a stiff froth, sweetening and adding the juice of a sweet orange.

Rice Milk.—Soak two tablespoonfuls of rice over night. Place in a double boiler, with two cups of milk, one cup of sugar and pinch of salt. Let it steam for an hour and a half, after which rub through a sieve. Grate nutmeg over the top. It can be served hot or cold.

Grape Water.—Dissolve four tablespoonfuls of grape jelly in half a cup of boiling water. When dissolved, add half a cup of cold water, one teaspoonful of lemon juice and one tablespoonful of sugar. Add sufficient ice to chill thoroughly. If desired, blackberry, raspberry or currant jelly can be used instead of the grape jelly.

Kumiss.—Heat three quarts of milk until lukewarm. Dissolve one-fourth

set for \$1.75. The silver washed off in the dishwasher the first time the set was used. Since then I've bought of established firms. If I don't get 'bargains' I get the real goods, which is more to the point."

"I guess you're right," said Grace, picking up the wet bundle. "I was going to make you a linen apron, but I'll bring you over a couple of dust-cloths instead."

"They'll be just as welcome," laughed Aunt Ann, "and I'll keep them for 'best' because they came so high."

And Grace departed, pondering on the perfidy of peddlers and the gullibility of women.

DEBORAH.

BUFFET SCARF.

BY MAE Y. MAHAFFY.

The attractive trimming used on this scarf is made up of Honiton braid, medallion form, and crocheted in a medium fine mercerized cotton. The same design may be followed for any article where lace about two inches wide is suitable as an edging, and

cup of sugar in one-fourth cup of water and add to milk. Also add one-half yeast-cake, dissolved in two table-spoonfuls water. Pour into glass fruit jars or bottles and let stand in warm room for 12 hours. Then keep in a

cool room. In 24 hours it is ready to use. Kumiss is especially valuable as a food-drink in cases of dyspepsia, vomiting and diarrhea. It can be retained on a stomach that refuses all other food.

Making Christmas Candies

By JULIA R. DAVIS

YEAR after year people buy their Christmas candies at exorbitant prices, when anyone can make fondant. And when you have learned to make fondant, which is the foundation of all French candy, you have mastered the simple art of manufacturing high-grade confections.

There is no more acceptable gift for young and old, rich and poor, than a fancy, ribbon-trimmed box of delectable, home-made sweets. Then, aside from solving the question of your own Christmas gifts, home-made candy of a good variety is always salable. People are willing to buy it because it is pure. If you manage properly there is a wide margin for profit even at a conservative price. There is no limit to the varieties that can be made from fondant. Try these recipes, and make your own Christmas candies, and if you desire, make a substantial margin for sale.

White Fondant.—To make fondant put two cupfuls of granulated sugar, one cupful of water, and a quarter of a teaspoonful of cream of tartar into a small agate, or porcelain kettle. Be sure to have the measures exact. Stir the ingredients until the sugar is moistened. Place on the range, and heat gradually to the boiling point. Boil without stirring until when tried in cold water a soft ball may be formed that will just keep in shape. After a few minutes' boiling, sugar will adhere to sides of kettle; this should be washed off with the hand first dipped in cold water. Have a pan of cold water near at hand, dip hand in cold water, then quickly wash off a small part of the sugar with tips of fingers, and repeat until all sugar adhering to saucepan is removed. If this is quickly done there is no danger of burning the fingers.

When it has boiled four or five minutes, pour a teaspoonful into a little cold water. Allow the syrup to sink to the bottom of cup without stirring. When it has had time to cool, try to gather it into a soft ball with the end of the spoon. If it is not cooked enough it will dissolve in the water, or be too thin to form into a solid, pliable mass. Change the water and test again after a little more cooking. The testing must be done quickly, for half a minute's cooking may make or mar it. If it has cooked too long it will harden the moment it touches the water and become brittle. In this event add a little boiling water to the syrup and test again. With surprisingly little experience you will be able to tell the instant it is ready to remove from the fire.

When the syrup is done pour slowly on a slightly oiled marble slab. Let stand a few minutes to cool, but not long enough to become hard around the edges. Scrape fondant with chopping knife to one end of slab, and work with a wooden spatula until it is white and creamy. It will quickly change from this consistency and begin to lump, when it should be kneaded as you would bread dough until perfectly smooth. The more it is worked the more creamy it will be.

If you wish several different flavors and colorings, after it has been kneaded, separate it into as many portions as you choose and flavor each one differently. Pour a few drops of the desired flavoring into a depression made with the finger and work it in thoroughly. Always make fondant on a clear day, as a damp, heavy atmos-

phere has an unfavorable effect on the boiling of sugar.

For coloring fondant put a small wooden skewer in coloring paste, take up a small quantity and dip skewer in melted fondant. If care is not taken, the color is apt to be too intense.

After the fondant is prepared it is best to put it into a bowl, cover with oiled paper to exclude the air that a crust may not form on top, and let stand for 24 hours. The next depends on the kind of candy you wish to make. Here are a few recipes, however, that will be found universally popular.

Cream Nut Bars.—Melt fondant over hot water and flavor if left plain. Stir in any kind of nut meat cut in pieces. Turn in oiled pan, cool and cut in bars with a sharp knife.

Tutti-Fruiti Loaf.—Melt fondant and flavor, put into it one slice of candied pineapple cut into small pieces, a quarter of a pound of candied cherries and one-fourth of a cupful of English walnuts. Fill an oiled mold with this, and when cold, cut into half-inch slices and wrap in paraffin paper.

Cocoanut Cubes.—Melt fondant as usual and put into it half a cupful of shredded cocoanut and desired flavoring. Spread it into a square cake an inch thick, and when firm, cut into inch blocks.

Bonbons.—The centers of bonbons are made of fondant shaped in small balls. For nut centers, surround the pieces of nut meat with fondant, using just enough to cover. French candied cherries are often used in this way. If you want plain, vanilla chocolate creams, take small pieces of vanilla flavored fondant, roll them in the hands until perfectly round, and put them on waxed paper. Allow bonbons to stand over night, and dip the following day.

To Dip Bonbons.—Put into a small bowl half a pound of unsweetened chocolate that has been cut into bits. Add a piece of paraffin the size of a walnut. This is necessary to thicken the chocolate. Set the bowl into the top of a boiling tea-kettle until the chocolate and paraffin are melted, then place on a table. For dipping use a two-tined fork, or confectioner's dipper. Drop centers in mixture, one at a time, stir until covered, remove, holding over the bowl until superfluous chocolate drops off, place on oiled paper.

Creamed Walnuts.—Have walnuts ready, roll the fondant into balls and place a perfect half on each one. You may use blanched almonds, candied cherries, glazed pineapple, or anything else you like in the place of walnuts.

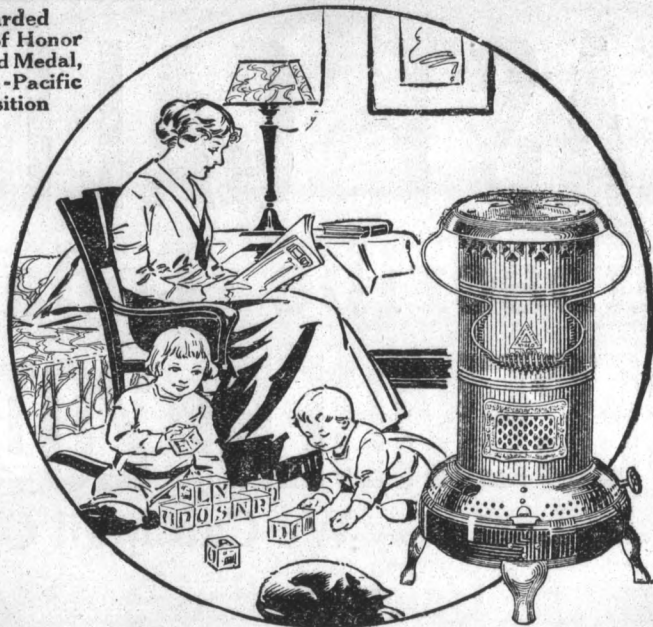
Dipped Walnuts.—Melt fondant and flavor. Dip halves of walnuts as bonbon centers are dipped in chocolate. Halves of pecans or whole blanched almonds may be similarly dipped.

RECIPES.

Parsnip balls make a nice dish to serve with the Christmas dinner. Pare and slice the parsnips and boil in salted water until they are soft enough to mash. When done, mash, season with salt, pepper, and butter. Add a few fine bread crumbs and one well-beaten egg; form in balls and fry until a delicate brown in butter.—M. A. P.

We prefer a squash pie to a pumpkin. First bake the squash. Take one cup of it made very fine, one-half

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cup of sugar, two eggs, one cup of milk, one-half cup of cream, one-half teaspoonful of salt. A small lump of butter stirred into the squash makes it richer. This amount makes one large pie.—M. A. P.

In reply to a recent request for brown bread that will not be sticky, I am sending my recipe, which I have used with the best results and have often been asked for the recipe by my guests.

Brown bread.—One rounding tablespoon of soft shortening, half a cup of yellow sugar. Cream together one and a half cups of sour milk, one teaspoon of salt, two teaspoons of soda, dissolved, one rounding tablespoon of white flour, two and a half cups of Graham flour. Bake in hot oven for about three-quarters of an hour. I use two teaspoons of soda for one and a half cups of sour milk. I think soggy Graham bread is usually due to a lack of enough soda, the Graham flour and sour milk requiring a little more than white flour and sour milk.—Mrs. S.

BABY WEEK.

The Children's Bureau of the U. S. Department of Labor, announces that state health officials of 39 states have already pledged their co-operation in the observance of the nation-wide Baby Week, March 4-11, 1916, recently proposed by the General Federation of Women's Clubs. Scores of letters about Baby Week have been pouring into the Children's Bureau ever since the plan was announced and the bureau's preliminary circular of information has been sent in response to inquiries from organizations in 45 states and the District of Columbia. The bureau has prepared these circulars and has in press a longer bulletin on Baby Week, which will shortly be available for free distribution, in order to place at the disposal of all communities the practical experience of those cities which successfully conducted local Baby Week campaigns, notably New York, Chicago, Pittsburgh, Indianapolis, Grand Rapids, Topeka, Yonkers, and Long Beach, Cal. Special sections of the circulars are devoted to suggestions for Baby Week in small towns and villages.

HOME QUERIES.

Household Editor:—I have a pair of lace curtains that were a dark yellow shade when I bought them, but since they have been washed three or four times are barely cream color any more. What can I do to restore them to their original color?—A Constant Reader.

Dip them in strong coffee, which has been strained through two thicknesses of cheesecloth.

Household Editor:—Will you please tell me what to do to kill the little white flies on my fuchias? They are killing them. And the little black ones on my geraniums?—Mrs. R. W.

Wash thoroughly with tobacco water, taking care to reach the under side of the leaf.

Household Editor:—Will someone tell me what is the matter with my cucumber pickles? I used one gallon of pure cider vinegar, one teacup of salt, one teacup of mustard, and the pickles worked and became soft and hollow. Then I put up another crockful with one gallon of vinegar, one cup of salt, half a cup of mustard, with the same result.

The cucumbers should have been soaked in a strong brine before putting into the vinegar, and no salt used when the vinegar was poured over the pickles. I have never seen a recipe for using mustard, nor heard of its being used, but perhaps there are many who do use it. The proportion of salt is one cupful to every peck of cucumbers. Sprinkle the salt over layers of cucumbers in a jar, and cover with cold water. Let stand for 24 hours, then pour off the brine, scald it and pour over the vegetables again for another 24 hours. Then wash and drain the pickles and pour over them

enough scalding vinegar to cover. You may add either horseradish, cloves or pepper corns to the pickles.

Household Editor:—Will someone please give me a recipe for pickling or canning hearts and tongues, and also a recipe for beet pickles that are not very sour?—Mrs. H. P.

Who can furnish recipes for pickling or canning hearts and tongues? I made beet pickles this fall after the recipe used for peach and pear pickles, only using half as much sugar. Two cups of sugar to eight of vinegar, with a handful of spices tied in a bit of cloth is about the right proportion. Pour this over the beets which have been cooked and sliced into cans or jars.

Household Editor:—When addressing a letter of courtesy to a married couple to whom should it be addressed, to the man or the woman, or both?—M. E. G.

Both.

SHORT CUTS TO HOUSEKEEPING.

When you cut a large pumpkin or squash and do not want to use all of it at once, protect the unused part from drying out and mold with a piece of firm paper. The pumpkin or squash should be cut straight across and the piece of paper should cover the whole side. The paper is stuck on by means of the gluey substance which exudes from cut surface.—T.

Keep on your stove shelf two small baking powder cans for salt and pepper. Punch holes in the covers, using a small nail for the salt can, and a tack for the pepper box. You will find these very handy.—Mrs. C. B. S.

MICHIGAN FARMER PATTERNS.

Our latest Fashion Book, containing illustrations of over 400 designs of ladies', misses' and children's garments in current fashions, also newest embroidery designs, and a concise and comprehensive article on dressmaking which gives valuable hints to the home dressmaker, will be sent to any address upon receipt of ten cents.



No. 1422—Girls' Over-blouse Dress with Guimpe Waist. Cut in 4 sizes, 6, 8, 10 and 12 years. It requires 1 1/2 yards of 27-inch material for the guimpe, for an 8-year size, with 3 1/2 yards of 36-inch material for the dress. Price 10c.

No. 1205—Girls' Over-blouse Dress with Guimpe. Cut in 4 sizes, 4, 6, 8 and 10 years. It requires 1 1/2 yards of 27-inch material for the guimpe, and 3 yards for the dress for a 6-year size. Price 10c.

No. 1424—Ladies' Costume. Cut in 6 sizes, 34, 36, 38, 40, 42 and 44 inches bust measure. It requires 7 yards of 44-inch material for a 36-inch size. The skirt measures about 3 3/4 yards at lower edge. Price 10c.

No. 1412—Costume for Misses and Small Women. Cut in 3 sizes, 16, 18 and 20 years. It requires 6 1/4 yards of 40-inch material for a 16-year size. The skirt measures about 3 yards at the foot. Price 10c.

Practical Science.

CEREAL FOOD PRODUCTS.

BY FLOYD W. ROBISON.

In our study of cereal foods we take into consideration a food principle which in animal food products is almost entirely absent. We refer to the carbohydrates which are a characteristic of vegetable food materials and particularly characteristic of cereals. Carbohydrates are typified by such well-known substances as cane sugar, glucose and starch. They are compounds with exceedingly uniform composition consisting of the elements carbon, hydrogen and oxygen, alone, and in this respect it would seem apparently simple. But so many combinations of these elements, carbon, hydrogen and oxygen exist in carbohydrates that the exact formula of certain of these products has never been definitely determined.

Carbohydrate Defined.

One particular and interesting feature of a carbohydrate is that it contains this hydrogen and oxygen always in a certain definite ratio, that is, in the ratio in which it is found in water—two parts hydrogen to one part of oxygen. It would seem, therefore, that a carbohydrate is built up in nature upon the plan of the union of carbon with water. However, it is built, it is known to take place definitely in the cellular structure of the plant, probably in the leaves, which are considered to be the laboratory of plant life.

Cane sugar, which we have designated as a typical carbohydrate has a formula which would amount to 12 parts of carbon united with 11 parts of water, or in other words, $C_{12}H_{22}O_{11}$; glucose, or dextrose, has a formula of six parts of carbon united with six parts of water, or $C_6H_{12}O_6$; starch six parts of carbon united with five parts of water, or $C_6H_{10}O_5$; C being the symbol for carbon, H the symbol for hydrogen and O the symbol for oxygen.

Composition of Cereals.

While cereal and vegetable foods are recognized in their differentiation from animal foods by the presence of this substance known as carbohydrates they are not, except in a few instances, limited to carbohydrate substances. They contain proteids and fats similarly, as do animal foods, but usually in a less conspicuous quantity. Among the typical cereal products we mention wheat, corn, oats, rye and sometimes rice. These products vary to a degree in composition. The average composition of each is about as follows: (U. S. Dept. of Agriculture):

Wheat.	
Weight of 100 kernels.....	3.866 grams
	Per Cent.
Moisture	10.62
Proteins	12.23
Fat	1.77
Crude fibre	2.36
Ash	1.82
Nitrogen free extract (carbohydrates not including crude fibre)	71.10
Oats.	
Weight of 100 kernels.....	2.918 grams
	Per Cent.
Moisture	10.06
Proteins	12.15
Fat	4.33
Crude fibre	12.07
Ash	3.46
Nitrogen free extract (carbohydrates not including crude fibre)	57.93
Corn.	
Weight of 100 kernels.....	28.979 grams
	Per Cent.
Moisture	10.93
Proteins	9.88
Fat	4.17
Crude fibre	1.71
Ash	1.36
Nitrogen free extract (carbohydrates not including crude fibre)	71.95

Rye.	
Weight of 100 kernels.....	2.493 grams
	Per Cent.
Moisture	10.62
Proteins	12.43
Fat	1.65
Crude fibre	2.09
Ash	1.92
Nitrogen free extract (carbohydrates not including crude fibre)	71.29
Rice.	
Weight of 100 kernels.....	2.132 grams
	Per Cent.
Moisture	12.34
Proteins	7.18
Fat	0.26
Crude fibre	0.40
Ash	0.46
Nitrogen free extract (carbohydrates not including crude fibre)	79.36

Of these products as far as our people are concerned, it is probable that wheat and oats enter more largely into our diet although, of course, corn in the form of corn meal and corn flour, is quite an important adjunct. In certain of the oriental countries rice is a much more important factor than any of the other cereals, but as a direct article of food, by which we mean one of the substantial articles of the diet, it has not yet played a highly important role in this country.

(Continued next week).

LABORATORY REPORT.

Would it be advisable to use the water that runs off my barns, (one 76x32 and one 50x20), for stock, the same to be conducted into a 100-bbl. storage tank with well water. The roofs are shingle. My well is 75 ft. down to water in a four-inch tubular well. I would like to have this question discussed in your paper.—E. W. F.

With reference to the above question, will say that there are many sections of our country where the rain water is used almost exclusively for the stock. In some of the southern states, particularly in the vicinity of New Orleans, rain water is used for family drinking purposes. It is impossible to get satisfactory wells in that low country and furthermore the overflow frequently contaminates them. It is quite a common sight, in riding through that country, to see large cisterns built on the top of the ground, into which is conducted the water which runs from the roofs of the buildings.

In our country it is an admirable plan to have the eavetroughs, or at least the main pipe, leading from the barn to the tank or reservoir so arranged that there is an outlet other than into the tank, so that for a few moments during the shower or rain storm the water which first comes from the roof, containing as it does the extracted matter from the dust, etc., which may have accumulated on the roof, is permitted to pass on to the surface of the ground. Then the valve is switched and the remainder of the water runs into the cistern or storage tank. If an arrangement of this kind is operated the rain water will be found to be about the purest water to be obtained for it is nothing but condensed water vapor and all it contains in solution is what it picks up from the air as it comes down, plus what accumulated matter it takes from the roofs of the buildings.

We can see nothing wrong with this idea at all. In fact, if the suggestion which we have made is followed it should establish for you an excellent water supply.

To separate pain from ill-doing is to fight against the constitution of things, and will be followed by far more pain.—Spencer.

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Farm Commerce.

Some Reasons for Failure

CO-OPERATION, the spirit of working together for mutual welfare, is becoming a prevailing one in the business and social worlds. It is taking the place of competition in the business world and has been a great factor in the development of efficient business methods and the elimination of waste.

The farmer has been rather slow in taking up the co-operative idea. His independent spirit has brought him to a negative position in the marketing of his products. He has practically no voice in saying what he should get for the things he sells. This has become a great disadvantage to him, as many of the profits which are rightly his have gone to others. The producer of the world's food supply is beginning to realize this, and as a result agricultural co-operation is being tried now as never before.

Strong Opposition.

As the farmer assumes the positive position in marketing through co-operative methods, he will meet with strong opposition. This opposition will come from those who have profited by the old methods, as they realize that co-operation will eliminate many who are not necessary in the marketing of farm crops. On this account we would naturally expect quite a few

fore consist of those holding but one share. The fault with this arrangement is not that the little grower is placed on an equal basis with the big grower, but that those who take out a small amount of stock do not usually think seriously enough of the matter of membership before joining; they figure that they can afford to pay \$10 for whatever benefit they are likely to derive from being a member. They can take a chance on so small a sum and not having a large amount invested, they have little financial incentive for being loyal.

No Legal Obligation.

Another thing that threatened loyalty was that members did not bind themselves to deliver their crops to the organization. Not being legally obligated in this respect, the association was often used as a leverage by growers to get higher prices from outsiders. And the outside buyers were especially anxious to please in the matter of price as they knew that if such practices continued the co-operative idea would not exist very long.

These two things are probably the main causes of disloyalty in the farmers' buying and selling organizations, and as a result, in some cases the farmers have lost most of their interest and treat the association of which

one case the manager of the association had to buy peaches from the outside in order to fill his contract order; he also had offers this fall of \$3.00 a barrel for association fruit which he had to refuse because he was not sure of his source of supply. Many growers in the community had the association manager come out to the orchard and bid on their crop the same as other buyers.

Out of the entire 120 members of another association there were about twenty whom one would consider as faithful members. Most of these had invested in several shares of stock, as was the case of the faithful members of other associations.

An Associational Reputation.

Aside from the low cost of membership privileges and the lack of having any binding agreement by which the grower promises to market his fruit through the association, inferior methods of packing and marketing may weaken the association. One of the principal assets in the marketing of any product is the reputation of that product on the market. To make this reputation a good one it is necessary that various standards or grades be strictly adhered to. This is absolutely necessary to create confidence in an association's goods. A dealer will have one of his greatest buying problems solved if he knows that he can get a uniform grade of fruit each year.

To bring about the proper sorting and packing of the fruit a central packing house is most efficient. One man can then have charge of the grading and packing and thereby insure uniformity. Allowing the growers to pack their own fruit or having inspectors of the association to supervise packing in the orchard, does not keep the grades uniform. It is conceded by all practical men that a central packing house is one of the chief essentials in successful co-operative fruit selling.

Close Relations Between Seller and Buyer.

The marketing of the fruit should also be under direct control of one who is hired by the association to do this work. Several associations have tried the plan of marketing through a large national selling agency who sell the goods on a commission basis. The arguments used in favor of this method of selling are that such an agency having branches established all over the country is able to place the fruit to advantage, but it seems that such a method does not encourage the establishment of regular customers. The contact between the seller and buyer is not close enough, as all business has to be done through a third party. Where an association has its own marketing men it is in a position to establish a permanent market. The cost of marketing is greatly lessened when customers come back for more each year, and a close business relationship between the seller and a limited number of buyers is of much



Give the Farm Boys Training in Marketing and Business Methods and they Will be Better Fitted to Solve Future Marketing Problems.

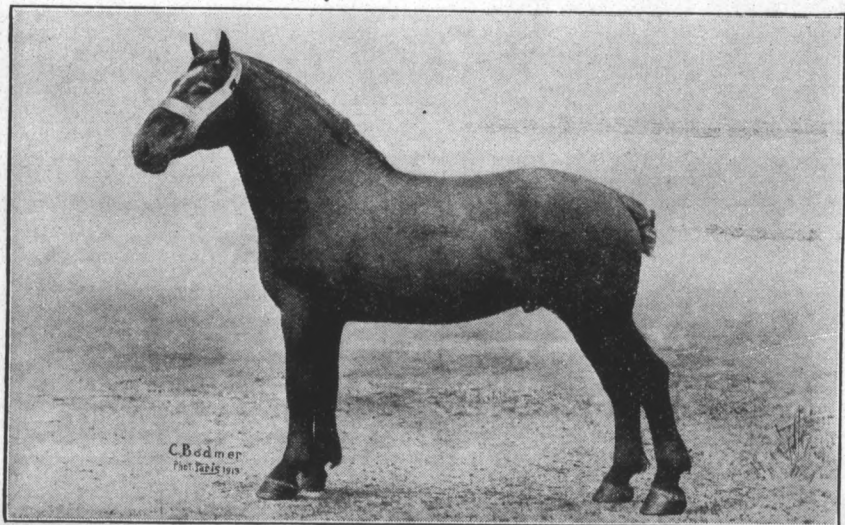
greater advantage than having new buyers for the product each year. Educating the buyer to seek your particular goods is the valuable thing in marketing fruit.

While many co-operative associations have not been successful in the strict sense of the word, even those who are the greatest critics of the plans under which these associations work cannot help but admit that they have been of some value to the community, as in most cases they have taken full power out of the regular buyer's hands, and have made him more anxious to please the farmer.

Co-operative marketing is bound to become popular and a few failures here and there should not discourage those who are interested in it, but the mistakes of the past should be of great value in the future in the practical development of the co-operative idea. There is no reason why co-operative marketing organizations should not be successful if they are properly organized and managed, for co-operative marketing is a much more efficient and simple method of getting farm products to the consumer than the present haphazard marketing way.

The Managerial Problem.

The management of an organization is, of course, very important and it is very necessary to see that the one who is selected to manage the affairs of the association is one who is versed in marketing methods and can also inspire confidence. A man with such qualities is hard to get, and to get and keep him he will have to be paid well for his services. Two of the obstacles to be overcome in agricultural co-operation is the hesitancy to pay good salaries to good men, and the lack of confidence in the man who is entrusted with the active work of the organization. A willingness to pay good salaries to a man who can inspire confidence of the members will solve the managerial problem.



The Unceasing Foreign Demand for Cavalry and Artillery Horses is Enabling the American Farmers to get rid of much of their Common Horses and to Restock with a Higher Type of Animal.

failures among new co-operative organizations. Only a strong organization can withstand the opposition of outside influences.

Experience is a good teacher, even where the experience comes from a small degree of success or, in fact, from an enterprise that was an absolute failure. The writer has carefully watched and studied the development of the co-operative idea among farmers, and was recently fortunate in having opportunity to investigate several co-operative organizations. This article deals with those which have not proven entirely satisfactory and will attempt an explanation of the causes of these poor results.

"Nothing Venture, Nothing Gained."

Probably the most important factor in the success or failure of a co-operative association is the form of organization. In every case where the farmers were not pleased with their attempts at co-operation, the writer found it inexpensive and easy to join and to leave the society. The value per share of stock was low. In most cases a share cost \$10 and a member was privileged to take out anywhere from one to ten shares, and one share entitled the holder to as many privileges as ten shares would. Naturally most of the membership would there-

they are a member, in the same way they would an outsider. It is natural that a person would prefer a cash price for his article, but in many cases disloyalty has developed this desire so that it has worked to the disadvantage of the grower.

Growers Rob Themselves.

The following instances are typical: A farmer brought a quantity of rye and vetch to the association and even though the manager urged him to allow the association to clean and separate the rye and vetch at a charge of 10 cents a bushel and then market it for him, he preferred to take the \$1.00 per bushel the manager offered him, as cash payment. The result was that after it was cleaned, the vetch sold for \$6.00 a bushel and with the rye netted the association a handsome profit. In another case \$2.00 a bushel was paid for rye and vetch and the price the association received for the vetch paid for the entire deal, and the receipts for the rye was clear profit. In one instance the profit amounted to nearly \$150 and the grower who sold it was not one who could afford to lose it, but his desire to get his money upon the delivery of the grain was so strong that he would not wait to see how much he might gain by separating and then selling. In

A Study of Apple Marketing

DURING the season of 1914-15 the office of markets made a study of certain phases of apple marketing and distribution. This work began with an investigation of commercial apple crop conditions, and when the marketing season opened in September investigations were made in the orchard district of New York state and in the apple markets of New York City, Buffalo, Chicago, Milwaukee, Detroit, St. Paul, Kansas City, St. Louis, and Louisville.

The medium through which apples usually pass in the large markets are the wholesaler, jobber, and retailer. In the middle western market there is a chain of retail stores which handle apples in a very original manner. They sell for cash, make no deliveries, and have no telephones in their

stores. Their plan is to sell a peck of apples proportionately as cheap as they could sell a barrel. The concern publishes a weekly newspaper which in one week had a circulation of 26,000 copies. The glut on the apple market last year produced an outlet in a new direction—the five and ten-cent stores.

Consumer Pays for Delivery Service.

The investigators found that the retail prices last year were maintained consistently, regardless of prevailing jobbing prices. The large margins charged by the retailers, for the most part, were due apparently to the small amount of business handled, the perishable nature of the commodity, and the cost of operation. It is this latter feature that has much to do with the high cost of living. An elaborate and

efficient delivery service must be maintained by the grocers, and many small deliveries are made each day at an actual loss to the dealer. A large proportion of the grocery store patrons buy on credit and pay when it becomes convenient. Many of these accounts are never paid. Hence it becomes apparent that the good customer who pays his bill regularly each week, or who pays cash, must suffer for the shortcomings of others.

Many of the shippers last year would have saved the cost of their barrels, and the packing, loading, and part of freight charges had they eliminated the poor fruit. They also would have relieved their market, thereby giving the good stocks an opportunity to net a reasonable and profitable return. An instance of poor packing is cited by the department in a case under observation of an inspector in New York. The fruit in the barrel was supposed to be strictly No. 1 grade, two and a half inches mini-

mum in transverse diameter. This fruit was regraded and two-thirds of the contents were true to grade. The other third was culls. The investigator had no trouble in finding this barrel of apples, and could have found others just as poorly graded. The condition of the original pack indicated ignorance, careless, or "sharp practice" on the part of the packer.

The studies conducted last year indicate the need for more strict grading and careful handling, the elimination of culls from the fresh fruit markets, more intelligent distribution, and the effective operation of co-operative associations. Often when the individual growers act independently in marketing the crops, there is little uniformity in the grading and packing, much poor fruit is shipped, much good fruit is forwarded in over-ripe condition, and the output of the community is dumped on the markets with little regard for equitable distribution or proper storage conservation.

Mr. Lubin at Chicago Conference

THE overshadowing figure at the Chicago market conference was David Lubin, of Rome, Italy.

David Lubin made his wealth in California lands and merchandising, and is one of the strongest representatives of a noble type of Hebrews who have reflected honor to their race and in the service of mankind in the United States.

Dear to the heart of David Lubin as a solution of economic ills is the German landschaft, or land bank. A whole community organizes themselves into a land bank, which in all outward appearances, is a very modest desk in some village office or private home. A member of the land bank desires a loan on mortgage security. His neighbors jointly and severally obligate themselves in guaranteeing the loan. Bonds are issued to the party seeking a loan who in turn sells four or four and a half per cent bonds to whoever will buy them. The sale, however, is easily accomplished. In the first place a government guaranteed title must be provided. The mortgage runs for a long period, not less than 20 years, and payments are made on the amortization plan. The borrower can use the loan only for productive purposes, and must submit to dictation as to soil fertility maintenance and farm management. In default of payments the land is sold and the residue given to the mortgagor. Landschaft banks have operated for over one hundred years and no underwriters have ever been compelled to make payment for default losses.

Marketing in Germany is facilitated by an organization starting from the smallest, political unit, like the township, then the county, the province, the state and finally a select body of seventy-three men are the official representatives of agriculture. The supply of products is made by advices from the bottom up, and from the top down as to demand. The German minister of agriculture is in constant communication with the landwirthschaftsrat or the imperial council of agriculture, as to crop conditions, prices, etc. At the present time this official organization of agriculture has control and is in complete charge of the distribution of the food supply. Germany has unofficial price fixing by these officials, if such a statement is not contradictory. The dumping of the world's surplus upon the German markets is repulsed by tariff regulations. Also the government lays by in storage staple food products of sufficient quantity to last two years for military supplies. These storage stocks in times of peace are fed out on the market at opportune times to the benefit of the consumer and laid by at times which benefit the producer. How well Germany has solved the market

problem is seen in the doubling of her great staple crops, in the past twenty years and in the maintenance of her food supply during the war with the great sources of food cut off by blockade. David Lubin said that the United States must consider food supply from the standpoint of a nation's needs, rather than that of individual caprice as to distribution.

Mr. Lubin's room was a busy place for he had secured the chiefs of the great mail order houses to aid in a plan to adopt mail order plans to the parcel post service for supplying the needs of city consumers with country produce. Others, with the writer, were made actors in the drama of parcel post distribution, playing the part of Mr. Producer, Mr. Consumer and Mr. Postmaster. Mr. Consumer buys coupons in book form and gives his order to the postmaster for his supplies from the farm as he needs them. This order is filled in one or two days' time from Mr. Producer and on delivery there are no credit accounts, but the coupons are torn off the book Mr. Consumer had purchased before. It is an extended meal ticket, amplified to secure the food beforehand and the post office acts as the waiter.

One of David Lubin's illustrations was the dollar that, with added interest, weighs down more and more. One dollar at the end of a year's time has six or seven cents of interest piled on top of it. The dollar that is free from this toll gathers more services, and more goods for the producer and the consumer. The German system of mortgage land banks and marketing as the solutions of our problems was Mr. Lubin's great contribution to the conference.

Shiawassee Co. J. N. McBRIDE.

APPLES IN COLD STORAGE.

An inquiry relating to the quantity of apples in cold storage December 1, as compared with the amount so held a year ago, has been completed by the Office of Markets. Three hundred and thirty-nine firms report an equivalent of 5,332,157 barrels in storage December 1 this year, as compared with 4,617,331 barrels a year ago. In percentage this would mean that there were in this country about 15.5 per cent more apples the first of the month than in 1914. Of this supply about 30 per cent is subject to the orders of growers.

WASHTENAW HOLSTEIN BREEDERS MEET.

On Saturday, December 18, at 1:00 p. m., there will be organized a Washtenaw County Holstein-Friesian Breeders' Association. The meeting will be held at the office of William B. Hatch, of Hatch Herd, Rooms 1-2-3, 11 Huron Street, Ypsilanti, Michigan. Every friend of the Black and Whites is invited to be present and participate.

Want a Christmas set of 106 pieces? See page 564.



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LONG BURNING PIPE AND
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Gets down to trick-taking on the first-few-fire-ups, extracting smiles of satisfaction and peaceful content where frowns once grew thick! For, men find a bunch of jimmy-pipe-joy in Prince Albert! Because, the harder they smoke it, the truer it proves! The patented process fixes that—and removes bite and parch!

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Life's too short and time's too speedy to worry with the tobacco question. You get going down the trail for a supply of P. A. You'll locate it at any store that sells tobacco. It awaits your howdy in tippy red bags, 5c; tidy red tins, 10c; handsome pound and half-pound tin humidors and in that joy-us crystal-glass pound humidor with sponge-moistener top that keeps P. A. fit-like-a-thoroughbred!

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CARBO SYSTEMS for supporting fencing



Keep your fence wires tight. Don't buy posts. CARBO Supports spring and let all strain come onto fencing wire, anchored to Carbo Terminals. You will eventually come to CARBO SYSTEMS.

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Wanted: A renter for 100 acre farm one mile from a manufacturing town, 10,000 population, in Southern Michigan. Owner wants a first-class man who will furnish all and put on stock. Just the place for a good man who wants to rent for a long term of years for a good deal less than the interest he would have to pay on his own farm. Answer RENTER, in care of Michigan Farmer.

Wanted Position as Foreman on Farm handling draft Horses or Herdsman on Cattle ranch. 41 yrs. old, married, no children. Address Lock Box 112, Maple Rapids, Mich.

WANTED MEN and WOMEN hustlers to distribute free sample of extracts. Can make \$5 per day. Address, Milton Remedy Co. Indian River, Mich.

WANTED- to lease a farm with the privilege of buying. F. Beyer, 782 McDougall Ave., Detroit, Mich.

DOGS

FOX, COON, SKUNK AND RABBIT HOUNDS Broke to gun and field. Prices right. Fox and Coon hound pups \$5 each. Stamp for reply. H. C. LITTLE, Fredericksburg, Ohio.

HOUNDS FOR HUNTING—Fox, Coon and Rabbits, all ages. Send 2 cent stamp. W. E. LECKY, Holmesville, Ohio.

When writing to advertisers please mention the Michigan Farmer.

Markets.

GRAINS AND SEEDS.

December 14, 1915.

Wheat.—Good trading weather and a substantial decrease in the United States visible supply of wheat were important factors in bolstering up the wheat market Monday of this week. During preceding sessions of the exchanges values had gradually declined from the season's new high level a week ago. The bulls have been further encouraged by improvement in the foreign demand, agents having offered better values to secure the grain. There is also a general restriction in primary receipts throughout the north-western states. It is now declared that the recent advance in prices was largely due to buyers covering orders that were left unfilled by the action of the Canadian government in taking over the wheat in terminal elevators two weeks ago. Scarcity of cars is hindering the free movement of this and other grains. The visible supply of wheat decreased 2,773,000 bushels during the week. One year ago No. 2 red wheat was quoted at \$1.18 per bushel. Detroit's quotations last week were:

	No. 2	No. 1	May.
Wednesday	1.20	1.17	1.25
Thursday	1.19	1.16	1.24
Friday	1.17	1.14	1.22
Saturday	1.17½	1.14½	1.23
Monday	1.18½	1.15	1.24½
Tuesday	1.19	1.16	1.24½

Chicago.—December wheat \$1.16½; May \$1.17½ per bushel.

Corn.—Prices are down a little from the high point of last week, but the position of the grain is tolerably satisfactory owing largely to reports of so much inferior corn. Primary receipts are not large and there is now foreign inquiry for the grain. Good corn is scarce. One year ago buyers paid 64½¢ for No. 3 corn at Detroit. Last week's local quotations were:

	No. 3	No. 3	May.
Wednesday	68½	70	
Thursday	68½	70	
Friday	67½	69	
Saturday	67½	69	
Monday	67½	69	
Tuesday	68	69½	

Chicago.—December corn 67.3c per bushel; May 70.7c.

Oats.—This trade is being favored by information that a fair volume of export business is being done. Primary receipts have been small and the general domestic demand fair. One year ago the local price for standard oats was 50½¢ per bushel. Last week's quotations were:

	No. 3	White.
Wednesday	47	45
Thursday	46½	44½
Friday	46	44
Saturday	46	44
Monday	46	44
Tuesday	46	44

Chicago.—December oats 42c; May 45c per bushel.

Rye.—Market quiet and steady, with No. 2 rye now being quoted at 97c.

Peas.—Steady and firm with small supply. At Chicago the quotation is \$2.35@2.60, sacks included.

Barley.—At Milwaukee the malting grades declined to 63@68c, and at Chicago to 61@70c.

Beans.—Market here dull but firm with last week. Cash beans \$3.55; December \$3.45; January \$3.35. At Chicago stocks are small and demand fair at present prices. Michigan pea beans, hand-picked, \$3.85@3.95; prime do. \$3.70@3.75; red kidneys \$4.65@4.75.

Clover Seed.—Quiet; prime spot and December \$12.40; prime alsike \$10.25. At Toledo prime cash \$12.50; March \$12.25; alsike prime cash \$10.40.

Timothy Seed.—Steady at \$3.80 for prime spot.

FLOUR AND FEEDS.

Flour.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$6.20; seconds \$6; straight \$5.60; spring patent \$6.50; rye flour \$5.80.

Feed.—In 100-lb. sacks, jobbing lots are: Bran \$28; standard middlings \$25; fine middlings \$30; cracked corn \$30; corn and oat chop \$28 per ton.

Hay.—No. 1 timothy \$18@19 a ton; \$17@18; No. 2 timothy \$15@16; No. 2 standard timothy \$17@18; light mixed \$10@12; No. 1 clover \$10@12.

Straw.—Wheat and oat straw \$6.50 @7; rye straw \$7.50@8 per ton.

DAIRY AND POULTRY PRODUCTS.

Butter.—Demand for best creamery is active, receipts of quality grades light. Market firm. Extra creamery 33c; firsts 31c; dairy 21c; packing stock 19c.

Eggs.—No change in prices but prevailing values are cutting down consumptive demand. Good grades are scarce. The price, based on sales, is 33@34c.

Chicago.—Volume of trading light as at present prices dealers prefer storage stock. Prices are unchanged. Extra creamery is 33½c; extra firsts 31@33c; firsts 28@30c; extra dairies 30c; packing 19@19½c.

Eggs.—Steady at last weeks prices with supply equal to demand. Current receipts are quoted at 30c; candled firsts 31c.

Chicago.—Firm at unchanged prices. New laid eggs are in good demand and sell at premium prices. Firsts 29 @30c; ordinary firsts 27@28c; miscellaneous lots, cases included 20@29c; refrigerator April extras 21@22c.

Poultry.—Fowls and springers are lower and spring turkeys, ducks and geese higher. Demand is fair and the market is quiet. Turkeys 16@17c; spring turkeys 21c; fowls 9@11½c, according to quality; spring chickens 11½@13; ducks 15@15½c; geese 14 @15c.

Chicago.—Supply and demand are both good. Prices are slightly higher. Turkeys young and old 15@16c; fowls 9½@12½c; springs 13½c; ducks 13½ @14c; geese 10@14c.

FRUITS AND VEGETABLES.

Apples.—Quiet; no change in prices. Greenings \$3@3.50; Spys \$3@3.75; Baldwins \$3.25@3.50; Steel Red \$4@4.50. At Chicago the market is steady and firm. Prices are a shade better than last week. No. 1 Greenings \$2.50 @3; Jonathans, No. 1, \$2.75@3.25; Baldwins \$2.50@3.50; Wageners \$2.25 @2.75; Spys \$2@3.75.

Potatoes.—Market is firm at higher prices for Michigan stock. Minnesota whites are now quoted at 75c; Michigan 70@75c per bushel. At Chicago the demand is good at slightly higher prices. Michigan potatoes not quoted. Other prices range from 62@75c. At Greenville 60c is being paid to farmers.

WOOL.

Boston.—Notwithstanding this customary quiet season which is used by manufacturers for taking account of stock and getting ready for the new season, a fair amount of business is being done by wool dealers and values are tending upward in sympathy with advance in foreign markets. Considerable quantities of fleeces are being moved at prices fixed by sellers. Stocks are small and demand covers practically the entire range of grades. Michigan unwashed delaines are quoted at Boston at 28@30c; unwashed combing 32@37c; unwashed clothing 24@30c.

GRAND RAPIDS.

Dealers were paying 36c for fresh eggs early this week but the hens are starting to lay again and prospects point to lower prices soon. Butter remains unchanged. Live poultry is in better demand, with prices as follows: Fowls and chickens 10@11c; turkeys 16@17c; ducks 14c; geese 10 @11c. Not much change is noted in potato and bean market. Prices paid at the mills for grain are as follows: No. 2 red wheat \$1.09; No. 1 white \$1.07; oats 40c; No. 2 yellow corn 70c; rye 85c; buckwheat 75c.

DETROIT EASTERN MARKET.

Extreme cold weather stimulated buying from farmers at the eastern market Tuesday morning. Apples were moving a little better at 75c@1.60; potatoes scarce at 85c@1; cabbage 60@70c; pork \$9@9.60 per cwt; eggs 45@48c; loose hay generally selling around \$20, but movement is of small proportions.

LIVE STOCK MARKETS.

Buffalo.

December 13, 1915.

(Special Report of Dunning and Stevens, New York Central Stock Yards, Buffalo, N. Y.)

With 200 cars of cattle on our market here today, the market was dull and draggy and in bad shape. The heavy cattle were off from 25@40c; the best butcher cattle sold about 10 @15c lower and the medium kind 25c lower. There are several loads left over tonight unsold. We do not look for much better trade until after the holidays. There was one load of fancy heavy cattle here today that sold for \$8.75, and there were a few fancy yearlings sold up as high as 10c.

Our market was sharply lower today, owing to liberal runs at all western markets and a fair supply here. We had about 140 double decks today, fully enough to supply all demand, and from the close of Saturday the price showed a loss of a strong dime per cwt., and with the opening trade of Saturday, as much as 10@20c; pigs and lights sold 10@15c higher. A few selected lots of hogs sold at \$6.75, with the bulk of the yorkers and light mixed at \$6.65@6.70; pigs and lights generally \$6.50; roughs at \$5.75@6; stags \$4.50@5.25. About everything sold that arrived in time for market, and while we look for a fair trade balance of the week, would not count on any big advance.

With 35 double decks of sheep and lambs on sale here today, market was active and prices 15c higher than the close of last week. All sold and we look for steady to shade higher prices balance of the week.

We quote: Lambs \$9.85@10; cull to fair \$7@9.75; yearlings \$6.75@8; bucks \$4@5.25; handy ewes \$6@6.25; heavy do \$5.75@6; wethers \$6.50@6.75; cull sheep \$3.50@4.50; veals, good to choice \$10.75@11; common to fair \$8@10.50; heavy \$6@9.

Chicago.

December 13, 1915.

Cattle. Hogs. Sheep. Receipts today...20,000 65,000 32,000 Same day 1914...33,204 38,993 25,498 Last week...67,779 298,818 93,128 Same wk 1914...50,088 200,801 104,976 Shipments from here last week amounted to 11,111 cattle; 47,959 hogs and 9,670 sheep, comparing with 10,764 cattle, 42,928 hogs and 17,286 sheep a year ago. Hogs received showed further gains in weights, the average weight being 191 lbs.

Cattle are firm to stronger today, while hogs are stronger to 5c higher, selling at \$5.50@7.70. Prime lambs and sheep are about steady, with bids much lower for the in-between kinds.

Cattle receipts last week reached enormous proportions, and with the approaching Christmas holidays, when poultry is so largely used in place of other meats, the increased supplies came at a most inopportune time. The choicer lots of cattle met with a good demand at firm prices, and the Christmas cattle were in a class by themselves, selling at prices much above those paid for other beefs, but the rank and file of the cattle on the market sold down 25@50c. The greater part of the steers not of the holiday class sold at a range of \$6.50@9.60, with the better class taken at \$9.50@10.50, while Christmas cattle brought \$10.75@13.60. The best holiday cattle were Angus yearling steers that sold at \$13.60 and yearlings predominated in other Christmas offerings. Sales took place of inferior light-weight grass-fed steers at \$4.50@6.50, while warmed-up steers sold at \$6.60@7, short-fed steers at \$7.10@8.45, good to choice steers at \$8.50@9.50 and plenty of steers fed for six months going for \$9 or a little better. Butchering cows and heifers were taken at \$4.25@9.50, but few of the yearling heifers were prime enough to go as high as \$8, the best cows fetching \$6.50@7. Cutters brought \$4@4.50, canners \$2.50@3.95 and bulls \$4.25@7. As a rule, the highest prices for bulls and female cattle were obtained early in the week, and the late market was in very bad shape for sellers. The calf market showed considerable life, with sales at \$4@10.25 for coarse heavy to prime light vealers. For weeks past cattle of an undesirable class have glutted the western markets, and there is no prospect of an early change for the better, as so many stockmen are unwilling to take any chances in wintering their holdings. There was a fine display of Christmas cattle, including the several breeds, with the \$13.60 steers selling 50 cents above the next best lot. Angus cattle comprised a large part of the holiday display, with Herefords ranking next in number. The \$13.60 steers averaged 1,121 lbs.

Hogs were marketed for still another week in enormous numbers, and it was rather surprising that prices stood the strain as well as they did, quotations reacting for the better class after severe declines, with \$7 hogs reinstated. Naturally, the very good eastern shipping demand was a potential factor so far as the better class of heavy shipping barrows, were concerned, these comprising but a small share of the daily offerings, while as a rule the hogs of light weight were slow to rally after breaks in prices. Speculators operated rather freely, buying on the breaks and taking advantage of better later markets, thereby securing some nice profits. There is now no quarantine division in the Chicago stock yards, as only stock from free area is allowed to come here, and cars containing cattle and hogs get the same treatment as solid cars of cattle, hogs or sheep. Late in the week a slump in prices occurred that left

quotations at \$5.50@6.60, with light bacon hogs at \$5.50@6.15, heavy packing lots at \$6.20@6.50, heavy shipping lots at \$6.50@6.60 and pigs at \$4@5.50. A week earlier hogs brought \$5.75@7.

Fat lambs and yearlings of medium weights sold at high prices last week, and so did fat wethers and ewes, and even prime heavy yearling wethers sold relatively high. Receipts continued meager as compared with normal years, and the year's receipts are away behind those for last year. Lambs sold at the highest prices paid this month, and it was a great pity that so many thin lots were marketed, as they had to sell at a big discount. Recent sales were made of feeding lambs at a Wisconsin feeding station at \$8.40, being rather heavy, and feeders brought \$8.15@8.25 in Omaha. Late sales of lambs were at \$7@9.50, top lambs selling higher than ever before in December, and the advance for the week was 25@40c. Yearlings advanced 25@50c, selling at \$6.75@8.25, while sheep were away up, wethers going at \$6@6.85, ewes at \$4@6.35 and bucks at \$4.50@5.

Horses were in larger supply last week, with a correspondingly larger general demand, making a steady range of prices. The sales of army horses to the French government were liberal, and this outlet was also good for army mules of good grade and five years old or older. Inferior horses sold as low as \$25@50c, with drivers of any quality worth \$100@200, while wagoners sold for \$150@200 and good expressers up to \$210. Drafters were salable at \$215@285, few going as high as \$240.

Crop and Market Notes.

Michigan.

Branch Co., Dec. 6.—The fall sown grains are small owing to late sowing and weather conditions. Much corn yet to husk and a lot of soft corn. A large number of cattle are being fed, but few sheep. Hay selling at \$10@12; wheat \$1.10; corn 70c; oats 35c; potatoes 50c; butter 25c; eggs 32c; beans about \$3.25; apples 50@75c.

Hillsdale Co., Dec. 6.—Young clover looks fine, while wheat and rye are not as good as usual at this time of year. Beans not a good crop, being poor in quality. Buyers offering \$3. About half the corn crop still unhusked in the fields. Many are holding their potatoes for a higher price. Plenty of feed for winter. Owing to the high price of feeding lambs, not so many as usual will be fed in this section. Wheat \$1.06; oats 32c; rye 97c; potatoes 60@75c; apples \$1 per bushel; hay \$8@12; clover seed \$9; turkeys scarce and bring 30c per pound dressed; chickens 10c; ducks 10c; hogs \$6.75; cattle \$4@6; veal \$10.

Isabella Co., Dec. 7.—Good winter weather and ground is covered with snow. Sugar beets nearly all drawn. Bean threshing nearly done and most of the farmers are selling their beans. Other grain being sold, but little hay being marketed. Not so many auction sales as in previous years. Horses plentiful. Wheat \$1@1.03; white beans \$3.20; red beans \$4; oats 32c; rye 8c; cattle \$4@6.50; hogs \$5.50; veal calves \$7; butter 24@26c; eggs 28c; potatoes 50c; chickens 9@10c.

Livingston Co., Dec. 6.—We are having good winter weather and ground is frozen solid. Wheat and rye went into winter with a very small growth. About one-third of the corn crop still in the field. Not many lambs being fed. Wheat \$1; rye 82c; oats 35c; corn 70c; beans \$3.20; potatoes 75c; hay \$8@14; butter 27c; eggs 30c.

New Jersey.

Morris Co., Dec. 7.—Weather mild. Winter wheat and rye have made an excellent growth. Farmers generally have enough grain to carry them through. Cows are selling at \$60@125. Wheat \$1; corn 90c per cwt; hay \$20; potatoes \$1; onions \$1; apples \$1; chickens 16c; eggs 48c; butter 35c.

New York.

Columbia Co., Dec. 8.—We are having the first fall of snow. Rye, of which a large acreage is grown, is promising, as weather has been favorable. Feed scarce and high, as both hay and corn were very short. Not much feeding stock on hand. Timothy hay \$21; corn 75c; potatoes \$1; onions \$1; chickens 18@22c; butter 40c; eggs 55c per dozen.

Pennsylvania.

Perry Co., Dec. 6.—Wheat in fine condition and more than the usual acreage sown. Corn not all husked, will average about 90 bushels per acre. Cattle in fine condition and feed (Continued on page 569).

Avoid "The Rush" complications by sending your subscription order early. PLEASE RENEW NOW.

THIS IS THE LAST EDITION.

The first edition is sent to those who have not expressed a desire for the latest markets. The late market edition will be sent on request at any time.

Thursday's Market.

December 16, 1915.

Cattle.

Receipts 2154. There was a good supply of cattle in all departments at the local yards and up to this writing it is still coming. The railroad service this week was very bad and a large amount had not been unloaded Wednesday night that should have been on sale early Wednesday. Thursday shippers were very sore on account of 40 cars of war horses en route to England being unloaded here and taking most of their yards, making it very hard to do business.

In the cattle division the trade was fairly active on canners and bulls, but dull on other grades. A few choice Christmas cattle were in the receipts and brought \$10 per cwt. Stockers and feeders sold a trifle better than last week and milch cows, especially common grades, were dull and draggy. The close was dull with quite a large number held over. Christmas steers \$8@10; best heavy steers \$7@7.50; best handy weight butcher steers \$6@6.50; mixed steers and heifers \$5@6; handy light butchers \$4.75@5.50; light butchers \$4.25@5; best cows \$5@5.25; butcher cows \$4.50@5; common cows \$3.75@4.25; canners \$2.50@3.50; best heavy bulls \$5.25@5.50; bologna bulls \$4.50@5; stock bulls \$3.75@4.25; feeders \$6@7; stockers \$4.75@5.50; milkers and springers \$4@80.

Sandel, S., B. & G. sold Charles 4 cows av 980 at \$3.75, 1 do wgh 990 at \$4, 4 do av 905 at \$3.50; to Hammond, S. & Co. 3 do av 1083 at \$5.25, 3 butchers av 1097 at \$4.75, 1 bull wgh 1100 at \$5.25; to Mich. B. Co. 3 butchers av 730 at \$5, 5 do av 868 at \$6.15, 20 do av 726 at \$5.50, 2 steers av 785 at \$6, 1 do wgh 890 at \$5.50; to Bray 1 bull wgh 1110 at \$5.25, 4 cows av 945 at \$4.25, 3 do av 960 at \$4.50, 2 butchers av 910 at \$5.25, 2 cows av 795 at \$3.25, 5 heifers av 740 at \$5.75, 2 bulls av 990 at \$5.10, 2 stockers av 595 at \$5.50; to Hammond, S. & Co. 3 cows av 1017 at \$4.25, 1 do wgh 1270 at \$5.25, 3 do av 943 at \$4.25; to Feldman 2 bulls av 810 at \$5.25, 1 do wgh 1350 at \$5.30; to Bresnahan 5 butchers av 684 at \$5.25; to Kamman B. Co. 6 do av 813 at \$6, 5 do av 960 at \$5.50; to Kull 7 do av 573 at \$4.75, 3 do av 663 at \$5, 2 bulls av 870 at \$4.50, 1 do wgh 970 at \$5.25; to Belfort 2 cows av 1105 at \$4.75, 4 do av 1195 at \$4.75; to Mich. B. Co. 1 bull wgh 820 at \$4.75, 5 steers av 1180 at \$7.25, 1 do wgh 1250 at \$6.50, 30 butchers av 712 at \$5.50; to Jackson 34 stockers av 502 at \$4, 5 do av 546 at \$4.25; to Kull 4 steers av 800 at \$6.

Roe Com. Co. sold Sullivan P. Co. 4 cows av 1305 at \$5, 2 do av 1000 at \$5; to Kamman B. Co. 1 bull wgh 1240 at \$6; to Bresnahan 5 butchers av 790 at \$5.50, 1 heifer wgh 610 at \$5.

Veal Calves.

Receipts 581. The market on good veal calves was fairly active at last week's prices, but common and heavy grades were very dull. Best grades \$10@10.50; others \$7@9.

Sandel, S., B. & G. sold Kull 3 av 160 at \$10, 4 av 145 at \$10; to Klapper 2 av 115 at \$9.50; to Nagle P. Co. 2 av 185 at \$10.50; to Thomas & Co. 5 av 165 at \$8.50; to Nagle P. Co. 2 av 150 at \$8.50, 1 wgh 230 at \$9, 3 av 130 at \$9, 2 av 205 at \$9, 1 wgh 260 at \$7, 4 av 145 at \$10, 4 av 155 at \$9.

Reason & S. sold Newton B. Co. 9 av 155 at \$10, 1 wgh 120 at \$8, 3 av 175 at \$10.

Roe Com. Co. sold Nagle P. Co. 2 av 145 at \$8.

Sheep and Lambs.

Receipts 4675. The sheep and lamb trade was active, a few choice lambs bringing \$9.70 on Wednesday but on Thursday \$9.60 was top, and the close was active; the receipts in this department were very small and it looks as though the large runs were over. Best lambs \$9.50; fair do \$9@9.25; light to common do \$7.75@8.25; yearlings \$8; fair to good sheep \$5.75@6; culls and common \$4@5.

Roe Com. Co. sold Nagle P. Co. 40 lambs av 85 at \$9.50, 7 sheep av 75 at \$5, 28 lambs av 75 at \$9, 123 do av 80 at \$9.50.

Haley & M. sold Parker, W. & Co. 29 lambs av 80 at \$9.65, 17 do av 75 at \$9.25, 27 do av 80 at \$9.50, 134 do av 85 at \$9.65.

Reason & S. sold Nagle P. Co. 41 lambs av 68 at \$9.50, 15 do av 70 at \$9.25, 6 do av 70 at \$7.50, 9 sheep av 115 at \$5.25.

Hogs.

Receipts 18,380. In the hog department the trade was dull at Wednesday's prices. Pigs \$6; yorkers and mixed \$6.35@6.50; bulk at \$6.45.

Veterinary.

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

Ringworm.—My cattle are troubled with what appears to me to be a new disease and it gives rise to the following symptoms: First a small pimple appears, later a sore spreads out to about the size of a silver 50 cent piece then a crusty-like sore appears. In nearly all these cases the first sores appear about the head, then later spreads to the body. I first noticed this ailment two months ago. A. R., Grand Rapids, Mich.—I am inclined to believe that your cattle are troubled with ringworm and one infects the other. Apply tincture of iodine to sores three times a week.

Roarer.—I have a horse that wheezes, and I am sure the whole trouble is in his throat, the result of distemper. Can he be cured? A. B. K., Howard City, Mich.—If the glands of his throat are swollen, apply equal parts of tincture of iodine and camphorated oil every day or two; however, I doubt if you will obtain permanent relief without resorting to a surgical operation for roaring.

Milk Fever—Chronic Mammitis.—We have a brood sow which I think had milk fever soon after she farrowed, following this sickness her udder caked and swelled considerably, which seemed to dry her completely. If I breed her again will she have milk enough for her pigs? C. Y., Norvell, Mich.—I believe she will be all right when she farrows; however, a portion of her udder may perhaps be blocked.

Stocking.—I have a young mare which appears to be perfectly healthy, but when allowed to stand in stable both hind legs stock to nearly twice their natural size. What is the cause and what can I do to remedy this ailment? M. C. L., Hudsonville, Mich.—Stocking is a result of feeding too much grain when the animal is idle, inactivity of excreting organs of body; besides, improper elimination. Feed food of a laxative nature and give 2 drs. of acetate of potash at a dose in feed three times a day. Horses should have daily exercise.

Bog Spavin.—I have a three-year-old filly that had enlarged hock when only a year old and since I have been driving her the bunch has doubled in size. Would you consider this horse sound? C. H. J., Vestaburg, Mich.—No, this is not a sound horse. Clip hair off and apply one part powdered cantharides and four parts lard twice a month, or you can safely use one of the commercial blisters that are regularly advertised in this paper, but remember it is no easy task to reduce bog spavin.

Barrenness.—Have a Jersey cow that has had two calves, since then she comes in heat regularly, has been served three times, but fails to get with calf. E. M., Roscommon, Mich.—She may have an ovarian cyst which your Vet. might crush, then perhaps she would get with calf. Dissolve 2 ozs. of bicarbonate soda in three pints of tepid water and inject her when she comes in heat, and breed her five or six hours later.

(Continued from page 568).

plentiful. A great deal of interest is being taken in farmers' institutes. Wheat \$1.02; corn 60c; oats 32c; potatoes 85c; six weeks' old pigs \$4 per pair; turkeys scarce and selling at 21c per pound; eggs 33c; apples 80c per cwt.

Ohio.

Brown Co., Dec. 7.—Weather is extremely cold with plenty of snow and rain. Farmers have plenty of rough feed and most of them have their corn and fodder in the barn. Wheat and rye were sown late but looking well. A good many hogs being fed. Wheat \$1.10; rye 90c; timothy \$15; clover hay \$12; corn 60c; butter 20c; eggs 27c per dozen.

Columbiana Co., Dec. 7.—Weather fine and farmers have work pretty well done up in preparation for winter. Wheat looks good, very little rye sown. Good supply of winter feed. A good many apples being shipped at 75@80c per cwt; wheat \$1.10; oats 40c; corn 80c; hay \$16; potatoes 75c; butter 28c; eggs 36c; veal \$10.75; hogs \$6.50; farmers are receiving for cream 80c per gallon; milk 20c per gallon.

Indiana.

Elkhart Co., Dec. 6.—Snow covers the ground, and both wheat and rye are in good shape. Farmers have been shredding and husking corn. Cattle not as plentiful as usual, but hogs are in good supply. Enough feed on hand for home use. Cream 48c for 20 per cent fat; milk 7c at retail; hogs \$5.50; wheat \$1; potatoes 50c; hay \$12@14.



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Ex-Governor of New Mexico

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Because of age and ill health, will sell to highest bidder my 345 acre farm located in Genesee Co., Mich., 10 miles south of Flint, 6 miles north of Fenton, on stone road. Best clay-loam soil. Good well and stream, 15 room brick house, 9 room frame house, barn 92 x 52, horsebarn 20 x 30, Silo 12 x 32, out buildings. Will sell in two parcels. Terms, half cash, \$500 to be deposited on day of sale, time on bal. at 6%. Sale on premises.

Wednesday, Dec. 29th, 1 P. M.

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Eggs and Exercise

By A. W. GALLAGHER

A GOOD many elements are embodied in that wonderful, much sought after product—the winter egg. Not the least of these elements is exercise. But this is often overlooked just as a great many other important factors are apparently lost sight of.

Instead of keeping in mind all the important little details, a beginner is apt to emphasize one too strongly and overlook a number of others that may really be of much greater importance.

When a successful poultryman is asked by an amateur what he feeds the hens in winter, or what kind of a house he has, he knows that the questioner has a great many things to learn. And yet these same questions may be asked by an experienced person and if truthfully answered by the would-be poultryman, may furnish the key to the whole situation.

A Case of Poor Results.

A striking illustration of this occurred at a farmers' meeting, in an adjoining district, last winter. Two farmers were talking about winter eggs. One happened to be the owner of a very profitable flock of fine Brown Leghorn hens. These hens were known to be the only ones in the neighborhood that were laying, at that time, which was the coldest part of the winter.

The two speakers had been comparing notes and it was the amateur's turn to give his views. He could not see why his hens were not laying. They were of the same strain of Brown Leghorn stock as those owned by the other man. He fed a balanced ration, the same as that used by his neighbor. After nearly every side of the subject had been discussed, his neighbor inquired: "What kind of poultry house do you use?" He looked a trifle embarrassed, then replied: "Nothing but the open-air house the year round." One is a Baldwin, one a Jonathan, one a Rambo, and the other is a Walldower." Needless to add, the subject was not pursued any further.

Exercise Very Important.

To return to the text: Exercise is almost as essential to the hen as food and drink; yet the fact is too often overlooked. Some varieties of chickens are naturally active, and do not have to be forced to take exercise, while others will stand around and wait for their feed and grow fat. This is especially the case where hens are kept housed in the cold part of the winter. Some will hustle around of their own accord while others will not. It is the busy hen that lays the eggs. The lazy one is the drone. If the ration is properly balanced and enough is allowed to keep the flock in laying condition, then exercise is necessary to produce eggs instead of fat. All large fowls are known to take on fat more readily than the smaller ones. Last winter we tried a little experiment. At the beginning of winter two flocks of Rhode Island Red pullets were put into winter quarters in separate houses some distance apart. There were fifty in each house. Both flocks were given exactly the same kind of rations and the general care was the same, except that one bunch was forced to dig for their grain while the other bunch just "gobbled" up theirs as fast as they could, without any digging. A record was kept for four months but all of the figures would make tiresome reading. A few may be of interest.

The Results of Exercise.

The smallest number of eggs laid by the "busy" hens in any one day was 15, and the largest number 46. The smallest number laid by the "drones" was two; the largest number 16.

We use litter from the barn and dry leaves. The leaves are best be-

cause they contain no dust and do not so readily become packed. The leaves are of more value, also, to use as a fertilizer when mixed with the droppings, because the leaves are free of grass and weed seeds.

THE SECRET OF SUCCESSFUL EGG FEEDING.

Of human foods, the egg is classed with those having a high protein content. In fact, it is one of the chief protein foods for human consumption.

The hen is valuable to man chiefly because she is the producer of this valuable food product. While it is true that she has been developed from a wild game fowl to an egg machine, the results obtained from the average flock of chickens show that this machine is not being worked to its full capacity, even though the desire of everyone raising chickens is to keep them busy laying eggs.

Improper Feeding Common Cause of Poor Results.

The conclusion one must reach in regards to these poor results is that somewhere the management is not right. Close investigation will show that the method of feeding is most often at fault. It is an indisputable fact that we cannot make gold out of dross, or anything but gold. It is just as unreasonable to think that we can make a highly concentrated protein product as the egg out of a ration that is utterly lacking in that matter. This is the cause of most of the poor results in egg production.

Feeds rich in protein are the most expensive, while those containing a large per cent of starch, the grains, are the kind most commonly grown on the farm. These feeds, being so handy, are fed to the hens in too large proportions to produce good results in egg production, as a proper balance between these two kinds of feed is absolutely necessary for good results.

Egg Producing Feeds.

In the summer the hen balances the starch feeds by eating insects and worms, if she is allowed her freedom, but in winter the protein must be supplied. Feeds which will furnish the protein are meat, milk and bone. Of these, the first two are so useful for other purposes that the hen usually stands little chance of getting any, but fresh bone, or green bone, as it is usually called, is in most cases a waste, or is sold very cheaply by butchers for fertilizer purposes, and is one of the best protein foods for poultry. It can be procured from almost any butcher for a nominal price, often for nothing, and if ground and fed to the chickens at the rate of a half ounce per hour per day will accomplish wonders in egg production.

The Use of Bone for Egg Production. There are two precautions necessary in the use of green bone for poultry feeding. One is to select uncontaminated bone from fresh meat. That from salted meat will not do. With a very little experience one can pick out the spoiled and salty bones. Contaminated bones may cause diarrhea, as will also an overfeeding of fresh bone. The other essential is that the bone is ground fine enough to permit of easy assimilation by the hen. To do this there is nothing better than the bone cutters advertised in the poultry columns.

Dry bone is also good for poultry feed if put through a bone cutter. Both fresh and dry bone, besides furnishing valuable protein feed, are rich in mineral matter so necessary in the formation of the egg shell. Therefore if good bone can be procured and a good bone cutter is at hand, the poultryman need not worry about getting eggs in the winter, if he uses com-

mon sense in the general care of the chickens, because both commercial and scientific tests have proven that ground bone is one of the most economical and efficient egg producing foods there is.

THE CHRISTMAS GOOSE.

There is a growing demand for well fattened young geese in all large cities at the Christmas holidays. The Jewish housewife, whose religion does not allow the use of lard, provides in its place goose grease in large quantities.

These fowls may be taken direct from good pasture and put upon the market; however, the quality of the flesh and weight is improved by penning and feeding a special fattening ration for at least ten days. A good ration for this purpose is dampened corn meal to which about 15 per cent of beef scrap has been added. Give oats and corn for the evening meal; the corn and oats should be cooked or scalded. They must have green food and we are careful not to give enough grain to spoil their appetite for green food. Any of the ordinary vegetables will do for green food. A trough of sharp grit and another of fresh water should be kept near fattening geese at all times. A frame of slate over each trough will help in keeping water and grit clean.

Fattening geese should be penned out of sight and hearing of the other geese. Do not shut them up in the dark, this causes them to lose interest in life at a time when they should be tempted to eat all they possibly can. Feeding pen should be cleaned daily and the birds should have a liberal bedding of cut straw on floor of pen. Geese require less feed and time for fattening when they have been fed some grain at evening from goslinghood up to the time when they are ready to fatten for market.

It is a mistake to pluck geese just before killing to save the feathers. This inflames the skin and injures the sale.

Geese can be made a profitable feature on the farm where they have free range and access to running water. The fowls and feathers both bring a good price and they are not difficult to raise—will live largely on grass in summer.

FRANCES WOOD.

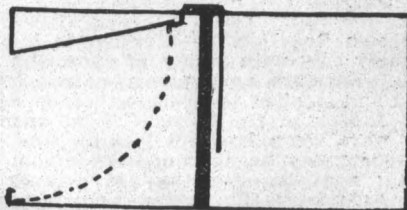
DOOR ARRANGEMENT FOR TRAP NEST.

I find in the Michigan Farmer of May 22, 1915, a picture of an easily-made trap nest; also a description of it, but nothing said about how it is closed after the hen enters the nest. Would you please explain it more fully?

Hillsdale Co.

Mrs. C. H. R.

If you will look at the illustrations of the trap nest in the May 22 issue, you will notice that it has a partition across the middle of the box,



and this partition has an opening just large enough for a hen to get through comfortably.

The wire, bent somewhat in the shape of the figure "7," works the trap-door. The downward stroke of the figure 7 is on the inner side of the partition and crosses the opening in it. The horizontal stroke is attached to the top of the partition and is so arranged that the end of it catches a little staple in the bottom of the door when the door is up. When the hen passes through the opening she pushes the wire aside and in that way lets the door down.

The sketch shown here gives a side view of the nest, which will probably make more clear this trap-door arrangement.

EXPERIENCES WITH A SMALL FLOCK OF HENS.

We were very much interested in the article, "The Hen as a Factor in Farm Profits," and would like to see more of the same kind in the poultry department. There are hundreds of poultry raisers in Michigan that could tell of interesting experiences in their efforts to make a success at poultry raising. We have talked with a large number of men who are factory workers, and about eight out of every ten have an ambition to get out on a small piece of land and try their hand at raising poultry. Perhaps not one out of every ten will ever realize their ambition, and not over one in ten would make a success of it if they did. The idea that any person who has not succeeded at anything else can make a success at raising poultry is about out of date. We have had some experience all our life in raising farm poultry but not until we tried it in a commercial way did we realize how little we knew about it.

Early Experience.

A few years ago we moved from the city on to a small suburban place of two acres and started with about 100 Barred Rocks, and for three years we failed to make them average over 100 eggs per year. After we had taken out the price of the feed we had only about one dollar per hen for our net proceeds, so we disposed of Rocks and started in last year with a small flock of Leghorns. On May 15, 1914, we had 120 chicks hatch, out of which we got 55 pullets. On November 30, we got our first egg and the following is the record for ten months:

December, 328 eggs; January, 876; February, 716; March, 1,000; April, 1,178; May, 1,150; June, 958; July, 913; August, 687; September, 206. A total for the ten month of a little over 667 dozen, an average of a little over 145 to the hen. The eggs sold for \$164.60, and the feed for the ten months cost \$59.60, leaving a balance of \$105 for our share of the investment.

Last spring we started in with the hope of raising 200 or 300 pullets, and on April 1 had a fine lot of 170 chicks hatch, that gave promise of giving us a fine start for our early fall layers, but on April 15 and 16 130 of these chicks were killed by rats or weasels, so that our hopes for that hatch were suddenly dashed to pieces. But we did not give up and now have about 250 fine pullets, and on October 31 we got the first egg from our pullets, just one month earlier than we did last year. Contrary to what nearly all poultry journals claim that eggs from pullets mated to cockrels would not bring out strong chicks, our chickens were nearly all hatched from the eggs of our 55 pullets, with only two cockrels in the flock. About 65 per cent of the eggs put in the incubators brought out fine healthy chicks.

Judgment Necessary for Success.

Now, after having passed through our first year, when we really spent very much time in the business, we can look back and see where we can improve on last year's efforts. In the first place we shall try and hatch our chickens earlier in the spring, so that our early pullets will commence laying before the yearling hens go into the molt. Next we will cull our flocks closer, and try and keep only the best. Also, we will take all roosters out of the flocks and only mate them through the breeding season. If we can not use the trap nest we will gather the eggs for the incubator from the early morning layers as they are more apt to be the best of the flock. There are a great many other problems that come up in the poultry business that can only be solved as they make themselves manifest, and to solve these problems calls for good judgment on the part of the individual who expects to make a success at the business.

A. L. S.

The Hen House Floor

As a rule hens will lay more eggs the first year they occupy a new house than they will lay any succeeding year. This is because the building, to begin with, is perfectly clean. Later it becomes more or less infested with lice, dust, filth, and disease germs of various kinds, and the only way to keep up the egg record is to each year give the house such a thorough cleaning that it is, so far as cleanliness goes, as good as new.

Much may be done toward this end by whitewashing, spraying with one of the coal tar disinfectants or fumigating with sulphur. In this way all of the interior can be reached if the floor is of wood or concrete, but comparatively few houses have a good floor. To clean a dirt floor it is necessary to remove the dirt to the depth that has been worked in by the hens and fill up again with clean soil. This is so much of a job that it is often put off from year to year and usually is not done at all. The hens get their winter exercise by scratching in the finely pulverized droppings of last year and perhaps two or three years before. The filth and germs that fill the air on a busy day may not actually cause disease, but they keep the fowls from reaching that perfectly fit condition which is necessary to a good egg yield.

Concrete Floor Best.

For economy a floor of wood or concrete is indispensable and from practically all points the latter is to be preferred to the former. Concrete is cheap, is easily laid and will last for all time. Wood is expensive, less durable, and except for portable houses should not be recommended.

There are two objections to concrete floors, both of which, however, may be easily avoided. Dampness, which can be overcome by having the house on a foundation a foot or so above the surface of the ground, with the floor level with the top of the wall, by placing a layer of small stones or cinders under the concrete, or by laying heavy tarred felt or cheap roofing paper under the concrete. It is claimed by some that hens on a concrete floor lose their toenails by wearing them off while scratching. This may be avoided by having a smooth surface and using six inches to a foot of litter. Some advocate having an inch or so of clean sand on the floor in addition to the litter, but I have never found it necessary.

Laying Concrete Floor.

If the soil beneath is firmly packed an inch of concrete is thick enough, using four parts of sharp sand to one part cement. After laying a strip of floor silt on about a pint of clear cement to each square yard and trowel down smooth. This will give a very hard, polished surface which will not only be easy to clean but will cause no undue wear on the toes of the hens. With cement at a dollar and a half a barrel, and not counting cost of sand or labor, this floor can be laid for about five cents a square yard. A house 12x24 feet in size can be floored for not over two dollars, about one-sixth the cost of a board floor.

Among the many advantages in having the poultry house well floored are: Saving in grain, since none of it is lost by being buried in the dirt; saving in litter, as it will keep clean longer; saving in labor; gain in health of the flock and consequently an increase in the number of eggs when the price is highest. When all of these items are considered the cost is saved several times over the first year.

Avoiding Dampness.

To avoid dampness greater precautions should be taken on clay than on sandy soil, but much of the dampness we hear about in connection with concrete floors is not due to the floor

at all, but to insufficient ventilation. The air should be changed often enough to carry out all the moisture discharged from the lungs of the fowls, otherwise the litter will become damp. A clean house with plenty of litter, sunlight and ventilation will go farther toward getting winter eggs than a balanced ration.

Van Buren Co. C. N. WHITAKER.

TREATMENT FOR ROUP.

I have some hens whose heads are swollen. There is also a watery froth in their eyes, but they do not seem to be sick. I would like to know what it is.

Huron Co.

D. Q.

Your chickens show symptoms of roup, which is a very common disease which attacks poultry at this time of the year.

Roup, or contagious catarrh, as it is sometimes called, shows itself in the fall when the chickens are housed and when hand feeding is used almost entirely. Therefore, at this time of the year chickens do not get the usual amount of exercise, are affected by dampness and lack of ventilation of coops, and are often fed table scraps or mashies which become easily contaminated.

The symptoms of this disease vary considerably, but the most common ones are swelling of the head, discharges from the eyes and sometimes from the nose, and inflammation of the mouth, in which sometimes cankers and false membranes are formed. In advanced stages of the disease the chicken becomes drowsy and listless and loses weight. There may be some slight attacks in which only the eyes or the mouth are affected, the bird otherwise being apparently healthy.

The essential treatment for this trouble is to rectify the conditions which are likely to cause it. Make sure that the coop is dry and has plenty of ventilation without drafts. Roup is not often found where the hens are housed in the open front type coop. Also make sure that the food and water are fresh and clean. Any bird which shows symptoms of the disease should be isolated from the rest, and all dead birds either burned or buried deeply. It is also a good thing to thoroughly disinfect the house and yards if the chickens are kept yarded, by removing all rubbish and litter and spraying with a good coal tar disinfectant.

The use of potassium permanganate in the drinking water is also of great value. A saturate solution is made by dissolving as much of this substance as the water will take up. In using the solution in the drinking water, from one to two teaspoonfuls should be added to ten quarts of water.

Many think it is not advisable to treat fowls which have this disease, as the birds, while apparently cured very often retain the disease in chronic form and are generally the means of spreading it to the healthy ones in the flock. The sanitary methods suggested above are the chief ones necessary to satisfactorily control this disease.

POULTRY SHOW HINTS.

By observing the best of your breed and studying them you form an idea of the correct breed type and this is a valuable asset in selecting the right birds for your pens. The experienced poultry breeder has his vision of the breed type and has learned how to select good birds by constantly observing stock and striving to make it better.

Read over the Standard of Perfection as far as it concerns the breeds in which you are interested. Then visit the poultry show and the exhibitors will have an added interest.

Ingham Co.

R. G. KIRBY.



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X-Ray completely hatches on one gallon of oil—just one filling. Fill the X-Ray tank with one gallon, light the lamp and you are through filling lamps. No cold corners, no overheated sides—X-Ray automatic trip regulates the flame.

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Takes The Guesswork Out Of Hatching 100 per cent hatches common. Hundreds of dead air cells protect eggs against sudden changes. Incubator alone \$7.85 with Brooder, \$9.85—frt. paid E. of Rockies. Money back with 8 per cent interest if not satisfied. Order today or get big free poultry book and special new Combination Offer.

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Oat Sprouter \$2

For \$2.00 you can build the simplest, most efficient, easiest to operate and very best oat-sprouter ever constructed. A boy can make one in an evening with no tools but a saw and hammer. Cost of operation for a 40-hen size less than 7c a month. There are thousands in successful operation. Plans with plain directions for building, 25c postpaid.

I. PUTNAM, Route 111 ELMIRA, N. Y.

BIG FOUR POULTRY JOURNAL—The Practical Poultry Paper for Practical Poultry Raisers; only paper devoted exclusively to the poultry interests of Illinois, Indiana, Michigan and Wisconsin. It's YOUR paper; you should read it. Bright, Snappy, Live, SPECIAL OFFER: 6 mos. Trial Subscription 10c. Send stamps. Big Four Poultry Journal, Desk 26, Chicago.

Roup has no terrors for the poultry owner who uses Conkey's Roup Remedy. 50c. CONKEY CO. CLEVELAND.

POULTRY.

BARRED ROCKS—Parks 200-egg strain season. FRED ASTLING, Constantine, Michigan

Barred Plymouth ROCK COCKERELS, large, farm raised from prize winning Rock. \$3 each, two for \$5. J. A. BARNUM, Union City, Mich.

Barred Rock Cockerels—200 big husky vigorous birds. A few pullets. W. C. Coffman, R. 3, Benton Harbor, Mich.

Bird Lawn Farm, A few exhibition Buff Rock Hens for sale \$3 to \$10 each. S. C. Buff Leghorn Cockerels \$1.50 to \$3. Blue Orpington Cockerels \$3 to \$10 each. Our Buff Rocks won three firsts and one fifth Chicago 1914 on four entries. Bird Lawn Farm, Lawrence, Mich.

BRED-TO-LAY R. C. Rhode Island Reds, Breeding Cockerels. A few extra good ones from Vibert, 255 egg strain. J. C. Greene, St. Johns, Mich.

Ferris Leghorns—200 Egg Strain. One customer's flock averaged 102 eggs in 12 mos., another 181 eggs in 12 mos., another 199 eggs in 12 mos. You can do as well. Eggs, chicks, breeding stock from hens with records up to 264 eggs. Prize winners at largest shows. Prompt shipment, prices low, quality guaranteed. White Leghorns are best for eggs. We raise thousands. Free catalog and price list gives particulars. Write for it now. 15 years square dealing. Thousands of pleased customers. FERRIS LEGHORN FARM, 924 Union, GRAND RAPIDS, MICH.

PINE CREST WHITE ORPINGTONS, why wait until Spring to purchase stock, by buying now, you get the benefit of reduced rates and get eggs all winter. Mrs. Willis Hough, Pine Crest Farm, Royal Oak, Mich.

Rose Comb Brown Leghorn Cockerels From Mad. Sq. and Mich. and Ohio State Fair winners \$1.50 each. CLAUDIA BETTS, Hillsdale, Mich.

RHODE ISLAND REDS and PLYMOUTH ROCKS. Males 5 to 12 lbs. according to age \$2 to \$5; P. H. hens weight 5 to 9 1/2 lbs., eggs 15 for \$1.00; P. H. eggs \$5 per 100. Mammoth Bronze Tom Turkeys, 8 to 28 lbs. according to age \$8 to \$25, 10 eggs \$3. A. E. Crampton, Vassar, Mich.

Rose Comb Brown Leghorn Cockerels A few choice hatched, bred from prize winners, well matured, good color, \$1 each. E. HIMEBAUGH, Hillsdale, Mich.

R. C. and S. C. R. I. Red Cockerels, W. Emden Geese R. B. O. Ducks and White African Guinea. Fine stock. Prices reasonable. O. E. Hawley, Ludington, Mich.

Silver Laced Golden and White Wyandottes. Fine a specialty. Circulars free. O. W. Browning, Portland, Mich.

Standard bred S. O. W. Leghorn Cockerels, Pure White, five point combs. We won 1st cock, 2nd hen, State Fair this year. Prices \$2 to \$5. Wishbone Leghorn Farm, A. B. & J. M. Wiley, R. 6, Ann Arbor, Mich.

White Wyandotte a fine lot, male and female at low price and write your wants. DAVID RAY, 202 Forest Ave., Ypsilanti, Mich.

White P. Rocks, Pokin and white runner ducks, White guineas, eggs and day old ducks and chicks. H. V. HOSTETTER, St. Johns, Michigan.

Mention The Michigan Farmer When Writing Advertisers

Grange.

RURAL SOCIAL PROBLEMS.

This is certainly a question well worth the consideration of any group of people. It is a question that confronts the rural community more than any other. I believe the things to be first considered are:

Why do the young people leave their country homes and go to the towns and cities? Not only the young people, but the older ones as well. Why is it that the majority of country towns and cities are made up of retired farmers? Let me tell you one big reason. The women of the farm homes do not have the modern conveniences that their "city sisters" have. A great many farm homes now have the conveniences, such as light, furnaces, hot and cold water, bath, etc., but the big majority still use kerosene lights, the same as their great-grandmothers did when they were living.

I do not recall a single farmer who does not have some, if not all of the up-to-date machinery to carry on his farm work, but the farmer's wife may and does have to carry in and out every bit of water used in the home. It is this and other things that make the farmer move to the towns. His wife and daughters rebel. Will you say it isn't the lack of proper machinery to work with that makes the young man go to the cities? No, perhaps not. What is there so attractive about city life for him, then? It is the lights and the excitement and the fact that there are others around about him, even though he does not know a soul to whom he can talk. While at home he has nothing to look forward to but an evening spent listening to a discussion on the latest

work. We'd rather stay in the city and starve. No, sir, we stay right here."

This man, since he became governor has been trying to solve this problem. The question of sociability of the country compared to city life now confronts.

"I think you will agree with me that the schools and churches are the two institutions to be considered. Why should the schools be closed from May until September and longer? Why not combine several districts into one center?"

But the sentiment concerning the "old red schoolhouse" is so deep-seated that it takes a lot of pounding to get men to see the opportunity offered. Too many say, "What's good enough for me is good enough for my children."

The farmer must be reached through his pocketbook. The child through his imagination.

My own experience along this line comes to me just now. One of my eighth grade boys said in agricultural class the other day that he did not see any use of studying agriculture, the books didn't tell him anything he didn't know about it. He said he didn't need to go to high school or M. A. C. to learn how to farm. That child's imagination had never been worked upon so that he could see the possibilities of an educated farmer. With consolidated schools we form a regular business of transportation to and from school, making the need for good roads everywhere more imperative. With better roads the people will get out oftener evenings to attend social gatherings. An entertainment might be appointed in the community and parties arranged for on every occasion possible.

Another thing, the children are instructed in agriculture, manual training and cooking. They get a higher idea of the dignity of labor and lose much of the idea to go to the city and

Farmers' Clubs

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."

THE ASSOCIATIONAL MEETING.

The Twenty-third Annual Meeting of the Michigan State Association of Farmers' Clubs was held in the Senate Chamber of the Capitol building on December 7-8, 1915. The attendance at the opening session, and in fact, throughout the meeting, was good, the senate chamber being well filled at every session.

The morning session was devoted to the transaction of routine business, including the appointment of committees and the presentation of resolutions. At the opening of the afternoon session the associational secretary, Mrs. Brown, presented her annual report, which was in part as follows:

The Secretary's Report.

I feel it an honor to be secretary of these men and women who are the very marrow and sinew of our state and nation in wealth, and better than that, the moral and spiritual uplift of our cities and villages. With this honor conferred on me, and with such a good vote as you gave me last year. I have tried my very best to give the time and work required for this association, although it has meant responsibility and sacrifice of pleasure, which I am glad to make, if by so doing we can benefit someone else. We all want a part in this work of making this State Association one of the great factors in the principals of right and progress of trade in this great state of Michigan's agriculture.

We greet with joy the faithful ones and bid the new ones a most hearty welcome to join with us in this great and good work. For united action means strength. And with this mutual co-operative spirit we feel assured of its success.

The Farmers' Club movement has been in existence 44 years, Ingham County Club being one of the first. The State Association was organized in 1894 with 22 Clubs represented by 35 delegates; while today we have 131 Clubs who have joined the State Association. Much has been done but there are greater opportunities than ever before.

Northern Michigan has awakened to its advantages and offers a great field for efficient work. Many requests for constitution and by-laws and information for organizing new Clubs have been received. There have come letters from 16 different townships since my taking up the duties of this office.

Three executive meetings were held during the year.

* * *

Of the 37 return postals sent out in January to Clubs who had not reported, seven Clubs sent in as follows: Brighton, Livingston county, reported as disbanded; Ortonville, Oakland county, also disbanded; Green Oak, Livingston county, returned card with no report. A Farmers' Club of Alma reported as absorbed by County Line Club. Mt. Pleasant not reported. The Webster Farmers' Club, after being silent for two years, responded on return post card as much alive and officers elected.

Any information as to the following Clubs will be gladly received: Standish Farmers' Club, of Arenac county; West Haven, Shiawassee county; Wexford Boys' Agricultural Club, of Wexford county; Washington, Macomb county; Climax, Osceola

county; County Line and Eckford, Calhoun county.

Four county associations are reported. Jackson, Clinton, Tuscola and Shiawassee, with an assurance of a county organization in Calhoun Co.

With the 128 Clubs with a membership of 10,000 as reported by Mrs. Johnson at the last annual meeting and the organization of 16 new Clubs we can see this great movement is growing.

The Farmers' Co-operative Club of Wolverine, Mich., has added its name to our list and from its constitution and by-laws say they stand ready to co-operate in all ways that will be of mutual benefit and to secure better markets. We expect great things from this most northern Club.

A report of the Wixom Farmers' Club is surely one of the most active and helpful in a community uniting with the church, school and Grange in a fair which paid out \$90 in premiums also have a lecture course for the winter and send two delegates to the annual meeting.

A fine report of the Shiawassee County Association was sent in by its secretary, showing a total membership of 152 families with an average attendance of 50. We gleaned figures from a report of the Ceresco Farmers' Club, of Calhoun county, in Michigan Farmer, reported an average attendance of 125 to 130 at its monthly meetings.

The first new Club to call for constitutions and by-laws was from Flushing, Genesee county, and was the first to join the State Association. Next was the River Bend Farmers' Club, which sent the \$2 fee to join the State Association, but your secretary has not been able to get the right address. From Cadillac, Wexford county, came a card for information in regard to organizing a Club, also from Walkerville, Oceana county; Vassar, Tuscola county; East Leroy, Calhoun county; Brown City, Sanilac county; Charlevoix, Charlevoix county; Caledonia, Kent county; Pontiac, Oakland county; Bath, Clinton county; Plainwell, Allegan county; Caro, Tuscola county; Bradley, Allegan county; Castle Park, Allegan county; Port Huron, St. Clair county. And, as mentioned, from Wolverine, Cheboygan county, The Farmers' Co-operative Club.

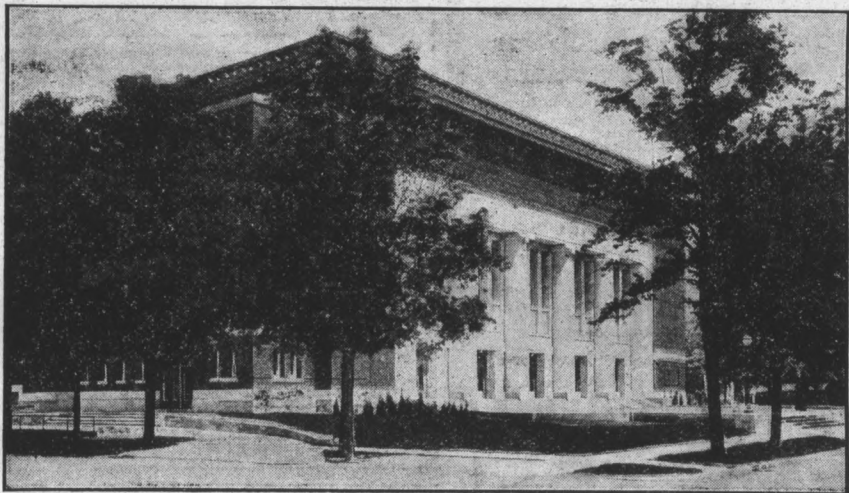
Of the 11 organized last year, Bruce, Wells-Dayton, East Nankin, Lone Tree, South Novesta and Sherman, have joined the State Association, also West Otisco. Of the 16 organized this year, Bath, East Leroy, Caledonia and Flushing have joined our ranks, and so the good work goes on. Some of the highest attendances reported to date are the Orleans 125; Assyria Club 107; Agricultural College Club 100; Looking Glass Valley 90; Greenbush 75. All other Clubs reported the average attendance from 25 to 70. All letters for information and requests have been promptly answered to the best of my ability, and all correspondence to the Michigan Farmer has been sent and thankfully received by the editor, for which we very much appreciate his help, given in the Farmers' Club column. The articles published in the Michigan Farmer have reached many communities throughout the state and moved them to action along Club lines.

Our report and credential blanks, also programs, were all sent out by the third of November, in order to give each Club time to report.

The secretary has received many calls for the annual reports from commercial firms, colleges and libraries and many organizations. Have had correspondence from Farmers' Club workers from New York, South Dakota, Minnesota and Indiana, and all have been answered.

* * *

The program for the afternoon included a paper entitled, "Is the well equipped farm dairy profitable?" by Floyd Smith, and addresses on "Farm



Hill Auditorium, Ann Arbor, Where the Forty-third Annual Session of the State Grange is Being Held.

neighborhood gossip, or the style of Mary's new dress or James' latest difficulty in school. No, this is not satisfying enough. It lacks novelty, something to look forward to. Why men will beg before they will go to the country to work. You Grangers all know how hard it is to get help when you need it.

Just let me give you an example of this:

Before the present governor of Minnesota became the chief executive he was sent by a commercial club to Minneapolis, where they said hundreds of men were out of work, to see if he couldn't get men for the harvest fields. He approached a group of men and asked them if they wanted work. They said, "We'll do anything to get money." He told them what he wanted of them and they immediately lost all enthusiasm. Seeing this he inquired the cause. One man spoke and said:

"We don't want to go to the country, boss; there's nothing there for us; no life, no entertainment, no lights, nothing but monotony and

become "ladies" and "gentlemen" rather than farmers and farmers' wives.

Along with this educational movement I would suggest a dash of the social element. School houses and churches that have been dark at night let them be ablaze with light and gay with music and song. Frequent entertainments at the schools, illustrated lectures, moving pictures, concerts, athletic entertainments, etc., could properly be held.

In the warmer months of the year boys and young men may be trained in athletic sports and competition fostered. At the same time the girls and young women will be given instruction in the care of the home, interior decorations, etc., classes in botany, geology and other "out-door" studies might be organized if interest was shown along that line.

All of this can and should be done by the Grange. Therefore, let the slogan for Grange and rural communities be, "More lights and entertainments, more young people on the farms."—Miss Claramae.

Co-operation," by Messrs J. C. Ketcham and J. N. McBride.

The Tuesday evening program started with a banquet spread at the People's Church, East Lansing, where the president's address was delivered over the teacups, following a sumptuous spread. President Robb addressed the delegates present in happy vein, and later introduced a number of after-dinner speakers, who added to the enjoyment of the occasion in a happy manner. These included President Emeritus Snyder, Judge Collingwood, Secretary Brown and others.

The Wednesday morning session was devoted to a conference of local Club workers which was of more than ordinary interest. The address of this session was on "Citizenship," delivered by Rev. Yantes of the Greenbush Club. Other business of the session was put over until the afternoon, and election of officers was made the next order of business, resulting in the re-election of Mrs. R. J. Robb, as president, and Mrs. J. S. Brown, as secretary. Directors elected were as follows: For the short term in place of Mr. C. B. Scully, of the Almont Club, who was made vice-president, Mr. Alfred Allen, of the Ingham County Club, for the long term, Mrs. C. J. Reed, of Jackson county, and R. E. Moore, of Eaton county.

Following the noon recess, the first business of the afternoon session was the report of committees, which created the usual general interest and resulted in considerable discussion of a number of resolutions reported out by the committees. The final result of these deliberations was the passage of the following resolutions:

National Affairs.

Whereas, the United States of America at this time stands at the head of all the nations, and the acts of this nation will, to a great extent, shape the future of the world, it behooves us to watch with care all that we do, or that may be done by those in authority that all our doings may be on the side of right.

Resolved, that we commend the acts of our President in our foreign relations, his efforts, by all honorable means, to keep us from becoming entangled in the terrible war that is now devastating all Europe.

Resolved, that the right of citizens of the United States to vote, shall not be denied or abridged by the United States or any state, on account of sex.

Resolved, that Congress shall be earnestly requested by appropriate legislation to enforce this article.

Resolved that this Michigan State Association of Farmers' Clubs do hereby by earnestly demand of Congress a submission to the people of an amendment to the constitution prohibiting the manufacture and sale of intoxicating liquors.

Whereas, the post office department in an effort to economize, have disarranged our rural mail service to such an extent that the farming community is greatly discriminated against, whereby we do not receive reasonable service, and Whereas, in the cities that they have two deliveries each day. Therefore, be it

Resolved, that we ask our representatives in the State Legislature and in the National Congress to give the farmer a square deal, whereby all shall have an equal and reasonable distribution of mail service in our country.

State Affairs.

Resolved, that we favor the taxation of our water powers on a basis that shall place them on an equality with the other wealth producing property of our state; and

Resolved, that we reaffirm our position in favor of woman suffrage, the Torrens system of land transfers, and the elimination of all private banks.

Co-operation and conservation in the food supply are essentially the problems of all the population; therefore,

Resolved, that we recommend organization which can handle larger units in distribution and be acquainted with supply and demand; that these organizations shall endeavor to eliminate superfluous distributors and establish among all groups, whether engaged in production, distribution or transportation, equitable compensation for their services rendered. We recommend the federation of all organizations which have this common object in view.

The burden of taxation is now borne by real property; therefore be it

Michigan Farmer's Club List.

For the benefit and convenience of our subscribers we have arranged the following list of papers. Besides the money saved they save the trouble and expense of sending each order separately.

EXPLANATION.—The first column gives the paper's regular subscription price. The second column price is for the Michigan Farmer and the other paper, both for one year. Add 50 cents when the Michigan Farmer is wanted three years, or \$1.00 if the Michigan Farmer is wanted five years. All combination orders may be handed to our agents or sent to us, as is most convenient.

Write for prices on publications not listed.

Subscribers to the Michigan Farmer whose time is not up for one year or more, may have as many other papers as wanted by deducting 50 cents from the second column price. This takes care of those who subscribed for three or five years a year or two ago.

We send sample copies of the Michigan Farmer only.

Mention if you are a new or renewal subscriber. Renewals will be dated ahead from their present date.

NAME OF PUBLICATION.	See explanation above
Daily, (6 a Week) on R. F. D. only.	
Free Press, Detroit, Mich.	2 50 2 50
Journal, Detroit, Mich.	2 50 2 50
Times, Detroit, Mich.	2 00 2 00
Herald, Grand Rapids, Mich.	2 00 2 00
News, Grand Rapids, Mich.	2 00 2 00
Press, Grand Rapids, Mich.	2 00 2 00
Courier-Herald, Saginaw, Mich.	2 00 2 00
News, Saginaw, Mich.	2 00 2 00
Tribune, Bay City, Mich.	2 00 2 00
Blade, Toledo, Ohio.	2 00 2 00
News-Bee, Toledo, Ohio.	2 00 2 00
State Journal, Lansing, Mich.	2 00 2 00
Tri Weekly Newspapers	
World, N. Y. City.	1 00 1 20
Semi Weekly Newspapers	
Journal, Detroit, Mich.	1 00 1 15
Weekly Newspapers	
Blade, Toledo, Ohio.	1 00 1 00
Commoner, Lincoln, Neb.	1 00 1 05
Enquirer, Cincinnati, O.	1 00 1 05
Cattle, Sheep, Swine, Poultry, etc.	
American Bee Journal, Hamilton, Ill.	1 00 1 05
American Poultry Journal, Chicago, (m)	1 00 1 20
American Poultry Advocate, Syracuse, N. Y.	1 00 1 25
American Sheep Breeder, Chicago, (m)	1 00 1 25
American Swineherd, Chicago, (m)	1 00 1 25
Breeders' Gazette, Chicago, (w)	1 00 1 45
Green's Fruit Grower, Rochester, (m)	1 00 1 20
Hoard's Dairyman, Fort Atkinson, Wis.	1 00 1 20
Jersey Bulletin, Indianapolis, Ind. (w)	1 00 1 35
Kimball's Dairy Farmer, Waterloo, Ia. (s-m)	25 70
Poultry Keeper, Quincy, Ill. (m)	50 1 15
Poultry Success, Springfield, O. (m)	50 75
Reliable Poultry Journal, Quincy, Ill. (m)	50 75
Swine Breeder's Journal, Indianapolis, Ind. (s-m)	50 80
Michigan Poultry Breeder (mo)	50 70
Popular Magazines.	
Everybody's Magazine, N. Y. City. (m)	1 50 1 60
Etude, Philadelphia, Pa. (m)	1 50 1 60
McClure's Magazine, N. Y. City. (m)	1 00 1 50
Musicalian, Boston, Mass. (m)	1 50 1 55
National Sportsman, Boston, Mass. (m)	1 00 1 15
People's Home Journal, N. Y. City. (m)	50 85
People's Popular Monthly, Des Moines, Ia.	25 65
Red Book Magazine, Chicago, Ill. (m)	1 50 1 55
Review of Reviews, N. Y. City. (m)	3 00 3 00
Ladies' or Household.	
Delicatour, N. Y. City. (m)	1 50 1 60
Designator, N. Y. City. (m)	75 1 05
Housewife, N. Y. City. (m)	50 80
Ladies World, New York City. (m)	1 00 1 25
McCall's Magazine and Free Pattern, N. Y. City. (m)	50 75
Mother's Mag., Elgin, Ill. (m)	1 50 1 55
Pictorial Review, N. Y. City. (m)	1 50 1 50
Today's Magazine, Free Pattern (m)	50 70
Woman's Home Companion, N. Y. City. (m)	1 50 1 60
Woman's World, Chicago, (m)	35 90
Religious and Juvenile.	
American Boy, Detroit, Mich. (m)	1 00 1 50
Boys Magazine, Smithport, Pa. (m)	1 00 75
Little Folks, Salem, Mass. (m)	1 00 1 25
Young People's Weekly, Elgin, Ill. (w)	75 90
Youths Companion, Boston, Mass.	2 00 2 25

Resolved, that a graduated income tax be levied to meet the exigencies arising from the continually increasing number of individuals and corporations whose contributions to state taxation are now relatively small. We believe that the experience of the state of Wisconsin would allow us to raise the total state tax aside from the primary school fund from sources above mentioned, and leave real property for local purposes of taxation.

We recommend that the president appoint a committee of three from the Farmers' Club to assist in the common purposes of agricultural good and to co-operate in the initiative of law making.

Believing that the present mortgage tax law is working an injustice to the taxpayers of Michigan, and whereas we favor the enactment of such laws as will build up rather than retard the interests of the farmers of the state;

Resolved that we are opposed to the present mortgage tax law in its present form and ask for such amendments or modifications as will require all individuals or corporations to bear their just and equal share of taxation.

Whereas, in this state the point has been reached when the so-called property tax is becoming a burden to the taxpayers, and whereas, strict economy in state affairs is necessary; therefore, we deplore and denounce the multiplication of officers and the

We have arranged here a list of special bargain combinations which will save you considerable on your reading matter. No substitution of other magazines which are the same price can be made. You must take the entire combination as it is. You can make up your own club from the club list if none of these suit you.

Orders may be sent direct to us or through any of our agents. Order by number. Address all orders to the Michigan Farmer or hand to our agents.

EXPLANATION.—Wk. means the paper comes each week, mo. means each month, S-mo. semi monthly. Dailies on R. F. D. only.

Publishers of other papers will not allow us to quote their paper single at less than their regular prices, but Subscribers to the Michigan Farmer whose term does not expire for 1 year or more will be allowed reduced prices on other papers at any time if they will write us the ones wanted, this also applies when other papers are wanted not in the clubs they select.

NOTE.—The Michigan Farmer is figured in "Our Price" at the special season price of only \$1 for 3 years, 50 cents only may be deducted if the Michigan Farmer is wanted for but 1 year.

No. 1.	No. 8.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Boys' Magazine, mo.....1.00	Mothers' Magazine, mo.....1.50
The Ladies' World, mo.....1.00	McCall's Mag. and Pattern, mo.. .50
	Ladies' World, mo.....1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 2.	No. 9.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
The American Boy, mo.....1.00	Choice of either:
Woman's World, mo......35	Breeders' Gazette, American
American Poultry Advocate, mo.. .50	Sheep Breeder, Hoard's Dairy-
	man1.00
	Poultry Success, mo......50
	Boys' Magazine, mo.....1.00
	Ladies' World, mo.....1.00

Regular price\$3.10

OUR PRICE ONLY \$2.00

No. 3.	No. 10.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
American Poultry Advocate, mo.. .50	Today's Magazine, they also give
The Ladies' World, mo.....1.00	choice of one May Manton pat-
	tern free with first issue..... .50
	Poultry Success, mo......50
	Boys' Magazine, mo.....1.00

Regular price\$2.75

OUR PRICE ONLY \$1.60

No. 4.	No. 11.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Pictorial Review, mo.....1.50	Any Detroit Daily (except the
Boys' Magazine, mo.....1.00	News)2.50
	Poultry Success, mo......50
	Boys' Magazine, mo.....1.00
	People's Popular Monthly......25

Regular price\$3.75

OUR PRICE ONLY \$1.80

No. 5.	No. 12.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Youths' Companion, wk.....2.00	Any Grand Rapids Daily, 1 yr.. .2.00
McCall's Mag. and Pattern, mo.. .50	Kimball's Dairy Farmer, S-mo .. .25
Poultry Success, mo......50	Reliable Poultry Journal, mo......50
	People's Popular Monthly......25

Regular price\$4.25

OUR PRICE ONLY \$2.95

No. 6.	No. 13.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
American Swineherd and book, mo .50	Any Grand Rapids Daily, 1 yr.. .2.00
McCall's Magazine & Pattern, mo .50	Kimball's Dairy Farmer, S-mo .. .25
Poultry Success, mo......50	Reliable Poultry Journal, mo......50
	People's Popular Monthly......25

Regular price\$2.75

OUR PRICE ONLY \$1.75

No. 7.	No. 14.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Choice of any daily in Detroit	Any Grand Rapids Daily, 1 yr.. .2.00
or Grand Rapids except Detroit	Kimball's Dairy Farmer, S-mo .. .25
News\$2.00 to \$2.50	Reliable Poultry Journal, mo......50
People's Popular Monthly......25	People's Popular Monthly......25
Everyday Life, mo......25	
Woman's World, mo......35	

Regular price\$4.60

OUR PRICE ONLY \$3.00

No. 15.	No. 16.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Boys' Magazine, mo.....1.00	Boys' Magazine, mo.....1.00
The Ladies' World, mo.....1.00	The Ladies' World, mo.....1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 17.	No. 18.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Boys' Magazine, mo.....1.00	Boys' Magazine, mo.....1.00
The Ladies' World, mo.....1.00	The Ladies' World, mo.....1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 19.	No. 20.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Boys' Magazine, mo.....1.00	Boys' Magazine, mo.....1.00
The Ladies' World, mo.....1.00	The Ladies' World, mo.....1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 21.	No. 22.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Boys' Magazine, mo.....1.00	Boys' Magazine, mo.....1.00
The Ladies' World, mo.....1.00	The Ladies' World, mo.....1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 23.	No. 24.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Boys' Magazine, mo.....1.00	Boys' Magazine, mo.....1.00
The Ladies' World, mo.....1.00	The Ladies' World, mo.....1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 25.	No. 26.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Boys' Magazine, mo.....1.00	Boys' Magazine, mo.....1.00
The Ladies' World, mo.....1.00	The Ladies' World, mo.....1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 27.	No. 28.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Boys' Magazine, mo.....1.00	Boys' Magazine, mo.....1.00
The Ladies' World, mo.....1.00	The Ladies' World, mo.....1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 29.	No. 30.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Boys' Magazine, mo.....1.00	Boys' Magazine, mo.....1.00
The Ladies' World, mo.....1.00	The Ladies' World, mo.....1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 31.	No. 32.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Boys' Magazine, mo.....1.00	Boys' Magazine, mo.....1.00
The Ladies' World, mo.....1.00	The Ladies' World, mo.....1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 33.	No. 34.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Boys' Magazine, mo.....1.00	Boys' Magazine, mo.....1.00
The Ladies' World, mo.....1.00	The Ladies' World, mo.....1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 35.	No. 36.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Boys' Magazine, mo.....1.00	Boys' Magazine, mo.....1.00
The Ladies' World, mo.....1.00	The Ladies' World, mo.....1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 37.	No. 38.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Boys' Magazine, mo.....1.00	Boys' Magazine, mo.....1.00
The Ladies' World, mo.....1.00	The Ladies' World, mo.....1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 39.	No. 40.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Boys' Magazine, mo.....1.00	Boys' Magazine, mo.....1.00
The Ladies' World, mo.....1.00	The Ladies' World, mo.....1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 41.	No. 42.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Boys' Magazine, mo.....1.00	Boys' Magazine, mo.....1.00
The Ladies' World, mo.....1.00	The Ladies' World, mo.....1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 43.	No. 44.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Boys' Magazine, mo.....1.00	Boys' Magazine, mo.....1.00
The Ladies' World, mo.....1.00	The Ladies' World, mo.....1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 45.	No. 46.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Boys' Magazine, mo.....1.00	Boys' Magazine, mo.....1.00
The Ladies' World, mo.....1.00	The Ladies' World, mo.....1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 47.	No. 48.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Boys' Magazine, mo.....1.00	Boys' Magazine, mo.....1.00
The Ladies' World, mo.....1.00	The Ladies' World, mo.....1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 49.	No. 50.
Michigan Farmer, 3 yrs., wk.....\$1.25	Michigan Farmer, 3 yrs., wk.....\$1.25
Boys' Magazine, mo.....1.00	Boys' Magazine, mo.....1.00
The Ladies' World, mo.....1.00	The Ladies' World, mo.....1.00

BREEDERS' DIRECTORY.

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

CATTLE.

ABERDEEN-ANGUS

HERD ESTABLISHED IN 1900.
TROJAN-ERICAS and BLACKBIRDS only.
Also breeders of Percheron, Hackney and Saddle
Horses. Young bulls and Percheron stallions for
sale. WOODCOTE STOCK FARM, Ionia, Mich.

ABERDEEN ANGUS

If you are in need of an extra good bull or a few choice
young cows or heifers, we have them for sale. Our
herd is headed by the Grand Champion Black
Monarch 3rd. We invite you to come to our Farm and
see them. They are bred right and priced right. U. L.
Clark, Hunters Creek, Mich. Sidney Smith, Mgr.

AYRSHIRES—One of the foremost dairy breeds. The
most economical milk producers. Calves
for sale. White Leghorn cockerels; Duroc Jersey
swine. Michigan School for the Deaf, Flint, Michigan.

THE VILLAGE FARM,
Grass Lake, Michigan,
GUERNSEY CATTLE.

MILO D. CAMPBELL CHAS. J. ANGEVINE

BEACH FARM
GUERNSEYS

The buyer of breeding stock should know that the
herd from which he buys is healthy. We believe the
Beach Farm Herd is as near perfect health as is pos-
sible. The tuberculin test does not show the least
sign of reaction. We never had a case of contagious
Abortion. Have sent a whole year without calling a
Veterinary or giving a dose of Medicine.

WE OFFER FOR SALE

Registered Guernsey Bulls

Very High Bred Guernsey Cows

Bred Heifers, Open Heifers and Heifer Calves.
CAMPBELL & ANGEVINE, Coldwater, Mich.

Five Registered Guernsey
Bull Calves

For Sale at

Windermere Farm, Watervliet, Mich.

Grandsons of Golden Noble II. Choice
for \$40. First come first served. Address,
J. K. BLATCHFORD,
Auditorium Tower, Chicago, Ill.

GUERNSEYS—REGISTERED
BULL CALVES

Containing blood of world champions.
HICKS' GUERNSEY FARM, Saginaw, W. S., Mich.

REGISTERED Young Guernsey Bulls, great grand-
sons of Gov. Chene. Serviceable age nicely marked,
exceptional breeding. Avondale Stock Farm, Wayne, Mich.

FOR SALE A choice lot of Registered Guernsey
cows, heifers and bulls of May Rose breed-
ing. H. W. WIGMAN, Lansing, Michigan.

Guernsey Bulls of service age and calves from
choice. Adv. reg. breeding.
T. V. HICKS, Route 1, Battle Creek, Mich.

Guernsey Bull Calves from A. R. dams and whose
dams are running for A. R. One ready
for service. L. G. A. WIGENT, Watervliet, Mich.

For Sale—One registered Guernsey Bull
calf 8 months old.
W. D. KAHLER, JONES, MICHIGAN, R. No. 2.

Herefords Yearling and Calf bulls. Females all
ages. Polled and Horned. All registered.
W. H. McCarty & Sons, Bad Axe, Mich.

Herefords—3 Bull Calves
ALLEN BROS. PAW PAW, MICH

Do You Want A Bull?

Ready For Service.

From a grand daughter of The King of the
Pontiacs. Sired by a bull that is more than a half
brother to the Champion Holstein Cow of the
World, and whose dam is a 30 lb. 6 1/2 % fat daughter
of Pontiac Agate Korndyke who has more 30 lb.
daughters than any other living bull. If you do
write for pedigree.

EDWIN S. LEWIS, Marshall, Mich.

REGISTERED Holsteins—Herd headed by Alma Boute Butter
Boy. His dam has A.R.O. records as follows: at 2 yrs. milk
430, but at 18.85; 4 yrs. milk 604.8, butter 27.03; at 6 yrs. milk
620, butter 28.55 lbs. W. B. READER, Howell, Mich.

The Two Greatest Bulls

KING OF THE PONTIACS

DE KOL 2d's BUTTER BOY 3rd

I have young bulls from cows having high official
records and Granddaughters of above bulls. Stock
extra good. Prices reasonable.

BIGELOW'S HOLSTEIN FARMS,
BREEDSVILLE, MICH.

DAIRY TYPE Plus PRODUCTION
Equals Crandall's

Holstein Friesian Cattle

Two very Good young Bulls for sale. Sired by Beauty Walker
Fietertje Prince 2nd. No. 107658. Dam, Hengerveld DeKol's
Best Daughter. Butter 35.62, milk 582.70. Write for Pedigree
if wanting bull.

Frank R. Crandall & Son, Howell, Mich.

\$50 gets another 2 mo. old Hazel-let grandson of
Maplecrest De Kol Parthena and Pontiac
Maid 30.2 lb. butter 7 days. Dam traces to Pontiac
Korndyke twice Fietertje 2nd twice, DeKol 2nd five
times. M. L. McLaughlin, Redford, Mich.

HERD SIRE

Maplecrest Korndyke Hengerveld and Finderne Pontiac Johanna Korndyke

The two great Holstein sires at the head of the herd. Maplecrest Korndyke
Hengerveld's dam and grand dam each made more than 1200-lbs. of butter
in a year, and including the great grand dam each made more than 30-lbs. of
butter in 7 days. His sire has sired three daughters that averaged over 1200-lbs.
of butter in a year.

Finderne Pontiac Johanna Korndyke is the son of the world's champion
cow, Finderne Pride Johanna Rue, who gave 28,403-lbs. of milk and made
1470-lbs. of butter in a year. He was sired by a brother to the 40-lb. 4 yr. old
Mable Segis Korndyke. The dam of the sire is a 30-lb. daughter of Pieterje
Hengerveld Count DeKol. This is believed by many to be one of the most
productive combinations in Holstein breeding.

I take pride in tendering the services of these animals to the breeders of
Michigan who are interested in yearly production. Many people feel it is the
yearly work that makes the greatest profit and our effort is along the lines of
yearly records. These two herd sires represent the highest culmination ever
yet produced for yearly production.

A few high class heifers in calf to Maplecrest Korndyke Hengerveld, and a few bull
calves from dams with records as high as 30-lbs. butter in 7 days, for sale.

D. D. AITKEN, . . . FLINT, MICHIGAN.

Duroc Jersey Boars and Sows

The Record of this Herd at Detroit Proves Conclusively that Our Durocs Have the
Individuality and Blood Lines that Insure Good Results.

Choice Spring Pigs and Mature Stock. A large herd gives ample opportunity for
selection. Send for our new circular and state your wants. Write, or better come.

Swine Dept., Brookwater Farm, Ann Arbor, Mich.

Choice Holstein Bull Calves

Ready for service, World's Champion Parentage
HILLCREST FARM - Kalamazoo, Mich.

I Have Holstein Bulls, Bull Calves and Cows
that I offer for sale.
I can show breeding, records, individuality and attractive
prices. L. E. CONNELL, Fayette, Ohio.

Espanore Farm,
LANSING, MICHIGAN.

Offers for sale five Holstein Bull Calves sired by
the great bull Pledge Spofford Calamity Paul and
out of good A. R. O. cows. This sire has more
daughters with records of over 30 lbs. than any
bull in the state. If you are looking for this kind
of breeding, write for prices and pedigrees.

CHAS. S. OSBORN, Owners.
ADAM E. FERGUSON, Owners.

Top Notch Holsteins!

Before buying your bull look ahead and think of the
fine herd you hope to own in a few years. Fifty per-
cent, or over, of its value depends on your bull. There-
fore, get a good bull. And don't be too particular
about the price if you can be sure of the quality. McP-
erson Farms Co. sell bulls of strictly high quality. Write
them for a good bull or come and see their "Top-
Notch" bulls for yourself. McPherson Farms Co., Howell, Mich.

Registered Holstein Bull Sire—Is son of former state
champion cow, 32.94
pounds of butter in 7 days; two months old, mostly
white; a beauty in every particular. \$50 brings him
right to your station, safe arrival guaranteed. Write
for pedigree and photo. Hobart W. Fay, Mason, Mich.

HOLSTEIN-FRIESIAN bargains. High grade heifers
\$25 to \$75 each. Reg. heifers \$100 to \$150 each. Reg.
Bulls \$40 to \$75 each. B. B. Reavey, Akron, Mich.

HATCH HERD
YPSILANTI, MICHIGAN

Registered Holstein-Friesian sires, grandson's of
World's greatest dairy sire, out of choice A. R. O.
dams and King Pontiac Jewel Korndyke; Brother of
K. P. Pontiac Lass 44.15; average record of 50 dams
in his pedigree 31.25 in 7 days; average per cent of fat
three nearest dams 4.37; of his own dam 4.93. Sires in
first three generations already have over 600 A. R. O.
daughters. A few females bred to "King". Prices
reasonable.

FOR SALE

Registered Holstein bulls ready for service; and
registered Holstein bull calves, the best breeding in
the world, grandsons of Grace Fayne 2nd's Homestead,
Pontiac Korndyke, King Fayne Segis and Hengerveld
De Kol. The dams of these bulls and calves, have
large advanced registry records. For prices, write
Callam Stock Farm, 204 Bearinger Bldg., Saginaw, Mich.

We will take your note for one year at 5%—then
why not buy a

HOLSTEIN BULL

at once, and get pick of 12 from best Breeding in
Michigan. Send for prices and pedigrees.
LONG BEACH FARM, AUGUSTA, MICH.

FOR SALE Registered Holstein Bulls
ready for service, and bull calves, also females.
FREEMAN J. FISHBECK, Howell, Michigan.

Reg. Holstein Friesian Bull Calves
From heavy producing dams. Bargain prices.
DEWEY C. PIERSON, Hadley, Michigan.

Purebred Holsteins Young bulls of best individuality
and breeding at reasonable prices.
Write us. G. L. SPILLANE & SON, R. D. 7, Flint, Mich.

Choice Holstein Bulls. All from A. R. O. Dams. Semi-of-
ficial yearly records 720 lbs. butter in Jr.
4 yr. old class over 1000 lbs. in mature class. Breeding: Cross
"King of the Pontiacs" and the "Demick blood." Cherry
Creek Stock Farm, Hilliards, Mich. M. E. Parmelee, Proprietor.

Holstein-Friesian Bull calves at reasonable
prices. Pontiac Korndyke,
Hengerveld DeKol breeding. John A. Rinke, Warren, Mich.

REGISTERED Holstein BULL CALVES 2 to 8 mo. old
from heavy producing dams at
reasonable prices. Fred J. Lange, Sebewald, Mich.

12 Registered Holstein heifers, 3 to 15 mos., \$125 each.
delivered. 4 are bred. Also bull calves, too cheap to
mention price. Ernest A. Black, R. 3, Howard City, Mich.

MAPLE Lane R. of M. Jersey Herd. Tuberculin tested
by the U. S. Government. For sale R. of M.
cows, bull calves and heifer calves from R. of M.
dams and grand dams and Hood Farm Sire.
IRVIN FOX, Allegan, Michigan.

Lillie Farmstead Jersey Cattle. Bull calves from R.
of M. Cows, also heifer calves and several bred
heifers for sale. Colon O. Lillie, Coopersville, Mich.

The All-Around

Jersey is the farmer's cow. She's his
friend and pride—the beauti-
ful, gentle, ever-paying milk machine that lifts
the mortgage, builds up the fertility of the
farm, and puts the whole business on a sound,
paying, permanent basis. She adapts herself
to all climates and all feeds and does not
need fancy care. She matures early and
lives long. And she's so sleek, clean cut and
handsome, as to be the family pet and
pride. She produces well
and sells well. Learn
about her in our fine, free
book, "About Jersey Cattle."
Write for it now.



THE AMERICAN JERSEY
CATTLE CLUB
846 West 23d St., N.Y. City

THE WILDWOOD Jersey Herd. Registered Jersey
Cattle of Quality. Herd headed by Majesty's Won-
der 9077, one of the best sons of Royal Majesty. The
daughters of Majesty's Wonder are mated to a son of
Majesty's Oxford King. Herd tuberculin tested. We
have for sale a few choice young bulls for fall service
from high producing cows. Alvin Balden, Capac, Mich.

Jerseys. Bulls ready for service, extra quality sired
by Jacoba's Fairy Emanon, No. 107111, from high
producing dams. SMITH & PARKER, Howell, Mich.

Jersey Bulls for Sale from high-producing dams, with
testing Assoc. records, also on
semi-official test. C. B. Wehner, R. 6, Allegan, Mich.

HILLSIDE Farm Jerseys, yearling bulls, solid
color, half brothers to ex-world's-record senior 2yr
old and from R. of M. dams, with records from 400 lbs.
to 800 lbs. C. and O. DEAKE, Ypsilanti, Michigan.

Jerseys For Sale

Young Cow just Fresh.
Waterman & Waterman, Ann Arbor, Mich.

Meridale Eminent 120565 A Splendid
registered Jersey bull ready for service. Price attrac-
tive. C. A. Bristol, R. 3, Fenton, Michigan.

MILKING SHORTHORNS. Bull 10 months old \$125.00,
7 months \$100.00, 2 cows.
DAVIDSON & HALL, Tecumseh, Michigan.

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

Shorthorns For Sale 8 young bulls also females, farm
1/4 mile east of Davis crossing on
A. A. R. W. B. McQUILLAN, Howell, Mich.

BIDWELL SHORTHORNS

For "Beef and Milk"

Registered Bulls, Cows and
heifers. Scotch-
topped roans, and reds
for sale. Farm at
N. Y. Central Depot.
also D. T. & I. R'y.
BIDWELL STOCK FARM
Box B, Tecumseh, Mich.

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

Shorthorn and Polled Durhams for sale. Have
white. C. CARLSON, Le Roy, Michigan.

For Sale—18 Short Horn Bulls by Maxwellton Monarch
2nd, a son of Avondale, from 2 to 13 mos. old
John Schmidt, Reed City, R. No. 5, Michigan.

HOGS.

Durocs & Victorias—Grand bunch of Gilts
due March and April.
Comprising the blood
of Superba, Defender, Much Col. Orions and others.
A few young boars. M. T. STORY, Lowell, Mich.

BERKSHIRES Two Spring Boars left. A
choice lot of fall gilts for sale.
A. A. Pattullo, R. No. 4, Deckerville, Mich.

Berkshires—sons, daughters, grandsons, granddaugh-
ters of such noted boars as Rival's Champion, Baron
Duke 170th, Symblee's Star 2nd, Grand Champion
breeding, at farmers' prices. T. V. Hicks, R. 1, Battle Creek, Mich.

Royalton Bred Berkshires—Fine October pigs both
Emperor, registered with papers at fair prices. Write
to D. F. Valentine, Supt., Temperance, Michigan.

Berkshire Spring GILTS \$15.00. Fall pigs \$8.00
either sex. Holstein Bull
Calves under one month old \$85.00.
Riverview Farm, R. No. 2, Vassar, Michigan.

THIS
O.I.C.
SOW WEIGHED 932 LBS.
AT 23 MONTHS OLD
IONIA GIRL

I have started more breeders on the road to suc-
cess than any man living. I have the largest and fin-
est herd in the U. S. Every one an early developer,
ready for the market at six months old. I want to
place one hog in each community to advertise my
herd. Write for my plan, "How to Make Money from
Hogs." G. S. BENJAMIN, R. No. 10 Portland, Mich.

SWIGARTDALE BERKSHIRES

Are the kind that win at the Fairs and also produce
the litters as all of our show stock are regular breeders.
They have the size with the bone to carry them and
their breeding is unsurpassed. All the leading families
are represented. We have a few choice Spring Boars
now crowding the 300 lb. mark, for sale, prices from
\$20 up. We are now booking orders for Fall pigs for
January delivery. Can furnish choice Trios not akin,
for \$45 to \$50. We Guarantee Satisfaction.

Swigartdale Farm, Petersburg, Mich.

Berkshires of best breeding. Special price
on two Spring Boars.
D. W. SMITH, Wixom, Michigan.

Berkshires at cut prices. Choice spring boars. Open or
bred gilts. Sow farrow in December. Fall
pigs, no akin. Chase's Stock Farm, Marlette, Mich. R. L.

Modern Berkshires. I have for sale young Boars and
sows of May farrowing. Also
a few sows about ten mos. old of approved types, and
aristocratic breeding that I will sell at prices below market
values. Correspondence solicited. M. I. Ogilvie, 3 Oaks, Mich.

DUROC JERSEYS—A few choice
spring BOARS
ready to ship. Carey U. Edmonds, Hastings, Mich.

Capitol Herd Duroc Jersey Swine. Established 1888
Spring pigs for sale, satisfaction guaranteed. Ex-
press prepaid. J. H. Banghart, East Lansing, Mich.

Duroc Jerseys—Big Type, Heavy Boned Boars ready
for service, real herd headers Sired by
Volunteer Grand Champion. F. J. Drott, R. 1, Monroe, Mich.

Durocs of the best of breeding. April farrow either
sex or pairs for next 30 days \$20 each. Two fall
boars. Oct. farrow \$30 each. Also Holstein bull one
year Oct. 6. H. G. KEESLER, Cassopolis, Mich.

DUROC JERSEY BOARS a choice lot of spring boars,
not akin. W. C. TAYLOR, Milan, Michigan.

Duroc Jerseys—Fall and spring pigs either sex, from
choice strains. S. C. STAHLMAN,
CHERRY LAWN FARM, Shepherd, Michigan.

J. W. KEENEY, Erie, Mich. Breeder of Duroc
Swine D. M. & T.
local from Monroe or Toledo, Keeney Stop.

DUROC Jersey, Mar. & Sept. pigs either sex sired by
a son of Volunteer. And two Holstein bull calves
and 2 Holstein cows. E. H. Morris, Monroe, Mich.

Big Heavy Boned Duroc Jerseys for sale of all ages.
M. A. BRAY, Okemos, Ingham Co., Michigan.

DUROC JERSEYS—A few choice sows bred or
open. Also two extra good
spring boars. Wm. W. Kennedy, R. 3, Grass Lake, Mich.

Duroc Jerseys—Choice spring boars and sows of best
breeding also 5 high grade Holstein
heifers due in Dec. Priced to sell. E. R. Cornell, Howell, Mich.

FOR SALE Registered Duroc Brood Sows and
Calves. E. J. ALDRICH, R. 1,
TEKONSHA, Calhoun Co., Michigan.

Chester Whites—Special prices on March boars for
next 30 days. Fall Pigs.
F. W. ALEXANDER, Vassar, Michigan.

CHESTER WHITES—The long type, prolific kind,
either sex. Write your wants,
Meadow View Stock Farm, R. 5, Holland, Michigan.

Registered Chester White males and females. Reg.
Holstein male calves, herd bull and cows.
Farham's Pedigree Stock Farm, Bronson, Mich.

HAMPSHIRE SWINE. A few choice March and
yearling boars. Also two
good yearling boars. Yearling and Spring Gilts sold
open or booked, to be bred for March or April farrows.
Fall pigs single, pairs or trios not akin. Price to sell.
Write me your wants. Floyd Myers, R. 2, Decatur, Ind.

Hampshire Boar Bacon's choice, 6 months old,
Perfect belt. Sired by Tolby
Tiler. A. E. Bacon & Son, Sheridan, Mich.

HAMPSHIRE HOGS—the belted beauties. One year-
ling boar and spring pigs, either sex. Write your
wants. John W. Snyder, St. Johns, Mich., R. No. 4.

O. I. C. SWINE—Are you on the
market for a
choice bred sow to farrow the last of Aug. or fore
part of Sept.? If you are, write me, I have them.
A. J. GORDEN, R. No. 2, Dorrr, Michigan.

O. I. C. Serviceable boars, choice Gilts not bred, Spring
pigs not akin, also Toulouse Geese. Write for
low prices and photo. Alvin V. Hatt, Grass Lake, Mich.

O. I. C's—yearling sows, gilts, fall pigs. Very
reasonable. Satisfaction guaranteed.
A. R. GRAHAM, Flint, Michigan.

REGISTERED O. I. C. BOARS & GILTS
High class fall pigs at reasonable prices.
J. CARL JEWETT, Mason, Mich.

O. I. C. SPRING BOARS of good type and
Red Polled bull calves.
John Berner and Son, Grand Ledge, Mich.

O. I. C. SERVICEABLE BOARS. Priced to
sell, and recorded in buyer's name.
H. W. MANN, Dansville, Michigan.

O. I. C's STRICTLY BIG TYPE.
March, April and May pigs Sired by Lengthy Prince,
White Monarch and Frost's Choice, all big type boars
and sows weighing from 500 to 700 lbs. with quality
second to none. Can furnish in pairs not akin. Prices
reasonable.
Newman's Stock Farm, Marlette, Mich. R. 1.

O. I. C. SERVICEABLE BOARS From best of stock.
Priced to sell. Reg.
free. E. B. MILETT, Fowlerville, Michigan.

O. I. C. Choice 18 mos. old boar. Grand Champ. at West
Mich. State Fair 1915 also Mar. and Apr. gilts.
A. J. BARKER, BELMONT, MICH. R. No. 16.

O. I. C's One March and one April Boar,
Spring Gilts, June and July Pigs,
either sex. C. J. Thompson, Rockford, Mich.

Way Brothers Stock Farm. The home of the big
bone O.I.C. Hogs. Stock
for sale. Registered free. J. R. Way, Three Rivers, Mich.

O. I. C's. Gilts old enough to breed for May
farrow \$15-\$20 each. 18 mo. herd boar,
sire breeder. Stock recorded free. Also White runner
drakes and porous line Regal White Wyandotte chickens.
each. Write at once. Dike O. Miller, Dryden, Mich.

Breeders' Directory—Continued on page 575.

FULL-HANDED EVERY WEEK



For more than thirty years *The Breeder's Gazette* has gone up and down the highways and the byways of the English-speaking world bearing its message of good live stock as the backbone of all good farming.

It makes its appeal to the good sense and the understanding of men who take farming to be a practical business proposition, to be studied in the light of all available facts.

It comes to you only upon your own invitation, breaking in unasked upon no man's privacy.

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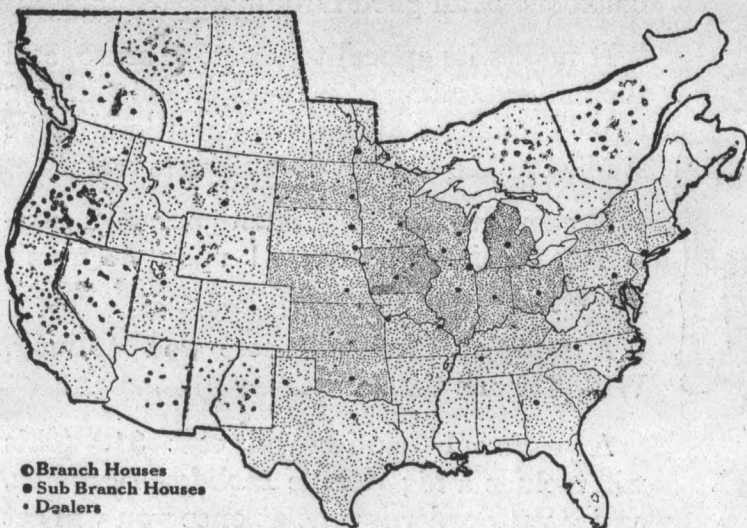
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NOTE: Even after its experience of nearly a century, Case is not content to publish advertisements unless based on the very latest authoritative information. This is one of a series of messages to farmers, prepared after visiting tractor demonstrations, talking to hundreds of farmers and carrying on a national investigation through our sales organization and by mail to find the gas tractor needs of the farmers.

Every State a Case State



● Branch Houses
● Sub Branch Houses
• Dealers

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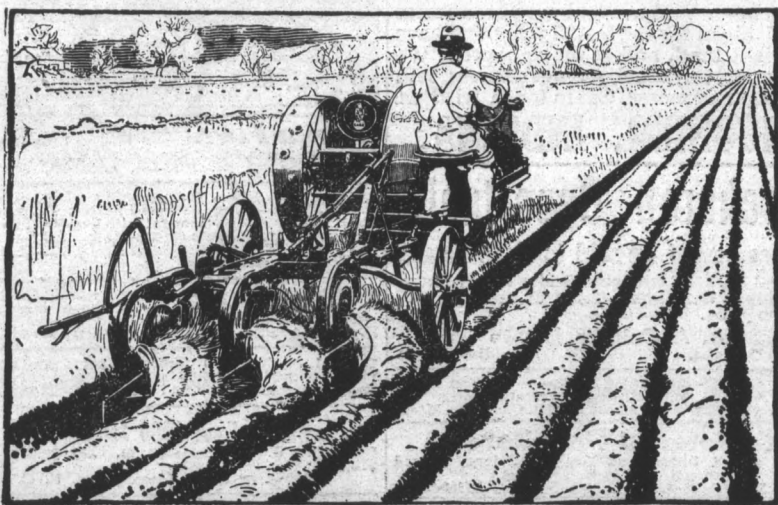
which nothing is attached. Remember, too, that all working parts are enclosed and fully protected.

Consider weight, and do not forget that the Case 10-20 weighs less than any other tractor of equal capacity.

Reckon the value of the drive wheel traveling on unplowed land instead of down in the furrow, where it would pack the soil.

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