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Where the Potato Leads In Profit

By EARL W. GAGE

SOMEONE has said that if farmers of a given section will all stand together in the production of one crop, they may give a community a world-wide reputation. When this is started in our own communities we are doubting Thomases, but if we will consider the wonderful strides made by Aroostook County, Maine, farmers, we soon appreciate that men of strong fiber, employing business-like production and marketing methods, may win not only fame but fortune as well.

The largest potato growing county in the United States is the northernmost county of that state and the northernmost section of the country east of the Great Lakes, where we would little dream of finding the greatest industry. Although potatoes are grown in nearly every part of the state of Maine, the great bulk of the crop for the state is produced in this one county, approximately 20,000,000 bushels being grown here. The average yield is 275 bushels, or 100 barrels per acre. The average for the United States is slightly more than 90 bushels, and for England and Germany about 200 bushels, so this Aroostook county section presents a fertile field for thought for those farmers who aim to do better with this money crop of the farm.

The one peculiar fact that forcefully presented itself to me was that it would be difficult to locate a section east of the Mississippi with more unfavorable location than this. Aroostook county has no special market advantages for disposing of its crop, but on the contrary, is between 350 and 400 miles or more by rail from Boston and more than 100 miles from the ocean. It costs these farmers nearly 60 cents to pack and deliver a 160-lb. barrel of potatoes in New York. But it is the old story of Emerson and the man who can make a better mousetrap, for the eastern markets are all anxious to purchase Aroostook county potatoes, because they are better.

Rotation is the secret of the Maine farmers' success with spuds. The gen-

eral method of potato culture as used today has been adopted within the past 15 years, and is followed almost uniformly throughout the county. Upon this simple rotation has been builded a firm success that insures the future development of the crop. Potatoes are grown on a given piece of land only one year and as a rule are followed by one crop of oats or spring wheat, with which are sown clover and timothy for hay. This crop is cut for hay one year and then plowed under in the fall by the best farmers and the ground used for potatoes the following

Clover and farm success have become almost inseparable.

A desirable potato soil must be well drained, mellow and retentive of moisture. The plant needs a supply of moisture to maintain a continuous growth and the tubers need such a soil structure that displacement of the particles during their development is easy. We may supply an abundance of plant food, yet these two simple requirements are imperative. Success in potato growing depends in large measure on skill in selection of the soil, or else in its amendment by use

put the soil in the proper physical condition to insure a profitable potato crop.

Aroostook county farmers plant their crop between the middle of May and the first of June, using five barrels of seed to the acre, or between 13 and 14 bushels. The seed is cut by hand into pieces containing two eyes or more and of proper size to insure passing through the planter. The rows are about 33 inches apart, and from 12 to 15 inches apart in the row, so that the ground is entirely occupied with the crop and the vines force weed growth out. From 1,200 to 1,500 pounds of fertilizer is used to the acre, and this consists of about three per cent nitrogen, seven to eight per cent of phosphoric acid, nine to 10 per cent of potash.

Maine farmers long ago came to appreciate that farmers cannot succeed on weed crops grown on the same land with the money crops. Therefore, as soon as the seed is in the ground, the weeding war starts. A horse hoe is usually used the first time over, following the row just as the plants appear. The rows are hilled up sufficiently to cover any potatoes which may have appeared. This is usually followed by a cultivator of the two-row type. This operation starts about a week or ten days after the beginning of the first working, often as soon as the whole crop can be worked over once with the horse hoe. This treatment is usually kept up with the cultivator and horse hoe, alternating until the vines nearly cover the ground, which is some time in July, usually meaning six or eight cultivations, ending with the horse hoe, or some implement that hills up the rows.

Careful cultivation has been the keynote of Aroostook county potato growing. An illustration of the results of a cultivation experiment held on one large potato field shows results obtained by proper cultivation. A portion of the field was fitted by harrow-



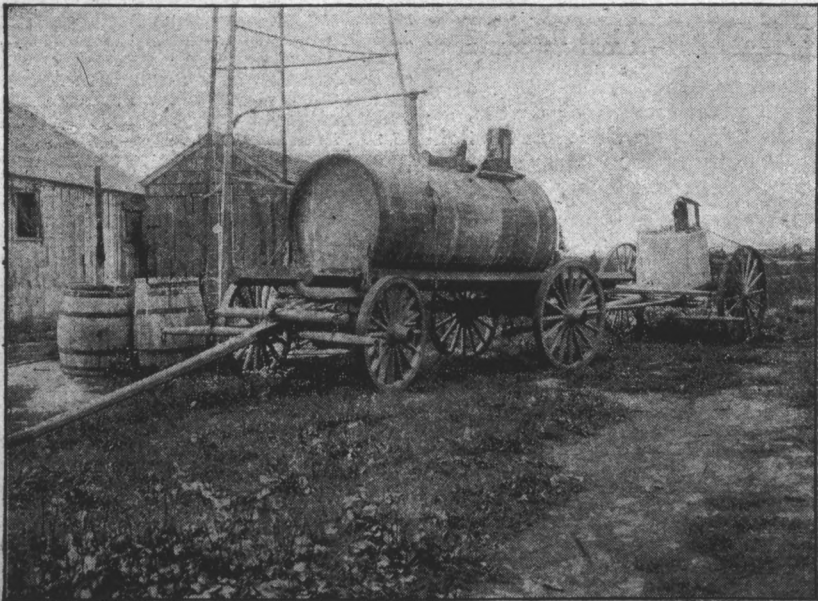
Harvesting a 225-Bushel Potato Crop in Aroostook County, Maine.

spring. The furrow is usually turned to a depth of seven or eight inches. Other farmers allow their land to stand two years under the forage crop, but rarely longer, for the land is in too much demand for the potato crop to continue in grass more than two years.

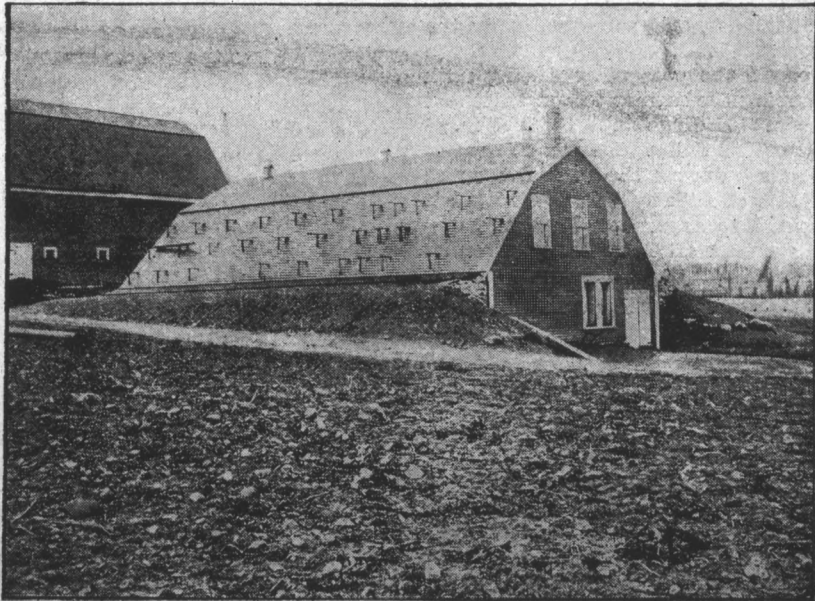
Farmers have long since come to learn the real value of clover sod as a natural fertilizer. Where clover sod is turned under, as in Aroostook county, we seldom hear of run-out land, and usually see the prosperous buildings prevailing in this Maine section.

of organic matter and proper tillage.

In the selection of soil for the potato crop, the natural fertility is a smaller consideration than physical condition. This fact was well illustrated by one farmer in Maine who planted potatoes on ten acres of old, worn-out land, employing the Aroostook county method. No barnyard manure was used on this old pasture soil, yet a yield of 1,800 bushels was harvested, which sold for \$1,296, leaving a net profit of \$542. Oats and clover were grown the previous year on this soil, and had



Supply Tank and Spraying Outfit Used on Maine Potato Farm.



A Typical Aroostook County Potato Storage House.

The Michigan Farmer

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DETROIT, MAY 6, 1916

CURRENT COMMENT.

This is the title given in a recent report of the agricultural development committee of the Cleveland Chamber of Commerce. The investigation which led up to this report was conducted during a recent controversy between producers and distributors of market milk. The cost of keeping an average cow for one year was estimated to be \$108, and the fact is set forth that a 518 gallon cow, as the committee expresses it, would be losing \$30.50 per year for her owner when the average price of milk is 15 cents per gallon. At the price mentioned, it was estimated by this committee that the dairyman in order to have even the fertilized produced by his herd as a profit must make his cows average 720 gallons, or 6,120 pounds of milk, per year if he sells his milk at 15 cents per gallon.

The details of these estimates as shown by the figures presented are most interesting, but space will not permit their reproduction in this comment. The point which we desire to emphasize is the fact that a committee of intelligent business men has carefully gone into the proposition of the cost of milk production and set forth their findings in a bulletin for circulation among other business men of the city of Cleveland. No recommendations are made in the bulletin, except to conduct an educational campaign for the concentration of the market milk business in the counties immediately adjacent to Cleveland, instead of drawing milk from a widely scattered territory including two or three counties in Michigan.

The point is emphasized that during the past five years the cost of feed has advanced nearly 40 per cent, the cost of labor nearly 50 per cent, while the requirements of city inspection have increased the cost of producing milk by forcing the farmer to construct and remodel buildings and expend more labor on his dairy. It is made equally clear that during the past five years the price of milk to the farmer has not increased to any material extent, certainly not at all in proportion to the increased cost of production.

The committee recommends a thorough investigation of the Cleveland milk problem, in order that conditions which the committee considers deplorable may be corrected in the not distant future. The agricultural development committee of the Cleveland Chamber of Commerce has sixteen members, all of whom have an interest in and a practical knowledge of agriculture. The committee has a paid secretary, and is active in work for the betterment of agriculture in territory adjacent to the city, although its most

important work is in bringing the farmers and city business men to a better mutual understanding of the real identity of their interests. May we not hope that Detroit's progressive Board of Commerce may follow Cleveland's lead in this direction?

One result of the advance in war which is being felt by farmers is the advance in the price of farm implements and equipment. Manufacturers in many lines are finding themselves obliged to advance the selling price of their products, due to the very considerable advance of raw materials used in the manufacture of same.

One large manufacturer of agricultural implements submits some very interesting figures relating to the advance which has already occurred in raw materials, and the extent to which it affects the cost of manufacturing the ordinary farm implements in use upon every farm. According to this statement, bar steel has advanced 67 per cent and is still rising in price, bar iron 110 per cent, pig iron 45 per cent, sheet steel 96 per cent, bolts 85 per cent, nuts 80 per cent, rivets 75 per cent. In addition materials for manufacturing processes have advanced in even greater ratio, fuel oil, for instance, having advanced 78 per cent, high speed tool steel 500 per cent, high speed drills 500 per cent, coke 30 per cent and borax 45 per cent. Other advances have occurred in equal proportion, and certain materials cannot be had at any price.

Most manufacturers had considerable stock of materials on hand at the outset of the war, or contracts which protected them on deliveries of raw material for the immediate future. With the exhaustion of this material and the expiration of these contracts, many manufacturers have found it necessary to advance prices, which action was delayed while cheap material was available, for the reason that the condition encountered was considered but a temporary emergency. The necessity of such advances is apparent, however, when one considers that as figured by one firm engaged in the manufacture of agricultural implements, that the shop cost of making a two-section spike-tooth harrow has advanced 32.4 per cent, while the cost of manufacturing an ordinary steel beam walking plow has advanced 34.5 per cent, and more than 26 per cent additional cost has been added to the ordinary riding cultivator.

The reader who has occasion to buy farm equipment in the near future will do well to consider these facts carefully instead of thoughtlessly condemning either manufacturer or local dealer if a higher price is asked for goods than the purchaser expected to pay, since at least a portion of this increased cost must necessarily be passed on to the ultimate consumer.

Reference has frequently been made in these columns during the past year to the farm management demonstrations conducted by the Department of Agriculture, co-operating with the state colleges of agriculture in the various states. Something of average conditions were recently deduced by a study of sixty-four groups of farms located in nineteen states which were included in the farm demonstrations for last year. The total number of farms in these groups was 4,400, and for purposes of comparison the farmers running them were divided into five numerically equal classes according to their labor incomes.

The reader will understand that the labor income shows the amount of the farmer's wages or earnings in addition to the use of the farm house as a home, and such fuel and food as the farm supplies free of money cost, after five per cent interest on the capital invested in the farm and equipment is

deducted as capital earnings and the necessary running expenses of the farm are paid.

The average labor income of all the farms included in these demonstrations figured on the above basis was only \$387, while the average labor income of the farmers who did best—the successful fifth—was \$1,421. The labor income for those in the second class was \$642, while the fifth of these 4,400 farmers who were least successful received no labor income, but on the contrary lost \$517, that is to say, the interest on the amount of money represented by their investment in farm, stock and equipment would have been \$517 more than the farm returned to them outside of the incidental returns above noted.

The conclusion reached from an analysis of this large number of demonstrations is that in almost any northern community one-fifth of the farmers who may be termed the successful fifth are making an income approximately \$1,000 per year more than the average labor income of all farmers, and \$2,000 more than the least successful fifth.

In addition to the influence of the personal equation in determining the labor income of the farmer, these demonstrations have shown that there are certain factors which in almost every case have direct influence upon the size of the farm income. These factors have been pointed out in a general way in previous comments on this subject. In counties where county agricultural bureaus are maintained, and county agents are at hand, they will be glad to explain personally to any reader just what these general principles are, but the greatest help toward making the farm business profitable in future years can be rendered by the farm demonstrators through the keeping of accurate accounts in suitably prepared books which are furnished for the purpose by the county agents, and then making an analysis of the business at the end of the year, applying the general principles found to obtain in average cases as a means of discovering the reason for a low labor income where same prevails.

Those farmers who are in the less successful classes may never be able to overtake the successful fifth, who will continue to grow in capacity for productive work. They may, however, easily get into the class which the successful fifth now occupy by making a systematic study of their own method of farm management to determine the reason for failure in previous years. The first important step to be taken in this connection is the keeping of an adequate system of farm accounts, preferably the same as is used in farm demonstration work, to the end that the results secured may be more readily analyzed and compared for future enlightenment and guidance.

With the advancing season the prospect of the enactment of a bill providing for

good roads becomes less likely. Last week the Senate adjourned on the day set apart for the consideration of a road bill without reaching a vote, after three days of discussion in the Senate. Charges were made against the bill pending, in that it was a so-called "pork-barrel" appropriation. Under the proposed bill \$75,000,000 would be appropriated during the next five years to be used in connection with an equal amount to be appropriated by the states for a like purpose.

It is a matter for encouragement, however, that while the federal congress "plays horse" with the proposition of federal aid for good roads, many of the states, including Michigan, are going right ahead in the encouragement of the good roads propaganda, while the people of the various counties are supporting the movement liberally, and the actual results in the road construction are being accomplished.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—After over two months of almost superhuman effort, the German offensive at Verdun appears to have been broken and now the French are taking the offensive along a greater portion of the line in this district. On Sunday French troops occupied German trenches on both the right and left banks of the Meuse river, which had been taken earlier by the Germans. On the extreme western front minor engagements were fought the first of this week without changes of positions, and the same is true in the Vosges mountains, where the Germans are attempting to break the French line. On the Russian front violent artillery engagements are reported from the Riga and Jacobstadt districts to the north, while about Lake Narocz fighting has greatly diminished in intensity. At the extreme southern end of the Russian frontier the Czar's forces recaptured trenches that had been taken from them early Sunday morning, included in the capture were 600 Magyars and 22 officers. In the Caucasus region an advance undertaken by the Turks at Diarbekr failed. It has been reported that the English garrison at Kut-el-Amara has capitulated, but confirmation of the report is lacking.

An uprising took place in Ireland last week with Dublin as the center of the revolt. It appears that the government has subdued the rebels and the situation seems well under control. Over 700 prisoners were taken and a large number of casualties resulted from engagements between the troops and rebel bands. There is a general belief that German support has been given the movement.

Mexican Affairs.—Gen. Scott, representing the United States, and Gen. Obregón, Mexican Minister of War, are in conference at El Paso, Texas, on matters pertaining to the presence of American troops in Mexico. The position of Gen. Obregón is that unless American troops are recalled from Mexican soil, the Carranza government will soon be facing a formidable revolution. This attitude was supported by the recent plots against Mexican officials at Chihuahua City and elsewhere. On the other hand, Gen. Scott insists that the American people are in such frame of mind that if troops were withdrawn and another raid similar to the affair at Columbus, N. M., should take place, it would be impossible to stem the demand for an immediate invasion of Mexico. In view of these positions, it has been suggested that Mexico accept the co-operation of the American troops in hunting down the bandits and thus stave off the American sentiment of war on the whole Mexican country.

International relations between the United States and Germany have an optimistic outlook in that German sentiment is reported favorable to the granting of demands made by this country to modify the character of the submarine warfare carried on by the German government, particularly as it relates to passengers and shipping of neutral countries.

National.

A new world's aviation record was established at Newport News, Va., when Theodore McCauley remained in the air one hour, ten minutes and five and two-fifths seconds, traveled 88 miles and covered 100 kilometers in 50 minutes and ten seconds, with six passengers in his machine.

Mail service from eastern states to Michigan points has been poor for several weeks past, and protests have been made to the department at Washington which have thus far been fruitless in obtaining relief.

The twenty-seventh general conference of the M. E. Church is in session at Saratoga Springs, N. Y. Nine hundred delegates are present, representing 132 conferences.

While labor conditions are tranquil in the middle-western states, a number of disturbances have occurred and promise to occur in eastern sections of the country. In New York City from 50,000 to 60,000 persons are out on strike or are locked out, and thousands more threaten to leave work unless matters can be arbitrated. In Pittsburg several thousand men have walked out, while the machinists and shop men of the Pennsylvania Railroad expect soon to go out, failing to secure an eight-hour day. Besides, a country-wide demand of 400,000 railroad employees for more favorable working conditions threatens to tie up transportation facilities, should their representatives fail to agree with the railroad operators.

The fiftieth anniversary of the sinking of the shafts on the Calumet mining properties in the upper peninsula of Michigan is to be celebrated at Calumet, Michigan, this summer.

WHERE THE POTATO LEADS IN PROFIT.

(Continued from first page).

ing twice with a spring-tooth harrow; the rest of the field was harrowed thoroughly four times, twice with a disk and twice with a spring-tooth harrow. In other respects the remainder of the field was treated the same. The crop on the section which received the less preparation averaged 80 barrels per acre and that on the thoroughly prepared part 100 barrels per acre.

The thorough and frequent cultivation of the land for the potato crop has served to solve a problem which prevails in nearly every potato growing section of the north. When the present system of potato culture was started in northern Maine, witch-grass, or the common quack-grass, threatened the success of the crop most seriously. Today this weed is one of the least serious difficulties met here. Thorough working of the soil planted to potatoes is part of the solution for this problem. This includes especially the work of the potato digger, for it shakes loose from the row any witch-grass roots which may have escaped the cultivation of the early season. The short rotation is another secret tending to the successful extermination of quack-grass, little opportunity being allowed for it to get a hold in the ground.

The cost to Maine farmers on an average for cultivation, spraying, harvesting, is \$60 per acre, allowing \$24 for fertilizer and \$15 for rent of land. The men in Maine who put the most into growing the crop raise the greatest number of bushels. The increase in yield as a result of the more costly method is certainly sufficient to more than pay the difference in cost, supposing potatoes to sell as low as 35 cents per bushel. A yield of 125 bushels, grown at a cost of \$15, would bring a result of \$26.66 net per acre, as against \$31.66 net profit on \$60 cropping, with harvest of 275 bushels. But Maine farmers sell at an average of one dollar per barrel, and their quality recognition insures against low prices.

A potato grower in Van Buren county, Maine, advises that his potato crop, mostly marketed in the fall, sold at an average price of 44 cents per bushel for a period of ten years. At this price the more expensive method of culture yielded a profit of \$61 per acre, as against an estimate of \$40 from the cheaper method, which is common in Michigan and other states in which the potato crop is an important source of income. Always remember, too, that better quality potatoes result from bumper yields, and not from small yields.

LILLIE FARMSTEAD NOTES.

Business men in other lines are quite apt, especially some of them, to criticize the farmer because he does not do things in a more businesslike way. I have heard of this criticism before now, when it was pretty harsh. To one unacquainted with the actual conditions on a farm for a series of years the criticism might seem just and in some instances no doubt, in fact we know it is just, but we also know that much of it is unjust in the extreme and it comes from real, genuine ignorance of actual farm and weather conditions.

Farm work cannot be carried on as systematically as factory work. It is utterly impossible. If the farmer had a roof over his farm, like the manufacturer, crops would be in on time, at least most crops, and they would be planted in good condition. Many a farmer sows his oats or his wheat like last fall, when the land is not properly fitted and he knows it. He does not need someone to tell him, but he puts in the crop because he thinks it is to be that way or not at all. He has perhaps prepared his land well and is already to sow the seed but rain interferes and it must be prepared all over again. If the manufacturer was up

against such things he would be more discouraged than the farmer. The farmer gets used to it, makes the best of it and forgets bad conditions in the hopes that they never will occur again.

Spring Conditions.

I never saw land work up in better condition than it has this spring. Much of our heavy clay soil is as mellow as an ash heap. Even the clay knolls that some years are baked down so hard that the best of implements will hardly make an impression on the soil, can this year be fitted almost perfectly with a spring-tooth harrow. Harrowing both ways on a field made an ideal seedbed for peas, also for oats. We began sowing peas on the 14th and finished 32 acres by noon on the 18th. Then got nicely started on a 20-acre field for oats that day and have not turned a wheel since, and we can't for several days yet. We have had a week of wet, cloudy weather and everything is at a standstill. The manufacturer, however, can go right along with his work.

This rain, however, has been a very good thing for wheat, clover, and permanent pastures. They are looking green even if the temperature is below normal. April showers make grass, but they cut down the oat crop. The hurry to get the oats sown after the wet spell will cause many good farmers to sow before the land is well prepared, and the result will be a poorer crop. On the other hand, if the sowing is delayed much longer there probably will be a poor crop anyway.

The Dairy Business.

The dairy business is not so subject to bad weather as crop production. That can run along more nearly uniform even if the weather is bad and this fact seems to be the salvation of business at Lillie Farmstead. If there was not this stability of the dairy business to fall back on the profit and loss account would many times have its balance on the wrong side. Dairying is, I feel, the most reliable branch of farming. Where this is made an important part of the business, bad years can be, in a measure, bridged over and the whole business of farming saved from actual loss.

Milk Inspection.

I am pleased and interested in this question that has been discussed so well by Bro. Horton and Dr. Robison. They are both absolutely right on this question. The condition of the product should be the test and not the cost of stable equipment. No one likes to see enameled tile stables, etc., better than I do. They are fine, but the right kind of a man can produce better milk in an ordinary farm stable than the wrong kind of a man will in the stable with costly equipment. You and I are living through this period of experimental bacteriology as applied to dairying. When I was dairy and food commissioner a few years ago scientists had all sorts of notions about bacteria. Cows must not be fed hay immediately before milking, or the bedding stirred. Some went so far as to take the cows into a separate building to milk them, etc. This was all because they were jumping at conclusions—they did not know what they were talking about and the dairyman suffered. Now they have caught their second breath and actual experiments like those at Cornell which Mr. Horton refers to, are doing much to clear the atmosphere and give us all a chance. We learn now that the bacteria that destroys the food value of milk are rarely if ever in this dust. From this standpoint a man can feed his cows when he chooses. What he must be especially careful about is not to let any dirt from the cows udder or flanks get into the milk pail and he must sterilize the milk utensils, pails, straws, cans, etc. These are the two sources from which the injurious bacteria come, i. e., dirty cows and dirty pails, separator cans, etc. Keep the cows clean anyway you choose, keep dairy utensils clean and you have got clean pure milk. COLON C. LILLIE.

Top Dress your wheat

The Rural New-Yorker says: "This is a Season when top-dressing for the winter grain will pay good dividends.

By 'top-dressing' we mean spreading a moderate quantity of soluble plant food over the grain fields. There are some seasons when the grain comes through the Winter in such shape that this top-dressing would hardly pay, but this year, the sudden cleanup of Winter reveals the need of a little stimulant to start the grain off quickly. Much of the wheat was late seeded last Fall, and did not have a good chance before Winter set in. Then came a season of cold weather with bare ground and then ice and snow. Now comes a quick thaw with a hot sun on the plants as they are uncovered. Add to this condition the fact that prices will be high, demand heavier than ever, and the total crop a little short, and we have every argument in favor of using available fertilizer this Spring. It will be impossible to obtain potash economically this year, *but nitrogen and phosphoric acid will pay now if they ever did.*"

There are no better Top-Dressing Fertilizers than the

A. A. C. Fertilizers

Ask our nearest Sales Office for prices on quick-acting top-dressing fertilizers for this season. The Rural New-Yorker's advice is good and practical.

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57

BUY NOW! ONLY 30 DAYS MORE!

If you want to take advantage of my special 90-day proposition and buy Galloway Spreaders, Cream Separators or Gasoline Engines at the lowest prices they've ever been offered you must act quickly. 30 days are all you have left. May 31st is positively the last day. I repeat the offer briefly. For a limited time—until May 31st—I am making a special proposition to the first ten or more men in each township, as a special advertising proposition.

10,000 GALLOWAY ENGINES

Galloway engines are so far ahead of other engines that one invariably sells from two to six more in each neighborhood. For that reason I can afford to cut the price of the first ten introductory engines sold because of the great number that will sell. I'm doing the GREATEST ENGINE BUSINESS in the country. But I'm not satisfied. I want to triple it. I want to sell 10,000 ENGINES during the 90 days up to May 31st, and I have taken this way of doing it.

10,000 GALLOWAY SANITARY CREAM SEPARATORS

What I have said of my engines also applies to my Sanitary Cream Separators. YEAR BY YEAR my cream separator business has grown by leaps and bounds. I've saved farmers money and in return they've sold their friends. These friends have bought, saved money and told their friends until my separator business has reached the point where it is enormous. If you are not acquainted with the Galloway separator, send for my free catalog. Read it over. Then order one of these machines BEFORE MY 90-DAY OFFER EXPIRES.

10,000 GALLOWAY MANURE SPREADERS

I have also included my New No. 8 Low Down Manure Spreader in this 90-day offer. Even at the regular price this spreader is WORTH \$50 more than any other spreader made on account of these special patented features, exclusive on Galloway. All-steel beater and V-Bar; positive roller feed; patented automatic push board; double chain; driver cut-under front trucks and pressed steel unbreakable tongue. It has no equal at any price. Order one on trial.

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\$34.50 UP



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An Inter-County Tractor Day

ARE Michigan farmers interested in the tractor proposition? This question was answered emphatically in the affirmative by the success of the recent Tractor Day observed at Carson City, Montcalm county, under the auspices of the Inter-County Corn Growers' Association.

It rained practically all day, but notwithstanding this, fully 500 interested farmers were present by noon, and stayed through to the end of the demonstration. Many of these farmers came twelve and fifteen miles to witness the operation of different types of machines. Besides this evidence of the attention our farmers are giving to power farming, it should be noted that the machines used in the demonstration belonged to farmers living near the place where the day was observed.

There were eight machines exhibited, representing six different makes—The International, Steel Mule, Bates,

of the machines had some trouble because the soil was very loose and offered no footing for the drivers. There appeared a general opinion among the farmers witnessing the work of the machines, that under reasonable conditions, the results would be entirely satisfactory so far as getting over the ground is concerned.

Looking to Economic Advantages.

The men inquired into different features of these machines, and the work they could do, would indicate that their interest was one of no idle curiosity. The economic side of the question is appealing strongly to the farmers, and they are looking beyond the mere fact of being able to plow or do other work, more cheaply with the tractor than with horse power. They are fully apprised of the fact that time is an important element in the accomplishment of farm work. If through the use of a tractor they can prepare a field for planting in two days which might take them four or five days with teams, these men realize that the advantage is well worth considering, because such saving of time frequently means the production of a good crop instead of a poor one. It may mean the saving of the entire season's work upon a particular field. When this conditional insurance against crop failure is coupled with the possibility of doing the heavier work upon the farm more cheaply than can be done in the old way, the reason for the farmer's interest is apparent.

While general knowledge of the essentials in the operation and up-keep of the automobile has made the farmer conversant with the handling of the gas power engines, there appeared to be a general sentiment favorable to the simple tractors. Complicated devices are too quickly gotten out of order, and are usually difficult to adjust, for which reason the simple machine appeals more strongly to those who are looking for a tractor to do farm work.

Intelligent Operation Pays.

Another feature more or less forcefully brought to the attention of observers was the difference in the ability of the operators. Some of the tractors were spouting smoke as if they were some species of steam engine. Other operators were qualified to handle the engine perfectly well, but did not appear to know how to adjust and handle the plows. The large number of wearing surfaces, the tremendous strain and the careful adjustment required in many of the parts make it highly important that the operator should thoroughly acquaint himself with his machine. The manufacturers are aware of this condition, and while they have done everything that inventive genius has discovered to make these steel horses "fool proof," many of them are taking the further precaution to offer courses of instruction to parties purchasing their particular machines, as well as to others who

tors. Our agricultural colleges and correspondence schools have also provided for instruction along this line and a number of books have recently been issued with the same end in view. Many users remarked that the life and efficiency of this kind of power upon the farm may be increased fully fifty per cent through careful operation and oversight.

This, to our knowledge, was the first Tractor Day of its kind to be held in the state, and the Inter-County Corn Improvement Ass'n is to be congratulated, not only upon introducing the innovation, but also upon the success of the event. Too much credit cannot be given to the public-spirited men who arranged for the meeting. Their contribution to the development of agriculture in that section of Michigan, no one can measure, but it is safe to assume that through the educational benefit resulting from this exhibition and other important movements that the association has undertaken looking toward a better agriculture, many farmers will be assisted to greater prosperity and the community as a whole made richer and more progressive than ever before.

ROAD WORK IN MICHIGAN.

Barry county has adopted the county road system.

Cass county turned down the proposition of a bond issue of \$200,000 by a majority of three to one.

Barton township in Newaygo county voted a bond issue of \$2,500 for building two miles of state reward road extending to the Mecosta county line.

A bond issue of \$6,000 was voted by Merrill township, Mecosta county for building a trunk road across the township.

Genesee county will vote in November on a bond issue of half a million dollars for good roads.

Two and a half miles of road will be built between the villages of Eastlake and Stronach, Manistee county, completing the round-the-lake drive.

Macomb county has let a contract for \$27,000 for building two and a quarter miles of asphalt road, with cement curb, completing the lake shore road between Detroit and Mt. Clemens.

Chippewa and Mackinac counties plan to build six miles of reward road south of Pickford, on the main line connecting the Soo and St. Ignace.

Women voters saved the day for good roads in Ottawa county, in the matter of a bond issue of \$36,000 for continuing the West Michigan pike through Laketon township, a distance of nine miles. Olive township will expend \$1,000 in connecting the Harlem road with the Michigan pike, and Holland township has authorized the regular assessment of 15 per cent for good good roads to be used in building an asphalt road connecting with North River avenue, Holland, and extending west to Pine lodge.

Muskegon county will try a "binder" on a mile of the Cedar Springs high-

way, to prolong the life of the road.

Clinton county will vote in November on a bond issue of \$200,000 for good roads, to be paid in four years, consisting of trunk lines and six miles of road in each township not touched by trunk lines. Bonds will be issued

Extensive road building operations are under way in eastern Calhoun county.

Many pieces of road will be built in Branch county this season, largely gravel, with the exception of two miles of crushed stone on the state road west of Coldwater, the contract having been let to Wm. H. Ryan, of Lansing, for \$5,525.

Washtenaw county has let contracts for building gravel roads as follows: Whitmore Lake road to James Burke, \$7,000; Saline road to C. J. Schneider & Sons, \$3,500; No. 6 trunk line to J. W. Schneider, \$7,000; Ann Arbor-Dexter road, to J. W. Schneider, \$2,800; Salem road to Lans & McFadden, \$3,250.

Kent Co. ALMOND GRIFFEN.

CROP AND FERTILIZER QUESTIONS.

Fertilizing Old Meadows.

I have a piece of old meadow, timothy and alsike, that should be plowed up this spring, but as I am short of meadow I thought some of sowing fertilizer on it after it dries and cutting another crop of hay. Would that be advisable? I probably could cut about a ton per acre without putting anything on it. Please tell me what would be best? I have no manure or I would top-dress it.

Van Buren Co.

L. T.

A meadow can be kept productive for many years if it is annually top-dressed with fertilizer. This practice has been thoroughly tested in the east. For this year's crop, however, it



Method of Using Minnesota Device.

would have been better to have applied the fertilizer last August. Much of the nutriment that will produce the next crop is already stored up in the crown and roots of the plants. The application should be made just as soon as possible. The earlier the better. As it will be a little late I suggest you apply fertilizer on half the field and note results. If you keep this meadow another year I think you will notice quite as much or more benefit from the fertilizer then than you do this year. This has been my experience.

Applying Hardwood Ashes to Corn Hills.

I have a limited amount of hardwood ashes which have accumulated this winter. I wish to use these ashes for corn in the hill, using a hand-planter with fertilizer attachment. Is there any danger of the ashes burning the seed corn or doing any other harm, and can ashes be successfully distributed in a hand-planter?

St. Clair Co.

N. S.

Hardwood ashes contain about 30 per cent of caustic lime, (oxide of lime). Too much of this right with the seed would injure the germination. In applying with a hand planter there would be little danger of getting on enough to cause any injury. In applying this way the ashes will be more or less mixed with the soil, and very little come in actual contact with the seed.

I think you can apply your ashes successfully in this way, provided you screen them carefully. All pieces of coal must be screened out.

COLON C. LILLIE.



Sorting Potatoes at Harvest Time in an Aroostook County Field.

Case, Avery and Bull Tractor. Farmers were given a chance to see one-wheel drive, two-wheel drive, and a crawler, and the inclemency of the weather offered a splendid opportunity for comparing the traction efficiency of these machines. The different types of wheels and lugs employed was a matter of considerable comment among the farmers present.

Adapted to Many Uses.

It was apparent to the casual observer that the recent development of the tractor for the trade in sections where farms are of ordinary size, has shown a general abandonment of the mammoth machines that are used on the large ranges of the west. The smaller machines appeal to the average farmers of Michigan, and manufacturers are making every effort to meet their needs. Not only are tractors being constructed on smaller lines, but they are also designed with the idea of being employed for a variety of purposes. The first tractors were made simply for plowing, but the newer machines are designed to plow, harrow, disc, cultivate, handle the manure spreader, draw loads about the farm and upon the roads, pull road machinery, besides doing all kinds of belt work that the ordinary farmer would have to do. By reason of this variety of uses, farmers upon the average sized farms have sufficient work for a machine of this kind to make an investment therein pay good dividends.

The program of the day included a street parade of the tractors during the forenoon, which was followed by a plowing demonstration after the lunch hour. On the roads, which had been made very muddy by continuous rains, the ability of these machines to get through difficult places was made apparent. The field where the plowing was done was too wet for working; one would not have chosen to work in it with horses, yet with a few exceptional places these tractors were able to pull their full quota of plows over the entire area of the fifteen-acre field. In a ravine that crossed the lot most



A Device Much Used for Cutting Seed Potatoes in Minnesota.

Farm Notes

Will Clover Self-Seed?

Will clover self-seed? I have a field in which I plowed a good crop of clover under when it was ripe enough to cut for seed in the fall of 1914. Last year I had this field into beans and potatoes and I wanted to plow it this spring and sow to oats and I wanted it seeded. Now if I plow this field deep enough to plow up the clover, will the seed grow and make a successful stand. I have had several neighbors tell me it will.

Saginaw Co.

L. C.

Under favorable conditions clover seed will live in the ground over one or more seasons, and much of it will germinate when it is again turned up near the surface where conditions are favorable. It is too uncertain a proposition, however, to make it a profitable dependence in the getting of a seeding of clover. If there is a strong probability that some of this seed may grow, it might be all right to sow the clover seed thinner than common, say about one-half a seeding, but even this would not, in the writer's opinion, be the wiser course. Clover is too important a factor in the crop rotation to take any unnecessary chances on getting a stand.

Installing a Ventilating System.

I am planning to ventilate my basement stable. It is a stone basement under a 40x60-ft. barn. It would be 46 ft. from the floor of the basement to the peak of the barn. Would two outlet flues 16 inches square be large enough, if I were keeping 30 head of cattle from cows down to calves? How near to the floor should they come? Does it make any difference whether they come down in front or behind the stock? If 16 inches is not large enough please state how large they should be. How large should the holes be for letting in the fresh air, say three on each side, as I understand it, the fresh air is let in at the ceiling. Was intending to build the flues out of tongued and grooved inch lumber.

Gladwin Co.

SUBSCRIBER.

Prof. King, in his work on ventilating, states that out-takes for cows and horses should provide not less than 30 square inches per head when the out-take has a height of 30 feet. With a height of 40 feet, only 24 square inches would be required, and with a 50-foot out-take flue, probably 20 square inches would be the minimum of cross section area which should be allowed for each animal.

At this estimate, two out-take flues 16 inches in diameter would be about up to Prof. King's estimate for adequate size of ventilating flues needed for the ventilation of a barn containing the amount of stock mentioned in this inquiry.

The out-take flue should reach nearly to the floor, allowing only ample space for the in-take of air nearly equal to the diameter of the out-take flue. The intakes should open on the inside at or near the ceiling, and on the outside at a lower level to prevent the discharge of warm air from the stable through them. Their total cross-section area should be equal to, or a little greater than, that of the out-take flue.

Matched lumber if of good quality so that the flue could be made tight, would be all right, but a double thickness with an interlining of tar paper is recommended for best results, or some other means of making an absolutely air-tight flue which will give the maximum movement of air through the same.

Seeding Alfalfa.

Have a piece of sand that grew a fair crop of beans last year. Took the beans off and plowed ground late, (there was some grass on it), and drilled to rye, but looks like a failure at this date. This ground had two applications of manure the last two years. I want to seed to alfalfa. How much should I sow to acre, how sow and how cover seed? Also about what time should I sow? Would say the ground is very firm. Would I stand a better show of a catch without a nurse crop?

Gratiot Co.

C. G. M.

If this soil is in suitable condition to insure a good stand of clover if sown

in the rye, it would be a good plan to harrow the surface well and sow to alfalfa as soon as practicable. Probably enough rye would survive this treatment to make a thin stand and keep back the weeds. This could be clipped high at a favorable time in case it appeared to encroach too much on the alfalfa or draw too much moisture from the soil.

If the soil is in an acid condition, it would be very profitable to apply some lime, using say 500 pounds per acre of hydrated lime to get immediately beneficial results in sweetening the soil and placing it in a proper condition to encourage the multiplication of the soil bacteria peculiar to and necessary for the success of the alfalfa plants.

The method of seeding should properly depend upon the condition of the soil. The seed can be successfully sown broadcast and harrowed in under normal weather conditions, in which case about ten pounds per acre would be a liberal seeding, provided seed of good germinating quality is sown. On land which has never been seeded to alfalfa, it might be a better plan to use some clover seed with the alfalfa, so as to insure a stand of grass in case the alfalfa did not do well the first year.

Eradicating the Sand-Burr.

Is there a safe and sure way to rid a farm of sand-burs? My farm is sand loam, not very light sand, but nice loam. Am going to put potatoes, corn and tomatoes in the field that has the burs in it. Will a sod kill them, or will cultivation kill them? Am going to put the field to alfalfa soon, but do not want it full of burs.

Kent Co.

R. J. J.

The best method of eradicating the sand-burs is thorough cultivation of this field and hand-hoeing if necessary to prevent them from seeding this year. Then before the land is seeded it should be well fertilized, and if any difficulty has been experienced in getting clover or alfalfa to grow on same, it should also be limed to encourage a better stand of the legume. This is a weed which is far more troublesome in waste places and on land poor in fertility than on a fertile soil which produces a vigorous growth of grasses. If you succeed in getting a good stand of alfalfa, the frequent cutting of this crop will soon eliminate this troublesome grass.

Wisconsin Seed Beans.

Do you advise Wisconsin beans for seed?

Gratiot Co.

SUBSCRIBER.

Beans from northern Wisconsin might be of a superior quality of seed, since bean growing there has not been as extensive as in Michigan and the fungous diseases which have been such a handicap to bean growers here may not have been so prevalent. The superior value of seed beans from any locality lies, however, in their freedom from disease, and unless they are more free from the spores of these fungous diseases, beans from a distance would not be likely to give better results if, indeed, they give as good results as beans which were produced nearer home.

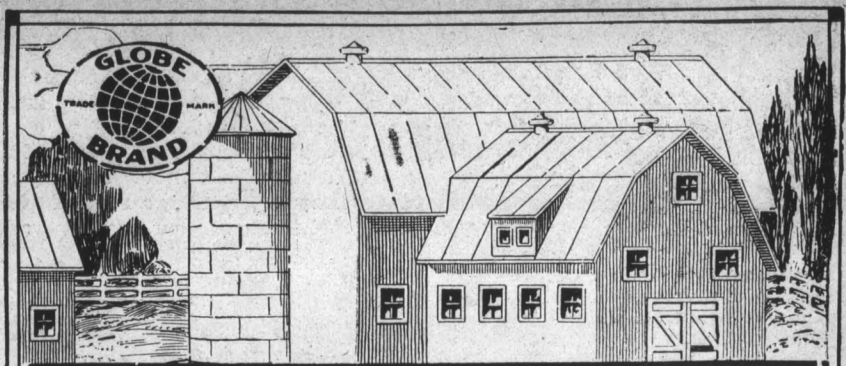
Manure as a Source of Bean Infection.

Would it be alright to draw manure on bean ground containing bean pods that were infected with the blight and anthracnose. The pods were used for bedding.

Gratiot Co.

SUBSCRIBER.

Experiments conducted at the Michigan Station during the last year have shown that the spores of bean blight and anthracnose are practically all destroyed by passing through the alimentary canal of animals. Where the bean pods are used as bedding, however, the proposition would be entirely different, and it would be an unwise procedure to apply the resulting manure to ground intended for beans this year, since this might easily, and probably would, become a source of infection of the season's crop, especially if prevailing weather conditions were favorable for the development of these diseases.



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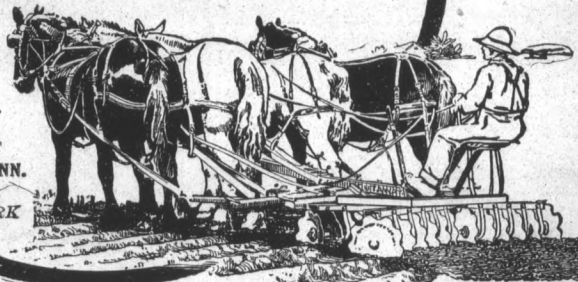
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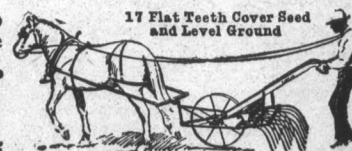
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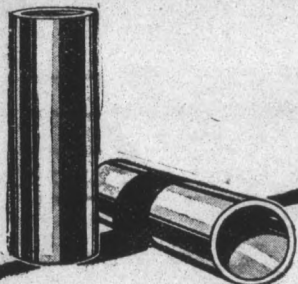
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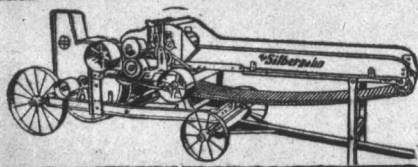
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Spring Work with Strawberries

WHILE the strawberry is not an exhausting crop on the land, yet in practice it has been found that it requires a far more liberal manuring than most fruit crops. In a recent experiment, a crop of 6,000 pounds of fresh berries were harvested from one acre, which is a very fair yield, and the analysis showed that the soil had lost in the production of this crop 8.4 pounds of nitrogen, 10 pounds of potash, and 3.5 pounds of phosphoric acid.

The reason why strawberries demand fertilizer for successful growth lies in the fact that it has a comparatively short growing season in the early part of the year. With favorable weather conditions after the plants start in the spring they will grow fast, soon blossom, and rapidly develop their fruit, thus requiring in a short time relatively large amounts of immediately available nitrogen, phosphoric acid, and potash, and these elements must be in the soil in abundance to meet this demand if the best results are obtained.

Applying Manure.

Well-rotted barnyard manure is the fertilizer most generally used and recommended for strawberries. It should never be used fresh. If not well rotted, it is generally foul with weed seeds and fungus diseases, and conduces to a rank growth of vine and a fruit of poor shipping quality. To supplement the barnyard manure, which is often of poor quality, from 50 to 100 bushels per acre of unleached wood ashes should be used.

The soil may be supplied with humus from other sources than rotted manure, such as by turning under the green manure crops, like clover and cowpeas, together with commercial fertilizers. A strawberry grower in Maryland tried one plot of berries under fertilization with stable manure, which cost \$31, and another plot with commercial fertilizer which cost \$7. The result of the experiment revealed the advantage of growth of vines and early maturity of fruit decidedly in favor of the commercial fertilizer.

Other Fertilizers.

Where barnyard manure is not available, or its use unwise, ashes and ground bone may be used to supplement green manuring. The green crops should be plowed under in the fall, and the bone and ashes applied broadcast in the spring, and lightly harrowed in. This plan has given quite general satisfaction among the strawberry growers.

Some Wisconsin growers have found that a liberal top-dressing with fine manure after the fruiting season is the most satisfactory method of fertilization. The dressing protects the crowns of the plants from excessive summer heat and furnishes the young roots with abundant nourishment throughout the growing season, developing strong plants which are able to store up in the short stems a good supply of reserve material for the first leaf growth the following spring.

New York. EARL W. GAGE.

As soon as growth in vegetation begins, it will be necessary to look after the strawberry bed that was provided with a good winter mulch. The material has become pretty well packed from the weight of snow and rain, and that directly over the plants will need loosening that light and air may have freer entrance and that the new leaves and the fruit stems may grow up unobstructed. It is best to disturb no more of the mulch than it is necessary to accomplish the purpose for the reason that the mulch will best fill the purpose of soil water conservation while in a state of compactness like that secured through the agencies named.

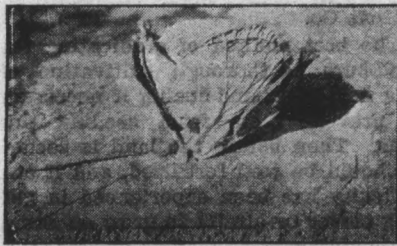
It is necessary that this matter be given proper and timely attention for the reason that growth made under

such abnormal conditions will be normal in no particular. Growth made under such conditions will be a sickly white or yellow and not able to functionate properly, even though the leaves do finally succeed in reaching air and light.

Emmett Co. M. N. EDGERTON.

TARRED PAPER COLLARS FOR CABBAGES.

After repeated experiments in various parts of the country, it has been found that collars made of tarred felt-paper are very efficient indeed in controlling the cabbage maggot, both with cabbage plants and cauliflowers. When failures are reported, they usually can be traced to some carelessness in making the collars or adjusting them on the plants. These collars are simply discs made of one-ply tarred felt-paper. Common tar paper will not serve, because the heat of the sun causes it to curl up instead of remaining flat on the ground, which is absolutely necessary. Felt-paper is soft and smooth, and for that reason can be made to fit snugly around the stems of the plants. The discs need not be more than three or four inches in diameter. The one shown in the illustration is much larger than is necessary. Also, they may be octagonal or six-sided as well as round. They are adjusted by cutting a slit in one side, making it possible to slip the collars around the stems of



A Good Cabbage Plant Protector.

the plants. Then the slit must be brought together as close as possible.

When these collars are in place the little two-winged fly which is responsible for the cabbage maggot is unable to lay her eggs in the stem of the plant or close to it, as she likes to do. Instead, she must either deposit them on the tarred paper, where they are certain to dry out before they can hatch, or else on the earth outside the limits of the disc, in which case the maggots will be unable to reach the plant.

It is important to have the discs put in place as soon as the plants are set, for if the flies are present they will begin laying their eggs immediately. And the ground under them should first be smoothed with a flat stick. In a small garden these collars can be quickly and easily made with a pair of large shears, but when large fields of cabbage and cauliflower are to be protected in this way it is customary to use a special tool for cutting them out. One person can adjust 200 or more collars an hour, when they are all ready to be slipping on the plants.

The flies usually appear late in April or early in May, having spent the winter in piles of rubbish, under the bark of trees or similar hiding places. The eggs hatch in about a week and the maggots soon bore into the roots of plants like the cabbage, if they can find them. Turnips and radishes, as well as cabbages and cauliflower, are attacked. Preventive measures of several kinds beside the one named are sometimes adopted. Tobacco dust, for example, is scattered thickly about the base of the plants by some growers, while others use hellebore in the same way. Hand-picking is occasionally practiced and consists of pulling up the young plants and crushing any maggots found in the roots or else killing the pests by washing the roots in a strong soap solution. In either event the roots are immediately replaced in

the ground and usually the plants go on growing with but little set-back.

Mass. E. I. FARRINGTON.

WORKING FOR ORCHARD PROFITS.

The prices obtained during the past few years have not been such as to offer any great encouragement to those who have embarked in the fruit growing business, especially the growing of apples. If the problem be considered from its many different angles it will be found, however, that the outlook is not really so dark as it appears. Possibly the one thing that has served to give the industry its worst knock is the methods employed by real estate agents in certain sections of the country who have been too prolific in their claims of the enormous profits that are to be made from apples, thus inducing many persons wholly unfit for the work to purchase land that is, in many instances, unfit for orcharding. This host of would-be growers with their extravagant ideas and methods have failed to reap the profits which they anticipated with the result that they have become careless and demoralized the entire business.

If we dig deep down into the question, however, we find that there is yet money to be made from the orchard. To do this the old order of things must be given up entirely and the modern methods and proper lines of economy practiced. There should then be no doubt of the orchard returning a per cent of profit equal to that obtained from any other crop.

The very foundation of economy lies in finding the cheapest and most practical way of doing things. Know what your own time and the time of those who assist you is worth, also what the various operations of pruning, spraying, picking, packing, marketing, etc., are costing you. It should then be possible to figure whether or not money could have been saved by using other methods, thus devising a system that may be improved as additional knowledge is secured, with the result that the profits may be made to increase from year to year.

Possibly the best place to begin making the orchard pay more money is with the pruning tools. Cut high tops from the trees and remove such limbs as prevent the sun reaching the center of the tree. This means easier spraying and better fruit that can be more easily picked.

Putting more money into the spraying outfit and the chemicals used with it is a very good form of economy. An outfit that does the work more thoroughly and in less time may cost more but it is certainly worth the extra outlay.

There are many other places where the spending of additional money brings an increase in the returns. For instance, better ladders may cost more but if the picking can be accomplished with greater rapidity and ease they mean more profit. More convenient picking bags that prevent damaged fruit, and better and neater packages that insure it reaching market in a more attractive condition are commendable forms of economy.

Do not lose faith in the orcharding business, for the Almighty never devised a fruit that is superior to the apple, and that fruit will always be in demand and the man who studies the business and carries on his work in a systematic and economical manner is the one who will harvest the profits.

Ohio. SHERLEY CONNELL.

One of the problems confronting the orchardist has been the long waiting period before the trees come into bearing. The use of fillers helps to keep up the farm income and fillers are practical if they are removed before they injure the growth of the permanent trees. Peaches can be used as fillers in apple orchards and small fruit, such as gooseberries, blackberries, and strawberries will often earn a fine income for the farmer while the trees are developing.

Why pay Tire Bills for Others—— ——i. e., for RECKLESS Drivers



THIS to the American who hates to be "the Goat"! Tires CAN be sold on a "BUSINESS" basis, with sufficient profit to both Manufacturer and Dealer, as *Goodrich* experience proves.

But, they can *also* be sold on a PREMIUM basis, whereby the "Safe and Sane" Car-Owner pays for the Speeding Propensities, and Careless Driving, of Others who, leaning upon an extravagant "Guarantee," knowingly burn up Tires in half their natural Life and Mileage.

Speed-Maniacs and Careless-Drivers may very PROPERLY pay the Premium over normal Value (which is really an Insurance Premium), on fancy-priced Tires.

Because, the Premium *they* pay may be less than half what *other* Careful Car-Owners indirectly contribute *for them*, when buying the same brand of Premium-priced Tires, and *using* them so reasonably that practically no "adjustments" are, in their case, demanded, though paid for in the Premiumed Price.

AMERICANS who *want their money's worth*,—who dislike to pay for the Reckless-driving extravagance of *Others*,—in the price of *their own* Tires, should sit up and take notice of following FACTS:—

The current Goodrich "Fair-List" price on Tires, is based upon *what it costs* the largest, and best equipped, Rubber Factory in America to *produce* them.

No "Insurance" Premium added to the NORMAL retail price of *Goodrich* Tires, in order to protect the *Reckless* Driver at the expense of the *Careful* Driver, through a fancy List Price which is *high* enough to absorb that Premium.

The *excess* Mileage each Goodrich Tire is reasonably certain to *deliver*, when given reasonable care in driving, thus becomes clear "Velvet" to the Owner of GOODRICH Tires.

Money *can't* make, and *can't* buy, *better* Tires of Fabric construction, than *Goodrich* Safety-Tread Tires, as *Test* will prove.

And, money *can't* buy the B. F. Goodrich Co. to produce Tires which would *discredit* the 269 *other* lines of Rubber Goods made by the B. F. Goodrich Co., for which its name stands Sponsor.

COMPARE prices on Goodrich "Fair-List" Tires with present prices on any other *responsible* Tires in the field bearing in mind that NO "LARGER-SIZED" Tires (type for type and size for size) than *Goodrich* Black-Treads, are made in America.

Then, Test out at least ONE pair of Goodrich *black-tread* Tires, on their *per-DELIVERED-Mile* cost to you, against *any* other Tires in the field, at *any* price, and,—abide by the Result.

Why (if YOU are *not* a Reckless Driver) should YOU pay MORE than the "BUSINESS" price of the Goodrich Tire, for ANY Fabric Tire in the field?

Get a sliver of the new Goodrich "Barefoot" Rubber from your nearest Goodrich Dealer or Branch.

THE B. F. GOODRICH CO.
Akron, Ohio.

30 x 3	} Ford Sizes.....	{	\$10.40
30 x 3 1/2			
32 x 3 1/2			\$15.45
33 x 4			\$22.00
34 x 4	Safety Tread.....		\$22.40
36 x 4 1/2	"Fair-List".....		\$31.60
37 x 5			\$37.35
38 x 5 1/2			\$50.60

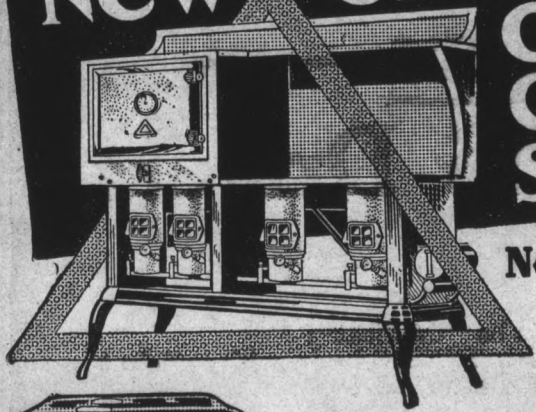
NOTICE.

"No Concern in America made, or sold, during its latest fiscal year, nearly so many Motor-Car Tires as did The B. F. Goodrich Co.
"Our published Challenge, still unanswered, proves this."

GOODRICH——

——"BAREFOOT" Tires

New Perfection Oil Cook Stoves



**No Odor No Smoke
No Ashes**

Truly that is the housewife's idea of paradise. And those features are only a few of the many advantages

of cooking with **New Perfection Oil Cook Stoves.**

No longer is it necessary for you to suffer from the intense heat of the wood or coal burning range long before you are ready to begin operations.

Just touch a match to the wick and your fire is ready when you want it.

You can have a slow fire or an exceedingly hot one; just as you wish.

You don't have to watch it either. The flame will not creep up or diminish.

The Long Blue Chimney

is the key to the efficiency of the New Perfection Oil Cook Stoves.

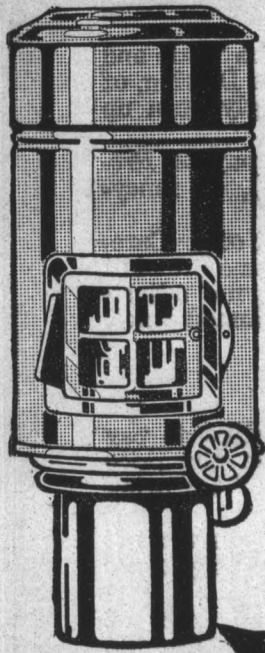
The flame never touches the bottom of the utensils. Every atom of oil is burned and converted into usable heat in the long blue chimney. No waste—no dirt—no odor. It makes your summer cooking easy.

Write for booklet giving full description and prices of the various types.

Standard Oil Company (Indiana)

72 W. Adams St., Chicago, U. S. A.

For best results use Perfection Oil



A complete line at different prices. Strength, easy to operate, safe and simple locks. The best of materials are used in all models. Wood, or steel with wood lining. They are adjustable to Small Calf or Large Cow

We also make a complete line of Steel Stalls for cattle or horses; Water Bowls; Cow, Calf and Bull Pens; Feed Trucks and 26 styles of Carriers. Ask us about Stanchion No. 3—it's a winner.

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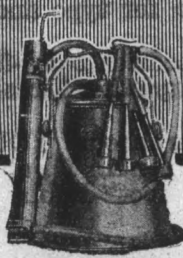
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18,000 Units Used in 1915



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OUR plant has been doubled three times. Today we are turning out 500 machines a week. This alone is evidence that the **HINMAN MILKER** is right. Our practical farming and dairy experience has enabled us to solve the milking problem. Hardly a day passes but that we receive expressions of deep regard from the dairymen who have found that the

HINMAN MILKER

has made it possible and profitable for them to remain in the dairy business.

Write us your requirements and we will advise you to the best of our ability. We will not advise a larger outfit than you really need, or a smaller one than you can use to advantage.

We have an outfit at a price that we know will pay for itself in a short time.

It is **SIMPLE, DURABLE and EFFICIENT**

Send **COUPON** for Free Information

Out of our experience as dairymen and with our eight years' success selling **HINMAN** Milkers, we can advise you about size of equipment that will handle your dairy economically.

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Service Dealers Everywhere

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Without obligation to me, send catalog and quote approximate price on outfit to milk:

No. of Cows....No. of Stanchions....
Dist. between each....Kind of power
.....Where located.....
Name.....
Town.....R. F. D.....
County.....State.....

A SUCCESS FOR 8 YEARS

The Milk Inspection Problem

By FLOYD W. ROBISON.

THE conditions surrounding the marketing of perishable articles of food, particularly of the milk type, make necessary the consideration of other items than is usually the case in the marketing of ordinary food products.

We find, for instance, in the milk supplied to a city as large as Detroit that it becomes necessary to reach far out into the state to secure a sufficient supply. The number of dairy cows of average milk capacity necessary to supply milk to the city of Detroit is considerably in excess of 25,000. At the present time probably nearer 50,000 cows are furnishing milk which, through one or another channel, reaches the City of Detroit, and there are many problems involved other than the mere producing of the milk and distributing of it to the homes in the city.

Cleanliness and Cold.

It is a generally accepted maxim that two great factors govern the production and marketing of wholesome milk. The first one of these factors we call cleanliness; the second factor, cold. Not only is it desirable to throw every precaution possible around the production of milk from the standpoint of cleanliness, and not only is it desirable that every precaution be followed that it is possible to follow in transporting that milk to faithfully conserve the question of cleanliness, but the milk must be produced, transported and marketed as near the freezing point as it is possible to do in order to retain it in anywhere near the original condition of purity in which it is produced.

Officials having charge of the enforcement of milk ordinances in cities are fully aware of this fact and have attempted to bring about the fulfillment of the proper conditions with the enactment of ordinances which permit them to refuse milk which does not reach the city below a certain maximum temperature. Some cities have placed this temperature at 50 degrees F., some have placed it at 60 degrees F., and some have placed it at 70 degrees F., and there is no definite temperature which has been decided upon, as shown by the different ordinances, as giving a milk with a certain degree of perfection in this respect.

The real ideal condition would be milk at a temperature just above the freezing point as at this temperature the activity of the bacteria is reduced to a minimum or as nearly minimum as it is possible with the handling of milk without subjecting it to the undesirable condition of freezing. Enforcing an ordinance of this kind seems perfectly simple. All that an inspector has to do is to take a thermometer, insert it into the milk can and if the temperature registers above the maximum allowed, the milk is rejected.

Don't Put the Means Above the End.

Here again the means to the end are permitted to take precedence over the end itself. It is easily possible that a milk which registers above the maximum temperature allowed by the ordinance may be vastly superior in quality, in cleanliness and in every consideration which from a food standpoint we would be interested in, than is a milk which may conform rigidly, as far as temperature is concerned, to the ordinance. In fact, persons familiar generally with milk will recall that very frequently milk or cream may reach the city in a frozen condition with the thermometer consequently registering 32 degrees, and be so badly contaminated, so laden with bacteria, that before it can be thawed out it will sour. This is an illustration where it would be decidedly preferable if it were possible to accept milk upon its quality, and quality alone, rather than upon any arbitrary set of standards which deal with the method of produc-

tion rather than the quality of the finished product itself.

It must be apparent to anyone who has given extended study to the problem, therefore, that any attempt to reach perfection in the working out of a problem of the magnitude of the milk problem must resort to some plan which will permit of a judging of the product itself rather than the means adopted for the production of the product in question.

The Laboratory Study Should be Paramount.

If milk is clean and comparatively pure then it is desirable to keep it cold in order to preserve the original purity and the testing of the temperature of the milk is a test worth while under these conditions. If a farmer is capable of producing sanitary milk and the laboratory examination shows that he is producing good milk then an educational inspection of his farm will work out to his decided benefit. If the farmer is not acquainted with the methods to be followed generally in the production of wholesome milk, then by all means the milk which he does produce should be accurately graded in the laboratory because, no matter how well his dairy farm may conform to the score card requirements of the inspector the milk which he produces will in all probability be a product the entering of which to the markets of the city is of questionable propriety.

Must the Farmer Always Bear the Brunt?

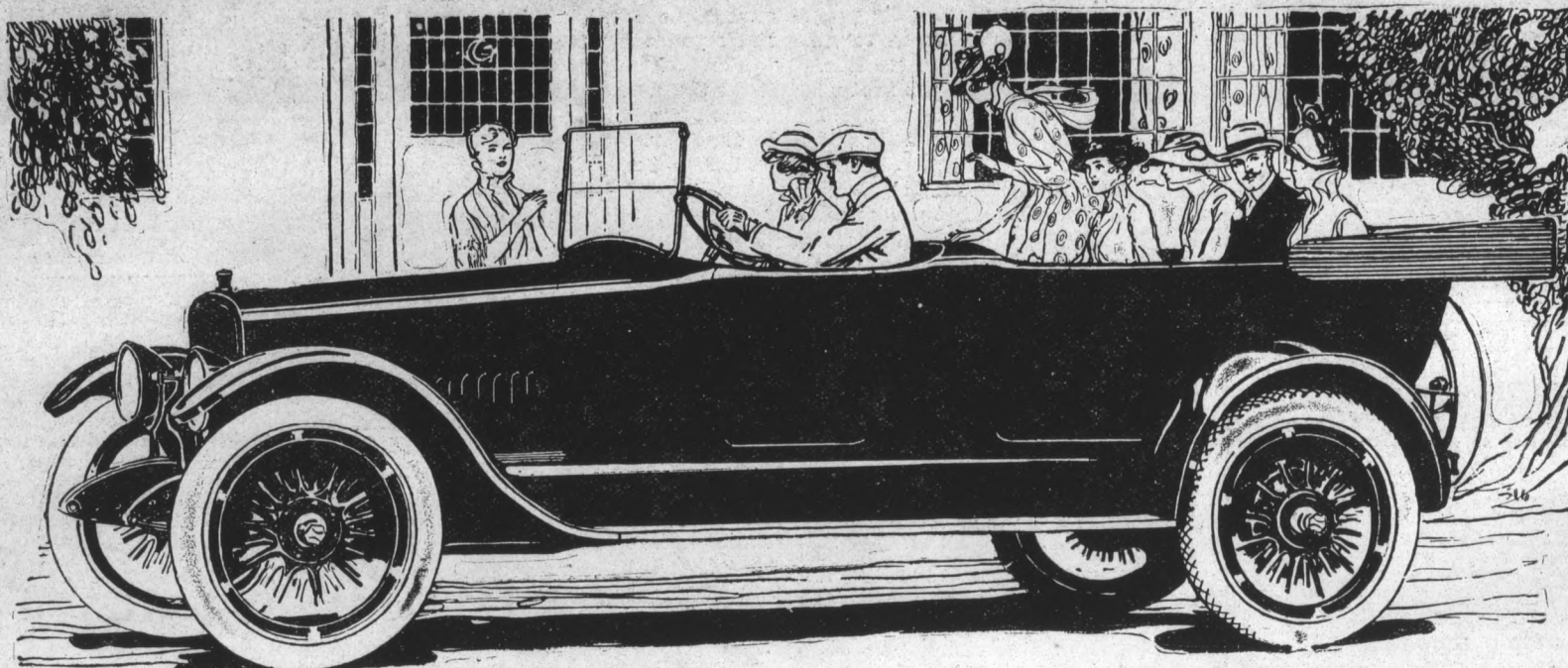
We have had numerous dairy farmers appeal to us to show them some way they could be protected in the production of a merchantable article of milk in the matter of temperature and marketing. The milk ordinances, for instance require that milk shall not be marketed in the city which is above, say, 50 degrees F. in temperature. The farmer has yearly been increasing the expense of the production of milk on his farm by the installation of more or less modern devices; by the use of cooling systems; by the icing of his milk, etc., and he delivers this milk to the railroad station in proper condition. Through delays in transportation; through improper facilities for caring for milk at the railroad station, and possibly through delays in distributing the milk in the city the temperature rises to a point where it no longer complies with the ordinance. The milk inspector accordingly rejects the milk and the dairyman through no fault of his own, is in this manner deprived of the income, from the product, which rightfully belongs to him.

In several such instances as this we have advised dairymen to be certain that the milk delivered by them is within the requirements of the ordinance and then to fasten a tag to the can reading something as follows: "The temperature of this milk, when placed upon the station platform, is below 50 degrees F."

This brings up the question as to when the sale of this milk takes place. Does it take place in the city or does it take place at the farm, or the station platform? And now the answer of this question will revolve around the individual contract of the dairyman.

If the sale takes place in the city, then, of course, whether justly or not, the farmer will be held responsible for the temperature and other conditions of the milk when it reaches the city. If, however, the sale takes place at the railroad station when the farmer delivers the milk to the transportation agent, then, of course, if the farmer delivers it in a condition which complies with the city ordinance without doubt the loss, if this milk is rejected by the city milk inspector, will not fall

(Continued on page 602).



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If you want to experiment—

If you want to try out some new theory of motor construction—

You won't be interested in the Chandler

BUT if you want a motor that has in it three years of **making good**,

If you want the motor that turned the whole automobile industry away from **high-priced** sixes and wasteful heavy fours,

If you want the strong, sturdy chassis that showed men the folly of needless weight,

If you want the solid aluminum motor base, and Bosch magneto ignition, and the silent spiral bevel gear rear axle,

and Gray & Davis starting and lighting, and a dozen other highest class features at the lowest obtainable price, and

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The Most Beautiful of All the New Motor Car Bodies,

You **will** be interested in the Chandler.

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POWER—Ample to take this car, loaded, anywhere that any automobile can go.

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MOTOR—The marvelous Chandler Motor, built in the Chandler factory for three years past and famous the world over. FREE FROM ANY HINT OF EXPERIMENTATION.

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YOU'RE a butter maker—we sell salt. Of course you want to know, "Will it pay me to use Worcester Salt in my butter?"

To answer this, look at your butter. Anything wrong with it? If there is—if you have to work it till it's greasy to make the salt dissolve—stop!

Change over to Worcester Salt now. You'll find it dissolves better—makes the body better. Brings out delicious flavor in the butter, too. No more mottles or brine pockets.

And as for "paying" you—well, perhaps this is just the thing needed to put your butter in the top-notch class. Try Worcester Salt in your next churning.

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"The Salt with the Savor"
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Largest Producers of High-grade Salt in the World

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Thomas Fox, of Fond du Lac, Wis., says:
"My equipment of Libbey stanchions, stalls, pens, and carrier is a big money maker and money saver. It makes milk checks grow."

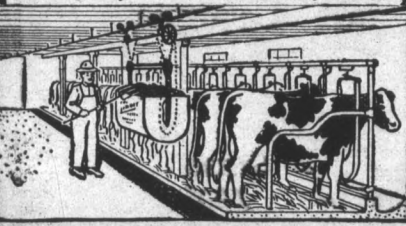
You can make your milk check grow—save time—save labor—make more money by using

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Carriers, Water Bowls, Cupola-ventilators, etc. Dairy farmers are enthusiastic over the superior construction and features of Libbey barn equipments—and you will be if you use them.

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Make new friends every day—scores of them—in every community. Twenty years experience behind every one insures the best design, workmanship and material producible. No guess work when you buy a Kalamazoo—freight paid to your station—GUARANTEED.

Glazed Tile Silo "Permanent Farm Profit Producer." The double wall vitrified tile block, glazed both sides, is far superior to the common tile or cement block. Moisture fully retained, with frost barred out, means perfect silage with minimum loss. Ample reinforcement. Securely anchored by its own weight.

Wood Stave Silo Your choice of four most lasting woods. The Kalamazoo is the only factory where this outfit is manufactured complete from the raw material to the finished product. Service and satisfaction.

A success secret of Kalamazoo Silos is the all steel, hot galvanized, continuous opening door frame, fitted with a series of ever-lasting Redwood doors, and either the tile or wood is easily erected by home labor. Let us prove to you the Kalamazoo quality. Tell us the size and kind of silo you want and we'll save you money by our cooperative sales plan. Write today.

KALAMAZOO TANK & SLO COMPANY
621 Harrison St. Kalamazoo, Michigan

Dairying on a Small Farm

I SAW an article in a recent issue of the Michigan Farmer which told about the small farm dairy proposition and so I am tempted to give my experience along the same line.

My farm has only 24 acres in it with a little over 18 acres available for crops, the rest being occupied by the buildings, lane, small grove, orchard and garden. On this small patch of ground I have managed to grow nearly all of the roughage and a good share of the grain for 10 to 12 head of cattle, three to five horses, eight or 10 hogs and what poultry a farmer usually keeps to supply his own wants and have a little to sell. I have made up my mind to cut out the hogs, as I sell whole milk, and it takes nearly all the corn to fill the silos.

The Rotation.

I have the crop land divided into three fields on which I grow the following rotation: Clover sod covered with the year's supply of manure, fall plowed if possible, and top-dressed with two or three hundred pounds of fertilizer put on crossways of the rows with grain drill in spring for corn, (all seed ear tested and graded). The corn ground was fall plowed for oats and oats seeded with a mixture of alsike, common red and mammoth clover, with a good percentage of timothy mixed in to give me some hay in case the clovers winter-killed. This mixture is seeded with a hand seeder and covered with weeder. Have never failed to get a good catch yet.

I would like to grow alfalfa but it doesn't work in well with my rotation. I would surely grow it if I had land enough so that I could leave it three or four years, but as it takes about one-third of my ground to fill my two 10x30 silos, alfalfa is out of the question with me. However, I hope to get my ground in such good shape that four or five acres will fill the silos.

A Good Corn Crop.

My neighbor raised a crop of corn last year that only required about two acres to fill a 10x30 silo and last year was about as poor a corn year, in this locality, as we have had in years.

When I bought my first silo I thought I had everything fixed for keeping all the stock I wanted to, but as the herd increased I found I needed more silage and so I bought another 10x30, and now have enough to last the whole year.

I have seen it stated that a silo could not be used with less than eight or 10 head as you would not be able to feed it fast enough with less, to keep it from spoiling. I found that I could use a 10-foot silo with only four cows and if the silage was put in right, and enough care used in feeding it off, no spoiled silage resulted. I don't believe I would want anything smaller as nearly all of the silos I have seen freeze in from a foot to 18 inches, and that would not leave very much unfrozen in a six or eight-foot silo.

Filling the Silo.

Now, just a word about filling. I notice some writers say they use two or three teams, two men in the field and one or two men in the silo. I don't know what kind of a filling rig they use, but such a gang as that would not keep our rig busy more than one-third of the time. There are a number of 10x30 foot silos in our neighborhood and nearly every one uses six teams, six men in the field, and from four to ten men in the silo. Of course, if our silos were larger, or we didn't fill so fast, we would not need so many men in the silo, but when you pay \$2.50 per hour for cutter and engine and two men to run them, and 20 cents per hour for all the help you don't change with, you want to fill as fast as you can. Our average time for a 10x30 foot silo is three hours.

In conclusion I would say to all

farmers, get a silo, and when you get one get a good one and one that is big enough to furnish feed for all the stock you want to keep through the winter. Then if you want to keep the stock the whole year, put up another of the same height but a little smaller in diameter.

Monroe Co.

S. W. JACKSON.

KEEP MILK SWEET.

The approaching warm weather will make it necessary for dairymen and housewives to take extra precautions to prevent loss through souring of the milk and cream. As milk is an ideal food for both babies and bacteria, it frequently happens that in warm weather the bacteria are the first to enjoy this delicate food. Though the acid developed in the milk during souring is not harmful to the health of adults, it is injurious to infants, and distasteful to many older people, and will surely cause dairymen to lose money.

One successful dairyman has solved this problem by removing the causes. Since dirt is loaded with bacteria he first keeps both dirt and bacteria out of his milk, by using a small-top milk pail, by keeping his pails, cans, strainers, and other milk utensils clean, and by keeping his cows free from dirt and filth. This can be cheaply and efficiently done by thoroughly washing the utensils with hot water as soon after using as possible and setting them in a clean protected place to drain until used, by brushing the cows daily and preventing them from becoming dirty, by using plenty of bedding, and by keeping the barnyard clean.

Since bacteria will not sour milk unless they grow in it, he prevents their growth by cooling his milk as soon as produced and keeping it cool until delivered. The best of dairymen cannot furnish milk so free from bacteria that it will not sour if left for hours in a warm place. Both dairymen and housewives will do well to remember that cleanliness and low temperature (50 degs. F.), will prevent this loss.

Mo. Ag. Ex. Sta. P. WERNER, JR.

THE MILK INSPECTION PROBLEM.

(Continued from page 600).

upon the dairyman if he is diligent to protect his own interests in the matter. But in either event there is merely a shifting of ownership and a shifting of responsibility, for if a farmer does not assume the responsibility, then the city milk distributor must assume it, for someone owns the milk and the one who owns it is, of course, legally, the one who must take the responsibility.

(Continued next week).

INSPECTION FOR A HIGH-CLASS PRODUCT.

I have been an interested reader of the articles on "Milk Inspection" by the able editor of the Practical Science Department, and can heartily endorse nearly all of his statements, particularly that part where he lays stress on more bacteriological work.

I am thoroughly convinced that this is the most important work of the milk inspection department, nor would advise against less inspection of the dairies, in fact, I believe the city of Detroit should employ more of these men, if they possess the same amount of energy, brains, and common sense as the one who scores the writer's dairy.

As I said before, I think a great deal more of laboratory work should be done and at least monthly reports of the same sent to the dairyman who produces the milk, these reports tend to keep the dairymen more interested in producing better milk.

Mr. Robison is quite right in saying

that "the ones who produce the milk are as interested as anyone to produce a high-grade milk," and the dairy inspector ought to be the man capable of showing the dairyman how best to produce this milk.

We ought not to forget that the inspector primarily represents the consumer, as it is not practical for all of the city people to find out for themselves just how and under what conditions this, the most important article of food, (especially if it constitutes the sole diet of their little ones), is produced.

R. A. BARNETT.

Work of a number of cow-testing associations in New Hampshire has demonstrated that while the heaviest milkers consumed the most they are, nevertheless, the most profitable. Averages were made from 742 cows. Due to improvements resulting from the association methods in one large herd the average increase per cow, resulting from four years' work, was 1,077 pounds of milk and 48 pounds of butter-fat per year—an increase in the fourth year over the first year of \$22.35 per cow. In another herd the increased profit was \$23 per cow.

DAIRY PROBLEMS.

Succulency Lacking in this Ration.

What is a good balanced ration for a cow weighing about 1,000 pounds, to produce milk? I have the following kinds of feed: Mixed clover and timothy hay, brown middlings, bran, and oats. If there is any other kind of feed that would produce more milk let me know about it.

Jackson Co.

W. S. H.

The only fault I can find with these foods, if fed in the proper proportions, is that there is no succulent food in the ration—silage or roots. In this case I will recommend feeding dried beet pulp at least once a day. Moisten it five or six hours before feeding. This will come as near being a substitute for a succulent food as one can get. Take three or four pounds of the dry pulp and wet it, feed after the water is absorbed and count this dry pulp as so much grain.

Feed all the hay the cow wants, and mix the middlings, bran and oats equal parts by weight, and feed a pound of grain for every three pounds of milk produced. If the cow is giving 30 pounds of milk per day give her 10 pounds of grain—four of dried beet pulp moistened, and six pounds of the M. B. O. mixture.

Probably Poor Silage.

Can you tell me why my cows will not eat their ensilage readily? They will nibble at it and eventually clean it up before the next feed. They are three-year-old heifers and freshened the eighth and twentieth of this month. I have an idea that possibly I overfed them right after they freshened, by giving them as much of it as they ought to get on a full flow of milk, but don't know for sure. I give them an ordinary bushel basket nearly level full twice a day and a good forkful of hay at noon. They eat the hay up good. Am feeding a prepared dairy food, which is claimed to be a balanced ration in itself. Will they come up on their milk flow when turned out on pasture? Have not acted this way only for about three weeks.

Gd. Traverse Co.

F. V. W.

It would seem that the silage is not first-class. If it was there would be no trouble about getting the cows to eat it. I never knew of cows mincing matters with good silage. They are always ravenous for it. It is almost impossible to overfeed on silage so the cows would refuse to eat it again in a few hours. You might feed at one time more than they could eat but they would be ready for more at the next feed. It would be entirely different from overfeeding on grain. In fact, it would be like overfeeding hay.

I would not even suggest why this ensilage is not of good flavor. It might be from many causes. But if I could see and examine the silage and knew all the conditions I think I could tell what makes it poor. Smell of it, taste of it. You can readily tell good from poor silage. So can the cow.

Another Silo for Summer.

I have a 10x30 silo, and another winter I want to keep about 16 or 17 cows. Have you any idea how big a silo I

will need with this one, to have enough feed? Will Eureka ensilage corn ripen enough for good ensilage?

Wayne Co.

B. F.

A 10x28 silo will hold about 40 tons of silage and if each cow will eat 40 pounds of silage a day this will last 16 cows a little better than four months. B. F. does not state that the cows are to be fed silage the year round. But if one has the silage it is the cheapest food to feed the whole year. I would suggest that another silo 10x36 feet be built, or possibly 12x36, and feed from this during the cold weather and leave the smaller one for summer feeding. Besides the 17 cows there will be some heifers and young stock and the horses can be fed one feed a day all through the winter with good results. Also, the brood sows and hens like a little every day.

With a favorable year I think Eureka ensilage corn will mature sufficiently to make good silage. It will want the whole season. Plant it fairly early on good land and it will yield enormously.

How Did Mrs. Harris Raise the Big Crop of Corn?

In a recent issue of the Michigan Farmer you tell of a Mrs. Harris, of Lenawee county, who actually raised 70 tons, 800 lbs., of ensilage on one acre. Can you tell us what kind of corn she planted, also how much seed to the acre, what time planted, how

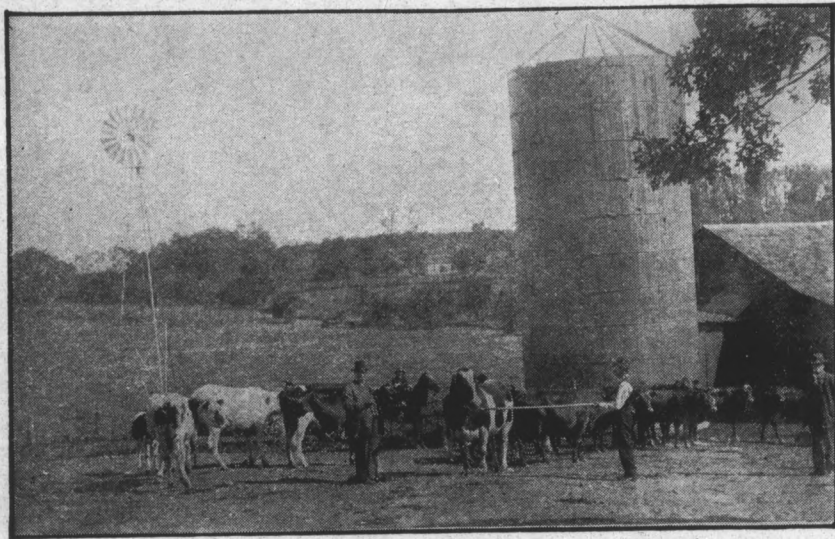
acre. The result was 70 tons, 800 lbs. of green corn.

You say this was an exceptional condition. Yes! The land undoubtedly was rich to begin with. It was well manured and well fertilized. The soil was favorable, the season was favorable. Mrs. Harris besides getting the wonderful crop of corn for her work, also won a prize of \$50 in gold from the seed company. It was a paying investment.

ASSISTING THE DAIRY FARMER.

Recently twenty-four pure-bred Holstein bulls were donated to farmers in what is known as "Egypt" in southern Illinois. This was done by the Illinois Central railroad for the purpose of dairy upbuilding in that section of the state.

Largely the dairy subject has been worked up by W. S. Matthews, who is connected with the pure-food commission of the state. Matthews is a farm-raised product of Marion county, and for a year he has been arranging meetings of bankers, merchants, professional men, and manufacturers, in a campaign of education, to show to what extent progress and prosperity hinges on well stocked dairy farms. These meetings have been largely attended, moneyed men have taken stock in the



Some Pure-Bred Stock Furnished Farmers in Southern Illinois.

cultivated and fertilized? It has been our greatest trouble to get enough ensilage corn raised.

Monroe Co.

F. L.

I will undertake to tell the story of Mrs. Harris' corn crop as it was told to me by one who knew all about it. I have also read several accounts of this crop. If I do not get the facts substantially correct someone can make the correction.

The story as I remember it, is as follows:

This acre of land had been a hog pasture and a chicken park for years. Mrs. Harris had the hog pen and the chicken coop removed to some other location. During the winter the land was covered with a good coat of stable manure from well-fed dairy cows. This was plowed down in early spring, the land prepared in the usual way by harrowing and disking. Then, 600 pounds of commercial fertilizer was applied broadcast and harrowed in. Two applications were made, sowing 300 lbs. both ways to get the best distribution possible. The corn was Eureka ensilage corn, planted rather thick, possibly eight or ten quarts per acre in drills.

The corn was given clean culture. No weeds were allowed to grow. The soil was a sandy loam. The season was favorable.

The acre of land is within the corporation of the city of Adrian, or very close by. The crop was estimated by the official sealer of weights and measures of the city. He accurately measured one rod square in four different parts of the field, loaded this onto a wagon and weighed on a pair of tested scales. Then the weight of these four square rods was multiplied by 40 to get the amount on the one

venture, and as a result there has been a greatly increased purchase of high-class stock in several different sections of Illinois. Dairy farms in both Michigan and Wisconsin have been drawn on for this purpose.

The same kind of a movement is being carried on by the St. Louis and San Francisco road in Missouri and Oklahoma. A large amount of stock has been sent to promising dairy sections of the two states. Bulls and heifers have been purchased from the surplus stock of Wisconsin dairymen and are now forming foundation herds in the southwest.

In Walworth county, Wisconsin, a great deal of fine dairy stock has been imported by the millionaires who own country seats on Lake Geneva and Lake Delavan. Farmers of the surrounding farms have bred from this stock. Some of the finest young stock, bulls and heifers, have been produced. Recently several carloads of this grade of dairy animals have been bought and shipped to the southwest.

Illinois.

J. L. GRAFF.

MILCH GOATS.

Three milch goats at the California Station completed a year's record as follows: A two-year-old pure Toggenburg, 2,158 pounds of milk and 72.8 pounds of milk-fat; a two-year-old Toggenburg, 1,118 pounds of milk and 40.7 pounds of milk-fat; and a yearling-grade Toggenburg, 1,283 pounds of milk and 49.82 pounds of milk-fat. The cost of feed of one pound of milk from these goats was approximately 90 per cent that of one pound of milk of a similar average fat content produced by a group of five cows in the university dairy herd.



The Supremacy of the De Laval Cream Separator

Supreme in Skimming Efficiency

Over 55 years of experience and thousands of tests and contests the world over have demonstrated the De Laval to be the only thoroughly clean skimming cream separator, under all the varying actual use conditions, favorable as well as unfavorable.

Supreme in Construction

This applies to every part of the machine—to the bowl, the driving mechanism, the frame and the tinware. The De Laval Patent Protected Split-Wing Tubular Shaft Feeding Device makes possible greater capacity, cleaner skimming and a heavier cream than can be secured with any other machine.

Supreme in Durability

The De Laval is substantially built. The driving mechanism is perfectly oiled and the bowl runs at slow speed, all of which are conducive to durability and the long life of the machine. While the life of other cream separators averages from three to five years, a De Laval will last from fifteen to twenty years.

Supreme in Improvements

This has been the greatest factor in De Laval success. Not a year goes by but what some improvement is made in De Laval machines. Some of the best engineers in America and Europe are constantly experimenting and testing new devices and methods, and those which stand the test are adopted.

Supreme in Service

With its worldwide organization and with agents and representatives in almost every locality where cows are milked, no stone is left unturned by the De Laval Company to insure that every De Laval user shall get the very best and the greatest possible service from his machine.

Supreme in Satisfaction

De Laval users are satisfied users, not only when the machine is new, but during the many years of its use.

Supreme in Sales

Because they are supreme in efficiency, construction, durability, improvements, service and satisfaction, more De Laval Cream Separators are sold every year than all other makes combined.

Order your De Laval now and let it begin saving cream for you right away. Remember that a De Laval may be bought for cash or on such liberal terms as to save its own cost. See the local De Laval agent, or if you don't know him, write to the nearest De Laval office as below.

THE DE LAVAL SEPARATOR CO.

165 Broadway, New York

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APOLLO-KEYSTONE Sheets are the most satisfactory, rust-resistant sheets obtainable for Roofing, Siding, Culverts, Tanks, Silos, Cisterns and all exposed sheet metal work. Look for the Keystone added below regular Apollo brand—it indicates that Keystone Copper Steel is used. Demand the genuine—accept no substitute. Sold by weight by leading dealers. Our free booklet "Better Buildings" contains building plans and valuable information. Send for copy today.

AMERICAN SHEET AND TIN PLATE COMPANY, Frick Building, Pittsburgh, Pa.

ROSS Silo Fillers

Produce the Best Ensilage Guaranteed for Life of Machine

The Ross is not an ordinary fodder cutter but a special made Silo Filler. Exclusive features including Steel Cutting Apparatus and Steel Blower. The Ross Nos. 18-20-24 are for the Threshermen who make a business of filling silos, also for silo users who want a partnership Silo Filler.

Buy Early and Save Money
If you intend to buy this year, write quick for special proposition. Delay means advance in price.
THE E. W. ROSS CO., BOX 114, SPRINGFIELD, OHIO

COLEMAN GAS LANTERN

Makes and Burns Its Own Gas

Gives 300 candle power of good strong steady light. Can't blow out or jar out. Nickel-plated brass with mica globe. Stands all hard knocks. Use it in feed lots, barns, cow sheds, chicken houses, cellars, etc. Fill it only once a week—Clean it only once a year. No wicks. No chimneys. No danger even if rolled around in straw. Can't explode. Can't spill. Guaranteed 5 years. If not on sale in your town yet, write for catalog of 20 different kinds of Gasoline Lamps, Table Lamps, etc. Dealers or agents wanted in every locality.

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281 East 6th Street,
1008 Summit Street,
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40 South Clinton Street,
Wichita, Kansas
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Toledo, Ohio
Dallas, Texas
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Rides Like An Auto

The New Patented Harvey Bolster Springs are made just like the finest automobile springs. They absorb all the bumps, jars and jerks of rough, uneven roads, and change an ordinary wagon into an easy-riding spring wagon. A set on your wagon will enable you to get your perishable produce to market in first class condition always. Insist on Harvey's. If your dealer can't supply you write us for free catalog and price list.

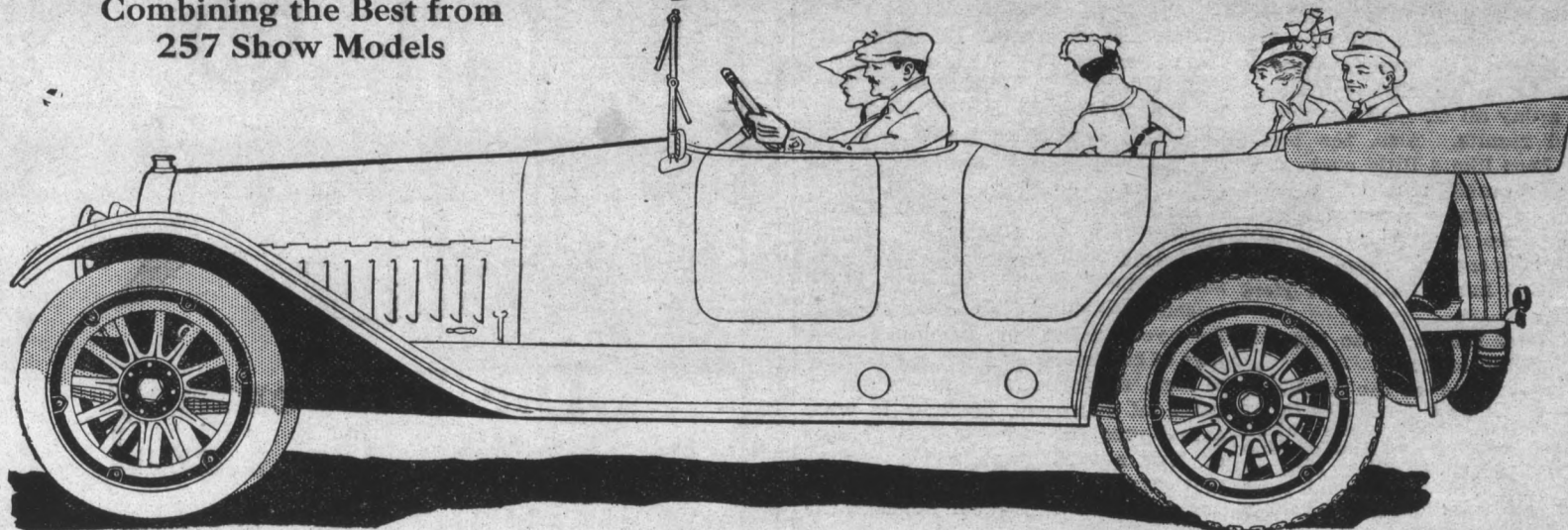
Harvey Spring Co., 752-17th St., Racine, Wis.

Announcing A Mid-Year Model

Combining the Best from
257 Show Models

Mitchell

\$1325



John W. Bate Saves 20% And Thus Gives You 26 Extra Features

This is to tell you how factory efficiency has cut 10,000 costs on the Mitchell car.

How we build it for half what it would have cost, even in 1910.

How we build it for 20 per cent less than other factories can build it now.

And how, by those savings, we give you 26 extras which you don't find in other cars.

In 1903—when Mitchell cars were first built—we brought John W. Bate to Racine. He was even then the greatest expert in factory efficiency in the metal-working line.

Our vehicle factory was then 70 years old. It was a model efficiency plant. And we started then to make our motor car plant the most efficient of its kind in America.

10,000 Costs Reduced

In the 13 years since, Mr. Bate has reduced more than 10,000 motor car costs.

He built this whole plant—covering 45 acres—so cars could come through without the loss of a second. He equipped it with 2092 labor-saving machines—the most efficient machines that are known in this industry.

He has eliminated from the Mitchell almost every casting. In place of them he uses 184 drop forgings, which are three times as strong.

Also 256 steel stampings, tough and stanch.

He has invested \$5,000,000 so fine cars could be built here for less than anywhere else. No other factory which builds cars of this class can compare with it.

Not One Cent Wasted

Some motor car makers buy all their parts. Most makers buy the larger share. But 98 per cent of this Mitchell car is built in this model plant. Thus we save under others from 20 to 40 per cent.

Part of this saving is shown in our price. No other high-grade Six of the Mitchell size sells at the Mitchell price.

The rest of the saving pays for 26 extras. We give you 26 features which others don't offer. No car in our class has more than two of them. No car at any price has more than four.

Go see these extra features. You will want every one of them. And you will not, we think, buy a car which omits them.

257 Cars in One

This New Mitchell model came out April 15—from four to eight months later than other current models.

This model was completed after the New York Show. There our experts and designers examined 257 new models. And they picked out the best of the new styles in all of them—from ours and from others—in body design and equipment.

Thus the New Mitchell combines all the best things brought out at the New York show. Its lines and its luxuries—its new ideas in equipment—are the finest shown.

All this in addition to the 26 unique features which other cars don't offer.

Where Mitchell is First

In ease of riding the Mitchell car stands first. Any Mitchell dealer can prove that in five minutes. No other car in the world contains the Bate cantilever springs.

The Mitchell rides the roughest road as a boat rides waves. This comfort will astound you.

The Mitchell stands first as regards durability. Six Mitchell cars have averaged 164,372 miles each. In ordinary driving that is more than 30 years' service.

The Mitchell is the easiest car to drive. That's because of its oversize steering parts, fitted with ball bearings.

The Mitchell is long and roomy—127-inch wheelbase. It is powerful. In every way it gives greater value than other Sixes, because of our factory economies. And it includes 26 features—all costly and important—which other cars don't offer.

Let the nearest Mitchell dealer show these extras to you. He has this new model now. If you don't know him, ask us for his name.

Mitchell-Lewis Motor Co.
Racine, Wis., U. S. A.

Six cylinders—high-power, high-speed motor—127-inch wheelbase. Anti-skid tires on rear. Complete modern equipment, including motor-driven tire pump.

\$1325 F. O. B. Racine for 5-Passenger Touring Car or 3-Passenger Roadster. 7-Passenger Body \$35 Extra. New Mitchell Eight, \$1450 f. o. b. Racine.

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

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

The FARM BOY
and GIRL
SCIENTIFIC and
MECHANICAL

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

As we stand on Point Lookout, that rugged promontory of Mackinac Island, and gaze upon the tossing, blue waters of the Straits, and upon the old fort, grim and defiant we picture in our imagination the men who, in those early, troubled days, occupied the center of that stage. In fancy we behold the weird funeral fleet of Father Marquette, with its plumed and painted braves, tears flowing down their angular cheeks, bearing the sacred remains from the mouth of the Marquette River to rest at last in his beloved St. Ignace. We catch a vision of the surrender of Mackinac to

Michigan's Daniel Boone

By MARY L. DANN.

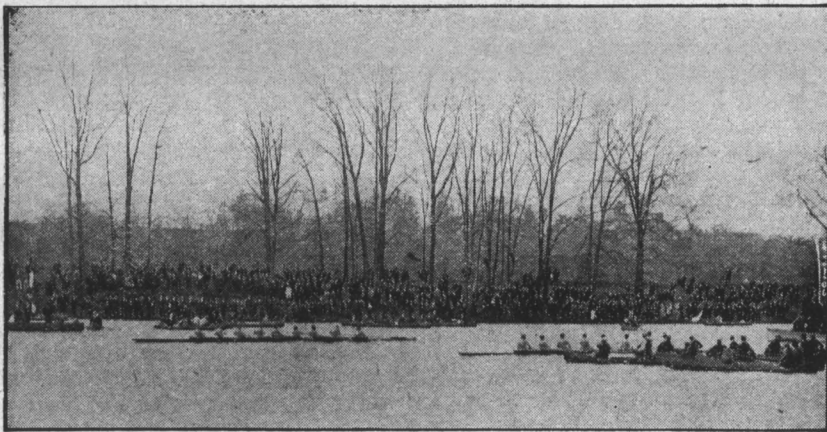
the British, and all the vicissitudes of early Indian warfare, and of the operations of the American Fur Company, prosecuting its tremendous trade with the Indians, from the Lakes to the Rocky Mountains. With all these events and characters we are familiar, but of that really remarkable man, Robert Stuart, the Daniel Boone of Michigan, most of us have heard little. Never a man came to a position with

their intrigues, thwarted their murderous attempts, bought their furs and dried venison, smoked the pipe of peace with them, but never allowed them to find him for one moment napping. He was their counselor, provider and chastiser. A splendid mixer, yet he himself was never mixed. A walking embodiment of the Declaration of Independence, yet always careful not to trespass upon the liberty of others, even of ignorant savages. He was always willing to make an honorable compromise with the Indians. As manager of the American Fur Company's interests at Mackinac, and

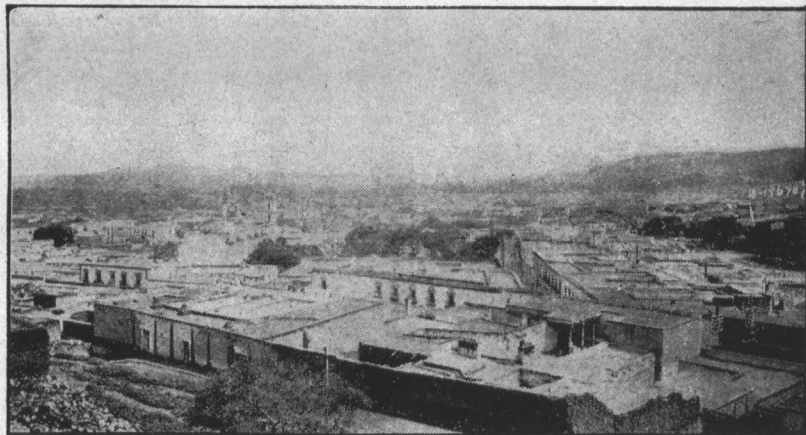
WORLD EVENTS IN PICTURES



Fascinating Costume for Spring Wear. President Wilson Pitches the First Ball on the Opening Day at Washington. John D. Rockefeller, Jr., and Daughter.



Princeton Beats Harvard Oarsmen in a Thrilling Race on Lake Carnegie.



Parral, Mexico, where American Cavalrymen were Attacked by Mexicans.



French Infantry Lightheartedly Enter the Great Verdun Battle.



School Boys with Birdhouses they have Built, on Way to Bird Exhibition.

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How Was it Made?

Scientific methods of manufacture are just as important in building a suit of clothes as in making an automobile or a reaper and binder.

Comfort, satisfaction—all that is summed up in the word "value"—depend on little things done in the factory.

At this store we know what is back of the clothes we sell to men and young men.

We have traced Clothcraft quality back step by step to the searching tests of material, and the improvements in manufacturing methods, which have led to steadily increasing worth through 70 years of experience.

Come and see how the way Clothcraft is made gives you the benefit of style, comfort and lasting values.



CLOTHCRAFT SPECIAL SERGES
 6130 Gray \$15 5130 Blue \$15 4130 Blue \$18⁵⁰
CLOTHCRAFT CLOTHES
\$10 to \$25 Ready to Wear
 Made by The Joseph & Feiss Co., Cleveland

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There's nothing that makes farm life more worth while than an abundance of pure water for kitchen, bath, lawn, garden, barns, dairy, troughs, fire protection, etc. Goulds Pumps are reasonable in price, and cost little to maintain. Our service Dept. advises free on selecting from the 300 styles of

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Fig. 1831 "Pyramid"

all of the vast northern region, Robert Stuart was a great and influential man although he had none of the hysterics of greatness and took on no high and mighty airs. His relations with John Jacob Astor were very close. In matters of difficulty and doubt, he was the counselor of Mr. Astor.

Robert Stuart was a native of Scotland, but left the land of the kilts and plaids when but twenty-two years of age, to come with his uncle, David Stuart, to Canada, where he studied French with a Canadian priest. Having acquired a working knowledge of the French, he went to New York and joined an expedition which was being fitted out by John Jacob Astor, to establish a trading post on the Pacific Coast. The grand scheme was to monopolize the fur trade at the mouth of the Columbia River and its tributaries. Robert Stuart entered into an agreement with Astor and two other influential men of New York, to superintend this undertaking.

Mr. Stuart, accompanied by fifty other persons sailed in the Tonquin, a boat of so light draft of water that a modern seaman would consider her unfit to run in anything but a heavy dew. This boat left New York September 6, 1810, for the Oregon Coast, where Mr. Stewart organized the Pacific Fur Company and laid the foundation of the flourishing city of Astoria. A Cooper might have immortalized him in tales as thrilling as those of the Leather Stocking series. Washington Irving, in his delightful "Astoria" graphically recorded the perils, disasters and interesting incidents of the enterprise.

If Mr. Stuart and fifty companions were going to the coast of Oregon today, they would take a limited express, with its drawing rooms, barber shop and diner, with service a la carte, and arrive there after a few hours' ride, spick and span and little fatigued. But instead, he and his men stored themselves away on board the Tonquin and sailed down the coast of South America to Patagonia, doubled Cape Horn and then cruised back almost the length of two entire continents, arriving at the mouth of the Columbia River about June 5, 1811. The captain of the boat unloaded the company destined for the station at Astoria, then sailed for Nootka Sound on a trading expedition. Robert Stuart intended to accompany the boat, but he and the captain had such a soul-stirring misunderstanding that he refused to go on board and this refusal was the means of saving his life. A company of twenty-three went with the boat, and whether this is where the belief in the ill luck of this number originates, we shall probably never know. In a few days the Tonquin cast anchor at Newetie, Vancouver's Island. The temper of her captain was as bad as his manners, and his peevishness and obstinacy aroused the wrath of the Indians who came to trade. They were soon very much excited, with the result that, being armed with knives and having been admitted to the deck in large numbers, they distributed themselves among the ship's company and each marked his victim. A savage and blood-curdling yell was the signal for the onslaught and a bloody engagement followed. When the savages finally withdrew, there were but five of the ship's crew alive, and of these four attempted to escape in a life boat and were captured and terribly tortured. The one man left on the vessel, being desperately wounded, mediated revenge and the next day, when the savages returned to the boat in great numbers for pillage, he watched his chance, set fire to the magazine and blew up the ship, the Indians and himself in one terrific explosion.

The little company at Astoria, having lost their boat, were without means of support, as well as without means of escape. It, therefore, became necessary to send some of their number across to New York. Robert Stuart,

with six others, was detailed to go on this perilous expedition. Well mounted and provisioned, they started but had not traveled far when they met a tribe of Indians who pretended to be friendly. The much befuddled chief informed Mr. Stuart that when chiefs met, it was the custom to exchange horses as a token of friendship. Mr. Stuart, having none of the swapping blood of David Harum in his veins, declined with thanks, as the chief's horse was an old, worn out pony and Mr. Stuart's a fine animal. Upon informing the Indian that such was not the custom with the pale faces, the chief caught at the bridle of Stuart's horse as though to take it by force. Stuart ordered his men to cover the Indian with their rifles, which they did, when he turned away laughing, averring that he was only in fun. However, the Indians followed them and one morning the guard heard the well known whistle, which any horse in the country would follow and he knew the Indians were upon them. They rushed down to their horses, only to behold, through the sober hues of the gray dawn, the animals cantering away after the whistling Indians.

Thus they were compelled to resume their perilous journey on foot through vast, unexplored wildernesses, across sandy-waterless deserts, treacherous swamps and wind-swept plains, over rugged mountains, through a land which one of their number declared "God made and then forgot." They battled with storms, starvation and hostile savages. Their most experienced hunter became insane and had to be turned back to make his way, as best he might, to Astoria. They started on the twenty-ninth day of June, 1812, and arrived at St. Louis on April 30, 1813. Here they first learned of the war with England, although it had been in progress over a year.

Upon the arrival of Robert Stuart in New York, Astor and his partners, recognizing the fact that they must abandon the post of the Pacific Fur Company, turned their attention to establishing a similar post at Mackinac, with Mr. Stuart as general manager. Having been secretly married to a New York girl before going on his Columbia River expedition, Mr. Stuart made the marriage public, and, accompanied by his wife, made his way to Mackinac, to take up his work there. Upon his arrival, the first thing he did was to map out the entire Indian country, locating every tribe and establishing among each a trading post, presided over by a principal trader, thus cutting off the French traders, who were, even then, quite firmly established.

Mr. Stuart's natural disposition was firm, stern and unwavering, with the Scottish keen native sense of justice and honor. He was perfectly familiar with the customs of the aristocracy of Scotland, and imitated the gorgeous old feasts of the Highland Castles, and presided over them with wonderful grace and dignity.

When Rev. William Ferry, the missionary, arrived at Mackinac in 1822. Mr. Stuart, the rugged, fearless man of the world, tendered him the hospi-

ality of the Stuart home and assisted him in every way possible. A lawyer named Bailey opposed the mission with all the sarcasm and bitterness of a Robert Ingersoll. While at that time in no way religiously inclined, Mr. Stuart met and thwarted every scheme of Bailey in his efforts to retard the work of Mr. Ferry. He and Bailey were constantly crossing swords and neither wore a button on his foil.

Whiskey was one of the principal articles of exchange in the fur trade and the slimy trail of the serpent Rum was over all. Mr. Stuart was a temperance man, and he considered it inconsistent for him, as such, to be sending rum and whiskey to the Indians by the barrel. Mr. Astor offered to deputize another man to handle the liquor, but the friends of temperance believed this would only increase the evil, so at their request, he tried to lessen an evil that he could not cure.

Mr. Stuart was the possessor of a set of hard-featured virtues that were absolutely uncompromising. He was a staunch believer in the strict keeping of the Sabbath. Every hour of the day was considered as sacred by him as by his Scotch covenanting ancestors. However, it was the law in the fur trade, that if the trader succeeded in fastening his boat to the wharf, if an accident befell after that, the fur company must lose it. One evening a great wind was blowing and the waves were thundering in. It was reported to Mr. Stuart that a Mississippi boat had just touched the wharf. If he unloaded the boat, he violated the Sabbath; if he did not unload it and it was lost, his company would be the loser and he be guilty of betraying his trust. He was very much disturbed, but at the suggestion of his wife, told them to tie the boat to the wharf and if she went to pieces before morning, he would pay the company the six thousand she was worth out of his own means, rather than violate the Sabbath. He went to bed and slept soundly till midnight then rose and unloaded the boat.

In 1855, the Astors closed the business of the American Fur Company, and Robert Stuart moved to Detroit, where he entered largely into the activities of the city, doing much to shape the moral and political standing of our state. During those terrible days of wild-cat banking, when two million promises to pay were sent broadcast only to be declared unconstitutional and void, Robert Stuart was state treasurer, under appointment of Governor Woodbridge.

Soon after his retirement as state treasurer, Mr. Stuart was called to Chicago, where he was spending the evening with some friends, apparently in perfect health. Some allusion was made to death, and each asserted how he would like to take leave of the world. One asked Mr. Stuart how he would prefer to go and he replied, "Like Elijah." That night he was found dead, sitting upright in his chair. And so, at the age of sixty-two he entered, like Elijah, into the kingdom of perpetual rest, leaving his mantle to fall on whosoever might be able to wear it.

Light of Western Stars

By ZANE GREY

"Shore she is," interrupted Nick. "But she's got more spunk than you think she has, Gene Stewart. I'm no thick-skulled cow. I'd hate somethin' powerful to hev Miss Hammond see any rough work, let alone me an' Monty start raisin' thunder; an' me an' Monty'll stick to you, Gene, as long as seems reasonable. Mind, ole feller, beggin' your pardon, you're shore stuck on Miss Hammond, an' over tender not to hurt her feelin's or make her sick by lettin' some blood. We're in bad here, an' mebbe we'll hev to fight. Wal, if we do, you can jest gamble thet Miss Hammond'll be game; an' I'll bet you a million pesos thet if you got goin' wunst an' she seen you as I've seen you—wal, I know what she'd think of you. This old world ain't changed much. Some women may be white-skinned an' soft-eyed an' sweet-voiced an' high-souled; but they all like to see a man. Gene, here's your game. Let Don Carlos come along. Be civil. If he an' his gang are hungry, feed 'em. Take even a little overbearin' greaser talk. Be blind if he wants his gang to steal somethin'. Let him think the women hev moseyed down to the ranch. But if he says you're lyin'—if he as much as looks round to

see the women—jest jump him same as you jumped Pat Hawe. Me an' Monty'll hang back fer thet, an' if your strong bluff don't go through—if the don's gang even thinks of flashin' guns—then we'll open up. An' all I got to say is, if them greasers stand fer real gun-play, they'll be the fust I ever seen!"

"Nels, there are white men in that gang," said Stewart.

"Shore; but me an' Monty'll be thinkin' of thet. If they start anythin' it'll hev to be quick!"

"All right, Nels, old friend—and thanks," replied Stewart.

Nels returned to the camp-fire and Stuart resumed his silent guard.

Madeline led Castleton away from the brink of the wall.

"By Jove! Cowboys are strange fellows!" he exclaimed. "They are not what they pretend to be."

"Indeed, you are right," replied Madeline. "I cannot understand them. Come, let us tell the others that Nels and Monty were only talking, and do not intend to leave us. Dorothy, at least, will be less frightened if she knows."

Dorothy was somewhat comforted. The others, however, complained of the cowboy's singular behavior. More than once the idea was advanced that an elaborate trick had been concocted. Upon general discussion this idea gained ground. Madeline did not combat it, because she saw it tended to a less perturbed condition of mind among her guests. Castleton for once proved that he was not absolutely obtuse, and helped along the idea.

They sat talking in low voices until a late hour. The incident now began to take on the nature of Helen's long-yearned-for adventure. Some of the party even grew merry in a subdued way. Then, gradually, one by one, they tired and went to bed. Helen vowed that she could not sleep in a place where there were bats and crawling things. Madeline fancied, however, that they all went to sleep, while she lay wide-eyed, staring up at the black bulge of over-hanging rock, and beyond to the starry sky.

To keep from thinking of Stewart and the burning anger he had caused her to feel for herself, Madeline tried to keep her mind on other things; but the thought of him constantly recurred and each time there was a hot commotion in her breast hard to stifle. Intelligent reasoning seemed out of her power.

In the daylight it had been possible for her to be oblivious to Stewart's deceit after the moment of its realization. At night, however, in the strange silence and hovering shadows of gloom, with the speaking stars seeming to call to her, with the moan of the wind in the pines and the melancholy mourn of coyotes in the distance, she was not able to govern her thought and emotion. In the darkness she had fancies that had been wholly unknown to her in the bright light of the sun.

She battled with a haunting thought. She had inadvertently heard Nels's conversation with Stewart; she had listened, hoping to hear some good news or to learn the worst; she had done both, and had also found enlightenment on one point of Stewart's complex motives. He wished to spare her any sight that might offend, frighten, or disgust her. Yet this Stewart, who showed a fineness of feeling that might have been wanting even in Boyd Harvey, maintained a secret rendezvous with that pretty, abandoned Bonita.

At this point hot shame, like a live, internal fire, always ended Madeline's thought abruptly. It was intolerable, the more so because she could neither control nor understand it. The hours wore on, and at length, as the stars began to pale and there was no sound whatever, she fell asleep.

She was called out of her slumber. Day had broken bright and cool. The sun was still below the eastern crags. Ambrose, with several other cowboys, had brought up buckets of spring water



Essentials

THE claims made for motor cars are varied and many. You have been told of the speed of one engine; you have read reams of oratory on the great power of another engine; you have observed the stress laid on the virtues of multi-cylinder construction; elsewhere you have been confronted with a wide sweeping array of superlatives carefully substituted for concrete and pertinent facts.

To make a thoughtful and intelligent selection, it is necessary to sift the essentials from the non-essentials, because there are a lot of things said that are not important, even if true.

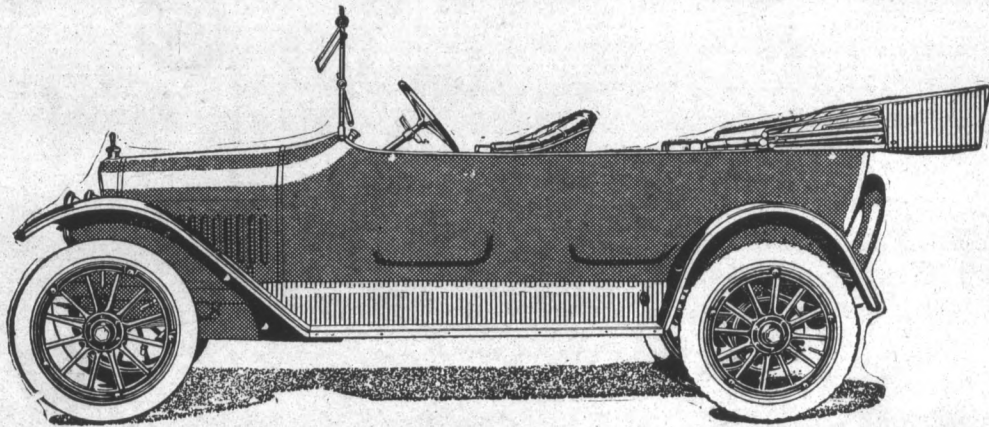
Deciding on a motor car for your particular needs is just the same as making any other kind of a decision. You must disregard the unimportant elements and weigh the remaining facts against your individual requirements.

If you are interested in a car that is inexpensive in first cost and after-cost, you will want to investigate the Maxwell. If you attach importance to sturdiness and reliability, you should know that the Maxwell is the World's Champion Endurance Car—it having traveled 22,000 miles last January without repairs, re-adjustments or without a single motor stop.

If you are concerned with gasoline and tire mileage, you will recall that on this 22,000-mile endurance run the Maxwell stock touring car averaged almost 22 miles to the gallon and over 9,000 miles per tire.

In the end you must be the judge, but just remember that there must be a definite reason for a production approaching 80,000 Maxwell cars this year, and for 40,000 having been sold last year in American farming districts alone.

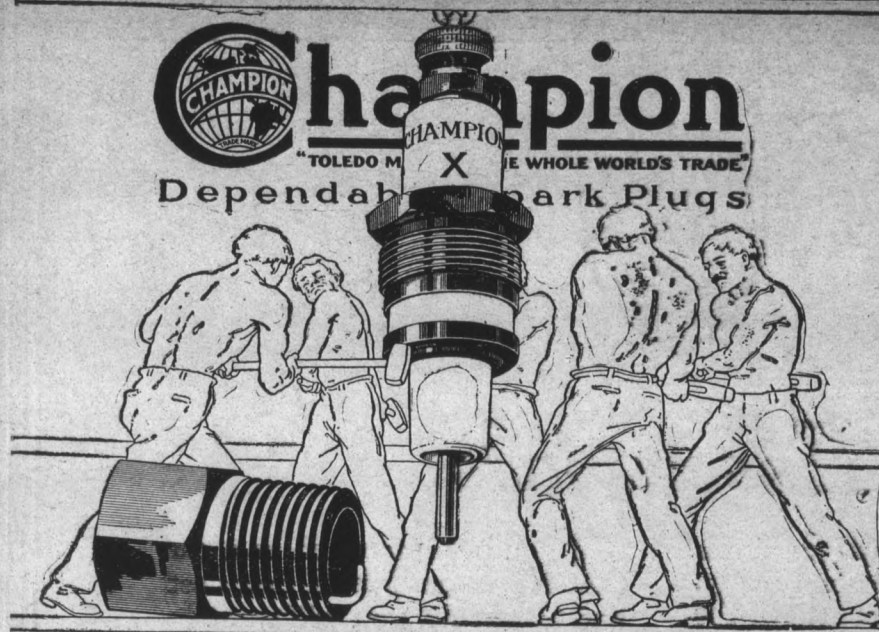
Brief Specifications—Four cylinder motor; cone clutch running in oil; unit transmission (3 speeds) bolted to engine, $\frac{3}{4}$ floating rear axle; left-hand steering, center control; 56" tread, 103" wheelbase; 30 x 3 $\frac{1}{2}$ tires; weight 1,960 pounds. **Equipment**—Electric head-lights (with dimmer) and tail-light; storage battery; electric horn; one-man mohair top with envelope and quick-adjustable storm curtains; clear vision, double-ventilating windshield; speedometer; spare tire carrier; demountable rims; pump, jack, wrenches and tools. **Service**—16 complete service stations, 54 district branches, over 2,500 dealers and agents—so arranged and organized that service can be secured anywhere within 12 hours. **Prices**—2-Passenger Roadster, \$635; 5-Passenger Touring Car, \$655. Three other body styles.



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and hot coffee and cakes. Madeline's party had appeared to be none the worse for the night's experience. Indeed, the meager breakfast might have been consumed merrily, as well as hungrily, had not Ambrose enjoined silence.

"They're expectin' company down below," he said.

This information, and the summary way in which the cowboys soon led the party higher up among the broken shelves of rock, caused a recurrence of anxiety. Madeline insisted on not going beyond a projection of cliff from which she could see directly down into the camp. As the vantage-point was one affording concealment, Ambrose consented; but he placed the frightened Christine near Madeline, and remained there himself.

"Ambrose, do you really think the guerillas will come?" asked Madeline.

"Sure! Nels just rode in and said they were on their way up. Miss Hammond, can I trust you? You won't let out a squeal if there's a fight down there? Stewart told me to hide you out of sight or keep you from lookin'."

"I promise not to make any noise," replied Madeline.

Madeline arranged her coat so that she could lie upon it, and settled down to wait developments. There came a slight rattling of stones in the rear. She turned to see Helen sliding down a bank, with a perplexed and troubled cowboy. Helen came, stooping low, to where Madeline lay, and said:

"I'm going to see what happens, if I die in the attempt. I can stand it if you can."

She was pale and big-eyed. Ambrose promptly swore at the cowboy who had let her get away from him.

"Take a half-hitch on her yourself an' see where you end up!" replied the fellow, and disappeared in the jumble of rocks.

Ambrose, finding words useless, sternly and heroically prepared to carry Helen back to the others. He laid hold of her. In a fury, with eyes blazing, Helen whispered:

"Let go of me! Majesty, what does this fool mean?"

Madeline laughed and explained the exigency of the situation.

"I might run, but I'll never scream," said Helen.

With that Ambrose had to be content to let her stay. However, he found her a place somewhat farther back than Madeline's position, where he said there was less danger of her being seen. Then he sternly bound her to silence, tarried a moment to comfort Christine, and returned to where Madeline lay concealed. He had not been there more than two or three minutes when he whispered:

"I hear hosses. The guerillas are comin'!"

Madeline's hiding-place was well protected from possible discovery from below. She could peep through an opening in the tips of the pines that reached up to the cliff, and obtain a commanding view of the camp circle and its immediate surroundings. She could not, however, see far either to right or left of the camp, owing to the obstructing foliage.

Presently the sound of horses' hoofs quickened the beat of her pulse and caused her to turn keener gaze upon the cowboys below.

Although she had some inkling of the course Stewart and his men were to pursue, she was not by any means prepared for the indifference she saw. Frank was asleep, or pretended to be. Three cowboys were lazily and unconcernedly attending to camp-fire duties, such as baking biscuits, watching the ovens, and washing tins and pots. The elaborate set of aluminum plates and cups, together with the other camp fixtures that had done service for Madeline's party, had disappeared.

Nick Steele sat with his back to a log, smoking his pipe. Another cowboy had just brought the horses closer into camp, where they stood waiting to be saddled. Nels appeared to be lost or hunted or hunting.

LEAVES LEFT OVER.

BY J. A. KAISER.

I found on a tree by the way-side,
When the new green was back on
the clover,
And bloomed the first blossoms at
May-tide,
Some dead leaves—leaves from last
year left over.

Dead leaves where the fresh buds were
springing
And the zephyrs of springtime were
playing;
Dead leaves where the blithe birds
were singing
And the children in glee were a-
Maying.

Where robin his mud nest was build-
ing
And the bee was a foraging rover,
Where sunlight the new green was
gilding,
Hung the leaves—leaves from last
year left over.

Like hope that lies withered and
broken
In the midst of life's fresh-blooming
roses,
Like some half-forgotten love token
That the heart's past affection dis-
closes;

Like portraits and paintings of faces
Of the friends who've gone over the
river;
Like pictures of scenes and of places
O'er which time reigns triumphant
forever;

Like age in the midst of life's morn-
ing;
Like mortality's portents that hover
O'er life with a threat and a warning,
Hung the leaves, leaves from last
year left over.

How often in life do we carry
The dead weights that encumber and
worry—
Dead weights that were wiser to bury
'Ere we stagger along in our hurry!

And vows that but last year were
plighted,
When the green comes again to the
clover,
How oft they droop, withered and
blighted,
Like the leaves, leaves from last
year left over!

fussing over a pack. Stewart was fill-
ing his pipe. Monty had apparent-
ly nothing to do for the present except
whistle, which he was doing much
more loudly than melodiously. The
whole ensemble gave an impression
of careless indifference.

The sound of horses' hoofs grew
louder and slowed its beat. One of
the cowboys pointed down the trail,
toward which several of his comrades
turned their heads for a moment, and
then went on with their occupations.

Presently a shaggy, dusty horse
bearing a lean, ragged, dark rider rode
into camp and halted. Another fol-
lowed, and another. Horses with Mex-
ican riders came in single file and
stopped behind the leader.

The cowboys looked up and the guer-
rillas looked down.

"Buenas dias, señor," ceremoniously
said the foremost guerrilla.

By straining her ears, Madeline
heard that voice, and she recognized
it as belonging to Don Carlos. His
graceful bow to Stewart was also fa-
miliar. Otherwise she would never
have recognized the former elegant
vaquero in this uncouth, roughly dress-
ed Mexican.

Stewart answered the greeting in
Spanish, and, waving his hand toward
the camp-fire, added in English:

"Get down and eat."

The guerrillas were anything but
slow in complying. They crowded to
the fire, then spread in a little circle,
and squatted upon the ground, laying
their weapons beside them. In ap-
pearance they tallied with the band
of guerrillas that had carried Made-
line up into the foot-hills, only this
company was larger and better armed.
The men, moreover, were just as hun-
gry, and as wild and beggarly.

The cowboys were not cordial in
their reception of the visitors, but
they were hospitable. The law of the
desert had always been to give food
into camp, where they stood waiting
to be saddled. Nels appeared to be lost or hunted or hunting.

"There's twenty-three in that outfit," whispered Ambrose, "includin' four white men. Pretty rummy gang!"

"They appear to be friendly," whispered Madeline.

"Things down there ain't what they seem," replied Ambrose.

"Ambrose, explain to me. As long as you will let me watch them, please let me know the—the real truth."

"Sure! But recollect, Miss Hammond, that Gene'll give it to me good if he ever knows I let you look, and told you what's what. Well, decent like, Gene is seein' them poor devils get a square meal. They're only a lot of calf-thieves in this country. Across the border they're bandits, some of them; the others just riffraff outlaws. That rebel bluff doesn't go down with me. I'd have to see first before I'd believe them greasers would fight. They're a lot of hard-ridin' thieves, and they'd steal a fellow's blanket or tobacco. Gene thinks they're after you ladies—to carry you off; but Gene—well, Gene's some highfalutin' in his ideas lately. Most of us boys think the guerrillas are out to rob—that's all."

Whatever might have been the secret motive of Don Carlos and his men, they did not allow it to interfere with hearty appreciation of a generous amount of food. Plainly, each individual ate all that he could. They jabbered like a flock of parrots; some were even merry.

Then, as each and every one began to roll and smoke the inevitable cigarette of the Mexican, there was a subtle change in manner. They smoked, and looked about the camp, off into the woods, up at the crags, and back at the leisurely cowboys. They had the air of men waiting for something.

"Senor," began Don Carlos, addressing Stewart.

As he spoke he swept his sombrero to indicate the camp circle. Madeline could not distinguish his words, but his gesture plainly indicated a question in regard to the rest of the camping-party. Stewart's reply, and the wave of his hand down the trail, no less clearly signified that his party had gone home.

Stewart turned to some task, and the guerrilla leader quietly smoked. He looked cunning and thoughtful. His men gradually began to manifest restlessness. Presently a big-boned man, with a bullet-head and a blistered red face of evil coarseness, got up and threw away his cigarette. He was an American.

"Hey, cull!" he called in a loud voice. "Ain't ye goin' to cough up a drink?"

"My boys don't carry liquor on the trail," replied Stewart, turning to face the guerrillas.

"Haw, haw! I heerd over in Rodeo thet ye was gittin' to be strong fer temperance," said this fellow. "I hate to drink water, but I guess I've gotter do it."

He went to the spring and sprawled down to drink. All of a sudden he thrust his arm down in the water to bring forth a basket. The cowboys, in the hurry of packing, had neglected to remove this basket, and it contained bottles of wine and liquors for Madeline's guests. They had been submerged in the spring to keep them cold. The guerrilla fumbled with the lid, opened it, and then got up, uttering a loud roar of delight.

Stewart made an almost imperceptible motion, as if to leap forward; but he checked the impulse, and after a quick glance at Nels he said to the guerrilla:

"Guess my party forgot that. You're welcome to it."

Like bees the guerrillas swarmed around the lucky finder of the bottles. There was a babel of voices. The drink did not last long; and it served only to liberate the spirit of recklessness. The white outlaws began to prowl around the camp; some of the Mexicans did likewise; others waited.

(Continued on page 611).

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Land O' Nod Stories.

By HOWARD T. KNAPP

With the Parasol Ants.

WE are in luck, for we have landed right by one of the cities built by the Parasol Ants," said Tinker Teedle Tee as he folded up the magic rug on which he and Billy Be By Bo Bum had made the journey to Texas.

Billy looked in the direction Tinker pointed and saw a hill towering above him. Compared with the size of an ant it was nearly a thousand feet high and maybe it didn't make Billy puff and pant when he started to climb the steep side. When they reached the crest, they found the top of the hill was perfectly flat and about half a mile long by a quarter of a mile broad, at least it seemed that large to Billy.

"Where is the gate of the city?" asked Billy when he recovered his breath. "I have scanned the ground in every direction but I cannot see an opening leading down inside the hill."

"There are more than a score of entrances to this city and you are now standing within a few feet of one of the gates," replied the merry little elf.

"Then I must be getting blind for all I can see is a few piles of twigs and leaves."

"And how do you suppose those twigs and leaves came to be here?" asked Tinker, his eyes twinkling.

"I guess they dropped from the branches of this tree that grows overhead."

"You will have to guess again," replied Tinker. "Those heaps of trash are the doors of the city. They were piled up by the ants to hide the entrances to their home, and they are so cleverly arranged that if an enemy of the Little People happened to be passing this way he would think they had dropped here by accident, just as you did, and would never suspect that they hid the entrance to the nest."

"But where are the ants? This must be a deserted city for I have not seen a single ant since we arrived."

"They are in the house sleeping," Tinker replied. "They stay within doors all day and only come out at night. But as it is nearly sundown now, I think we will see them soon. So we will sit down and wait."

For nearly half an hour they sat on a pebble, waiting for the jolly red sun to go to bed behind the western hills, and several times Billy caught himself nodding, for he had encountered so many wonderful adventures since he first met the elf that he was now getting tired.

"Hi ho hum, but I wish they would hurry," yawned Billy at last. "I am getting tired of sitting here doing nothing."

"We won't have much longer to wait," replied Tinker. "In fact, I think they are getting ready to open the gates of the city now," and he pointed to the nearest pile of rubbish which concealed one of the entrances.

Sure enough, the twigs and leaves were moving, and the next minute several ants crawled out of the hole so cleverly hid by the rude door. Without wasting any time the busy little workers seized the twigs and leaves in their paws and dragged them to one side. They were soon joined by more workers who pitched in and helped with such a good will that in a few minutes the gate was wide open. Then the ants came pouring out in a steady stream until the top of the hill was alive with the busy throng.

Billy watched them in silence, but his face was such a picture of bewilderment and disappointment that Tinker burst out laughing.

"What is the matter Billy Boy?" he demanded.

"Why, I thought you said these ants

carried parasols," replied Billy Be By Bo Bum.

"And so they do."

"Where are they, then? They haven't got them with them now."

"I know, but they are just going after them," replied the elf. "If you watch you will see each ant return in a few minutes with as fine a parasol as anyone could wish to see."

Still the ants came pouring from the gate in ever increasing numbers, and as fast as they reached the top of the hill they formed in an orderly column and marched off toward the base of a large oak that grew some distance away. A squad of soldier ants, much larger than the others, marched at the head of the column, for the Little People have many enemies and they didn't want to be caught off their guard.

"Where are they going?" asked Billy.

"To get their parasols," the elf replied. "If you don't believe me, come along and see for yourself."

So Billy and Tinker joined the army of foragers which marched straight to the big oak and started to climb the trunk. Up and up they went until they were lost to view among the leaves and branches. Billy and Tinker stationed themselves at the foot to watch the procession which looked for all the world like a living ribbon fluttering against the trunk.

"Look, Billy Boy, look, see what is coming down the tree trunk," cried Tinker, after which they watched the procession for a long while, and next time I'll tell you what Billy saw.

A FAMOUS FLAG.

By BEATRICE M. PARKER.

From the earliest historical times flags and ensigns have been used to impress the inhabitants of a tribe or nation with the sacrifices that have been made for their protection and enjoyment—with the battles fought, the heroic deeds done, the oppression suffered and the fidelity their forefathers had to some public purpose.

The "Don't Tread on Me" flag of the American revolutionary days constant-



ly reminded those who marched under it of the injustice and wrongs the colonists had endured from a government in which they had no representation. Certainly this flag must have inspired the colonial soldiers with courage and determination to renew their efforts at times when extremities of suffering and the presence of a well-organized foe seemed to place the realization of independence far beyond their reach.

A good way to be happy is to try to be useful and helpful.—Selected.

It is not always the giver who gives, it is not always the receiver who receives.—Malay Proverbs.

As the morning sun brushes the darkness from the world, grant us today to brush aside the shadows from some unhappy heart.—Stevenson.



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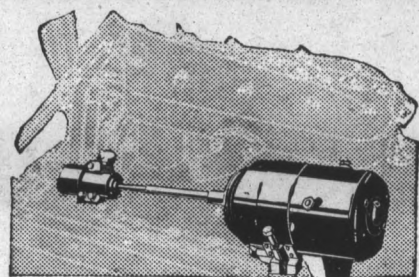
and tourist-sleeper economy with personal escort.

To California only \$72.50 round trip from Chicago, \$70 from St. Louis and \$60 from Missouri River. On sale May 1 to Sept. 30; final limit, Oct. 31. Still lower fares June 9 to 16 and July 23 to 30; final limit, two months. Excursion fares from other points also.

California has a delightful summer climate—cool by the sea and in mountains—right time to see growing crops. In vineyards and orchards one finds delicious grapes, apricots, peaches, figs and Valencia oranges. Berries and melons come early; almonds and pears come later. Harvesting wheat and cutting green fields of alfalfa are other June-July activities. Personally-conducted parties in tourist sleepers enable you to make the journey in comfort and with economy.

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LIGHT OF WESTERN STARS.

(Continued from page 609).

showing by their ill-concealed expectancy the nature of their thoughts.

It was the demeanor of Stewart and his comrades that puzzled Madeline. Apparently they felt no anxiety, and no particular interest. Don Carlos, who had been covertly watching them, now made his scrutiny open, even aggressive. He looked from Stewart to Nels and Monty, and then to the other cowboys.

While some of his men prowled around, the others watching him, and the waiting attitude had taken on something sinister. When the guerrilla leader turned his cunning face upon Nels and Monty he had the manner of a man in whom decision was lacking.

In her growing excitement Madeline had not clearly heard Ambrose's low whispers; and now she made an effort to distract some of her attention from those below to the cowboy crouching beside her.

The quality, the note of Ambrose's whisper had changed. It had a slight sibilant sound.

"Don't be mad if sudden like I clap my hands over your eyes, Miss Hammond," he was saying. "Somethin' is brewin' below. I never seen Gene so cool. That's a dangerous sign in him. And look, see how the boys are workin' together! It's slow and accident like, but I know its' sure not accident. That foxy greaser knows, too; but maybe his men don't. He's not payin' so much attention to Gene, either; it's Nels and Monty's he's watchin'. There, Nick and Frank have settled down on that log with Booly. They don't seem to be packin' guns, but look how heavy their vests hang. A gun in each side! Those boys can pull a gun and flop over that log quicker than you can think. Do you notice how Nels and Monty and Gene are square between them guerrillas and the trail up here? I reckon, Miss Hammond, there'd be dead greasers round that camp long ago if Nels and Monty were foot-loose. They're beholden to Gene—that's plain. How it tickles me to watch them! Both packin' two forty-fives, butts swingin' clear. There's twenty-four shots in them four guns; and there's twenty-three guerrillas. If Nels and Monty ever throw guns at that close range—why, before you'd know what was up, there'd be a pile of greasers! There, Stewart said something to the don. I wonder what! I'll gamble it was something to get the don's outfit all close together. Sure! Greasers have no sense; but them white guerrillas—they're lookin' some dubious. O-ho! Now for the grand bluff! Looks like there'd be no fight at all!"

The guerrilla leader had ceased his restless steps and glances. He turned to Stewart with something of bold resolution in his aspect.

"Gracias, señor," he said. "Adios!"

He swept his sombrero in the direction of the trail leading down the mountain to the ranch; and as he completed the gesture a smile, crafty and jeering, crossed his swarthy face.

Ambrose whispered so low that Madeline scarcely heard him:

"If the greaser goes that way he'll find our hosses and get wise to the trick. Oh, he's wise now; but I'll gamble he never even starts on that trail!"

Neither hurriedly nor guardedly, Stewart rose out of his leaning posture and took a couple of long strides toward Don Carlos.

"Go back the way you came!" he fairly yelled, and his voice had the ring of a bugle.

Ambrose nudged Madeline; his whisper was tense and rapid.

"Don't miss nothin'—Gene's called him. Whatever's comin' off will be here quick as lightnin'. See! I guess maybe that greaser don't savvy good U. S. lingo! Look at that dirty yaller face turn green. Put one eye on Nels and Monty! That's great, just to see

'em. Just as quiet and easy; but oh, the difference! Bent and stiff—that means every muscle is like a rawhide riata. They're watchin' with eyes that can see the workin's of them greasers' minds. There ain't a hoss-hair between some of them outlaws and the next world!"

Don Carlos gave Stewart one long, malignant stare; then he threw back his head, swept up the sombrero, and his evil smile showed gleaming teeth. "Senor—" he began.

With a bound Stewart was upon him, and the guerrilla's cry was throttled in his throat.

A fierce wrestling ensued, too swift to see clearly; then heavy, sodden blows, and Don Carlos was beaten to the ground. Stewart leaped back. Then he hunched down with his hands on the butts of guns at his hips, he yelled, he thundered at the guerrillas. He had been quicker than a panther, and now his voice was so terrible that it curdled Madeline's blood, and the menace of deadly violence in his crouching attitude made her shut her eyes; but she had to open them.

In that single instant Nels and Monty had leaped to Stewart's side. Both were hunched down with hands on the butts of guns at their hips. Nels's piercing yell seemed to divide Monty's terrible bawl of rage. Then they ceased, and echoes clapped from the crags. The silence of those three men, crouching there like tigers about to leap, was more menacing than their nerve-racking yells.

The guerrillas wavered and broke, and ran for their horses. Don Carlos rolled over, rose, and staggered away, to be helped upon his mount. He looked back, his pale and bloody face that of a thwarted demon. The whole band got into action and were gone in a moment.

"I knew it," declared Ambrose. "Never saw a greaser who could face gun-play. That was some warm. And Monty Price never flashed a gun! He'll never get over that. I reckon, Miss Hammond, we're some lucky to avoid trouble. Gene had his way, as you seen. We'll be makin' tracks for the ranch in about two shakes."

"Why?" whispered Madeline breathlessly, conscious that she was weak and shaken.

"Because the guerrillas sure will get their nerve back and come sneakin' on our trail, or try to head us off by ambushin'," replied Ambrose. "That's their way. Otherwise three cowboys couldn't bluff a whole gang like that. Gene knows the nature of greasers. They're white-livered; but I reckon we're in more danger now than before, unless we get a good start down the mountain. There! Gene's callin'! Come! Hurry!"

Helen had slipped down from her vantage-point, and therefore had not seen the last act in that little camp-fire drama. It seemed, however, that her desire for excitement was satisfied, for her face was pale, and she trembled when she asked if the guerrillas were gone.

(Continued next week).

A THEORY.

BY ARTHUR W. PEACH.

There's no doubt, my friend, the world Has its many, many needs,

And they seem to grow and grow As onward it proceeds;

But when going here and there Through vale and city marts,

I begin to think our need Is a few more sunny hearts!

Gold in banks and marble streets All are well enough,

Though too much of it I think May be dangerous stuff;

But though gold and marble may To life some charm impart,

They're not worth so much to men As a happy, happy heart!

Everywhere reformers cry Remedies, and then some more

Which they think will do more good Than any heretofore;

But I think the surest way To heal our civic smarts

Is just to do things that increase The nation's happy hearts!



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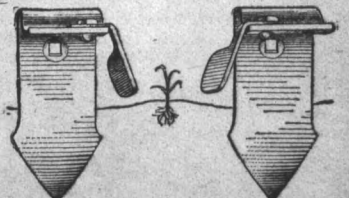
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JELL-O

does not spoil or grow stale, but can be kept in the sanitary package indefinitely in as good condition as on the day it was made.

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Woman and Her Needs At Home and Elsewhere

"Keep Thy Tongue from Unkindness"

WE used to sing a song in school which started out something like this:

"It matters but little whether you live,
In country, city or town;
I'd like to ask if ever you tried
To run a rumor down?
The sailing is easy enough at first,
You smile as you onward go.
But all at once, at a certain point,
Nobody seems to know."

Most of us have found out by sad experience the truth of the song, for most of us at some time or other have tried to find out just who it was started a malicious story about ourselves or some one we were deeply interested in. And we've all of us found at a certain point that nobody started it. Like Topsy, it "just grewed." The song went on to say, somewhere along in its half dozen verses and chorus, that of this we might rest assured, "twas a miserable lie, when nobody seems to know." And this is about all the consolation we ever get when we try to track rumors.

I've often wondered if good women ever think of the harm they do by their perfectly innocent, to them, gossip? I needn't confine the remark to women, either, for men are just as inveterate gossips as women, though they resent the accusation and lay it all on Eve. But as a matter of fact, don't we all gossip unless we are dumb? For gossip is merely repeating what we have heard about someone else, and the average conversation is about people more than it is of books, places and abstract reasoning. We heard this and that about so-and-so and we repeat it. The thing may be innocent as we tell it, but after it has gone through a half-dozen mouths we would hardly recognize the statement as the one we started. Yet no one has actually lied about the matter. Each has simply colored the story with his own individuality.

When so much harm comes from innocent gossip what shall we say when the gossip is malicious? And every neighborhood has its venomous tongued individual who is always watching for something that will make salacious conversation. The reputations which have been destroyed by one mean tongue in every community are legion. What ought we not to do to the man or woman who cares so little for his fellows as to take from them their good name? One longs for the ducking pond and the pillory of our forefathers when the village gossip club gets in action.

It would be bad enough if the gossips confined their attention to people of mature years, but no age is sacred. Many an innocent girl has been branded for life, many a young man driven from home because the village gossip club sat in judgment upon them and passed on every indiscreet word and act that could be caught. How much better to lay the little slips to the ignorance of youth and quietly give the word of warning which would set the young feet straight. The average young person is not vicious. They would much rather be good and respectable than bad, but they are ignorant. Mistaken modesty on the part of parents has left the boys and girls untaught, and the things, which to the watchful gossip are so terrible, to the youth mean nothing. They become scandal only when repeated, and then the young folks, feeling marked, become reckless and plunge into things which would never have occurred to them had they not felt everyone was

watching them to get something to talk about.

But the gossip doesn't stop with the young people. Boys and girls of the tenderest age must take their share. This boy of four has an ungovernable temper and is bound for the gallows, as his parents do not know enough to control him. That girl of six is tricky and you must never leave your children alone with her. That twelve-year-old girl is a degenerate and must be shunned. Many a girl not yet in her teens has been branded for life by petty gossip and never given the chance to become the good woman she might have been if silence and a mantle of charity had shielded her and hands had been held out to pull her up instead of push her down. For what chance has the ignorance and inexperience of childhood against the venomous tongue of maturity?

Suppose you do see someone do an indiscreet thing. Why repeat it? It becomes scandal only if it becomes known, and unless published broadcast the culprit has a chance to reform. But after gossip has once been started what hope is there for even the angels to live it down?

An anti-gossip club in every community would be a good thing. Are there any present willing to sign as charter members?
DEBORAH.

HANGING PICTURES.

BY OLIVE RICHEY.

In hanging pictures, striving for elaborate effects should be avoided. In this, as well as in choosing wall paper, arrangement of rugs furniture, etc., simplicity is the best form and will always create the best effect. Many make the mistake of having too many pictures on the walls of a room. Not unusually one sees a wall having a double row of pictures. This creates the idea of confusion and gives the room a picture-gallery effect.

A purpose of picture-hanging, aside from the beauty of the pictures, is to relieve the sameness of the wall paper or the painted wall. Two or three pictures to a wall will create a much better effect than will a larger number, and will emphasize or bring out the beauty of the wall paper instead of hiding it, as is frequently the case when a number of pictures are used.

Uniformity should always be practiced in the matter of picture-hanging. If three pictures are to be hung on a wall and one is larger than the other two, a pretty effect is created by placing the large picture between the two smaller ones. If the pictures are near a size, a neat effect can be had by having the middle picture six or eight inches higher than the other two. Personally, I would never think of using more than three pictures to a wall.

The pictures should be hung low, about on a line with one's eyes. Pictures are placed to be admired, and to lend beauty to their surroundings. When one has to look up at the pictures, their full effect and beauty can never be properly realized.

The pictures should be hung to picture-moulding, tacked near the ceiling or a foot or so below, depending on the height of the room. Driving nails or hooks into the wall on which to hang pictures not only injures and disfigures the wall but is unsafe, as the nails or hooks may pull out and the picture fall and be broken or injured. For the same reason, that of safety, picture-wire should be used instead of cord.

The wire is cheaper in the long run as it will last a lifetime.

A plain, unobtrusive picture-frame should always be preferred to one that is much bedecked, beflowered or full of fancies. As a purpose of the picture is to set off the wall, the purpose of the frame is to set off the picture. A frame that is so pretty in itself as to excite admiration will detract from the picture. Plain frames in black or gilt are the best.

Enlarged portraits of members of the family or friends should not be hung in rooms where guests are received or entertained. The pictures used should be of a character that will interest guests as well as members of the family. Family portraits should be hung in sleeping apartments.

EARLY SALADS AND GREENS.

BY M. A. L.

First harbinger of Michigan's spring in the vegetable world is the dandelion. Weed or flower, according to whether you are an adult with a desire for a smooth lawn or a child anxious for the first posy, this ambitious bit of vegetation is ubiquitous. A pest, most of us consider it, but it is a pest which many a housekeeper turns into a blessing. The family has been longing for something fresh and green on the table. Here it is. Dandelion greens, or dandelion salad, whichever way you wish to serve it.

There is no better salad than dandelion salad if picked while the leaves are young and succulent, especially if the thrifty housewife has covered the young plants as soon as they poked their heads above ground, with flower pots, old boxes, or even bits of boards so that they are nicely blanched. The leaves should be thoroughly cleaned, dried, shredded and served, either alone with oil and vinegar, or with finely minced onion and dressing.

Watercress, which the children can gather for you along the brook, makes a delicious salad, or without dressing, a good accompaniment for almost any sort of meat. A nice apple and cress salad may be made by cutting tart apples in small slices, heaping on a plate with a spoonful of your favorite dressing, or simply a sprinkling of lemon juice, and arranging a border of cress around the outside. The much despised sorrel, purslane and peppercress are prized by city cooks as salad vegetables in early spring, and, of course, there are the more aristocratic endive, romaine and chives, which you may grow if you wish.

For greens, long before we may hope for young beets or spinach out of the garden, the country housewife may gather the common "pigweed" and cowslips as well as dandelions. Purslane, too, makes good greens if cooked as spinach. Mustard, another pest, either alone or with other "weeds," furnishes a fine feast for the lovers of fresh greens. Spinach and Swiss chard may be sown in September and covered over as freezing weather comes on, with straw. Remove the covering as early as possible in the spring and fresh greens will reward you early. The young shoots of milkweed, while not suitable for greens, may be cooked as you do asparagus, and some like it as well. Cut in inch pieces and boil until tender in salted water. When done flavor with salt, pepper, butter.

It takes courage to mention leeks, but so many people, children especially, like this cousin to the onion, perhaps there will be some who would like leek soup. To make this, wash leeks and cut the white part in thin

slices. There should be two cupfuls. Put in the soup kettle with four tablespoonfuls of minced onion, and two tablespoonfuls of butter or drippings and cook slowly for 20 minutes, stirring frequently. Meantime prepare four cups of diced potatoes and at the end of 20 minutes add to the leek and onion mixture with three quarts of boiling water and salt and pepper to taste. This may be varied by using only half as much water. Put the soup through a sieve when done, return to the kettle and add a quart of hot milk. Beat smooth with the egg beater before sending to the table.

TO REMOVE TARNISH FROM SILVERWARE.

Since the extensive introduction of aluminum ware, the housewife has found that silver is more easily whitened by boiling the ware in an aluminum vessel.

It is necessary to add a small amount of salt or soda to the water used. The removing of the tarnish is a chemical process and results from galvanic action.

Before cleaning, the silver and aluminum must be thoroughly cleansed of grease by the use of warm soap-suds. A small amount of aluminum is dissolved during the process and the vessel will be darkened, though this coloration is easily removed by scouring, or by cooking fruit in the vessel.

Equally as good results may be obtained by boiling the silver with a piece of zinc in dilute salt water, using any available container. The silver must be in contact with the zinc, as is also necessary when aluminum is used. For this reason, a piece of sheet zinc large enough to nearly cover the bottom of the containing vessel is desirable.

The size of article cleaned is limited only by the depth of water. After whitening, the silver may be brightened by rubbing with a suitable cloth.—Col. Ag. College.

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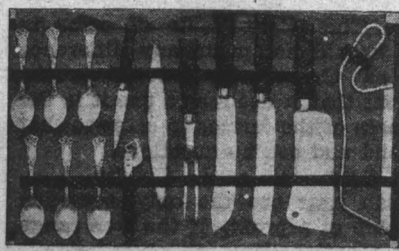
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\$3.50 For \$2

Yes, I am seriously offering you \$3.50 worth of valuable articles for \$2.00, in order to induce you to wear **CARHARTT'S GREATEST FARMER OVERALLS**, provided you will show the overalls to two other farmers; because I know that once you wear them you will never want any other kind. So for a short while, I will send you for \$2 postpaid:

- 1 Pair Indigo Blue Carhartt Farmer Overalls.....\$1.50
- 1 Stag Horn Handle, patent clasp Pocket Knife.....1.00
- 1 large size box Golden Gall Remedy......50
- 1 Indigo Blue, 28 inch square Cambric Pocket Handkerchief......10
- 1 Farm, Stock and Account Book....25
- (One farmer wrote he would not take \$10 for his if he could not get another)
- 1 Vest Pocket Memorandum Book......05
- 1 Souvenir (Trusted Men)......10

Total Value.....\$3.50
Write today enclosing \$2 and your leg and waist measurements for all sizes up to and including 42 inch waist measure. For larger waist measure add 10c for each additional two inches.

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Farm Commerce.

Marketing Summer Eggs

We read a great deal about winter egg production but possibly the summer egg crop is more important due to the fact that the bulk of the eggs during the year are produced during warm weather. Reports state that millions of dollars are lost annually in the country because of faulty methods of egg production during warm weather. Common sense care of the egg crop will transfer a large part of this loss to the profit side of the ledger.

After the breeding season the male birds should either be killed or excluded from the layers. On the farm

ness in general. What is the result? The egg business loses a friend as one consumer will possibly use fewer eggs and the farmer who has sold the poor stock loses any reputation that he may have had as an honest producer.

Eggs from stolen nests should be marked and only used at home where their probable condition is known and sudden surprises will cause no embarrassment. When eggs are gathered and placed in a large pail it is frequently the custom to use from the top of the pail and during the spring and summer the busy housewife fails to note the passing time and the eggs



White Eggs Sell Best in New York City, while Brown Shells Appeal to Chicago Buyers.

producing fancy poultry there will be plenty of enclosed breeding yards where the cock birds can be isolated after breeding season. On the general farm where the birds are given a free range it is good management to kill off the males and depend on vigorous cockerels for the matings during the next spring. The fertile egg grows very easily during hot weather. In that case the egg is unfit for food. The high-class egg market requires infertile eggs and will accept no other kind.

During the summer the eggs should be gathered at least twice per day and stored in a cool dry cellar. This will retard the development of that stale taste but the eggs must not be held too long before marketing. I believe that the farmer should market his eggs at least twice per week during the summer. The egg seems to absorb odors quite readily and so the egg cases must not be stored in a cellar near onions or cabbages which will sometimes cause a contamination.

Eggs from "Stolen" Nests.

The small flock on the farm probably contributes the large part of the "bad eggs" appearing on the market. The commercial poultry farm depends entirely on the income from the birds and for that reason the egg crop at all seasons of the year is given special attention. The farm flock is usually given a free range and this leads to stolen nests. Eggs found in a nest of this kind should not be mixed with the fresh stock and marketed. I once saw a set of pictures depicting the travels of some questionable eggs. Scene 1. James crawling out from under the corn crib with a straw hat full of eggs. Scene 2. James and his father driving to the city with a case of eggs. Scene 3. The unhappy city consumer cracking one of the eggs for breakfast. Scene 4. The groceryman swearing vengeance on the farmer and the consumer roundly cussing the egg busi-

ness in general. What is the result? The egg business loses a friend as one consumer will possibly use fewer eggs and the farmer who has sold the poor stock loses any reputation that he may have had as an honest producer.

Cater to Your Market.

In shipping eggs to market it is well to find an honorable commission man and send him your entire output if you are raising enough eggs to make express shipments possible. By such an arrangement you will gain some standing with a reliable firm and thus obtain more per dozen for your eggs than as if you practice shipping to various unknown firms whenever you happen to run upon their address. The best New York trade requires a white egg and the best trade in Chicago demands a brown egg. I once heard a housewife state that brown eggs appeared richer and for that reason she liked them best. Possibly that is the excuse for brown eggs being favored in Chicago. I have never heard the reason for the special attention that is given to white eggs in New York City. The slight value of color in eggs should not make any difference but as the market determines the product that it desires to use it is the business of the farmer to cater to that demand and ask no questions.

Be Certain of the Quality.

Clean eggs are the only eggs you can ship at a profit. If the free range flock occasionally steals their nests it means a loss, if all the birds have the habit it is very serious unless you can locate all of the nests and visit them frequently. Hunting all over the farm for eggs, however, is unsatisfactory and the best way is to build plenty of substantial nests in the poultry house and then keep them clean and well protected against mites and lice. In

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When writing to advertiser please mention The Michigan Farmer.

that case the majority of the birds will lay in the poultry house and the eggs will be clean except in very muddy weather.

Eggs furnished to a select trade must be candled. A prominent poultry breeder recently told me that cement floors were responsible for blood rings in some of the eggs from his flock. Plenty of litter would doubtless do away with the slipping on the hard floor which probably caused the blood rings. However, the hens may be frightened before laying or the spots may occasionally occur from many causes. The point is simply this, eggs must be candled before they can safely be sold to the trade which demands an absolutely perfect egg and is willing to pay the best market price for that egg.

Ingham Co.

R. G. KIRBY.

THE PREPARATION OF FROZEN AND DRIED EGGS.

Many eggs which could not stand long shipments may be preserved as wholesome food by freezing them out of the shell or by drying. In the beginning, however, there was a natural popular prejudice against the business, which was increased by the ignorance and carelessness of some of the pioneers. It was under these conditions that the Department of Agriculture undertook a study of the problem in order to lay the groundwork for a scientific preparation of an extremely perishable product.

The eggs commonly used by reputable firms for breaking are small or oversized eggs and dirty, cracked, or shrunken eggs. To the trade these are known as "seconds." They are not to be confused with eggs that are unfit for human use, such as the classes known as black, white, mixed, and sour rots, green whites, eggs with stuck yolks, musty and moldy eggs, blood rings, etc. These should be rejected entirely or else used for tanning purposes only. Eggs with a bad odor should be rejected absolutely.

Careful handling before the eggs go to the breaking room is one of the principal points upon the importance. Careful candling is not only necessary to prevent the use of unfit eggs which it will also prevent the waste of a number of perfectly good eggs which might otherwise be rejected. In order to insure that the eggs are well candled, a recent bulletin by the Department of Agriculture recommends some system by which the work of individual candlers may be checked. Eggs that it is found difficult to grade should be set aside by the regular candlers for examination by an expert. Furthermore, the eggs should be graded again when out of the shell, for certain kinds of infection can only be detected when the eggs have been broken. When grading eggs out of the shell, only two grades should be recognized—food eggs and tanners' eggs.

While it is desirable, from a financial standpoint, that the breakers should work with rapidity, too much speed is not to be desired because of the danger that unfit eggs may be included with good ones before the breaker can detect the difference. When this happens, no attempt should be made to save the good eggs. In practice, it was found that in order to prevent waste and to insure good grading, no more than three eggs should be broken into a cup before it is emptied. It was also found that from twelve to sixteen eggs a minute is as rapid work as can be done satisfactorily. Even this is not possible if the breakers are permitted to talk or their attention is distracted from their work in other ways.

Bulletin No. 224, of the U. S. Agricultural Department, discusses in some detail the measures necessary to secure cleanliness in egg-breaking establishments.

It emphasizes the necessity for separate rooms for chilling, candling, breaking, freezing and drying the eggs.

Each should be maintained at a definite temperature by artificial refrigeration. A room for washing and sterilizing the utensils should adjoin the breaking room. When a bad egg is found, all apparatus contaminated by it must be exchanged for clean, and the hands of the operator washed before beginning work again.

The production of frozen and dried eggs, it is said, is primarily an industry for the egg-producing sections. Many eggs that now reach the large consuming markets in a totally unfit condition could be saved and a large portion of the annual waste eliminated if they were treated in time.

Crop and Market Notes.

Michigan.

Berrien Co., April 25.—Cold weather has detained work. Oat seeding nearly finished. Wheat on rolling land is badly injured. Clover seeding is fine, but old meadows injured. The usual acreage of corn will be planted. Seed corn is somewhat scarce, with perhaps sufficient for home needs. Clover seed \$11@11.50; beans \$3.50; corn 75c; wheat \$1.10; oats 45c; butter 27c; butter-fat 36c; eggs 19c; hogs 9c; beef 6½@7c; cows \$80@100; horses \$150@200.

Gladwin Co., April 24.—Cold wet weather is delaying spring work. A few fields of oats are sown, but soil is generally too wet for seeding. Roads are in bad shape. Wheat and meadows have improved. Some farmers are short on feed. Seed corn scarce. Hay \$16@18; oats 48c; potatoes 90c; cream 35c; eggs 18c.

Monroe Co., April 24.—Condition of wheat is improving and prospects at this early date are promising. Condition of rye is good; meadows are the same. Marketable cattle and hogs are about all sold. Feed scarce, especially hay and corn. Orchards generally are neglected and some dying from effects of San Jose and oyster shell scale. Spring work is opening up slowly on account of unfavorable weather. Very few oats in yet, majority not finished plowing. Whole milk \$1.60; butter-fat 35c; potatoes \$1.10@1.25; beans \$4; cattle \$4@8; hogs \$8.50@9.25; chickens 16@18c; eggs 20@21c.

Pennsylvania.

Lancaster Co., April 25.—Wheat and meadows are in very good condition. Ample supply of feed on hand for home use. Farmers are feeding a good deal of live stock in this section. Fruit trees are in good condition and some are now in bloom. The spring is rather late. Roads are in good shape, although we have been having frequent rains. Eggs 20c; butter-fat 40c per lb.

Ohio.

Hancock Co., April 24.—About half of the oats are in and some plowing for corn has been done. Grass is short. Most of winter wheat ground has been sown to spring crops. Hogs \$9.25@9.50; cattle \$8@8.30; eggs 19c; butter-fat 33c; hay \$12@15. Rough feed nearly all used up.

Indiana.

Jay Co., April 28.—Corn acreage will be the largest in years. Oats about all sown. Roads are in bad shape. Some plowing has been done for corn. Trees are leafing out and the peach blossoms are showing. Indications are for much fruit. The egg crop is below normal and the early hatch of chickens not up to the average. The lamb crop is good.

Wayne Co., April 24.—Spring work is delayed. Wheat is in poor condition. Oats are all sown. Meadows are only fair. Live stock is in normal condition with plenty of storage feed on hand. Roads are in excellent shape. Hogs \$9.25; wheat \$1.10; corn 65c; oats 36c; hay \$12@14; butter-fat 34c.

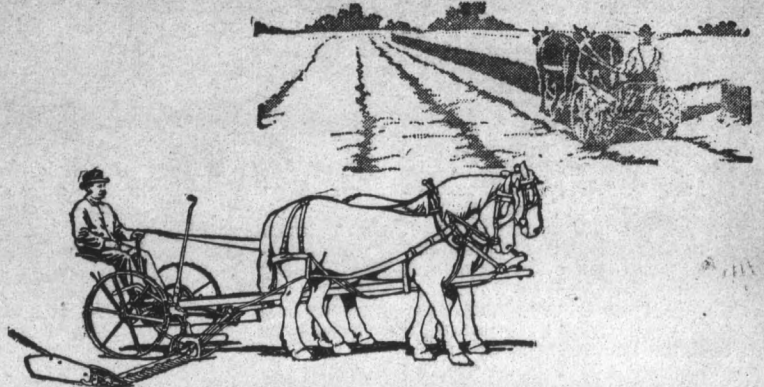
Kansas.

Franklin Co., April 24.—The month has been cold with much moisture, and farming has been delayed. Wheat and meadows are looking fine. Oats are growing slowly; the acreage is very large. Corn planting is now in progress. Not very much market stock on hand. Horses are scarce. Farmers have plenty of feed. Fruit trees are in good condition and berries of all kinds look promising. Butter-fat 33c; eggs 18c; hens 13c; potatoes \$1.40.

Missouri.

Warren Co., April 24.—A 50 per cent wheat stand, but that is coming out fine; also rye and meadows. Plenty of rain. Live stock on pasture looks well. Prospects unusually good for fruits, especially apples. Oats up nicely and acreage is large. Corn land is half ready, some planting done. Butter-fat 37c; hens 16c; springs 21c; eggs 19½c; hogs \$8.50; cattle \$7; \$14 is asked for clover; cowpeas \$2.25.

Remarkable IHC Mower Record



LAST spring when Lester Brown, of Ottawa, cut his 40-acre alfalfa field with an IHC mower, he completed just about one-millionth of the total work done by IHC mowers during 1915. That interesting fact presents in a striking way the popularity of the reliable mowers and rakes sold under the old trade names—Champion, Deering, McCormick, Milwaukee, Osborne and Plano.

IHC mowers and rakes were the first ever made. Their sales have grown larger steadily, year by year, showing plainly what the farmers who use them think of them. They cut clean and close in all kinds of grass, clover, alfalfa, or other hay crops. With reasonable care they do good work for many years. It is always easy to secure repairs, new parts, or special service. They are sold by local dealers whose business it is to see that you are satisfied.

If you are already using IHC haying machines, we need say nothing except to remind you to look over your machines before you take them to the field and order now any repairs they may require. If you have not yet used any of them, see your local dealers, or write us for catalogues and other information about International Harvester haying machines.

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Potato sprayers are made in four and six row sizes, 55 or 100 gallons, double or single acting pumps. Easy to get at packing and valves. High pressure. Tank, wheels and frame are wood. Can't corrode. Wind shift and nozzle strainers with each machine.

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Potato Sprayer 4 Row



Good for other row crops



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OWENS 26x44 Bean and Pea Thresher will thresh from 50 to 80 bushels of beans an hour—thresh them so clean that no fanning-mill work is required. Threshes all varieties of beans and peas direct from rankest growing vines. Gets all of the seed, without injuring or splitting any of it. Insures you top market prices.

OWENS Double-Cylinder Bean and Pea Threshers

are made in all sizes. Our "California Special" of extra large size, is in big demand by the large individual grower. And we call your attention particularly to 16x20 double-cylinder Owens for small individual growers. It threshes all kinds of peas and beans directly from the vines without splitting the seed. Has large separating space and strong blast—produces seed that gets highest prices. Write for catalog showing full line.

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100-Acre Lake Farm \$3500 Boating, Bathing, Fishing

Buildings alone easily worth \$5000, located in thickly settled community with unrivaled markets, lake with bathing beach on property; 30 acres smooth level tillage, 30 acres pasture, 40 acres wood; 2-story 11-room house, telephone, mail delivered, fine shade, 2 barns, other outbuildings, apple orchard, lots peaches, pears, cherries, grapes; near city of 15,000, price only \$3500, easy terms, full description in big new list of farm bargains within convenient reach of New York, just out. MATHESON FARM CO., Dept. 5080, 115 Broadway, New York.

LANDS FOR SALE

20,000 Acres of No. 1 hardwood cut over lands, a part of which has been cut over several years and burned over comparatively clean, seeded in the ashes to timothy, and clover and now covered with tame grass pasture, easily cleared in farms. Soil heavy clay loam, slightly rolling. Good schools close to all the lands, good roads, good farm settlements surrounding. Close to Onaway with good churches, good markets and good R. R. accommodations. For dairying, stock raising and farming in general no better district in Michigan. Price \$10.00 to \$25.00 per acre on easy terms. We own the lands. THAD. B. PRESTON, Trustee, Onaway, Mich.

New Land,

In Gladwin and Midland Counties, Michigan. Well located. Low prices and easy terms. Stafford Bros. (owners), 15 Merrill Bldg., Saginaw, (westside), Mich.

For Sale—1390 Acres near West Branch, Fair Buildings, 85 acres fenced. Fine Orchard. This Ranch has five watering places. Is great for sheep and cattle. Price \$10.00 per acre. Will take \$500.00 down. Michigan Real Estate Co., Jackson, Mich.

Markets.

GRAINS AND SEEDS.

May 2, 1916.

Wheat.—Cold rainy weather led to a sharp advance in wheat prices early this week, in that it rendered certain a further curtailment of spring seeding in the northern states and Canada. It is estimated now that the abandoned acreage for wheat in the spring wheat sections will be even greater than that where winter wheat is produced. Recent reports from various states would indicate that fully ten per cent of the wheat sown last fall will be plowed up and sown to other crops. The situation is further augmented by an outlook for short crops in European countries. The visible supply shows a decrease of 2,025,000 bushels. One year ago No. 2 red wheat was quoted on the local market at \$1.60 per bushel. The quotations for last week were:

	No. 2	No. 1	May.
Wednesday	1.21	1.16	1.20½
Thursday	1.21	1.16	1.20½
Friday	1.21	1.16	1.20½
Saturday	1.21½	1.16½	1.22
Monday	1.23½	1.18½	1.24½
Tuesday	1.23	1.18	1.24

Chicago.—May wheat \$1.43¾ per bu; July 1.16; Sept. 1.15½.

Corn.—Improvement in wheat prices was a bullish factor in the corn deal. Delay in farm work due to the unseasonable weather prevailing over our chief corn states also assisted in giving the market a firmer tone. The tardiness in the growth of meadows and pastures further adds to the amount of the grain needed upon the farms. The visible supply decreased 2,210,000 bushels. A year ago No. 3 corn was quoted at 79c per bushel. Last week's local quotations were:

	No. 3	No. 3
	Mixed.	Yellow.
Wednesday	76½	79
Thursday	76½	79
Friday	76½	79
Saturday	76½	79
Monday	76½	79
Tuesday	76½	79

Chicago.—May corn 76½c per bu; July 76½c; Sept. 76½c.

Oats.—Besides the effect of other grains upon this cereal the market has been given support by means of an active export demand. Weather has also interfered with seeding, and it is likely that many fields intended for oats will be used for other crops. The visible supply decreased 879,000 bushels. A year ago standard oats were quoted locally at 58c per bushel. Detroit's quotations last week were:

	Standard.	No. 3
		White.
Wednesday	46½	45¼
Thursday	46½	45¼
Friday	46½	45¼
Saturday	46½	45¼
Monday	47	45¾
Tuesday	47	45¾

Chicago.—May oats 46½c per bu; July 43¾c; Sept. 39¾c.

Rye.—Values are a fraction higher at 95c per bushel for cash No. 2.

Barley.—Milwaukee prices are higher at 72¢79c for malting grades, while Chicago quotations have advanced to 64¢80c.

Beans.—There is a good healthy demand for this product, and because of limited stocks, prices have gone up another 5c the past week. Cash and May beans are now quoted at \$3.80, and June \$3.85 per bushel. At Greenville the elevators are operating on a \$3.35 basis.

Clover Seed.—There is a brisk demand for clover seed, which is having an extended season because of the lateness of sowing the spring grains. Prime red clover and prime alsike are quoted at \$8.75 at Detroit, and at Toledo \$8.62½@8.70.

Timothy Seed.—Prime seed is 10c lower at \$3.25 per bushel. At Toledo cash seed is \$3.15.

FLOUR AND FEEDS.

Flour.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$6.50; seconds \$6.20; straight \$5.90; spring patent \$6.80; rye flour \$6.

Feed.—In 100-lb. sacks, jobbing lots are: Bran \$24; standard middlings \$22; fine middlings \$30; cracked corn \$31.50; corn and oat chop \$28 per ton.

Hay.—No. 1 timothy, \$20.50@21; standard timothy \$19.50@20; light mixed \$19.50@20; No. 2 timothy \$17@18; No. 1 mixed \$15.50@16.50; No. 1 ver \$12@13.

DAIRY AND POULTRY PRODUCTS.

Butter.—The creamery grades are lower and the market is easy. Demand

is active and receipts are increasing. Extra creamery 32c; firsts 31c; dairy 25c; packing stock 23c.

Eggs.—Slowly increasing receipts indicate a backward season. Prices are 1c lower than last week but the market is firm and the goods well sold at the decline. Price for the week, based on sales is 32c.

Chicago.—Prices are lower and the market is easy. Extra creamery 32c; extra firsts 31c; firsts 29@30c.

Eggs.—The market is firm and the demand good at a slight advance in prices. Current receipts are quoted at 20¼c; firsts 21¼c.

Chicago.—The feeling is firm at slightly advanced prices. Firsts 20½@21c; ordinary firsts 19@20c; miscellaneous lots, cases included 19@20¼c.

Poultry.—The market is firm and quiet. Fowls 19@21c according to the quality; spring chickens 19@21c per lb; ducks 21@22c; geese 16@17c.

Chicago.—The demand is good, receipts are light and high prices are being maintained. Quotations for live are as follows: Hens 17½c; ducks 18@19c; geese 10@13c; roosters and stags 13.

FRUITS AND VEGETABLES.

Apples.—Apples are easy and active. The demand is good. Greenings \$3@3.75; Spys \$3.50@4; Baldwins \$3@3.50; Steele Reds \$4@4.50. At Chicago the market is greatly improved. The demand is very good and prices are slightly higher. No. 1 Greenings are quoted at \$2.50@3.50 per bbl; Golden Russets \$3@3.25; Baldwins \$2.75@3.25; Spys \$3.50@4.50; Ben Davis \$2.

Potatoes.—Potatoes are firm and are selling well. Carlots on track \$1.05@1.10 for white and 95c@1 for red. At Chicago the market is firm and higher. No Michigan stock is quoted but others sell from 90c@1.05 per bu. At Greenville potatoes are selling for 80c a bushel.

WOOL AND HIDES.

Wool.—This trade continues strong with sales generally limited by small stocks. In the fleece states buyers continue anxious to secure lots from farmers and usually are willing to allow the producers to have a little to say about the prices. The prices generally paid in Michigan is around 35c, with higher figures for exceptional lots of superior quality.

Hides.—No. 1 cured 17c; do. green 15c; No. 1 cured bulls 13c; do. green 10c; No. 1 cured calf 25c; do. green 24c; No. 1 horsehides \$4.50; No. 2 \$3.50; No. 2 hides 1c and No. 2 kip and calf 1½c lower than the above; sheepskins, as to amount of wool, 50c@52.

GRAND RAPIDS.

The egg market this week is unchanged at 19¼c and dairy butter is still quoted at 28c. Home-grown green stuff now in market includes pieplant at \$1 per bu; young onions 25c for three dozen; spinach \$1.25@1.50 per bu. Grain prices are as follows: No. 2 red wheat \$1.14; oats 45c; corn 75c; rye 75c; white beans \$3.20.

DETROIT EASTERN MARKET.

Farmers are busy these days and consequently the number of teams on the market is small. Apples are getting well cleaned up with prices ranging from 50c@1.25; potatoes 90c@1.10; parsnips 35@40c; cabbage 50@65c; eggs 25c. There were a few loads of loose hay with the asking price around \$22 per ton.

LIVE STOCK MARKETS.

Buffalo.

May 1, 1916.

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

Receipts here today: Cattle 170 cars; hogs 100 d. d.; sheep and lambs 45 d. d.; calves 2400 head.

With 170 cars of cattle today, there were about 40 cars of shipping steers and the good quality and best classes sold 10@15c lower. The trade was very slow on the plainer quality shipping cattle and on the plain coarse butcher cattle and the bulk of them sold 15@25c lower. The good light heifers and steers sold about steady. The good cows and bulls were scarce and there was a strong demand for them and they sold at steady prices. We look for a fair run of cattle next Monday and if they do not have a heavy run of cattle in Chicago Wednesday, we look for a little better trade.

Our receipts of hogs were close to 100 double decks, quality poor and while the bulk of the offerings sold 5@10c lower, the common and light grades were extremely dull and suffered a strong 25@40c break in price. A

few choice loads of hogs sold at \$10.20@10.25, with one lot of fancy at \$10.35; the bulk of the best around \$10.15, with common light hogs, weighing around 130 to 150 lbs., ranging in price from \$9.25@9.75; pigs generally \$9; roughs \$9; stags \$6@7. Our late market was extremely dull and quite a number are going over unsold, with a poor prospect of much if any improvement for the next few days.

Market was active on choice sheep and lambs, but slow on the heavy and coarse, with prices 15 higher than the close of last week. About all sold and we look for steady to possibly shade lower prices last of the week.

We quote: Clipped lambs \$10.25@10.40; heavy lambs \$8.50@8.75; cull to fair \$6@10; yearlings \$8@8.25; bucks \$4.50@6.50; handy ewes \$7.25@7.50; heavy do \$6.50@7; wethers \$7.75@8; cull sheep \$4@5.50; veals, good to choice \$9.25@9.50; common to fair \$8@9; heavy \$6@9.

Chicago.

May 1, 1916.

Cattle. Hogs. Sheep.

Receipts today..13,000 50,000 7,000
Same day 1915..18,745 51,942 13,829
Last week.....43,333 136,111 59,993
Same wk 1915..44,960 124,962 43,092

It was raining this morning, and despite the meager cattle supply, trade was slow in starting. Butcher stuff sold a dime or more higher, and such early sales of steers as were made were at largely 10c higher figures. Hogs were about 5c lower, with sales at \$9.40@10.05. Hogs received last week averaged 220 lbs. Sheep and lambs were scarce and 15@25c higher.

Cattle started off on Monday last week largely a dime higher, with a run of only 14,736 head, but broke sharply on Wednesday, when the receipts rose to 21,401 head—an unusually liberal supply for the middle of the week. There was no later improvement, with the bulk of the sales of steers during the week at a range of \$8.65@9.75 and the best class of weighty steers going for \$9.40@9.90, while the inferior to fair grades of light weight steers brought \$7.50@8.60. Middling steers sold at \$8.65@8.95, while good lots brought \$9@9.35, with the better class of yearling steers taken at \$9.40@9.90 and sales all the way down to \$8@8.50 for ordinary lots of these cattle. There was a good outlet for butchering cows and heifers at \$5.50@9.25, the best cows going at \$8@8.50 to a limited extent and only a few sales of choice yearling heifers higher than \$8.50. Cutters sold at \$4.85@5.45, canners at \$3.50@4.80 and bulls at \$5.25@8.10, with prime little yearling bulls going the highest. Calves were marketed in large numbers, coming chiefly from the dairy districts of the surrounding country, and there was a good demand on the basis of \$5@9.25 for rough heavy to prime light vealers. There was a strong demand for stockers and feeders at ruling prices, the former going at \$5.75@8.50 and the latter at \$7@8.65. Feeding heifers at \$6@6.75 and stock and feeding bulls at \$5.90@6.40. Indiana stockmen were in the market for larger numbers of cattle for finishing, and the call from Michigan and Ohio became a little broader. The time has arrived when demand for long-fed cattle is abating, and fat handy weights are becoming more popular. Nebraska has been furnishing a goodly number of fat heaves, and so have western Iowa and central Illinois. Most kinds of cattle closed 10@15c lower than a week earlier.

Hogs were not marketed last week with anywhere near the freedom seen a short time ago, and while eastern shippers failed to buy liberally as has been their custom, the big local packing demand caused a firm undertone most of the time. The hogs marketed showed up very well in average quality, and the greater part sold within a range of 20c per 100 lbs., going not much under daily top quotations. Recent receipts have averaged 220 lbs., or 13 lbs. less than a year ago, and the highest prices were obtained for prime light shipping hogs, most of the best heavy selected butcher and shipping barrows selling 5c under top figures. The best swine sold close to the highest prices of the year, and at times yard speculators were liberal buyers, while the packers brought in fair numbers of hogs from other markets. Hogs sold on Saturday at \$9.45@10.10, comparing with \$9.15@9.85 a week earlier, top being the highest of the year. Pigs brought \$7.50@9.25, and the best heavy shipping hogs sold at \$9.95@10.05.

Lambs, yearlings and sheep were marketed in small numbers for still another week, and buyers were forced to pay extremely high prices all the time, even at such times as values were lowered more or less. Colorado woolled lambs topped the market, and the best shorn wethers made a new high record for the season. Some

large shipments of Iowa unshorn lambs of choice grade carried too much weight to sell satisfactorily. Feeders and shearers were wanted, but few were offered, even at the high ruling prices. Closing prices were as follows: Lambs \$9.25@11.65; feeding lambs \$10.25@11.25; yearlings \$9@10.60; wethers \$8.25@9.25; ewes \$5.25@9.25; bucks \$7@8.50. Clipped lambs brought \$7@9.40 and spring lambs \$9@14. Prime woolled lambs advanced about 15c.

Horses were in much smaller supply than usual last week, and prices were firm, with army horses especially wanted. Farm workers were in demand at \$75@140, while farm mares were salable at \$145@240. A few big horses brought \$250@325, while chunks sold at \$165@235.

LIVE STOCK NEWS.

Extraordinarily high prices are being paid in the Chicago market for desirable consignments of lambs, yearlings, wethers and ewes, and only a short time ago prime feeding lambs sold for \$11.50 per 100 lbs., smashing all records in the history of the trade. The top for prime killing lambs this season stands at \$12 per 100 lbs., the recent top being \$11.50, and no matter how sharp the breaks in values are from time to time, values are still wonderfully high. Limited numbers of spring lambs are showing up and selling at fancy figures, and some contracting of lambs for future delivery is going on here and there, but it is pretty certain that the supply will prove to be far below the large demand. Hence it is taken for granted that there will be much less feeding in the country east of the Missouri River than in past years. A short time ago contracts were reported as closed for Wyoming lambs for delivery next fall at the station on northern Colorado account at \$7.25@7.50.

Cattle of every description sell unusually high in the Chicago market, but while prime heavy steers have been bringing fancy prices, with not many offered, plain heavy steers are rather unsatisfactory sellers. This happens every year about this time, these cattle selling around \$8.75@9.25 per 100 lbs. of late, while the choicest lots have found quick sales at \$9.50@10. Cheap cattle of light weight have made good money for their owners of late, with steers selling below \$8.50 of the feeder class, although the packers have competed for the better class of feeders. All accounts agree that no large supplies of cattle remain in most feeding districts, but in the course of a few weeks more the distillery cattle will be headed marketward, and they will be of some help in making good the shortage of corn-fed cattle. These "stillers" are now in the finishing process in slop sheds in Peoria and Pekin, Illinois, and in Tere Haute, Indiana, and in a few weeks the Kentucky distilleries will close, thereby forcing a good many cattle on the market. There has been a wide-spread demand for stocker and feeder cattle to ship into feeding districts, but this important movement has been greatly hindered from the start by inadequate offerings and the high prices invariably asked for cattle has been chiefly from Illinois, Indiana and Michigan stockmen, with some calls for cattle to ship to Iowa and Ohio. Stockmen of the southwest are awake to the importance of utilizing the good pasturage, and it is certain that extremely little grass will go to waste in Kansas and Oklahoma this year. Rush of field work has up to a short time kept farmers from buying feeders, but now the growing pastures warn them that the time is here to look around for supplies.

EVART HORSE SHOW.

The second annual Evart Horse Show held in the interests of more and better horses for the surrounding community will be held at Evart, Mich., on Wednesday, May 10, 1916. No entrance fees are charged, and local breeders, farmers and horse owners are expected to show their stock. Liberal prizes are offered through the courtesy of business men, and two band concerts during the day will provide musical entertainment. A grand parade of all live stock entered will be held in the afternoon.

SEED CORN Early varieties of MICHIGAN GROWN CORN 1914 crop. Good germination. Write for prices. YOUNG-RANDOLPH SEED CO., Owosso, Michigan.

SOY BEANS Planted with ensilage corn greatly increase the quality of the feed. Write us for prices. YOUNG-RANDOLPH SEED CO., Owosso, Michigan.

EARLY OHIO SEED POTATOES FOR SALE.

CHAS. W. RUDD & SON, Detroit, Michigan.

THIS IS THE LAST EDITION.

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

DETROIT LIVE STOCK MARKET.

Thursday's Market.

May 4, 1916.

Cattle.

Receipts 1924. The run in all departments at the local yards was considerably less than at the same period a week ago and on account of a marked improvement by all roads everything was yarded early and an early close was made.

The quality in the cattle division was good and the market was active at strong last week's prices on all grades. Several bunches sold at \$9 per cwt. Milch cows were scarce and good ones were in active demand. Stockers and feeders sold well and several country buyers were on hand looking for them. Prices look pretty high for feeding purposes. The close was hardly as active as at the opening, selling as follows: Best heavy steers \$8.75@9; best handy weight butcher steers \$8@8.50; mixed steers and heifers \$7.75@8.25; handy light butchers \$7.25@7.75; light butchers \$6.75@7.25; best cows \$6.50@6.75; butcher cows \$5.50@6.25; common cows \$4.75@5.25; canners \$3@4.50; best heavy bulls \$7; bologna bulls \$6@6.50; stock bulls \$5@5.50; feeders \$7.25@7.75; stockers \$6@7.50; milkers and springers \$4@7.50.

Sandel, S., B. & G. sold Mason B. Co. 10 steers av 800 at \$7.85; to Mich. B. Co. 26 do av 1048 at \$8.35, 10 do av 936 at \$7.50; to Bresnahan & Bray 4 do av 855 at \$7.50; to Sullivan P. Co. 4 cows and bulls av 962 at \$6.50, 1 bull wgh 560 at \$5.50, 15 steers av 960 at \$8.25, 2 do av 775 at \$7.25; to Simmons 2 feeders av 795 at \$7.50; to Newton B. Co. 2 steers av 865 at \$8.25, 3 cows av 1100 at \$6.50, 2 do av 1060 at \$6.50, 11 butchers av 873 at \$7.50; to Mason B. Co. 11 do av 909 at \$8.25; to Mich. B. Co. 12 steers av 1340 at \$8.60, 15 do av 919 at \$7.85; to Bresnahan 2 heifers av 795 at \$7.50; to Hammond, S. & Co. 1 bull wgh 1430 at \$7; to Bresnahan & B. 2 cows av 1015 at \$5.50, 3 do av 1016 at \$6; to Breitenbeck 5 do av 1098 at \$5.75; to Hammond, S. & Co. 2 bulls av 1900 at \$7; to Sullivan P. Co. 1 heifer wgh 830 at \$7, 10 steers av 900 at \$8.40; to Kamman B. Co. 1 steer wgh 1200 at \$9, 1 cow wgh 1050 at \$6.40, 8 steers av 825 at \$8.25; to Newton B. Co. 7 do av 871 at \$7.60.

Haley & M. sold Thompson Bros. 7 steers av 1137 at \$9, 1 do wgh 930 at \$8, 2 cows av 1065 at \$6.75, 4 do av 1112 at \$6, 11 butchers av 800 at \$7.35; to Bresnahan & B. 2 cows av 920 at \$5, 2 do av 1015 at \$4.60; to Dingman 3 do av 963 at \$5.25, 5 do av 1000 at \$5.10; to Hammond, S. & Co. 2 do av 1335 at \$6.50, 1 bull wgh 1770 at \$6.65; to Kamman B. Co. 1 do wgh 1520 at \$7.25, 21 steers av 1114 at \$8.75; to Sullivan P. Co. 16 do av 1129 at \$8.70; to Newton B. Co. 13 do av 927 at \$7.75; to Kamman B. Co. 8 do av 909 at \$8.15; to Breitenbeck 17 do av 934 at \$8.35, 6 do av 755 at \$7.25.

Veal Calves.

Receipts 1312. The veal calf trade was about the same as last week; heavy and common grades were dull. A few small bunches of prime brought \$9.75@10 but the bulk of good was at \$9.50 with medium and common at \$6.50@9.

Sandel, S., B. & G. sold Thompson Bros. 2 av 145 at \$9.50; to Sullivan P. Co. 25 av 140 at \$9, 9 av 150 at \$6.50, 14 av 135 at \$9.25, 7 av 150 at \$8, 4 av 125 at \$8.25.

Erwin & S. sold Thompson Bros. 1 wgh 240 at \$10.50.

Sheep and Lambs.

Receipts 2342. The sheep and lamb trade held about even with last week the quality being very common. One car of good clips was bought by a speculator at \$9.75 but the bulk of the good ones went for \$9.25@9.50. Best lambs \$9.25@9.50; fair do \$7.25@8; light to common lambs \$6.50@7; fair to good sheep \$6.50@7.25; culls and common \$4.50@5.50.

Erwin & S. sold Thompson Bros. 70 lambs av 55 at \$9, 20 do av 50 at \$6.50; to Sullivan P. Co. 31 do av 70 at \$9.50.

Haley & M. sold Thompson Bros. 139 lambs av 70 at \$9.10.

Hogs.

Receipts 11,979. In the hog department on Wednesday the best grades brought \$9.60 but on Thursday they were 5c higher, selling as follows: Mixed grades \$9.55@9.65; pigs \$8.50@8.65.

LIVE STOCK NEWS.

A Chicago live stock commission firm that handles sheep and lambs exclusively says in a recent letter to its country patrons: "The nearby feed barns have not as many sheep and lambs on feed as usual at this time of the year, and there seems to be a tendency on the part of the owners to unload their holdings as soon as possible, owing, of course, to the high prices they are bringing, together with the high prices of feed. It is very expensive feeding lambs for the future market. However, we are betting that the market has not seen its highest time yet. We think that the market this May will be a repetition of last May and that all records for high prices will be broken."

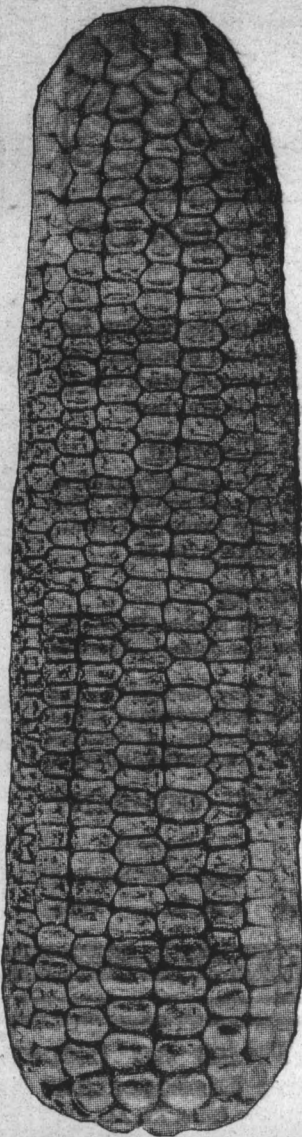
Prices for beef, mutton and pork have been raised in retail meat markets in recent weeks throughout the country from two to three cents per pound, and there are instances where the best cuts have been advanced to higher prices than asked in midwinter. These advances have followed higher prices for cattle, hogs, sheep and lambs, and cheap meats now look a long way off, for there is general underproduction in nearly all parts of the United States. It is going to take considerable time to produce new crops of cattle, hogs and lambs, and meanwhile high prices seem assured. A matter of the utmost importance at this juncture is the calling off of the long-existing restrictions which were placed through quarantines against the shipment of feeders into feeding districts. The Chicago Live Stock Exchange recently issued an announcement to apprise stockmen that all the former embargoes on trading in stock and feeding cattle at that important market have been removed, and at the present time business in thin cattle adapted for finishing is shooting ahead at a lively pace. Plenty of the inferior descriptions of little stockers are offered for all requirements, but as a general rule these cattle are slow of sale at relatively low values, with the country buyers keen after the well-bred lots and paying liberal premiums for them in every instance. Steers on the feeder order carrying some flesh are wanted, not only for fattening purposes, but at the same time for killing and converting into a comparatively cheap grade of beef, and it is this competition that is responsible for lessening shipments of high-grade feeders into feeding districts, as happens regularly every year. The result is that prices are apt to be advanced to prohibitory figures, and in all probability values will go still higher about the time the demand for cattle to place on grass is keenest. In buying cattle for feeding purposes weight is cutting less figure than quality, and little stock steers are frequently among the highest sellers. Some country buyers are purchasing stock cows and heifers, these offerings selling at a range of from \$5.85 to \$6.75 per 100 lbs. The packers are not only preventing normal shipments of feeders to the country for finishing, but of late they have been sending their buyers into the feeding sections with instructions to purchase beef cattle, this course being directed for the purpose of eliminating competition so far as possible in the open market.

Albert J. Swanson, of Nebraska, marketed in Chicago a short time ago 47 head of fancy mixed Hereford and Shorthorn steers which averaged in weight 1576 pounds and found a quick sale at \$9.75 per 100 pounds. The owner purchased these cattle on the fifteenth day of last October in Denver, having been raised in Idaho. They were put at once in a corn field, and after running there for two weeks, were started on snapped corn. Later on Mr. Swanson substituted shelled corn with alfalfa, and upon this ration the cattle were fed throughout the entire feeding period. When purchased as feeders the steers averaged in weight 1150 pounds. Good gains were made, but because of the poor feeding quality of the corn, larger amounts had to be fed in order to bring about final satisfactory results.

CATALOG NOTICES.

"Money in Apples" is the title of an illustrated folder sent upon request by Hayes Pump & Planter Co., Galva, Ill. It illustrates the full line of spraying equipment and accessories carried by this well-known firm.

Case road building equipment, including steam rollers, gas and oil tractors, rock crushers, elevators, screens and bins, road graders and drags, dump wagons and accessories are fully illustrated and described in a handsome 32-page catalog sent upon request by J. I. Case T. M. Co., Racine, Wisconsin.

Michigan Grown Seed Corn Selected and Tested
(Don't Get Fooled on the Corn You Plant)

When you stop to consider the value of a good piece of land and the cost of getting it ready for a crop of corn, as well as the other cost of cultivation nearly all summer long, you would not think any farmer would take the desperate chance of planting corn he was not sure of. But that is just what a lot of farmers do. Thousands of acres in Michigan are planted every year to corn that is only fit for feeding.

Extra Cost for Good Seed
About 40c per Acre

Suppose you pay about \$2.00 per bushel more for well bred corn that you can depend upon, the cost per acre is only about forty cents more than if you plant Western grown corn which is not suitable to the Michigan climate and more often proves to be a complete failure.

"PLAY SAFE"

Plant Michigan Grown Corn

Our seed corn is grown in Central Michigan. Every lot offered is of one field and consequently can be relied upon to mature uniformly. It has been selected especially for seed purposes and is of good high vitality. Every lot thoroughly tested in our own laboratory.

"Don't Wait" Buy Now

Secure your corn now while you have the opportunity. Don't wait until planting time. If you need some good corn to plant write today for price list and samples. Mailed free. Test them for yourself and be sure of the corn you plant.

Catalog Mailed Free

Alfred J. Brown Seed Co.

Grand Rapids,

Michigan

THE FREEMAN ENSILAGE CUTTER

—The Cutter That Saves You Money

Costs less to buy—less to operate—less for upkeep. The Freeman combines the limit of quality and economy.

Standard
For 30 Years

Runs easiest—on least power. Cuts clean and fast. Traveling force feed table—handles big bundles easily. Has extra strong frame, large feed rolls, adjustable knives, safety fly wheel, safety stop lever.

Steel Enclosed Carrier reduces running expense, prevents feed blowing away.

GET OUR FREE BOOK showing full line Ensilage and Feed Cutters, Carriers and Blower-Elevators. THE S. FREEMAN & SONS MFG. CO. 212 Michigan St. Racine, Wis.

We can furnish Blower or Enclosed Steel Carrier as desired.

Agricultural Lime

Northern Hydrated Lime and Pulverized Limestone, also pulverized burned lime, all made from high calcium limestone. Guaranteed to be the best on the market. Your inquiries solicited. Samples furnished on request.

Northern Lime Co., Petoskey, Mich.

LIME

Pulverized lime rock for "sour" soils. Write for LOW PRICES DIRECT TO YOU and we will send sample and full particulars. Write to office nearest you.

LAKE SHORE STONE COMPANY, Muskegon, Mich., and Benton Harbor, Mich.

RUFUS B. HOLMES CO.

High and Riopelle Sts. Detroit, Mich.

Commission Merchants

Poultry, Live or Dressed, Dressed Hogs, Calves, Sheep and Eggs. Reference, Peninsular Savings Bank, Sullivan Packing Co. Shipments Solicited. Satisfaction Guaranteed.

HAY

Ship your good quality to us. Highest Market Prices. E. L. Richmond Co., Detroit.

THE HARPSTER COMMISSION CO., Union Stock Yards, Toledo, O. Sell live stock on commission, get highest prices and best fills. Try them. Daily market, force of six looks after your interest. Financially backed by over \$1,000,000.

FARMERS—We will pay premiums whenever possible above the highest official Detroit Market quotation for your eggs shipped direct to us by express. Write us for information. It will pay you. American Butter & Cheese Co., Detroit, Mich.

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

SEED BEANS.

Fancy bright stock free from disease. Pea beans \$4.75. Michigan Wonder \$5.00 bush. Fancy graded winter sand vetch 16c lb. Seed Corn and potatoes. Will promptly return money on any seed returned not satisfactory. Write to day for price list 24. A. H. FOSTER, Allegan, Mich.

Quality Seed Potatoes

from Michigan's greatest producing section. Dusty Rurals and Million Dollars \$2.65 per 150-lb sack F. O. B. this station. Order now at this attractive price.

EDWARD HAMLYN, Coral, Michigan.

1914 SEED CORN, Northwestern Earliest Dent, 95% germination, home grown, \$2.50 per bu. shelled, bags free. Shipped prompt. S.A. Foster, Okemos, Mich.

Soy Beans For Sale. Medium yellow Mosherville, Mich. Bags 20c extra. Ralph W. Smith.

CAN ship cattle and hog MANURE to any part of Michigan. Apply to G. E. Loesser, 704 Military Ave., Detroit, Michigan. Cedar 1720.

Baird's Heave Remedy is guaranteed. Works while animal works. Write BAIRD MFG. CO., Box 627, Purcell, Okla., for particulars.

Teamster Wanted—An all around Teamster for general village teaming, great chance for something better for a live and efficient man. \$2.75 per day to start. E. W. Argus, Birmingham, Mich.

A Razor Snap

A new lot of fine quality Imported Razors at 50 cents while the supply lasts, is now offered by the Michigan Farmer.

The razors are made of the best cutlery steel, five-eighth-inch blade, and black handle. We will not say just what these razors ordinarily retail at, as prices on razors vary with each dealer, but we have seen razors no better sold at \$1.25 and \$1.50.

Every man who shaves ought to have at least three razors as it is a proven fact that giving a razor a rest is beneficial to it, and here is your opportunity to get a supply at very little cost.

So, only while our present supply lasts the price is 50 cents each, post-paid, or a half-dozen at \$2.00, post-paid. Address all orders to the Michigan Farmer, Detroit, Mich.



NOW IS THE TIME TO "DRESS UP" THE FARM

New walks around the house, a permanent white coating for the silo, a new white spring house, perhaps an ornament or two in the front yard—you can make these and hundreds of other new improvements easily and cheaply if you use

Medusa White Portland Cement

the first true white Portland cement ever made. It is absolutely stainless and is used on farms where *good looks* and *good service* are required. For facings of all sorts—Medusa White will give just the results you want. You can also cut down expense and troubles by mixing 2% of

Medusa Waterproofing

with Medusa White Portland Cement—or with Medusa Gray—for years the old standby for concrete work on the farm. Prevents cracking and keeps the water out.

We also make Medusa Waterproofed White and Gray Portland Cement—a combination of Medusa Cement and Medusa Waterproofing mixed in the proper proportions during the process of manufacture. Ground together at factory in exact proportions necessary for a *watertight* mixture.

SANDUSKY PORTLAND CEMENT COMPANY

Write for one or all of our free booklets, "Making Concrete Watertight", "The Medusa White House," etc.



Room B-5
Engineers Building
Cleveland, Ohio

Summer Care of Farm Horses

BEGINNING with the bulky portion of the ration, I believe no horse requires more than one full feed of hay in the twenty-four hours; and, by personal experience I have tested the soundness of this doctrine to my own satisfaction. Farm horses that are working every day are subject to just this condition, there being no time for them to eat more than a small quantity at either the morning or the noon meal. This does not mean, however, that a horse should not be fed three times a day, but to emphasize that the evening feed should be the more substantial. The work being over, there is ample time for rest and digestion and for the renewal of exhausted tissue or muscle.

The French are reputed to be the most skillful horse feeders in the world, having for centuries tested all kinds of methods of feeding. Among the rules laid down, one of the most important is that there must be an interval of four or five hours between meals to keep a horse in good condition.

Oats take about two hours to digest, while hay takes three hours, and for this reason a full feed of the latter is not given until night, when sufficient time may be had for it to digest. No horse is in fit condition for work with a stomach distended with hay, because it being situated right behind the lung space, if full, bulges forward into the chest to such an extent that the lungs have not room to properly expand; and, anything that interferes with the function of the lungs predisposes to heaves. Feeding should be regular, and while a horse should be required to do as little work as possible on a loaded stomach an interval of half an hour ought to be allowed to elapse before food is given to a heated and tired animal.

Timothy hay is the form of roughage most widely used for horses. Its popularity depends chiefly on its freedom from dust, rather than on its nutritive qualities. Unfortunately, however, it is a poorly balanced food and I would greatly prefer good mixed hay when free from dust. Better still is the red clover cured in a semi-green condition; there is no dust, the horses eat it better than any other roughage and the protein content is rich enough to considerably reduce the amount of grain otherwise required.

A Run at Pasture is Beneficial.

During the early grazing season and during the hot summer months when the pasture has become fairly well matured I prefer to turn the horses out nights, if at all possible. From year to year a horse consumes an amount of dry heating food which calls for special regulation to neutralize the excessive proteid consumption that has taken place. Substituting the grass for a certain part of the dry feed might for a time lessen, to some extent, his energy and power to endure protracted hard labor, yet it is a fact that such a procedure would enable the average horse, during his life time, to perform much more labor than if kept continually on dry feed.

It is generally admitted that oats are the most satisfactory grain for horses. Corn may be used in combination with other grains, but it is too heating a food to be fed exclusively to horses. Bran forms a suitable and desirable addition to a ration, being cooling and soothing in its action. Approximately ten pounds of oats, five pounds of corn and three pounds of bran, divided into three equal feeds, make a day's ration that it would be hard to improve upon. The weight fed at each meal should be about the same, although for the sake of variety the corn may be omitted at the morning meal and fed at noon. For the evening meal it is a good plan, when possible, to feed crushed oats along with the bran and a few handfuls of cut hay, the whole being dampened

and salted to render it more palatable.

It sometimes happens that when horses are being well fed for heavy work and are allowed to stand idle for a day or two, the disease known as lymphangitis is apt to get a foothold. More especially is this true of the heavy draft types. In England, it is sometimes called "Monday morning fever," because more cases are reported on Monday morning, after the Sunday rest, than any other day during the week. A horse getting three full grain feeds a day generates in his system a large amount of heat and energy, which is just what he needs to perform a good day's work. When, however, he gets a day off, and the full grain ration is continued, there is not vent for it. Being the function of the lymphatic glands to dispose of this excess of nourishment, if they fail to do so they become inflamed and an attack of lymphangitis results. To counteract this tendency the grain ration should either be reduced or a bran mash substituted, at the same time allowing exercise.

Another matter about which much diversity of opinion exists, is how and when to water a horse. Dr. Reed, of the Ontario Agricultural College, has expressed the very sensible conclusion: "When a horse is thirsty he wants a drink." This is probably the very best guide for the attendant and certainly an acceptable one to the animal himself. There is a great deal of exaggerated fear about watering horses when warm. When a large amount of perspiration has been secreted while working, it leaves the system parched. A pail or two of water of moderate temperature is the best thing that can be given, and ordinarily they should have it at once. So long as precautions are taken to have the chill off it will not hurt him in the least, but rather refresh and prepare him to enjoy his feed.

A variety of factors must unite in keeping horse flesh in good shape. Judgment in working, feeding and care—in a word, that rare quality called "common sense"—are the secrets in maintaining the teams in presentable shape and strong working condition. Someone has said: "It is not so much what you feed as how you feed it," common sense without oats being better than oats without sense.

Canada. J. H. McKENNEY.

BLUE GRASS FOR HOGS.

Blue grass has long been profitably used by the Missouri farmer for feeding cattle. It has not been generally recognized that it may also be utilized for pork production. At the Missouri Experiment Station during the five-year period from 1908 to 1912 the average amount of pork produced from an acre of blue grass amounted to \$26 when the live weight value of hogs was calculated at eight cents per pound.

In securing these returns from blue grass pasture, it is necessary to recognize two qualities which clearly distinguish blue grass from alfalfa, clover, and rape pasture. In the first place, a much larger amount of grain must be fed to hogs on blue grass than to hogs on rape, clover or alfalfa. Another difference lies in the fact that during the middle of the summer from about July 15 to August 30 blue grass is of little or no value for hog pasture. During this time clover, alfalfa, or rape pasture should be provided. The grain fed to hogs on blue grass pasture should be well balanced—a grain mixture of six parts of corn and one of linseed oil meal, or ten parts of corn and one part of tankage. A good rule to follow in determining the amount of grain to be fed is to feed just as much grain as will cause the animal to gain an average of three-fourths of a pound a day per 100 pounds live weight.

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Feeders' Problems

Value of Skim-Milk for Hogs.

I have a chance to purchase a large quantity of separated milk. What is the feed value of separated milk, compared with middlings, etc., for hog feed, and what is it worth per gallon? Luce Co. H. E. P.

Skim-milk and corn meal at the rate of one pound of corn meal with one to three pounds of skim-milk fed to pigs weighing 100 pounds or over, will on the average of a large number of trials give 327 pounds of skim-milk a feeding value equal to 100 pounds of grain. The nutritive ratio of one part corn meal to three parts of skim-milk is 1:5.2, which is rather too wide for small pigs just after weaning. For pigs of this age four to six parts of skim-milk to one part of corn meal will make a properly balanced ration. Middlings may be added to give variety to the ration in any quantity desired, this grain being a well-balanced ration in itself.

At present prices of grain, when the skim-milk is fed with corn in the proportions above advised, the milk will have a maximum value of about 45 cents per hundred weight, when the milk is credited with the total of increased gains promoted by its use in the ration.

In some trials made last year at the Iowa station, this value was reached when the milk was fed in connection with 70 cent corn, together with middlings at \$1.45 per hundred and 60 per cent tankage at \$2.50 per hundred. In fixing a value on skim-milk for commercial purposes, this price would not allow a fair profit on the feeding operation, the figures being evolved simply to show the farm value of skim-milk when utilized as a pig feed in combination with corn in the proportions above noted. Where a larger quantity of milk is fed in proportion to a given amount of corn, the value of the milk in the ration is considerably decreased.

LIVE STOCK REPORT.

A recent report issued by the U. S. Department of Agriculture shows that losses of live stock from disease and exposure during the past year were moderately smaller than the 10-year average of such losses, and the condition as to health and flesh of animals on April 1 was slightly better than average, according to estimates based upon reports of agents and reporters of the Bureau of Crop Estimates, U. S. Department of Agriculture.

The epidemic of hog cholera seems to be on the wane; for the total losses of hogs from disease last year is estimated at 6.6 per cent of the total supply, as compared with about 10 per cent a year ago, 11.9 per cent two years ago, 11.0 per cent three years ago, 8.9 per cent four years ago, 4.5 per cent five years ago, and 4.5 per cent six years ago. The development and decline of the epidemic may be observed from these figures. During the past year losses still amounted to or exceeded 10 per cent of the supply in Ohio, Indiana, Arkansas and Florida.

The condition as to health and flesh on April 1, 1916, and the average on April 1 of the past ten years, are relatively as follows: Horses and mules, 96.7 and 96.2; cattle, 96.0 and 95.0; sheep, 96.1 and 95.4; swine, 94.2 and 94.0.

The number of breeding sows in the United States is estimated to be about 1.6 per cent more than on April 1 last year. The increases are mostly in the southern states.

One important reason for smaller losses of live stock from exposure is the increasing practice on the ranges of feeding hay, generally alfalfa, to the sheep and cattle, when the winter is severe and grazing difficult. Stock is thus kept in better condition, and losses from exposure become less.

For the entire United States the losses of horses and mules from disease during the past year are estimated

as 1.75 per cent, compared with a ten-year average of 1.95 per cent of the supply; losses of cattle from disease, 1.96 per cent, compared with the ten-year average of 2.01 per cent; losses of cattle from exposure, 1.07 per cent, compared with the ten-year average of 1.56 per cent; losses of sheep from disease, 2.16 per cent, compared with the ten-year average of 2.48 per cent; losses of sheep from exposure, 2.17 per cent, compared with the ten-year average of 3.11 per cent; losses of lambs from disease and exposure, 5.22 per cent, compared with a five-year average of 5.99 per cent; losses of swine from disease, 6.63 per cent, compared with a ten-year average of 6.62 per cent.

SUMMER CARE OF HOGS.

The diet for our hogs in summer is grass, some slops and a little corn. This, with the worms and insects obtained on range, is amply sufficient to sustain a steady growth until the cool autumn weather sets in, when we begin feeding corn heavy enough to finish them for market or for home butchering by about the first of December. This process of taking hogs through the summer applies equally to hogs that have been wintered, or to spring pigs, except that pigs are fed a little heavier on account of their more rapid growth.

As to summer pasture for hogs, we have never tried any that were better than clover. Hogs are not very apt to root when there is plenty of pasture of any kind, yet we always put rings in their noses in order to be on the safe side. We allow them to have all the grass they will eat as early in the spring as possible. Hogs that have run of pasture all summer can be shut up in a pen and fed to advantage six weeks or two months, but no longer.

Summer is the time to make pork. Making it in winter is much like running a boat against the wind and tide. It requires too much food to keep up the supply of animal heat. If hogs have plenty of grass in summer, and a small amount of grain with it, they will fatten rapidly, and about three pounds of pork can be made with the same amount of grain in this way than one pound can be made in cold weather with the hog in a close pen. The grass is cooling and loosening, and counteracts the feverish properties of the grain.

Aside from the great value of grass in the care of hogs in summer, free access to pure water and good shade is also important. The hog delights in a cool damp locality, and is very sensitive to heat and cold, and suffers extremely from exposure to either. Any unusual exercise is baneful, and may even be fatal, to a hog that is very fat, on a hot day, if it has not free access to water.

A pig should never be allowed to stop growing. In fact, that rule holds good during its entire life. A poor, mangy pig is of no value. Close confinement to filth and dirt will check the growth, however generous the feed, but if starved at the same time, it will be a mercy to both pigs and owner to send them to the manure pile. Filth and dirt are in many cases a sure breeder of cholera.

Milk is a very cooling drink, and almost indispensable in raising young pigs. Cows and pigs go well together, and on farms where the milk is separated, the milk thus obtained can be turned to good advantage. We never feed corn or corn meal to pigs before they are at least three months old. Young pigs fed on this diet become costive, then they will scour. They will then rub against everything they come in contact with, and rub their hair off. A dry, black scurf will begin to form on them. Such pigs should be washed in warm rain water or sour milk, the latter being the best. If slops are fed, they should never be allowed to become stale.

Indiana.

K. K.

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CYPHER'S TRAPNEST strain of Single Comb White Leghorns. Eggs for hatching, 15, \$1.50; 30, \$3; 100, \$5; 500, \$23. Thos. H. Barnes, Creston, Ohio.

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Raising Late Hatched Chicks

DO not advise hatching chicks late if it can be avoided, but there are times when we have them and wish to rear them to the best advantage. Chicks are not nearly so easily grown in July as they are in May. The hot weather is as hard on them as it is on babies, and we all know how the babies suffer from the heat, especially in crowded communities, and too often chicks have the same crowded conditions to overcome.

Plenty of shade is absolutely necessary for summer if you have to make it temporarily by the use of boards or canvas. The ideal place is under the trees, or in a cornfield, provided the cornfield is not down in a hollow or otherwise located so the air does not circulate through it well. A good circulation is needed as well as good shade.

Cleanliness Essential in Summer Feeding.

Summer feeding must be given special attention, for feeds that are moistened are apt to sour quickly, for which reason they should be mixed fresh when used. Old feed left in the trough or on the feeding boards will cause disease, so everything of the kind should be kept away from them. Cleanse the troughs before using them at least once every day, and give them a good washing once a week with boiling water in which some disinfectant has been dissolved. Permanganate of potash is a good disinfectant for the purpose, using enough to make the water a deep purple.

While I do not advocate keeping the chicks to a dry ration all the time I would not use much wet mash in the hot weather. I keep a box of bran where they can scratch in it at all times, or in a feeder. If I use a feeder I use a growing mash containing some meat meal, alfalfa meal, and corn meal in addition to the bran, though at least one-third the mixture is bran. I aim to have about eight per cent of the entire ration by weight of meat meal in the mash. This eight per cent is of both the mash and the grain that I feed, not alone of the mash it is mixed with. By having this where they can get it handily whenever they come up to drink they will eat much more than if they just fed their regular feeds.

Use Good Feeds Only.

Avoid cheap chick feeds in summer, for so often they are made up of spoiled grains. Better pay a little more and get feed that is prepared by a reliable company especially for poultry, or take clean grains to the mill and have them ground for you. A good mixture would be one-third cracked corn, and then equal parts of as many of the following as you can provide; kaffir corn, wheat, buckwheat, and coarse cracked oats.

I always provided a box of crushed bone, regular poultry bone of the chick size, as it helps them to make bone, and they like it. If the soil is not sandy and gravelly better have some good grit also. Everything that helps to mature the chicks rapidly and keep them healthy is an advantage and a profit. Charcoal should be kept where they can pick at it, for it is especially valuable to keep the food sweet after it is in their digestive organs. Bacteria germinate so fast in the hot weather one can never take too many precautions.

The coops should be kept clean and thoroughly disinfected, as cleanliness is most essential in keeping the chicks healthy. A good coal tar disinfectant will do very well for spraying the coops and will also tend to keep the mites down. The roosts and other harboring places for mites should be frequently inspected for the presence of the mites. Special care should also be taken to see that the chicks keep themselves free from lice by dusting. If they do not a lice powder or blue

ointment should be used. Freedom from pests is essential in growing thrifty chicks.
L. H. COBB.

HANDLING YOUNG CHICKS.

Chicks need no food from two to three days after hatching. They should be kept warm. During the first week the temperature should not fall below 95 degrees and during the second week it should be held up to 90 degrees. When they crowd under the hover of the brooder it is a sign that they are cold. Fifty chicks is enough for one brooder. When too many are put together they sometimes pile on top of each other and some smother. When the chicks are 48 to 60 hours old feed them equal parts of bread crumbs and oat meal to which add a little chick grit. Feed four or five times a day and only what they will eat up in a few minutes. After the third day feed a good quality of chick feed. Sprinkle it in the litter which should be made up of a thin layer of short cut alfalfa or fine cut straw. A home-made chick feed can be made as follows: Cracked wheat, 25 pounds; fine screened cracked corn, 20 pounds; pinhead oat meal, 10 pounds; crushed peas, three pounds; millet seed, two pounds, and fine charcoal, three pounds.

After the first week begin giving beef scraps in small quantity. Feed sparingly at first, one ounce for 40 or 50 a day. Provide green food, sprouted oats are best. Mangels, green clover and lettuce are also good. When on open range the grass will answer. After the chicks are two weeks old a mixture of equal parts of wheat bran and beef scraps may be kept before them all the time. When four weeks old the following mash mixture can be fed in hopper: Equal parts of bran, corn meal, wheat middlings and rolled oats to which add 10 per cent of meat scraps. When the chicks are six weeks old ground oats may be used in place of the rolled oats. And when six weeks old the chicks' feed can be discontinued and equal parts of wheat and cracked corn fed in its place.

A FUNGUS DISEASE ATTACKING CHICKENS.

Will you tell us what causes little rings or circles to come on heads of chickens (feathers come off in a small circle there and later on back). Diarrhoea follows and they die. Can find no lice or other cause, and keep hen-house and roost well sprayed for lice. They are in good flesh and cannot understand cause of death. R. C. K.

A common cause of the formation of rings on the heads of chickens is a fungous disease called "favus."

This disease shows itself in concentric rings which have a cup-like formation. The scaly crust which forms often gets as much as one-third of an inch in thickness. The trouble proceeds from the head to the neck, then to the parts around the vent, and occasionally to the back of the chicken. When the disease attacks the feathered parts, the feathers become erect and brittle, and finally break off, leaving the cup-like crusty formation. The diseased bird always has a peculiar disagreeable odor, something like musty grain or mouldy cheese or fetid animal material.

At first the health of the bird does not appear to be affected, but as it becomes more serious, the bird loses its appetite and becomes exhausted and finally dies. The disease is a contagious one, and should therefore be given serious attention. All birds having the trouble should be isolated and if valuable they should be treated as follows: The crusts should be softened with warm water or oil and then scraped with the back of a knife or a spoon handle. The parts should then be painted with tincture of iodine and rubbed with salve made of equal parts of lard and sulphur.

Grange.

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

A WEEK AMONG THE GRANGES OF JACKSON COUNTY.

It was my privilege to spend a week among the Granges of Jackson county recently and the story of it may possibly be of interest to the readers of the Michigan Farmer.

They tell a story in that county, of a certain organizer who, after he had concluded an address at a meeting where he was endeavoring to build a new Grange, was asked: "How many Granges are there in Jackson county?" His reply was, "After we get this one and two more, we shall have three." This, however, is an old story, for the 1904 roster shows three Granges, and one of the old ones is not included. The next year it had been re-organized and things went on in this way until five or six years later, when Brother John Wilde entered the field and formed eleven new Granges.

It is unfortunate that only five of them appear on the roster of the present year. Doubtless two or three of them should not have been organized, owing to their nearness to Granges already in existence, but the greater part of them should have been saved, and might have been had someone been sent there to help them just a little at the right time.

The organizer is often blamed very strongly because he leaves his Granges before they understand the work, or have learned much about why they have been gotten together, or what are the conditions which they must comply with to achieve success. Among the patrons of Michigan have been discovered a few excellent organizers. It has been my privilege to know all of them quite intimately.

I have heard each of them criticised severely at different times but have not felt that they were to blame.

Everything can not be done for a Grange in the beginning. A Grange must learn its lessons as an individual learns his—little by little, day by day, assimilating them in the field of experience. I have taken space to say these things in a general way, because I am sure that very few of us realize the importance of following the average new Grange for the first few months of its experience, and rendering just that service that shall result in that Grange having a program of practical work, and following it out to the letter, or just as near it as is possible for human beings to do.

But to get back to the story of our visit to Jackson county, at North Helena Grange, Worthy Master St. John is demonstrating what can be done in a community by the right sort of Grange leadership. The officers are prompt and regular in attendance, and understand their work very well. The ritualistic work is well performed and the lecturer's hour is observed. Then, too, the attendance of the membership is very regular. Several new members have been initiated this year so far and there are a number more coming. North Helena Grange is in line for the distinction accorded to "Standard Granges," as are one or two more in the county.

Our next meeting was with Munith Grange. This is indeed a remarkable Grange, organized but a little while ago. It is adding members faster than any other Grange we know of. Five or six weeks ago, 18 candidates were received and two weeks before our meeting, 23 received the first and second degrees. These are to be given the third and fourth at next meeting.

(Continued next week).

Farmers' Clubs

CLUB DISCUSSIONS.

The Clover Leaf Club.—Gun Plains Farmers Club met at the pleasant rural home of Mr. and Mrs. Chas. Smith on Tuesday evening, April 25. There were about 56 members present, and everybody seemed in just the mood for a jolly time. It was decided hereafter to hold the meetings once a month, owing to the approach of summer. The Club was favored by a talk from Mr. Stratton, judge of Allegan juvenile court. He is much interested in the welfare of delinquents or unfortunate children who have ventured from their homes into paths which led to misery and crime. His one aim is to make good citizens of our boys and girls. He thinks foreign missionary work is splendid, but on the other hand, should begin at home in the way of helping poor orphans and children whose parents live in poverty, by taking unfortunate ones to their homes and educate and teach them to do honest labor. But much, he thinks, depends on the home environment and training. Also, there has been a law passed in this state where defective children who have eyesight, hearing, etc., are treated, the state bearing all expense where parents are unable to. His talk was very good and instructive. At the conclusion of the lecture all repaired to the dining-room where large tables were spread for a feast of maple sugar and biscuit. The tables were prettily decorated with bouquets of roses and carnations. The next meeting will be held at the home of Mr. and Mrs. Frank Barker, of Otsego, May 23.—Mrs. F. Myers, Cor. Sec.

Commonwealth Club, of Saginaw county, held their monthly meeting at the farm home of Mr. and Mrs. Jacob Botimers, April 20, whose beautiful home is always open for anything that is to help the community life. A number of visitors were present. The farmers of this community have adopted President Wilson's policy of watchful waiting for a chance to get their oats in, with the result that a few missed the address of James McBride, State Market Director, on the problems of marketing. He commented on the name of the Club, which is called "Commonwealth," and expressed the thought that the members should be congratulated in choosing a name so far reaching, which indicates the common weal and welfare of the people and so much to the community life. Mr. McBride gave a short history of the Grange movement, which was started by two employees of one of the government departments in Washington, D. C., in the year 1867 with 60 members and in five years had two million members. These pioneers started with the proclamation of union of the strong and faithful tie of agriculture, with a mutual resolve to labor for the good of the Order, the country and mankind, and endorsing the motto, "In essentials, unity; in non-essentials, liberty; in all things, charity." Mr. McBride further adds some of the European countries are far ahead of this country in systematic co-operation, also adds what the German government has done for rural communities. The program was conducted by Bert Maxwell, a farmer and member of the Club, who equals some of the best entertainers of the state. This was the statement of several outsiders visiting the Club when they heard his conversation. C. J. Stephens, of Vassar State Savings Bank, gave some good advice in his remarks and also read a paper of interest to the farmer and banker, his intentions are to give a talk in the neighborhood soon on "Corn clubs and the benefits therefrom." The True-blue class gave a song entitled, "My Little Girl." Rev. G. B. Marsh gave some incidents of his early pastorage in a rural community, and the beauties and advantages of organized effort. Rev. Gladwell, of Gilford U. B. Church, also gave a short talk, and Archie Lindsay gave one of his old-time songs. A letter from Congressman Crampton was read before the Club, relating to rural credits, upon which he asked the views of the Club members. A letter was read from R. J. Baldwin, extension director M. A. C., advising us of the acceptance of our application for a week's school in Union Church in January next. There were 38 signers and the school will be conducted by teachers from M. A. C., the subjects will be general agriculture and stock feeding. A number of questions were asked by Mr. Dowling and Mr. John Kirk, which caused a discussion. Our next monthly meeting will be held at the farm home of Ray Gardner May 18 in the evening. Ice cream will be served. The speakers will be announced later.



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—of grain was produced in Montana along the Great Northern Railway in 1915. Six years ago this same territory produced only Five Million bushels.

Big facts that make you realize that Montana leads the world in rapid development of farm lands. What is more, Montana leads in quality of grain produced—was awarded the Grand Prize on Exhibits of Grain over all the rival nations—over every other state—exhibiting at the San Francisco Panama-Pacific Exposition—winning a total of 513 medals.

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Then you will understand the wonderful tide of immigration to the Agricultural Treasure-State where every furrow is a pay streak for the profit-seeking crop-raiser. U. S. Land Commissioner, Washington, D. C. reports more than Twenty Nine Million acres Government and Indian lands in Montana disposed of to settlers in the past six years. During the past fiscal year, over Twenty Three Thousand original and final homestead filings have been made in that part of Montana reached by the Great Northern—a record absolutely unequalled by any state, in the operations of the General Land Office.

The homestead lands of agricultural value in Montana are going fast, but you have remarkable opportunity to purchase deeded land at very low prices. Come to the great, new, golden Montana country, Rich soil, favorable climate, convenient market and good prices for all you grow. Get the information—then decide for yourself. Send coupon today for

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Please send me free booklets and full information regarding money-making farms along the Great Northern Railway in Montana.

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Saving the Little Chicks

"Last year, I set my incubator the first of March, hatched 126 chicks and all but about 25 died with White Diarrhoea. I set the incubator again but I was almost discouraged. Then I read about Chictone so thought I would try again, but I did not have any faith in the medicine. I sent to The Wight Company, Dept. 256, Lamoni, Iowa, for a 50c package of Chictone and got it just two days before my second hatch came off. I used the medicine according to directions and to my surprise I never lost one of them. I raised over 600 chicks and I always talk Chictone to my neighbors, for I do know it is the best medicine I ever used and I have been trying to raise chickens all my life and am now 50 years old. Our druggist advertises it as the best chicken medicine on earth for White Diarrhoea." Mrs. Ben Hawley, Ravenwood, Mo.

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Special—200 Waxlined paper berry baskets postpaid for \$1.00 or 200 A grade Wood berry baskets postpaid for \$1.25 to any point within 150 miles of Lansing.

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Wanted Cheese and Butter Maker to organize a factory in our town that would be willing to finance part. Cows guaranteed. Address CHAS. F. GOODENOW, Berlin Mich.

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Four of them from 12 to 17 months old by 31 lb. sire dam's A.R.O. Price \$100.00 to \$150.00. Younger bull calves from \$50.00 up.
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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 1/4 % fat daughter of Pontiac Aggie Korndyke who has more 30 lb. daughters than any other living bull. If you do write for pedigree.
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Grandsons of Friend Hengerveld DeKol Butter Boy and Pontiac Aggie Korndyke. From high record A. R. O. dams at farmers' prices.

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Whose sires have as high as 31 lbs. of butter behind them. As they are young, will make a low price on them.
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100 Head of Registered Holsteins

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Our reference sires are a superior lot and include a son of Mabel Segis Korndyke, 40.32 lbs at 4 yrs. old and sons of cows with records from 29 to 35 lbs., from well known sires. A fine chance to get good young foundation stock. Remember the date. Catalogs, May 7th.

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The Wayne County Holstein Consignment Sale Company, of Belleville, Mich., will hold their first annual sale of Pure Bred Holstein-Friesian Cattle, on

MAY 16th, 1916, at Belleville, Mich.

This consignment of 85 head consists mostly of young cows, heifers, and heifer calves, of popular breeding. COL. D. L. PERRY, Columbus, Ohio, Auctioneer. J. FORREST LINDSAY, Romulus, Mich., Secretary.

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Special Offering of High Class Fall Boar Pigs. Breeding and Individuality good enough for breeders who appreciate the best.

Also some good farmer's boars. This is the best lot of fall pigs we have ever had to offer. A cordial invitation is extended to visit the farm and inspect the stock. If you wish one of the best young Jersey bulls in Michigan we have him for sale. For further particulars, address,

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Herd headed by grandson of King Segis Pontiac, and tuberculin tested annually. A few choice young bulls from dams having official records.
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For Sale: Big Holstein Bull 2 yr. old. Good breeding. Reg. bulls and heifers 10 mos. old.
Ferd. J. Lange, Sebewaing, Mich.

\$75 gets Hazel-let grandson of Maplecrest DeKol Parthena and Pontiac Maid 30.2 lb. Born March 26. Traces to De Kol 2d 17 times. Dam Pontiac Hesperia 2d, a Pontiac Korndyke, Pontiac Cornucopia and Pontiac Burke combination. M. L. McLaulin, Redford, Mich.

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By careful retention, for many years, of largest producing females, and use of superior sires, a breeding herd of wonderful quality has been established. We are selling young bulls of this "TOPNOTCH" quality, of serviceable age, at moderate prices. Information, pedigrees, etc., on application. McPHERSON FARMS CO., Howell, Michigan.

Buy Your Holstein Bulls When They Are Calves.

Here are seven to select from, all from A. R. O. cows; 3 of the dams are granddaughters of Pontiac Korndyke. The sire of two of these dams carry 75% the same breeding as the \$25000 bull Rag Apple Korndyke 8th. Write for description and prices. ITHLEA STOCK FARM, Herbert L. Smith, Prop., Ionia Co., Shiloh, Michigan.

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.

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REG. Holstein-Friesian cows and heifers, some fresh and some ready to freshen \$125. Reg. bulls \$30 up.
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REGISTERED Holstein Bull 6 months old. Two nearest dams average 28 lbs. of butter and 650 lbs. of milk in 7 days. Mostly white, good individual. \$100 delivered with all papers, safe arrival guaranteed. Write for pedigree and photo.
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Reg. Holstein Bull 5 mos. old. Dam made 546 lbs. milk, 18.46 lbs. butter 7 days. Nicely marked and well grown. E. R. Cornell, Howell, Mich.

YEARLING REGISTERED HOLSTEIN Bull ready for active service. Price \$100.00. Chas. S. Riley, Metamora, Mich. R. D. L.

Only \$40 Delivered: Holstein bull calf. Sire 25 lb. bull, Dam A. R. O. 17.62 lbs. butter. All papers.
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WANTED
Six good men to buy pure bred HOLSTEIN BULL CALVES. Good notes on a year's time accepted in payment.
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For Sale My entire herd of high grade Holstein Cows and Heifers. Also one Reg. 3-yr. old Percheron stud colt or will trade for Reg. Holstein cows. Arthur N. Birkholz, New Buffalo, Mich.

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Jersey Bulls for Sale from high-producing dams, with testing Assoc. records, also on semi-official test. O. B. Wehner, R. 6, Allegan, Mich.

Grade Jersey Herd For Sale
FORTY COWS

The result of twenty years careful breeding and selection, are now offered for sale. Individual milk records have always been kept and are open for inspection. If interested write for particulars and if possible visit and examine the herd and their record. Delivery will be made at any time desired during the spring or early summer. A few registered Jerseys also for sale. Address Geo. A. True, Armada, Mich.

The Wildwood Jersey Herd Majesty Breeding 40 head, tuberculin tested, herd now on R. of M. test. No females for sale. Choice young bulls for sale from Dams that are on test for Register of Merit. Write your wants or come and see them before buying.
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Hillside Farm Jerseys A 10 mos. old, solid color bull now offered for sale. Dam is a R. of M. cow with record of 546 lbs. of butter as a 3 yr. old. He is a fine individual. Price right. C. & O. Deake, Ypsilanti, Mich.

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Maple Lane R. of M. JERSEY HERD offers for sale, tuberculin tested cows, heifers, bulls, and bull calves backed by several generations of R. of M. breeding. IRVIN FOX, Allegan, Michigan.

JERSEY BULL CALF FOR SALE
Ready for service. Majesty—Raleigh breeding. Meadowland Farm, Waterman & Waterman, Ann Arbor, Mich.

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For "Beef and Milk" Registered bulls, Scotch-topped roans, reds and whites for sale. Farm at N.Y.C. Depot; also D. T. & I. R. Y.
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DAIRY Bred Shorthorns of best Bates strains. No more females for sale at any price.
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Shorthorn Cattle. Five cows, Ten heifers. Five bull calves; also herd bull for sale.
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2 Loads feeders and two load yearling steers. Also 2 cows show you any number 1, 2 and 3 years old from 600 to 1200 lbs. Isaac Shanstun, Fairfield, Iowa. R-8

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Sows bred for August and September farrow. Send for sale list of fall boars. W. A. and R. E. Freehoff, Waukesha, Wis.

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Stock for sale at all times. Berkshires of unsurpassed quality and breeding, at reasonable prices. A choice bull calf, nicely marked, five months old, sire's dam with record of over 27 pounds. Dam of calf a grand daughter of Hengerveld De Kol. Price \$50.00.

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Chester Whites Spring pigs from the best blood lines for sale. Pairs not akin.
F. W. ALEXANDER, Vassar, Mich.

Boars for Sale One yearling; two 10 mos; two 6 mos; first class specimens.
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DUROC JERSEY BOARS A choice lot of spring boars Fall pigs, pairs and trios 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.

DUROC JERSEY Bred sows and gilts all sold. Booking orders for spring pigs. E. D. Heydenberk, Wayland, Mich.

DUROC JERSEYS—Fall boars of the large heavy boned type. Sired by Champion winners. Open gilts ready for breeding. Holstein bull calf, a fine individual. 3 months old, nicely marked. F. J. Drott, Monroe, R. 1, Mich.

DUROC Jerseys—Fancy fall pigs (either sex). Buff Rock eggs \$1.25 per lb; S. O. W. Leghorn eggs \$1 per lb. John McNicoll, R. 4, Station A, Bay City, Mich.

Duroc Jersey—Sept. boars ready for service also open gilts and some sows bred for Aug. and Sept. E. H. MORRIS, MONROE, MICH.

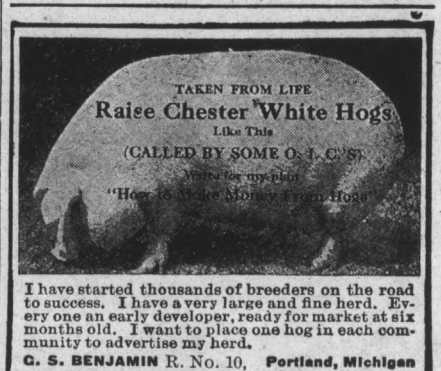
Duroc Jerseys Two good fall gilts, also two fall boars. Will book orders for spring pigs. Wm. W. Kennedy, R. 8, Grass Lake, Mich.

DUROC JERSEYS—A few bred gilts for sale. Carey U. Edmonds, Hastings, Michigan.

Duroc Jerseys I have some good last September Boars and gilts. Gilts will be bred for September farrow.
H. G. Keesler, R. No. 5, Cassopolis, Michigan

DOBSON'S DUROCS Combine size, quality, breeding. Boars for sale. Pigs at weaning time. Registered Jersey bull. Orlo L. Dobson, Quincy, Mich.

Heavy Boned Durocs For Sale, Bred Sows, Service Boars and Spring Pigs. M. A. Bray, Okemos, (Ingham Co.) Mich.



TAKEN FROM LIFE
Raice Chester White Hogs
Like This
(CALLED BY SOME O. I. C.'S)
Write for my plan
'How to Raise the Money from Hogs'

I have started thousands of breeders on the road to success. I have a very large and fine herd. Every one an early developer, ready for market at six months old. I want to place one hog in each community to advertise my herd.
C. S. BENJAMIN R. No. 10, Portland, Michigan

O. I. C. BRED GILTS, Also young boars shipped O. I. C.
J. CARL JEWETT, Mason, Mich.



Registered O. I. C. Swine
Stock For Sale—All Ages
Correspondence Solicited, Visitors Always Welcome

Brightside Farm
Grand Lodge, Mich.

O. I. C. SPRING BOARS of good type and Red Polled bull calves.
John Berner and Son, Grand Lodge, Mich.

O. I. C. Choice serviceable boars. Choice gilts all sold. Fall pigs, either sex, not akin. Write for low prices and description. A. V. HATT, Grass Lake, Mich.

O. I. C. Swine—A nice lot of spring pigs. Write your wants. Meadow View Stock Farm, Holland, Michigan. R. R. No. 5.

O. I. C. October boars weighing 200 lbs. at \$25 each for April shipment.
C. J. THOMPSON, Rockford, Michigan.

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. Boars for service. June farrow. I prepay express. G. P. ANDREWS, Dansville, Mich.

O. I. C. Serviceable boars, gilts bred for June farrow. Booking orders for Spring pigs, no akin.
H. W. MANN, Dansville, Michigan.

BIG TYPE O. I. C.'s and Chester Whites. Special prices on all boars and fall pigs either sex. These are sired by Abio 2nd, this boar sired our unbeaten breeders young herd at every state fair we showed this year, other sires are Wonder Boy, White Hall and Allen. This boar was junior champion at Wis. State Fair last year. Now Mr. Buyer our pigs are all sired from champions, our price is no higher than other breeders and the Express Co. charges just the same for a poor pig as it does for a good one. Get our catalog and see where the good ones are. We are booking for Spring pigs sired by Sch oolmaster, the highest priced boar of the breed and five times G. Champion. We Reg. Free and ship C. O. D. Rolling View Stock Farms, Cass City, Mich.

O. I. C. Swine. I am booking orders for Spring pigs, One yr. old Holstein bull for sale.
Elmer E. Smith, Redford, Mich.

O. I. C. bred gilts all sold, am offering Sept. boars and gilts, large growthy ones, and booking orders for spring pigs. A. J. Barker, R. 1, Belmont, Mich.

O. I. C.'s. A few bred sows to farrow in April, May and June. I have 20 last fall boars to offer, also gilts. Have them not akin. All good stock.
Otto B. Schulze, Nashville, Mich. 1/2 mile west of depot.

O. I. C. SWINE I am offering choice gilts strictly O. I. C. type bred to farrow the forepart of May—also fall pigs price right. Stock registered in pur. chaser's name free of charge. A. J. Gordon, R. 2, Dor, Mich.

O. I. C. SWINE, Oct. boars and gilts. 3 Registered Holstein Bulls sired by 27 lb. bull.
Cloverleaf Stock Farm, Monroe, Mich. No. 1.

O. I. C.'s Some 2-year-old sows bred. Fall pigs, either sex.
A. R. GRAHAM, Flint, Michigan.

O. I. C. Spring pigs, both sex, \$10.00 each at weaning time. Booking orders now. Recorded free. Satisfaction guaranteed. Julian P. Claxton, Flint, Mich. R. 8.

O. I. C.'s Strictly Big Type
Four last September boars, large enough for service, right good ones. One 1914 Sept. sow raised nine pigs last fall. Due to farrow May, 10th. Will sell cheap if taken soon.
NEWMAN'S STOCK FARM, Marlette, Mich., R. F. D. 1.

O. I. C. September pigs, both sex. Bred E. B. MILETT, Fowlerville, Michigan.

Boars at Half Price
We still have a few big boned, big type Poland China boars ready for service, weighing up to 250 lbs. not fat at \$20 & \$25 each. Registered in buyer's name. Also registered black Percheron Stallion 2 years old \$250.00.
J. C. BUTLER, Portland, Mich., Bell Phone.

Big Type Poland China Pairs and trio not akin out of large litters.
G. W. HOLTEN, Route 11, Kalamazoo, Michigan.

Big Type Poland Chinas—Boars of August farrow, booking orders for spring pigs.
A. A. WOOD & SON, Saline, Michigan.

Breeders' Directory—Continued on page 623.

HOLSTEIN Auction Sale

The Espanore Herd
68--PURE BRED HOLSTEINS--68
Tuesday, May 9, 1916
Lansing, Mich.

A choice herd, containing many A. R. O. cows with records up to 28 lbs. in 7 days. Herd sire, Pledge Spofford Calamity Paul, who has three daughters with 7-day butter records of 30, 32 and 35 lbs each.

Everything over 6 months of age tuberculin tested.

Every animal sold under an absolute guaranty as to health and breeding powers

AUCTIONEERS:--Cols. Perry and Allen.

A Safe Sale to Patronize, Under Responsible Auspices.

For Illustrated Catalog, address

E. M. HASTINGS CO.,
Sale Managers
Lacona, N. Y. and Madison, Wis.

HOGS

MY, OH MY!

What an Opportunity

Starting May 1st, we are going to give to the farmers and breeders an opportunity to get started right in the breeding industry. We are going to give you a chance to get hold of foundation stock that will give you a nucleus for one of the finest and best herds in your community. We are going to show you, as we have others, that you will have greater success with our big type

POLAND CHINAS

than with any other breed. Write for spring pictures. **Hillcrest Farm, Kalamazoo, Mich.**

Large Strain P. C. 4 choice boars ready for service. Some nice fall pigs. A few bred gilts left, some the last of April and first of May. At Farmers Prices. **H. O. SWARTZ, Schoolcraft, Michigan.**

Large Type P. C. Gilts and sows. Bred for Mar. and April farrow. Sired by Big Des Moines, Big Knox Jr., and Giant Defender. Bred to Big Knox Jr. Smooth Wonder 3 and Big Jumbo, four great boars in state. Come or write. **W. E. Livingston, Farms, Mich.**

For Sale Poland Chinas either sex, all ages. Something good at a low price. **P. D. Long, R. F. D. No. 8, Grand Rapids, Mich.**

Heavy Bred Poland Chinas. Fall and Summer Pigs. Sows Bred. Eggs from big Barred Rocks \$1.00 for 15. **ROBERT NEVE, Pierson, Michigan.**

REGISTERED Poland China Spring Boars and Sows. Rat \$15 each. Making this special price to make room for others. **A. G. Meade, Stanton, Mich., Colby's Ranch.**

Large Type P. C. Sows & Gilts all sold. Have 3 extra good spring boars. Sired by Big Defender. **W. J. HAGELSHAW, Augusta, Michigan.**

Big Bone Poland China Brood Sows, bred for spring farrow. Few choice males ready for service. Also M. B. Turkeys. **Maplewood Stock Farm, Allegan, Mich.**

BIG TYPE POLAND CHINAS—bred sows and gilts. All sold. Have several good spring boars and fall pigs. Both sex. Call or write. **W. BREWSTER & SONS, Elsie, Michigan.**

Large Yorkshire Swine all ages. Red Poll Bulls ready to use \$75 each. **E. S. CARR, HOMER, MICHIGAN.**

Large Yorkshires August and September pigs. 2 spring boars. Prices reasonable. **W. C. COOK, Route No. 1, ADA, MICHIGAN.**

GROWTHY THE DISEASE PROFITABLE "MULEFOOT" RESIST- HOG ING
WE ARE NOW BOOKING ORDERS FOR SPRING PIGS
THE CAHILL FARMS
KALAMAZOO MICHIGAN

Hampshire Swine, the great pasture hog. My herd contains the blood of some of the greatest champions of the breed. Headed by a son of the Great "Look Out." Bred sows and boars all sold. Booking orders for spring pigs. Can supply pairs and trios, notakin. **Geo. E. Starr, Grass Lake, Mich.**

Hampshire Swine, Pigs of both sex. Bred Sows Service boars. Write for prices. Price to sell. **FLOYD MYERS, R. No. 3, Decatur, Ind.**

Yearling Boars \$25.00 each for quick sale. Booking orders for spring pigs. **John W. Snyder, R. 4, St. Johns, Mich.**

SHEEP.

Kope Kon Farms

SHROPSHIRE and DUROCS. KINDERHOOK, MICH

Oxford Down Sheep, Good yearling field Rams and ewes of all ages for sale. **M. F. GANLEY, Landon, Michigan.**

Leicesters—Yearling and ram lambs from Champion flock of Thumb of Mich. Also select Berkshire swine. **Elmhurst Stock Farm, Almont, Mich.**

HORSES

Registered Percherons

Brood mares, fillies and young stallions priced to sell. Inspection invited. **L. C. HUNT, Eaton Rapids, Michigan**

Veterinary.

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

Barren Cow—Warts on Teats.—I have a cow nine years old that comes in heat every three weeks, is bred regularly, but fails to get with calf. If I apply vinegar to remove warts from cow's teat, will it have any bad effect on her milk? **G. D. S., Remus, Mich.**—Dissolve 2 ozs. of bicarbonate of soda in three pints of clean tepid water and inject her when she comes in heat, and breed her three or four hours later. Applying vinegar to warts will not affect the milk in cow's udder. The applications should be made when the udder is empty, but all long warts should be clipped off.

Calf Has Poor Appetite.—I have a calf four weeks old that has a poor appetite for milk and is not thriving. **R. H. Lawn, Mich.**—Give your calf three tablespoonfuls of castor oil to clean out bowels, then give 15 drs. of tincture gentian (comp.), and 20 drops of tincture cinchona (comp.), and 15 grs. of bicarbonate of soda three times a day.

Rheumatism.—I have a lamb six weeks old that is stiff and rheumatic. This trouble I believe to be the result of exposure to too much wet weather; also, one of the knees is swollen, but I do not believe the bunch contains pus. **Mrs. C. W. B., Sauble, Mich.**—Your lamb may suffer from bacterial navel infection. Apply to knee joint tincture of iodine three times a week. Also give ½ gr. of sodium salicylate at a dose two or three times a day.

Grub in the Head.—Can you tell me what to do for my sheep that suffer from grub in the head, which is causing the death of some good young ewes? **J. B. H., Charlotte, Mich.**—Blow some Scotch snuff into nostrils to induce sneezing; also, place your sheep in a warm comfortable place and if this mild treatment does not help them, trephine through bone of face and head and wash out grub with tepid boric acid solution.

Sore Mouth.—I have a flock of Rhode Island Red Hens and some of them have spots on their tongue which appear like small ulcers. What had I better apply? **E. D. W., Ovid, Mich.**—Dissolve 1 oz. borax in a pint of water, wash out mouth twice a day, but the first treatment should consist in touching these little sores with either tincture of iodine or a strong solution of permanganate of potash and water.

Shoulder Lameness.—I have a mare that is very lame in shoulder; besides, the muscles are sweeneyed. **C. E. M., Tuscola Co., Mich.**—Apply equal parts tincture cantharides, turpentine, aqua ammonia and raw linseed oil to the shoulder two or three times a week. She should be rested and well fed.

Mechanical Lameness.—I have mare 11 years old which had a ringbone appear on right fore pastern a year ago which our Vet. killed, but he said she had another on left leg which I blistered three times. She has also bumped her knees on manger and is very stiff in both fore legs. Our Vet. tells me that she is incurable. **W. C. B., Owosso, Mich.**—Your mare doubtless suffers from low down ringbone which stiffens the lower joint of both fore legs and is incurable. Paint swollen knees with tincture iodine three times a week.

Hip Lameness.—I have a four-year-old colt that went lame last December and our local Vet at first thought it might be a spavin developing, but later believes it to be hip lameness. I have given the horse a long rest and occasionally applied a blister. **A. S. H., Ayoca, Mich.**—I would suggest that you blister hip twice a month and give horse a rest.

Chronic Bone Spavin Lameness.—I have a large mare that is bothered with a sort of weakness in hock joint and when she walks her feet fly up very close to body. **E. B. O., Summit City, Mich.**—Doubtless your mare suffers from stringhalt and a surgical operation would be the only remedy, but it is doubtful about this being successful. She will show it less in the hot weather.

Barren Cow.—I have a cow that aborted some six months ago; have treated her and failed to notice any discharge for about two months, but she fails to get with calf. **E. B., Farmington, Mich.**—If she continues to come in heat regularly breed her and she may perhaps get with calf.

Cow Fails to Come in Heat.—I have a cow that fails to come in heat, but there is a remote chance of her having been accidentally bred. **G. S. L., Oak Grove, Mich.**—Give her ½ dr. of ground nux vomica, 1 dr. of powdered capsicum and a teaspoonful of ground ginger at a dose in feed twice a day and if she comes in heat you will know

that she is not with calf; furthermore, if she is pregnant this treatment will not do her any harm.

Weakness—Bunch on Hock.—I have a calf three weeks old that has poor use of hind quarters; besides, she has been troubled with a sore mouth. **H. B. M., Morgan, Mich.**—Your calf needs plenty of good milk, and rub back with alcohol twice a day. Apply one part coal tar disinfectant and 20 parts of water to scurvy portions of skin once a day. Apply tincture of iodine to bunches on horse's leg three times a week.

Atrophy of Udder.—I have a Jersey heifer two years old that came fresh January 7, giving 18 pounds of milk daily for two and a half months, a very even flow from all quarters; then I noticed that one forward quarter began to fail in quantity of milk and now the quarter is much smaller than the opposite quarter and she gives very little milk from this portion of udder. But, the quarter is free from bunches. Can anything be done to bring the milk back to this quarter? **A. E. S., Otsego, Mich.**—Hand-rubbing and proper feeding is all that can be done.

Warts.—I have a heifer with warts about the size of hickory nuts and she also has one dry quarter which I would like to know if it will be all right when she again freshens? **E. J. S., Woodland, Mich.**—Cut off warts and apply tincture of iodine occasionally. No person can tell without making a careful examination of the quarter whether it will remain functionless or not.

Shoulder Lameness.—I have a mare that is very lame in shoulder, besides, the muscles are sweeneyed. **C. E. M., Tuscola Co., Mich.**—Apply equal parts tincture cantharides, turpentine, aqua ammonia and raw linseed oil to shoulder two or three times a week. She should be rested and well fed.

Chorea—Azoturia.—I have a mare that had an attack of azoturia about a month ago and it left her with paralysis of the cheek and one hind leg. Her mouth is some better but she has not much use of her hind leg. The hip and thigh is pretty badly sweeneyed. **L. W., Stanwood, Mich.**—Rup lip with alcohol twice a day. Apply equal parts of turpentine, aqua ammonia and olive oil to sweeneyed thigh and hip every two days, but before treating her, clip hair off sweeneyed parts. Give her 1 dr. ground nux vomica and ½ oz. ground gentian at a dose in feed two or three times a day.

Indigestion—Ovarian Irritation.—I have a seven-year-old cow that came fresh January 7, at which time she gave 14 quarts of milk daily for about a month; now she is only giving two quarts a day. This same cow has been constantly in heat for five weeks. **J. S., Yale, Mich.**—If good care, proper feeding and breeding your cow will not help her, drugs will not. Let more fresh air into your stable nights and keep your barn clean and your colt will cease to cough.

Dog Eats Eggs.—We have a fine Collie dog about one year old that has contracted the habit of egg eating and we are at a loss to know what to do with him. **F. De C., Sullivan, Mich.**—Either put him to sleep or sell him to a person who has no poultry.

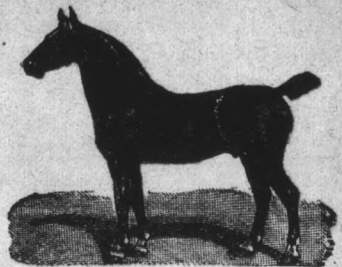
Luxation of Stifle.—I have a two-year-old colt that is all right most of the time, but has trouble in starting to walk, and while walking, occasionally, one of the hind legs is affected, but soon seems to get right. This trouble shows most in the morning before colt is exercised. **J. S., Buckley, Mich.**—Apply equal parts tincture cantharides, aqua ammonia, turpentine and raw linseed oil to stifle joints two or three times a week and the colt will get all right.

Roarer.—I have a three-year-old mare that blows a good deal when exerted, but has a good appetite and does not appear to be sick. Is peach butter a proper remedy for heaves? **H. F. S., Danville, Mich.**—Rub her throat with camphorated oil twice a day and avoid feeding her too much bulky food. Peach butter will neither do a broken-winded horse any good, or any harm.

Indigestion—Nasal Catarrh—Spayed Collie.—I have a four-year-old gelding that has been coughing and discharging at nose for some six weeks that is not thriving. I also have several other horses that have a slight discharge from nose and occasionally coughs. I also have a spayed Collie eight years old that can hardly get around and is inclined to lie down most of the time. **J. S., Rives Junction, Mich.**—Give ½ oz. bicarbonate soda, ½ oz. of ground gentian at a dose in feed three times a day to your four-year-old horse. Also mix together one part powdered sulphate iron, one part salt, two parts ginger and four parts ground gentian and give each of your other horses a dessertspoonful at a dose two or three times a day. Give your spayed Collie 10 drops of tincture nux vomica and 10 drops of Fowler's solution at a dose three times a day.

Warranted to Give Satisfaction.

Gombault's Caustic Balsam



Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for Curb, Splint, Sweeney, Capped Hock, Strained Tendons, Founder, Wind, Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

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DEATH TO HEAVES

NEWTON'S Heave, Cough, Distemper and Indigestion Cure.

Some cases cured by 1st or 2nd \$1 can. Three cans are guaranteed to cure heaves or money refunded.



The original and the up-to-date Standard Veterinary Remedy for Heaves; free booklet explains fully. 34 years sale and veterinary use.

CURES HEAVES BY CORRECTING CAUSE—INDIGESTION. IT'S A GRAND CONDITIONER AND WORM EXPELLER

Safe. Most economical. Excellent for Cattle and Hogs. \$1.00 per can at dealers, at same price by parcel post. **THE NEWTON REMEDY CO., Toledo, Ohio**



60 HEAD OF STALLIONS FOR SALE

PERCHERONS, CLYDESDALES and HACKNEYS

Also 20 head of Choice Hackney mares with foal.

Gentlemen I got on my selling clothes.

Write for prices.

JOHN CRAWFORD

Colby Ranch, Stanton, Mich.

Valuable Percheron Stallions & Mares

Must be Sold to Close Estate

A. A. PALMER ESTATE,

R. R. Orleans, Mich P. O. Belding, Mich

Percherons, Holsteins, Angus, Shropshires, Durocs
DORR D. BUELL, Elmira, Michigan.

FOR SALE—Registered Percheron Stallion Mare and Fillies at reasonable prices. Inspection invited. **F. L. KING & SON, Charlotte, Mich.**

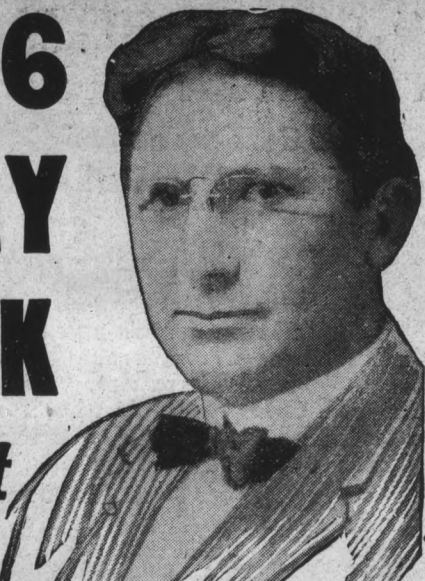
For Sale: Registered Percheron Stud colt folded in June 1915. **E. J. Aldrich, Tekonsha, Mich., R. No. 1, Bell Phone.**

Grey Registered Percheron Stallion sold. Have the best one yet. \$400 takes him. **T. H. LOVE, R. 3, Howell, Michigan.**

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Just write me a postcard with your name and address and I'll send you my big new 1916 Buggy Book—the greatest vehicle catalog ever printed. Shows 150 stunning new styles and explains my special price-splitting, money-saving offer to 1916 Buggy buyers. Write the postal today.

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My new Catalog offers you the greatest assortment of high grade buggies ever put out by any factory. It is a big book (7½ x 12½ inches) handsomely printed on fine paper, profusely illustrated and richly colored. Tells how well every part of my famous SPLIT HICKORY BUGGIES are made—shows more styles and bigger bargains than you will find in 20 stores. A penny postal brings this wonderful display right to your own door. No matter when you expect to buy send for my book now, I want you to have a copy of this big book right away. It will make you a better judge of buggies and buggy values. It will convince you that Phelps will not only sell you a better buggy—a genuine Split Hickory—but that I can and will save you \$20 to \$40 by my direct from factory, special price-splitting offers for 1916. Write for this big, free book today.

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Vehicles are famous the world over for beauty of style, excellence of workmanship, light running, easy riding and long service. Nearly a quarter of a million of them are now rolling over the roads. Everybody knows that the name "SPLIT HICKORY" on a buggy is a mark of the highest quality. For 16 years I have been putting into these vehicles the finest materials and the most expert workmanship I could find. I have made "Split Hickory" a name which my customers are proud to show. My new 1916 selling plan cuts prices more than ever. Gives unequalled bargains in 150 new styles. Saves you \$20 to \$40 on your new rig. My free catalog tells how it is possible to sell you a genuine Split Hickory this year as low as only \$39.25; And remember that on every Split Hickory I give—

30 Days Free Road Test and 2-year Guarantee

You take no chances. I let you pick out the rig you want and drive it 30 days over your own roads—under your own conditions—before you decide. I prove the quality. I prove the value. You test the rig for comfort, light running, style and workmanship from top to tires at my risk. Be sure to write for my big free 1916 Buggy Book before you buy. A postal will bring it free, postpaid. Send today. See for yourself the money you can save, Address

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