

# MICHIGAN FARMER

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## Simplified Farming Is Good Business

A CERTAIN man of very wide reputation is a strong advocate of simplified spelling. While our system of spelling could no doubt be made more simple and useful, the system of farming handed down to us by the pioneer and in general use—the so-called general farming—is far more in need of simplification.

When the means of transportation were crude this system was the proper one. It then behooved every farmer's family to be just as near an independent, self-sufficient unit as it could possibly be. But times have changed. Means of transportation have improved to such an extent that it has made possible the employment of the principle of the division of labor on the farm as well as elsewhere. In carlots, hay, potatoes, etc., can be shipped to Pittsburg, Pennsylvania, and even to points farther east, for less than it would cost to team them from Owosso to Lansing or Saginaw. This shows how much cheaper transportation companies can serve the farmer in their line than he can serve himself.

The farmer has been slow to avail himself of the advantages of this principle of the division of labor. In the opinion of the writer this has caused the business of farming to lag behind other pursuits. A business is judged by the type of homes those engaged in that business occupy. The country home should have comforts and refinements. Where the farmer is attempting many lines there are always so many calls for more tools, high priced stock animals, more barns, more land, etc., that both the time and money of the farmer are exhausted before he gets around to the home. With a more simple system he has more time, also more money to invest in his home, than which there is no better place for an investment.

### Essentials of Success.

There is an impression current that the successful money-making farmer must combine the staying qualities of the dog with the strength of the horse, and that his wife must be a kind of an Amazon in order to stand the strain. On the properly organized farm the former is entirely unnecessary and, where the thought and attention to which its importance entitles it has been given the home, there is no reason why a woman with average strength should not be able to look after the duties of her household and have time left for reading, recreation, etc. In developing a proper rural life, and when we say "life" we mean more than a mere living, two things are essential. These are at least a fair degree of prosperity from a financial standpoint and a reasonable amount of time away from the regular routine of business.

### "Overhead" Economy.

The idea of taking a kind of a half-hearted whack at a large number of different lines is not what will contribute to an easy financial condition. Competition is severe in all lines, and if we get our wires crossed just a lit-

tle the "velvet" is all gone. Hardly a crop is raised on the farm but what the attention to some little detail is very apt to make the difference between a substantial profit, no profit at all, or possibly an actual loss. It costs money and it takes time to look after these details. These are to a large extent, what the manufacturer calls "overhead expenses;" that is, it increases them very little when the area devoted to the crop is increased very much. Also, when a large area is devoted to a crop more care will be given, not only to the details but to the care of the crop from start to finish. The writer once talked with a farmer who had fourteen separate and dis-

who does not specialize in dairying should keep one or two cows for family use. Everyone should have a good garden, small fruit enough for family use and a small flock of chickens. The specialist can raise these things cheaper than can the farmer who is not specializing along these lines, but if the farmer does not raise them he is very apt not to have them, and the farmer is entitled to live the best of anyone. With but a few lines attempted and these on a liberal scale, the farmer not only has time to look after the details of growing the crop but he will take more interest in the marketing of his product. He will have a product of high quality and enough of

that they should. Too much of a grind, too few of the comforts and refinements and not enough sociability to satisfy the normal nature.

To develop country communities socially every person in that community should take the time necessary to attend to community affairs. The country church, the grange, the club, the institutes are all worth attending, and not only attending but supporting in every way. There should be a social center and the entire community should pull together, one for all, all for each, as many as possible in the same line, for better things.

### Cause, Effect, Remedy and Result.

The conclusion is that the business of farming is hampered by the attempt to do too many different things, which results in inadequate financial returns, a tired body and a sluggish brain. The remedy—a very few lines attempted, these on a liberal scale, thoroughly well done in the most up-to-date manner from start to finish. The result—more money to do with and to invest in home, travel, etc., and more time for the home enjoyment and for assisting in the building up of the community. With proper environment and properly managed the farm furnishes the best place to be born, the best place to live one's active life, and the best place to grow old gracefully that the world offers.

Shiawassee Co.

A. B. Cook.



Wheat on this Lenawee County Farm has not Yielded Less than Twenty-eight Bushels per acre for Seventeen Years.

inct sources of income, and the total cash income of his farm was less than \$1,000. Needless to say this is not economy in over-head expenses. It involves too many steps running from one job to another, too many details that should be looked after but are probably neglected.

### Specialties vs. Diversity.

We would not mix up with any crop or any class of live stock which, with the results which our experience tells us we can depend on with reasonable certainty as to production and prices, would not yield us at least \$500. To this general rule I would make a few exceptions, all concerning the farmer's living. For instance, the man

it so that he can avail himself of carload rates and will succeed in getting a much larger per cent of the consumer's dollar than is ordinarily the case.

### Neighborhood Duties.

"Too busy," is the excuse given by many farmers for neglecting to attend church, grange, farmers' club, the school occasionally, as well as institutes, etc. The farmer who says this is either mistaken or he should reorganize his business. The business of farming demands that we develop our neighborhoods. The reason that both old and young leave the farm so readily is that the life, home and the neighborhood have not gained the place in the heart of the individual

### FARM LIFE IS WHAT WE MAKE IT.

Occasionally we hear the remark: "Life on the farm is a continual drudge." Those who take no pleasure in their work, considering it only as a means of support, and just barely make the farm self-supporting, to them it is perhaps a drudge. City folks look upon the farmer with envy; they crave the close communion with nature that the farmer enjoys, yet many a farmer slaves along in life, missing the good things all about him.

"Life is just what you make it." In that brief sentence is tucked a world of philosophy. The man who goes about his daily task smiling at the obstacles that he will have to overcome; the woman who goes joyously singing about the kitchen, planning her work to a certain end; the boys and girls shouldering responsibilities, knowing that they shall share in the pleasure and profit of the farm—all these have definite aims. The result may fall short of their anticipations, but they have greater hope in the next attempt. In the face of reverses it is often hard to laugh with the world, but there is food for thought in the fact that the whole spirit to do was in the work.

Any sort of labor may be made a drudge. A man recently said: "I hate threshing time; it seems the longest and hardest work of the year." While another remarked: "We push our threshing and get it over in a hurry; it's work, but look at the bins of gold."

(Continued on Page 120)



Concrete, Spring Fed Drinking Fountain Erected at Roadside by William Schultz, of Ottawa County.

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DETROIT, AUGUST 14, 1915

## CURRENT COMMENT

Our leading article for this week deals with phases of one of the special topics announced for discussion in the Michigan Farmer during the current year in a manner which should engage the attention of every thoughtful farmer. The production of any kind of cash product on the farm, in the most economical manner, involves considerable special equipment and not a little study, investigation and experiment for the achievement of maximum results; consequently the position that these operations should be conducted on as large a scale as seems practical is well taken.

A still stronger argument for this method of conducting the farm is that when one specializes along any given line, he will make a more thorough study of the possibilities of that line of production and will, as a matter of course, give greater attention to the essential details, and will more nearly approach maximum production than would be the case if the product were one of less relative importance in his scheme of farm operation. A cursory study of crop statistics should impress the reader with the great importance of this point. When one compares the average yield of the various crops grown on Michigan farms with the yields secured by those who have specialized along any one of these lines, whether it be a progressive farmer who applies scientific principles to the production, whether it be a practical farmer whose experience and observation has led to the adoption of similar methods, or whether it be a member of a boys' club who is striving to win a contest, this interested kind of work always shows in the results.

If a majority of the farmers in the state could get into the class who strive for maximum results along special lines of production, the agricultural importance of Michigan would be a matter of common remark throughout the country. A good example of this fact is to be found in any section where a single crop is given prominence above all others as a matter of providing a cash income to the farmers of the community. Aroostook county, Maine, produces about twice the average crop of potatoes that is produced in Michigan. True, natural conditions may be somewhat superior as compared to the whole state of Michigan, yet there are farmers in practically every county in Michigan who grow potatoes so successfully that for a series of years they approximate or exceed the average for Maine in the matter of yield per acre.

Other examples might be cited almost indefinitely, but when one considers the fact that the farmers of Michigan are now prosperous with the growing of present average yields of staple crops on their farms, the possibilities of prosperity provided that maximum yields were more nearly approached, are stupendous. There is no question but that the great loss entailed by the growing of minimum crops could be largely eliminated if the farming business were simplified and conducted on better business principles. If the farmer whose crop yields are only up to present low averages would study his conditions, determine the cause of that handicap and remove it, he would not only be adding materially to his own prosperity, but as well to the betterment of the agriculture of his community and state.

The many object lessons which present themselves to each and every one of us, if we will but place ourselves in a position to be benefited by them, will convince the most skeptical of the possibilities along this line. It but remains to apply ourselves to the task in hand to materially increase the income from the farm without a corresponding increase in the overhead expenses or cost of operation.

It is difficult for some people to realize that the average farm problem is an individual problem to the farmer who is confronted with its solution. While general experience is in the main a safe guide and a valuable aid in the solution of individual farm problems, yet it is not always applicable to the case in hand and it requires a painstaking analysis of the situation to get at the cause of this ever present variation.

For instance, the writer of this comment recently attended a farmers' meeting in which a county agricultural agent emphasized the necessity of the use of lime on most Michigan soils to secure best results in the conservation and increase of soil fertility, particularly in the growing of leguminous crops. One successful farmer who was present took exception to this doctrine during a conversation which occurred after the close of the meeting, since his own experience had been that he could successfully grow the legumes, including alfalfa, upon his soil without an application of lime. Inquiry developed the fact that his conditions were entirely different from the average, inasmuch as he was a large commercial sheep feeder and by this means made and applied a thousand or more loads of manure to his farm each year. Because under these unusual conditions he found that lime was not required on his soil, he was inclined to discredit the doctrine advanced by the agricultural expert.

The publication of conflicting experiences of different farmers relating to a given agricultural practice is often particularly confusing to the young man who is a close student of agriculture and is seeking for the truth as a guide in his own agricultural practices. Just a few days ago a young Michigan farmer mentioned this difficulty to the writer, saying that when two experiences are published showing opposite results following a given practice, as is often the case, he found it difficult, if not impossible, to be guided by them in his own practice. This variation of individual experiences but illustrates the fact that farm problems are largely individual in character, due to the fact that in no two cases will exactly the same conditions obtain, and that in the application of general experience an allowance must be made for this fact.

Often a great deal of thought, study and experimentation is required in solving the individual farm problem after it has been found that general experience along this particular line

does not apply to the individual case in hand. It is the man who studiously and patiently seeks for the cause who finally solves the problem successfully and who is worthy of being called a good farm manager.

## MICHIGAN CROP REPORT.

**Wheat.**—The average estimated yield per acre in the state is 18.51, in the southern counties 19.14, in the central counties 19.17, in the northern counties 15.92 and in the upper peninsula 20.55 bushels. In some sections of the state wheat has been injured by the Hessian fly but it is generally considered of very good quality, however, the recent heavy rains will undoubtedly cause some damage to the crop. The estimate at present indicates that the state will yield about 14,500,000 bushels. The per cent of plowing done for wheat is 10 in the state, southern and central counties and upper peninsula and 11 in the northern counties.

**Rye.**—The average estimated yield per acre in the state is 14.66, in the southern counties 14.80, in the central counties 14.46, in the northern counties 13.61 and in the upper peninsula 20.24 bushels. According to the above estimated the state yield should be about 5,775,000 bushels.

**Corn.**—The condition of corn as compared with an average is 74 in the state, southern and central counties and the upper peninsula and 73 in the northern counties. The condition one year ago was 89 in the state, 87 in the southern counties, 93 in the central counties, 91 in the northern counties and 96 in the upper peninsula.

**Oats.**—The estimated average yield in the state is 36.82, in the southern counties 39.25, in the central counties 34.41, in the northern counties 33.55 and in the upper peninsula 35.77 bushels per acre. The above estimates indicate that the state yield will exceed 62,000,000 bushels.

**Potatoes.**—The condition as compared with an average is 93 in the state, central and northern counties, 94 in the southern counties and 92 in the upper peninsula. The condition one year ago was 88 in the state, 84 in the southern counties, 91 in the central and northern counties and 100 in the upper peninsula.

**Beans.**—The condition of beans compared with an average per cent is 89 in the state, 87 in the southern counties, 90 in the central counties, 92 in the northern counties and 85 in the upper peninsula. The condition one year ago was 88 in the state and southern counties, 89 in the central and northern counties and 95 in the upper peninsula.

**Sugar Beets.**—The condition of sugar beets as compared with an average is 93 in the state, 94 in the southern and central counties and the upper peninsula and 91 in the northern counties. The condition one year ago was 88 in the state, 93 in the southern counties, 82 in the central and northern counties and 100 in the upper peninsula.

**Hay and Forage.**—The yield per acre of hay and forage in tons is 1.21 in the state, 1.30 in the southern counties, 1.05 in the central counties, 1.04 in the northern counties and 1.63 in the upper peninsula. The above estimate indicates that the state yield will be about 2,600,000 tons.

**Pasture.**—The condition of pasture as compared with an average is 95 in the state, 98 in the southern counties, 90 in the central counties, 91 in the northern counties and 104 in the upper peninsula. One year ago the condition was 85 in the state, 79 in the southern counties, 93 in the central counties, 88 in the northern counties and 100 in the upper peninsula.

**Apples.**—This year is considered an off season for apples and pears and the prospects up to May 1 was six per cent less than on the corresponding date in 1914 but the severe frosts during the month of May did heavy damage to the tree fruits in nearly all parts of the state, consequently the yield of apples will be considerably less than it was last year, especially winter varieties. The prospect for an average crop is 45 in the state, 54 in the southern counties, 35 in the central counties, 37 in the northern counties and 50 in the upper peninsula. One year ago the average was 71 in the state, 63 in the southern counties, 73 in the central counties, 80 in the northern counties and 88 in the upper peninsula. The winter varieties that promise best are, in their order: Northern Spy, Baldwin, Greening, Russet, Wagner, Ben Davis, Tolman Sweet and Canada Red. Of the early sorts the most promising are Duchess, Wealthy, Yellow Transparent, Red Astrachan, Fameuse, Maiden Blush, Fall Pippin and Early Harvest.

**Peaches.**—On April 1 the prospect throughout the state for an average crop of peaches was 79 per cent on May 1 82, on June 1 66 and on July 1 56, which is 22 per cent higher than

## HAPPENINGS OF THE WEEK.

### Foreign.

**The European War.**—The Austro-German armies have taken Warsaw the capital of Russian Poland, and annexed a large territory to their holdings. The Russian armies are still being hard pressed, although it is now thought that they have extricated themselves from the bold purpose of the Germans to encircle and capture practically the entire force. The Austrians by violent attacks forced the Russians to fall back from the fortress of Ivangorod and other positions to the southeast of Warsaw, and then pushed on and threatened the retreat of the Russian forces, while German forces succeeded after desperate attacks in penetrating the enemy's line to the northeast of the Polish city, causing the Czar's forces to fall back and increased the possibility of their capture. This situation made necessary the evacuation of the city, which was done toward the end of the week. It appears, however, that the Russian officials decided to hold the important forts at Novogeorgievsk located at the junction of the Vistula and Bug rivers to the northwest of Warsaw. This will result in a siege but the strategic position will hamper the free use of lines of communication by the Germans. In the direction of Riga the Germans continue to advance. The Russians and Turks are fighting in the Caucasus region with victories claimed by both sides. The Allied forces have begun a new offensive movement at the Dardanelles with some minor successes reported. The Italians continue to take the initiative in the struggle with the Austrians and progress in the Tyrol, Styria and Carniola districts is recorded. The Germans have made minor advances in the Argonne forest of northern France where the Crown Prince has been trying for weeks to find a weak spot in the French defenses, but the efforts to recover lost trenches in the Vosges were fruitless and cost dearly. Little activity is reported in Belgium. Russia is declared to have rejected a proposal of peace from Germany through the King of Denmark recently.

It appears that the Japanese crisis is being straightened out. Count Okuma has decided to remain in office as Premier at the special request of the Emperor.

The British cabinet is now considering the new taxation bill to be introduced in Parliament this fall to help cover the enormous cost of the war. It is expected that some drastic changes in the income tax will be proposed.

The Brazilian minister to Mexico, the only diplomatic representative of the United States in that country, has been recalled by his government to forestall expulsion by Gen. Carranza.

The extent of the boycott of Japanese goods by the Chinese following the political crisis between the two countries a few months ago, has become so serious that Japanese merchants are importuning their government to make some effort to overcome the difficulty by peaceful means.

### National.

Last week American naval forces repressed disorders in Hayti. The presidential elections scheduled for July 8 have been indefinitely postponed.

Mexican outlaws and Texas rangers and county officers engaged in a sharp fight at Norias, Texas, Sunday night. Soldiers are being rushed to the scene. Six Mexicans were killed and three Americans hurt.

Diplomats from United States, Central and South American countries are working in Washington to effect a plan of re-establishing a government in Mexico. A final appeal is to be made to the different factions to agree upon some plan of reconstructing and if this is not done, it seems to be the purpose of the co-operating governments to resort to force if necessary.

Business men of eastern cities have joined a military school and will receive four weeks' instruction at Plattsburg, N. Y., under General Wood and his aides.

An advisory committee of members of the New York assembly met in Detroit last week to ascertain from engineers just the amount of water that can be diverted from Niagara Falls without destroying its scenic beauty. The assembly expects to ask Congress to permit the amount ascertained being used for power purposes.

It is estimated that the government geological survey that \$40,000,000 was wasted last year by coke companies through the use of the old beehive oven process of manufacture.

## Make a Drainage Map

WHILE taking my agricultural course at the state university it was necessary for me to make out numerous maps of our farm showing the fields, lanes, fences, roads, etc. Each field was numbered and in making out crop reports and such records the field was always designated by this number. But now we have discovered another very important use for such a map. We made a duplicate of the other map and now use it for this new purpose.

In a field that we purchased some years ago, there was a wet, boggy basin and we decided to drain it. We were practically unacquainted with the farm previous to buying it, so that now we knew nothing about the ditches in this field. The man from whom we purchased the piece had it only a short time and we were unable to get information regarding the ditches.

Finally, we succeeded in locating one of the main tile drains which at its closest point was a long way from the basin to be drained. The ground between this main ditch and the point to be drained was quite dry and we thought that perhaps there was a lateral branch running up to at least near the basin. Accordingly, we spent about one whole day (two of us) digging cross trenches in the hope of locating it if it existed. We were unsuccessful, and concluded that none existed and promptly proceeded to haul the necessary tile and strung them all the way from the main to the basin. As the ditch was dug, the tile were laid and immediately covered with dirt, this being our usual practice.

When we had the ditch dug and the tile laid to within a few rods of the basin, we were quite chagrined to run across the end of the branch for which we were searching. Evidently, at one time the ditch had been run up with the intention of draining the basin, but for some cause had been stopped just before the basin was reached. Here we were with two ditches covering the same course and one of them was amply sufficient. Had we known of the first ditch, we could have easily extended it the few rods into the basin. As it was, our ignorance of the fact had literally cost us the value of the several hundred tile that had been used, and the time and labor we had spent in digging the ditch, hauling the tile and in searching for the suspected old one; in all, a nice little sum.

The thought irritated us until we finally analyzed the matter and found out exactly where the blame rested. The first fault was with the first owners when they put the ditches in without keeping a record of their location, and preserving it in a form that could be readily transferred to a succeeding owner. The second fault was our own; we should not have purchased the piece without first being supplied such a record or at least the information from which we could make it ourselves.

Thus, to guard against future trouble of that nature, we promptly made a ditch map of our farm. The courses of all the known ditches on the farm were sketched on the map. The drawing was performed a field at a time, my father enlightening me on all the ditches too old for my memory. A number was given each separate ditch or branch in each field. This enabled us to the more easily designate the various ditches when making out the records concerning them. The record stated the various sizes of tile used in the ditch, their exact location, and the points at which a change in size of tile was made. This point was represented on the map by drawing a short straight line across that one representing the ditch. The appearance of the map is enhanced if a different color of ink is used for these

two purposes. We also indicated the ponds and low places in each field by making little dotted areas.

As new ditches are made, they can easily be represented on the map and the record made. Since using this map for a few years, we are of the conclusion that every farm ought to have its ditch map to pass from father to son or from owner to purchaser whenever the farm changed hands.

Ohio.

P. C. GROSE.

### DESTROYING WEEDS AND BRUSH.

August is popularly supposed to be the best time to destroy weeds and brush, it being believed that the hot and dry weather prevailing will prevent the weeds and brush from any further growth when cut at that time. But those who have followed this old-time belief have found that the idea is wrong, and that the work generally has to be done over again the following year.

To make thorough work with elders, blackberries, raspberries, wild roses, poison ivy, hardwood sprouts, and other pests that are so often seen along the fences of poorly managed farms, once cutting will not answer. In our own experience we have found that the best, and in fact the only way to clean fences is to tear the fences away, mow the berry plants, grub out the small brush, cut off the sprouts that are too large for grubbing, throw all of these on piles and burn them. Then, take the plow and a strong team and plow the strip, after which give it two or three good harrowings. The harrowing will bring many roots to the surface that have not been reached by the grub hoe. These roots may then be cut off. If there are any stumps that cannot be brought out with the grub hoe or plow, they should be blasted with dynamite before plowing.

In most of the states, the highway officers are required by law to keep the roadsides clean of brush and bushes of all kinds. We have observed that in many places they fail very badly in this duty. In such cases the farmer may himself remove the fences, clean the strip, plow and harrow it, and sow it to grass. Perhaps a few sprouts or weeds may come up the following year, but these can be removed with little trouble.

Some farmers are very careful to destroy all growth along fences except elders, blackberries and raspberries, and their families gather large quantities of berries therefrom each season. For our part, we prefer fences that are entirely clean and free from any and all growths. Surely no one will deny that clean fences give a farm much the best appearance. Besides, we could never see the wisdom of the women tramping a mile or two for berries when they could just as well have them in their garden only a few rods from the house.

Indiana.

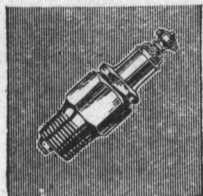
D. L.

### SECOND SEEDING OF ALFALFA A GREAT SUCCESS.

Having had a number of very helpful hints from your much esteemed paper, will try to reciprocate a little. Last season I had six acres that had been previously seeded to alfalfa but had been mostly run out by a heavy June grass sod, which I plowed under in early spring. I worked it thoroughly until June 20, when I seeded it to alfalfa again. On August 20 I cut about four tons of hay from the field and then clipped it back again in September. It now stands about 18 inches high and very thick. It looks as though alfalfa will solve the feed problem along with the silo in Michigan. Oakland Co. A. B. SPENCER.

## FORD OWNERS

### Do you know that—

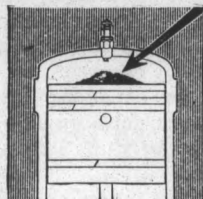


sooty spark plugs at intervals warn you to investigate your lubricating oil?

If your oil is either too heavy or too light in *body* it will accumulate in the combustion chambers. In burning up it usually fouls the spark plugs with carbon.

Ford owners who use Gargoyle Mobiloil "E" make the best provision against this common cause of faulty ignition. The correct *body* of Gargoyle Mobiloil "E" prevents its working by the piston rings into the combustion chambers.

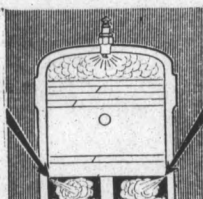
### Do you know that—



incorrect *body* in your oil also leads to excessive carbon deposit on the piston heads and valve seats?

It is, of course, impossible to produce a petroleum-oil which will leave *no* carbon in burning. But the slight carbon of Gargoyle Mobiloil "E" is of a light, non-adhesive character and expels naturally through the exhaust.

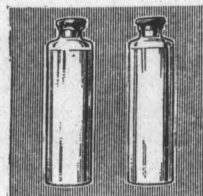
### Do you know that—



oil of incorrect *body* fails to maintain a proper oil seal between the piston rings and cylinder walls?

Part of the explosion and compression then escape down past the piston rings. Weakened power results. Gargoyle Mobiloil "E" having the correct *body* for Ford motors, maintains the proper oil seal around the piston rings.

### Do you know that—



while "light" oils are recommended by your Instruction Book, there is a great difference between oils classed as "light" both in *body* and *quality*?

Many "light-bodied" oils vaporize rapidly in use. The oil then consumes far too quickly for proper protection to the metal surfaces. Maintenance cost mounts up. The noises of loose, worn parts follow.

Gargoyle Mobiloil "E" readily reaches and protects all moving parts of the Ford motor.

Ford owners who use Gargoyle Mobiloil "E" are providing the best of insurance against costly maintenance and motor repair bills.

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

**GARGOYLE**  
**Mobiloils**  
*A grade for each type of motor*

### Stationary and Portable Engines

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

**Water-cooled engines**—Use Gargoyle Mobiloil "A" in summer; use Gargoyle Mobiloil "Arctic" in winter. **Air-cooled engines**—Use Gargoyle Mobiloil "B" the year 'round.

### Tractors

The design of your engine must determine the correct oil. Send for booklet containing Gargoyle Mobiloils Chart of Recommendations for tractors.

**Mobilubricant**—In the patented Handy Package. The correct grease for transmissions, differentials and compression cups of automobiles. The spout fits the filling plug opening of the Ford and all other cars. Mobilubricant is just the thing for farm machinery. Simply turn the key. No dirt, no waste, no trouble.

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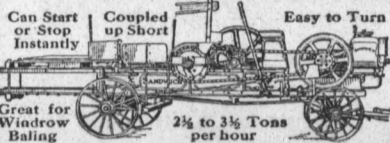
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## Farm Notes

## Seeding Clover After Beans.

I have about six acres of light sandy loam that has been very much run, but has had no crops on the last two or three years. This year I have it to white beans and they seem to be doing fine. I want to get this seeded. Can one seed clover in beans with success? If so, how? I have thought of sowing vetch and rye in the beans this fall, turning it under in the spring and either putting in buckwheat and get it off in time to seed in the fall, or to summer fallow. Which would be better, or can you give me a better plan?

Oceana Co.

C. G. P.

Where beans are to be harvested with machinery, the seeding of clover in same would be impracticable. It would be a better plan to work the bean ground up next spring and sow same to clover, either alone or with a light nurse crop of oats or barley, the grain to be cut in case weather conditions are such as to limit the supply of moisture to the young clover. The practice of summer fallowing this kind of soil is not to be recommended, as it will further deplete its humus supply. The growing of green crops to plow under is an excellent practice, and cannot be overdone on this kind of land, particularly if leguminous crops are grown.

## Crimson Clover with Vetch.

Would it be practical to seed crimson clover with vetch in standing corn at the last cultivation?

Oakland Co.

SUBSCRIBER.

Crimson clover has not proven uniformly successful in Michigan. We have seen fairly good crops of it grown when seeded in corn, but it cannot be depended upon to survive our Michigan winters even as well as June clover. We have no data with regard to the success with which vetch can be sown in buckwheat. The experiment would be an interesting one, and many Michigan Farmer readers would be interested in the result if it is tried out. In an unusually open fall vetch sown after late potatoes were harvested might make sufficient growth to survive the winter, but this is generally considered to be too late for the seeding of this legume. It would, in the writer's opinion, be better to sow vetch with rye, either in corn or after potatoes were harvested than to use crimson clover with it, both because the rye would be certain to make a good growth to plow under the following year and would hold up the vetch so it would make a better growth than would be the case sown with crimson clover, even though it make a successful stand.

## ALFALFA IN NORTHERN WISCONSIN.

I was interested in reading in the Michigan Farmer of July 24, 1915, the article of J. A. Kaiser, of Hillsdale County, Michigan, discussing the question whether clover is to be succeeded for the most part by alfalfa in Michigan. His letter set forth the fact that alfalfa had been grown at first by many farmers because of successive failures with clover, but that with a favorable year for clover it is found the alfalfa acreage continues to grow. It has been discovered, Mr. Kaiser says, that sour soil has to be corrected for clover as well as for alfalfa.

Clover is very seldom a failure in Marinette county, Wisconsin, and yet alfalfa is growing in favor here. I have been surprised in trips through this section to find how large an acreage there is in alfalfa. I had heard in past years the invariable statement, "What is the use in experimenting with alfalfa when we have a sure crop in clover," that I had thought alfalfa would never gain much headway against clover in upper Wisconsin. So I was prompted to ask Mr. Martin Lorenzen, a farmer living near Marinette, who is a successful grower of alfalfa, why he chose to grow alfalfa instead of clover.

"That's simple," said Mr. Lorenzen, "It is worth more. It is worth more if I sell it, or it is worth more if I feed to my stock. It brings more on the hay market and it goes farther in keeping a dairy herd in condition. Alfalfa is a money crop any way you look at it."

Lorenzen's farm is about the lightest land to be found here, and yet he has made it yield alfalfa splendidly. His first cutting this year on a three-acre piece ran two tons to the acre. The piece is nearly ready for the second cutting (July 24), and apparently will run over a ton and a half to the acre. The third cutting will easily yield up to five tons per acre, which is the same record he made last year.

"Clover is great," said Mr. Lorenzen, "but alfalfa is better. I have tried both and I know."

Wisconsin.

A. C. HAWKINS.

## LILLIE FARMSTEAD NOTES.

The wheat crop is barely harvested. Much of it still stands in the shock in the field, and yet here it is the first of August. It has been a remarkable season so far in many respects. I have talked with many and no one ever remembers such a late harvest. Oats are just being harvested. Some fields are not ripe yet. No corn in this section is tasseled yet. Some of it is barely hip high. What will the harvest be? There must be no frost in September or there will be no ripe corn. The spring started with unusual promise for a forward season. The last of April brought the hottest weather thus far this season; then came a cold May, a cold June and a cold July—such is the uncertainty of Dame Nature.

While cereals and corn are so very late the legumes, clover and alfalfa are practically as forward as any year. We cut the second cutting of alfalfa in July about as early as any year, and red clover was ready to cut the Fourth of July. How can this be accounted for; why is alfalfa as early as usual and other crops so late?

I planned to plant potatoes after early peas, expecting to get the potatoes planted by the first of July. Peas were late. Heavy rains delayed and we got the potatoes planted July 20. A friend asked me if I expected to harvest a crop. I replied that I expect nothing from a second crop in this climate, but I may get it. At any rate I carried out my program and planted potatoes and sweet corn, and sowed buckwheat after taking off a crop of peas. I have faith I will get some fodder, and that there will be buckwheat to plow down for humus and the land will be all the better for having grown these crops. Perhaps I will get some potatoes. They are coming up well. It has been almost ideal weather to start them—cool and moist. The great law of nature is compensation—a late spring, a late fall, a cold June and a hot September, etc. With growing weather until October 15 I will get a crop of potatoes. A frost the middle of September will knock me out entirely. The land where the potatoes are planted has already produced over \$60 worth of peas per acre, and I shall make no complaint against Dame Nature if the potatoes are a failure. I am willing to take the chance.

I have purchased a threshing machine and propose to do my own threshing. Heretofore I have hauled the wheat to the barn and elevated it to the top of the hay mows so I could put the straw into the straw barns directly over the stables, where it is kept dry and in splendid condition to absorb the liquid manure in the stables. This year I will set the machine out of doors and blow the straw directly into the straw mow of the barn, and thresh the wheat as fast as we haul it. This will save handling it once over—no light job. What straw cannot be gotten into the barns will

be threshed in the field and the straw baled and stored. I figure the lessened expense of handling the wheat crop will pay for the machine (a second-hand outfit) in a few years. I could not ask a custom outfit to do all this but can do it with my own outfit. There is the bad weather risk, but if it rains we will simply wait till it dries out enough to thresh. We can cultivate and hoe corn while the wheat is drying. It may not work out as well as it looks to me when planning it, but I am going to try it.

Some farmers have already threshed their wheat and have sold it around \$1.00 per bushel. Are they right or should they hold for higher prices? My judgment is to hold. I think the world will need all the wheat we have this year, even though it is a bumper crop. Wheat reserves are low. I can't believe Europe will produce a normal crop. It seems impossible. It is business for them to report good crops to influence the price here. After a whole lot of our corn crop gets into stronger hands you will see, at least I expect, the price will advance and the strong hands—the speculators—will make a bunch of money. If anyone holds wheat it should be the farmers. I may be all wrong but I have faith.

COLON C. LILLIE.

## RADIUM AS A FERTILIZER.

Because so much has been said and written about the use of radium as a fertilizer, interest is attached to experiments made by the Illinois Station in which radium fertilizer was used. The soy beans followed the corn on the same land without additional application of the radium fertilizer. Of six trustworthy average results with corn, three were for and three against radium. Of eighteen averages with soy beans, nine were for and nine were against radium. In all cases the average variation from the check or unfertilized plant was so slight and so evenly distributed for and against "as to lead only to the conclusion that radium applied at a cost of \$1, \$10 or \$100 per acre produced no effect upon the crop yields either the first or second season."

The station calls attention to the fact that even if the radium fertilizer were to increase the crop yields "the effect would be that of a stimulant and the increase would be secured at the expense of the soil. Thus the soil would not be enriched in fertility, but actually impoverished by such treatment."

## FARM LIFE IS WHAT WE MAKE IT.

(Continued from first page).

den grain we'll have." The terrible hardship overshadowed the mind of the former. He found little pleasure in it, while the latter, though thinking of his material gain was nevertheless more pleased in what he could and would accomplish.

The discontent of many people can be traced to the state of mind in which they dwell. No one is free from troubles, but he who earnestly endeavors to surmount his troubles and finally does so finds great delight in doing so. If he proceeds with an I-don't-like-it spirit there will be little pleasure in the final accomplishment, if indeed there is much accomplished. The pioneer farmers won their way with cheerful hearts; they aimed at constructive ideas. Modern machinery has eased the labor of the farm considerably. But for those who fail to see the opportunities about them, magnifying the dark side and shrinking from the daily duties that confront them, farm life will be a drudge.

Indiana.

J. L. JUSTICE.

Cargoes of new fall wheat from the states are being loaded at Port Colborne bound for Montreal, probably to be exported.

## Keep the Garden Weedless

It is of quite as much importance that the weeds be kept from gaining the upper hand in the garden after the usual period of cultivation is over, as during the usual time for spring hoeing. True, the plants may have practically reached their full growth. With some kinds this summer cultivation is essential to development. Cabbage and cauliflower must not be neglected, even all through September frequent stirring of the soil being necessary. These vegetables, together with brussels sprouts, make their principal growth after the excessive heat of summer is past. Frequently the cauliflower plants will stand practically still until the cool days commence; then it is a pleasure to watch them grow. If the weeds have been allowed to choke them up during August there is little hope for good heads to form. The cabbage is more certain and may head up fairly well, even if not thinned until late summer. The best gardeners keep the weeds from gaining a foothold, however.

### Weeds Do Well in August.

August is a great month for weeds. Many of the pigweed and ragweed seeds seem to lie dormant in the earth until midsummer, and then, when the gardener is not looking, take the opportunity to spring up like toadstools in the night. Pruslane is one of the worst banes of long cultivated gardens. It makes its most vigorous growth after midsummer. Where quack grass is abundant late summer cultivation will help to clean it out of the soil. The spring cultivation will be of little use in permanently eradicating it unless followed up in August. Unless all the rootstalks were dug out in the spring, the few left will multiply and increase rapidly if the tops are allowed to grow unchecked. The troublesome rootstalks multiply and lengthen only in proportion to the amount of top growth made. Therefore, to get rid of this worst of weeds, keep up the cultivation all the year.

### Do Not Let Weeds Ripen Seed.

The weeds which come up now are the ones which will produce the seed crop for next year. Nearly all the weeds of cultivated lands are annuals, that is, the seeds are self-sown each year. The greatest factor in dealing with these weeds is keeping them from ripening seed. Each one suffered to live will produce a multitude to keep you busy next year. Not only should all weeds be pulled out from the rows of vegetables but the fence corners and waste borders should be looked to as well. Also, do not wait until they ripen seed. Pull them before they blossom.

Some work may still be done with the cultivator although many kinds of plants are too large to allow for getting between the rows comfortably. About the only thing to do in this case is to pull the weeds by hand. This is particularly important among the cucumbers, melons and squashes. Where plants like beets, carrots, and gether, the hand hoe can be used to parsnips are planted in rows near to advantage all summer, even though the tops are at their maximum size.

### Fight the Late Weeds.

The plots where early peas, radishes, etc., if they are not replanted to later crops (the good gardener will always see that this is done), should be cleared of all weeds and old vines. Such spots will serve as weed nurseries to cover the whole garden next year. Finally, weed patches serve as hiding places for innumerable insects. Eggs are deposited there and the hibernating insects find a refuge from bird enemies. By all means "swat the weeds." Along roadsides and in old pastures and hog pens the scythe should be used to cut the weeds before they have ripened their seed.

This means much toward lightening next year's labor. When weeds are in bloom or soon after is the time to take them down. C. H. CHESLEY.

### TROUBLE DEPARTMENT.

#### Cucumber Diseases.

What might cause the cucumber vines to wither and die from tip to root the entire length soon after they blossom? Only one vine may be affected in a hill, but this sometimes spreads until most, or all, of the hill is gone. Nothing seems to be visible on the plant and I can find nothing at the roots. Have you any suggestions? SUBSCRIBER.

Undoubtedly the cause of your cucumber vines withering is the bacterial wilt. This disease is a troublesome one to the cucumber grower because of his lack of knowledge regarding it and its source of infection. The striped cucumber beetle is the chief means of spreading this disease. Occasionally the entire plant dies at one time, in which case the infection took place in the roots or at the base of the plant, but more often the infection takes place a foot or two from the base, the first indication of its presence being the wilting of a leaf or two. In a few days the entire plant will die.

As the chief cause of the infection is the striped cucumber beetle the chief means of control will be the control of this insect. The female beetles, after feeding on the newly set plants for a few days, lay their eggs in crevices in the soil or the openings around the plant. These eggs hatch in a few days into larvae which bore into the roots or the base of the stem, causing a weakening of the plant and an infection of the wilt.

The means of control on small patches is the covering of the plants when they are young. A dusting with air-slaked lime, land plaster, or road dust to which kerosene, turpentine or some other material of offensive odor has been added is efficient as a repellent if the dusting is done when the leaves are moist. A liberal application of tobacco dust around the plants will prevent the depositing of eggs in the soil near the plants. When the plants begin to grow, spraying with Bordeaux mixture containing two pounds of copper sulphate and four pounds of lime to 50 gallons of water to which three pounds of arsenate of lead has been added will keep the beetle in check if done frequently and thoroughly.

Excessive nitrogenous fertilization occasionally causes a peculiar wilting and curling of the foliage which may be the cause of the trouble with your vines if after a most careful examination of the roots and stems you fail to find any evidence of the boring beetle larvae. Nothing can be done for this except to stop using nitrogenous fertilizers for a while.

In order to lessen the sources of infection all plants infected with the wilt should be pulled up and destroyed.

The fungous diseases of the cucumber usually cause irregular dead spots in the leaf and a premature yellowing of the foliage. Thorough spraying with Bordeaux mixture and arsenate of lead throughout the season will keep them in check.

#### Growing Garlic.

Your report and illustration on marketing garlic interested me. Please give me information regarding its cultivation. A. L. F.

Garlic forms bulbs similar to the multiplier onion. These bulbs are separated into cloves, and the cloves are planted in moist, rich soil such as is suitable for onions, about two to three inches apart in rows about one foot apart. Like the onion, it needs cool weather to do the best, and therefore should be planted as early in spring as possible. Thorough cultivation and general care similar to that necessary for onions should be practiced.

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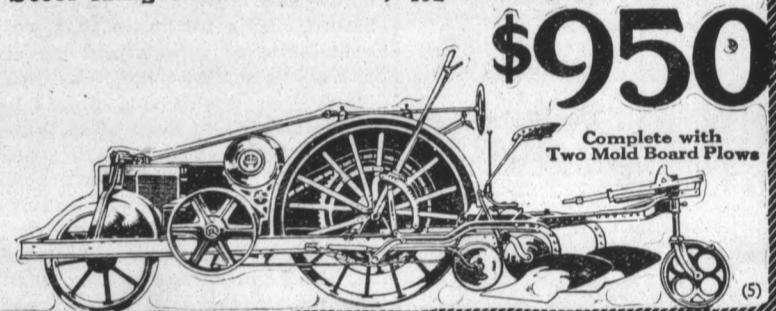
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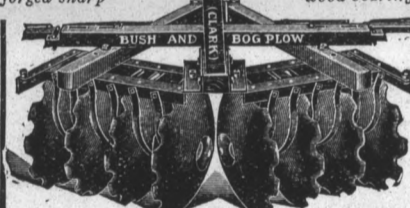
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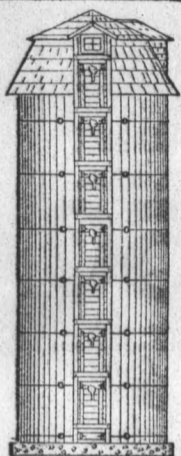
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CONDUCTED BY COLON C. LILLIE.

### LILLIE FARMSTEAD DAIRY NOTES.

Pastures are not yielding well this summer. A cold, dry spring is the cause of it, I am sure. We have had plenty of rain in mid-summer but this did not take the place of early spring rains. The grass did not get its usual start and lacked in vigor. A cold May and dry, too, retarded the growth of grass and now in July we find short pastures where they have been stocked to anywhere near their normal capacity. In consequence of this we are required to take a number of our heifers from the back pasture and bring them down to the home farm so that we can feed them a ration of silage and hay. We intended to do this with a number of heifers fed to fatten this fall but it is necessary to take out more of them to relieve the pasture, else all will suffer from lack of food before fall. We never had to do this before. It is fortunate that we have abundance of alfalfa and clover hay and also pea vine silage. Our pea crop vines this year filled a silo 15 feet in diameter, 40 feet deep after they were well settled. Then we will soon have sweet corn refuse in plenty also, and the worst part of it will be the extra labor of putting the cows in their stables and feeding them morning and night. I am sure, however, that it is the proper thing to do. It will not pay to run them on scant pasture the balance of the summer. That sort of work will not tend to develop dairy heifers to make good dairy cows.

#### Balancing a Ration.

A new problem comes up in balancing a ration for the cows. Formerly we have had corn silage, now we have pea vine silage. Always before we

two-thirds oats fed with pea vine silage and alfalfa hay will make just about the right proportion of the food nutrients, protein, carbohydrates and fat, for a well balanced ration for dairy cows giving milk. Even if these foodstuffs are abnormally high it will make as cheap, or cheaper, ration than cottonseed meal and oil meal fed with corn silage. I have soy beans planted with all my sweet corn, so I expect that my sweet cornstalks silage will be practically as rich in protein as pea vine silage, hence this sort of a grain ration will answer for the whole year. Of course, these grains I will have to purchase as I am not growing either of them this year. But then, the other kind of farming will necessitate my buying cottonseed meal and oil meal so there is little difference in the financial part of the management. But there is a striking difference in the kind of farming and food problem involved.

#### THE FAT CONTENT OF MILK AND ITS FOOD VALUE.

In Mr. Lillie's comments on my article, "The Basis of Milk Values," he misses the point which I wished to urge. True, we have the Babcock test which shows the fat content of milk, and this may sustain a direct ratio to the other solids, although there is a general apprehension that this relation is different in different samples of milk. In the instance related in my former article, coming under my observation, a cow giving a larger quantity of cream a sample of the milk tested 5.2, while a sample of milk which showed a smaller amount of cream from another cow tested 6.2. Now, of course, I cannot say that a larger proportion of the other milk solids went into the cream in the one case, leaving the skim-milk poorer in these elements than in the other, but there was certainly a marked difference in the ratio of solids to fat in the two samples of cream. Prof. Ander-

corn meal we were dependent on the amount of fat, as we are in milk, we should be laboring under a decided economic disadvantage if we centered our thought almost wholly on the value of the element of fat, and so largely disregarded the larger amount of other food constituents, as we do in milk. Our mistake is that while with foods and feeds we think in terms of proteins and carbohydrates, when it comes to milk we allow ourselves to think almost wholly in terms of fat.

There is always a decided advantage in placing our estimate of values right where value exists and not on some element of minor importance. In foods and nutrients generally we place our estimate of values on the larger proportions as they exist—in the proteins and carbohydrates—and largely or almost wholly overlook the element of fat. Milk is probably more largely used as an article of food than otherwise, and the relative proportion of other solids to fat is similar in milk to other articles of human and animal consumption. Why, then, should we so largely rearrange our estimate of values when it comes to milk? Because fat is the chief element of value in butter-making why should we make this the one criterion in all other uses of milk? While it is doubtless true that the fat content in milk is an approximate, quite possibly an accurate, indication of the amount of other solids, it by no means follows that we should fall down and worship the fat and anathematize the larger amounts of other elements of nutrition for which we largely use milk. I do not think Mr. Lillie will disagree with me on this point.

Allegan Co.

EDW. HUTCHINS.

#### SAND VETCH FOR SOILING PURPOSES.

How is sand vetch for summer feeding to the milch cows to feed green? When is the best time to sow it for next summer cutting and how much seed to sow to the acre?

READER.

Sand vetch is a good soiling (feeding green) crop. It commences quite early in the spring and lasts in a green state about as long as any plant. Cows and other stock like it and it is richer in protein even than alfalfa.

It is usually sown in August with rye in proportion of one part of vetch to three parts of rye, and then sow about one bushel per acre. The rye helps hold the vetch up so it is more easily harvested. If vetch is not sown with rye it lies flat almost on the ground and is difficult to cut. In a small way, however, it can be cut with a scythe or with a mower rigged to cut peas.

Vetch is much better fed alone than with rye, yet if the rye is cut at the proper time, cattle will eat it fairly well. If one does not need all for soiling, the balance can be made into hay.

#### A GOOD VETERINARY BOOK.

Very often a veterinary book can save some money. We have been able to buy 1,000 of Gleason's Veterinary Books at 29 cents apiece. Our subscribers can have them at just what they cost us, but they must be subscribers to the Michigan Farmer, so we are offering them now for 79 cents with the Michigan Farmer a year, postage paid. By that, we mean that there will be no postal charges. Present subscribers can have the book for 29 cents. There is a very great bargain in this. It would cost at least 70 cents more in any other way.

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have had clover or mixed hay, also pea and oat straw, now we have alfalfa hay or pure clover hay for dry roughage. With the corn silage rich in carbohydrates we need cottonseed meal, oil meal or gluten feed to balance the ration, that is, to furnish the right proportion of food nutrients. Now with the roughage part of the ration richer in protein we do not need this sort of concentrates, but rather concentrates like ground oats, corn meal, wheat bran, or ground barley. Of course, wheat bran is classed with the protein concentrates, and correctly so, but nevertheless it is not nearly so rich in protein as cottonseed meal or oil meal and makes a better ration with roughage rich in protein like pea vine silage and alfalfa hay, than cottonseed meal does.

I am figuring that ground corn and oats (chop), say one-third corn and

son, of M. A. C., in an address at an institute recently is reported as saying that the milk from Holstein cows is superior to that from other cows for family or food purposes. Evidently this is because of a difference in the ratio of these milk contents.

However, I am not disposed to take issue with Mr. Lillie on this point. Suppose this ratio is constant and the fat test is always an accurate test of the proportion of other solids in milk, this by no means argues that we should place the larger emphasis on the value of the fat and largely disregard that of the other predominating solids, as is so generally done. If in a mathematical problem we have the third power of m as a factor we are less concerned with the index figure three than we are with the value of m cubed. And suppose that in arriving at the nutrient contents of oil meal or

## Fitting Hogs for Market

**I**N former years it was the practice to feed the pigs along slowly through the summer, winter them, pasture through the second summer, and fit for market in the following fall and early winter. One of the prime objects was to get fat hogs that carried a large amount of lard. Such a thing as quality in pork, as far as lean meat was concerned, was rarely, if ever, mentioned. It was fat pork that was in demand for several reasons, and that is what was produced.

### Different Class of Hogs Demanded.

Compared with the hog business of fifty years ago, the hog business of today is radically different. Lean meat is in demand by consumers of pork meats, and only in exceptional cases is the fat parts of the meat mentioned by the consumers, except, perhaps, when side pork is called for because it is cheaper than pork chop, hams or bacon. In the majority of cases it is the tender, juicy, sweet, lean meat that is sought for and secured if possible.

With the facts in mind the pork producers have the task before them of meeting the demands of the consumer. The problems of producing the lean meat, at the least possible cost, are the ones that should receive attention. One should study the nature of the pigs, for mature hogs are only a lesser factor in the business.

To secure the best results one should look well to the inherent characteristics of the animals with which they are operating, as well as to know the character of the feeds used and what can be expected from the skillful use of them. If the pigs are sired by a strong, squarely built boar, and the mothers are of the large roomy type that consume a large amount of feed, then if the mothers and the pigs are properly fed while the pigs are young, we may reasonably look for thrifty, growthy pigs. Thrift and rapid growth are characteristics that are inherited and acquired by proper treatment. The inherent characteristics come along with them at birth, and can not be changed, but can be utilized to good advantage by proper treatment, or impaired by bad usage.

One should keep in mind the fact that muscles, the lean meat, come by inheritance and can be developed by liberal feeding while the animals are young and growing. Constant growth produces muscles in an economical way. To check the growth at any time is to increase the costs of the production of the desired weights. The costs for the increase in weights are less while the animals are young than later in life. The prudent producers can easily see the methods which should be followed in order to secure the greatest profits.

As a rule farmers do not concern themselves very much about the quality of the meat produced, for the dealers pay about the same per pound for pigs grown along slowly as they do for those pushed along rapidly from birth to market day. There should be a distinction made between them, for the meat from the pigs grown rapidly is of better quality, more palatable and more easily digested. The consumers can afford to pay more for the meat of the best quality than for the inferior meats because they can get more enjoyment in eating it, and more nourishment out of it.

### Results from Different Feeds.

I am willing to acknowledge that corn has been relied on, to a great extent, as feed for the production of pork from hogs of all ages. When given favorable conditions corn yields a large amount of grain per acre, and at the same time a large amount of forage, making it a desirable crop for the farmers to raise. Considered from the point of commercial value, and the results which can be obtained from it

alone in the production of pork, it is the most expensive of the feeds generally used. It is the richest in carbohydrates and consequently causes the accumulation of too much adipose membrane, in proportion to the muscle or lean meat, produced. It is a fact that should be kept in mind that fat costs more for its weight than the lean, and as corn alone does not encourage the development of muscle in the right proportion with the fat, it is an expensive feed.

### Excellent But Little Used Feeds.

There are other feeds than corn that can be used to good advantage. Field peas are an excellent feed for the production of pork, both economically as well as to the quality of the meat produced. If sown on the right kind of rich soil, and at different times from very early in the spring to the first of July, and the hogs allowed to gather them as they approach maturity, peas make one of the best and cheapest feeds that can be selected for the production of pork. The cost of harvesting is eliminated and the pigs get just about the right amount of exercise while gathering their food from them.

Barley is an excellent feed on which to raise and fatten hogs. It has a feeding value about equal to corn, but the quality of the pork is better than that produced with corn. To get the best results from barley it must be harvested, threshed and ground. Barley meal mixed with other feeds and soaked for from 12 to 16 hours, starts fermentation and thereby increases the digestibility of the whole mass. It should not, however, be allowed to stand so long as to generate an acid which will injure the alimentary tract of the pigs consuming it.

A variety of feeds invariably give better returns in increasing weight and producing meat of the right quality than any one feed. Probably peas come the nearest to a perfect feed for pigs of any feeds we use, but they do not produce well on all soils, and can not be relied on in all localities.

Wheat middlings are an excellent feed to start the young pigs, and can be profitably used with other feeds during the whole feeding period. When used alone the meat made from middlings seems a little too soft and flabby, but mingled with other feeds, like corn meal, it adds palatability and digestibility, and also helps to balance the ration making economical production more possible than can be the case without them.

### Some Essential Points.

Among the things which should be kept in mind while fitting pigs for market to meet the demands at the present time, are using a thrifty kind of stock from which to raise the pigs, promoting the growth early in life, and keeping up a continuous growth as long as they are kept on the farm.

As lean meat is what is demanded, instead of putting the hogs in the pen and feeding grain alone for a considerable time, as was the custom a half century ago, the pigs are taken from the pasture fields when in good healthy condition, and supply the butchers and packers with what they need in the shape of palatable bacon, light hams and choice cuts, such as consumers relish, leaving a handsome profit with the producers and giving satisfaction to those who select the best of pork meats as a part of their diet.

Skillful management in feeding regularly of a moderate quantity of the feeds at hand on the farms, allowing the pigs a chance to get a part ration of the pasture grasses, clovers and forage crops which they relish and will consume greedily, will enable one to fit pigs for market at a cost which will leave a handsome profit, even at the present high prices for grain feeds.

Wayne Co.

N. A. CLAPP.

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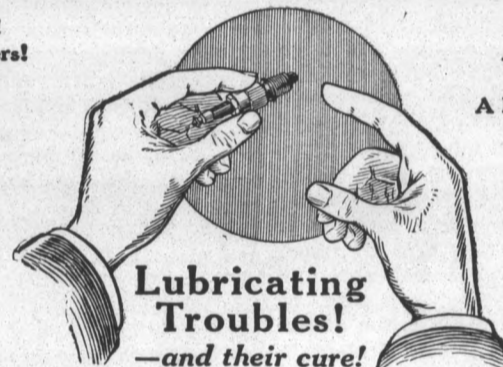
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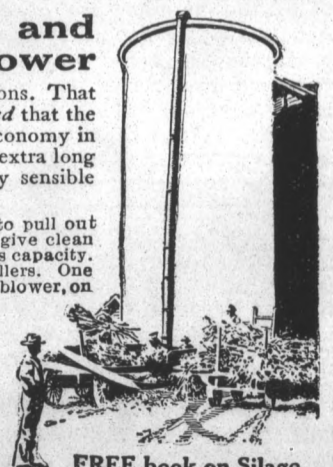
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# Practical Science.

## RELATION OF FERTILIZER INDUSTRY TO AGRICULTURE.

We have no accurate data of the amount of fertilizers sold in this country prior to the enactment of the inspection laws in 1874 and later; but it is believed that not over half a million tons were sold in the entire country—most of it in the south, for cotton. Today fully seven and one-half million tons are sold in the country, chiefly in the Atlantic seaboard states—a marvelous growth in forty years. Sources of Fertility—the Nitrogen in Coal.

The framework or bone structure of all living things is phosphate of lime. We are finding an abundance of it in unexpected places. Another fundamental element is potash. Nature has furnished an almost inexhaustible supply in Germany but the world will not be content with one source.

Nitrogen, at present the most costly element of fertility, is in great abundance everywhere. It is estimated that there are 35,000 tons of atmospheric nitrogen over every square acre of the earth; but before this great reservoir is tapped to any extent the nitrogen in by-product materials will be utilized. This is inevitable for I cannot conceive that a process will be discovered which will prove cheap enough to take nitrogen from the air when it can be obtained as a by-product of essential industries.

We have now reached the limit of many of these by-products derived from the soil, such as bone, meat tankages and seed meals, but we have not begun to touch the great source of nitrogen in our coals. When we come to consider this source the statistics are assuring.

According to government reports the United States mined in 1913 a grand total of 570,000,000 tons of coal. Taking the statistics of twelve leading coal-producing states as a guide, it is safe to say that this coal averaged about 26.6 pounds of nitrogen to the ton—one and one-third per cent, or nearly as much as 2:8:2 grade of fertilizer contains. This is equivalent in round figures to 7,500,000 tons of nitrogen, or enough nitrogen to give 30 pounds to each improved acre of land in the United States.

It would be absurd to assume that all the nitrogen in coal is recoverable; probably only a fraction can be saved. England and Germany are recovering a very considerable amount from the soft coals which they consume; but it is obvious that we should recover as much as it is possible for us to recover, and when recovering that we should encourage its use.

At present there are two feasible ways of recovering this nitrogen. One is in the manufacture of coke and illuminating gas. The other is in the production of producer gas for power purposes by processes (notably the Mond process) which conserve the nitrogen in the form of sulphate of ammonia, the tar and all the by-products of tar—and they are many and valuable. There were approximately 200,000 tons of sulphate of ammonia produced in the United States in 1913, chiefly from coal, conserving 40,000 tons of nitrogen, or enough to supply nearly one-half of the nitrogen required for the staple crops grown in New England. The value of the nitrogen in coal alone, at 10 cents a pound, or half the present retail price, is equal to the value of the coal at the mines, or \$2.50 a ton, leaving the gas, tar, and its distillates, which are many and valuable, to pay expenses and profits. Cheaper Nitrogen an Outcome of the War.

Sir William Crookes, the English chemist and economist, declares that

the food supply of the world is dependent on the supply of nitrogen, and predicts that, as the nitrate beds of Chile will soon be exhausted, we must find other sources of nitrogen to sustain the world.

One of the beneficent outcomes of the present war (and bad as it is I am sure that good will come of it), may be cheaper nitrogen. One of the essential ingredients of destructive explosives is nitrogen. Chile saltpeter has been the chief chemical source. While the ports of Germany appear to be closed, she does not seem to be disturbed about it. It is evident that the Teutons are getting nitrogen for their explosives and their agriculture from some other source than from Chilean nitrate, probably from coal and from the air by a new process. After the war is over the world will have the benefit of their discoveries. It will be remembered that beet sugar was an outcome of the Napoleonic wars.

One section which undoubtedly would benefit is the cereal belt of our own country, where instead of 14 bushels of wheat per acre we might see 28 bushels per acre; instead of 29 bushels of corn we might witness 58 bushels per acre. This certainly would be a boon to this country, and it is largely a question of cheaper nitrogen. It is estimated that already the world outside of Germany is obtaining fully 50,000 tons of nitrogen annually from the air for agricultural and industrial uses by new processes put into operation since 1906.

It is obvious that the utilization of all by-product forms of nitrogen, including municipal wastes, should be encouraged by everyone and especially by agricultural chemists and agronomists. If, however, they discourage their use, as is being done in some quarters, then their utilization will be retarded.

Whether or not artificial fertilizers are plant food is no longer a debatable question. That was settled years ago by Liebig, Lawes and other great experimenters. Whether or not it is profitable to use them in all places and on all crops will always be a debatable question; but it is not one which the chemist or agronomist can settle for the farmer, for it is an individual and local problem. The government might as well attempt to determine what the farmer shall eat or wear, or whom he shall marry, as to say whether or not it is profitable for him to use fertilizers. The government can help him in many ways, but when it comes to the matter of what will pay, only the farmer can determine that for himself, by experiment on his own soil and crops.

As to the matter of profit, with their present limited experience in the use of fertilizers it may not now pay middle west farmers to use them in sufficient quantity to meet all crop needs. Assuming that such use will not be profitable, it does not follow that it will not pay individual farmers to use fertilizers to supplement any system of agriculture which they may adopt in order to improve the quantity, hasten maturity and insure results. That alone is enough to justify their use in the middle west today.

### Restoring the Balance—Other Important Factors.

Important as our industry is and will be in helping to restore the balance, we must remember that we are only one factor. Other important factors will be at work, such as better cultivation with better implements, better seed, better drainage, rotation of crops and the growing of leguminous crops. All will co-operate to help restore the balance.

Many think that irrigation will be the most important factor in restoring the balance. It is true that water is the largest factor in crop production, but virgin irrigated lands after a time will need fertilizers as much, if not more, than the unirrigated, for the big crops as the result of irrigation will make correspondingly big drafts on the available fertility of the soil.

Italy, like France, has been farmed for centuries and is still a productive country. Germany has been farmed intensively a hundred years and is now producing 88 per cent of the food-stuffs required by her 65,000,000 population. Secretary Houston states that there is only 40 per cent of the tillable land in the United States under cultivation. When the remaining 60 per cent is brought under the plow, or, better still, when the whole is made to produce by intensive methods twice as much as it produces now (and western Europe is an example of what can be done) we shall have food enough and to spare.

It seems to me the pressing problem is not of production but of distribution. The excess of farm products in certain sections and scarcity in others as, for example, 25,000,000 bushels of potatoes in Aroostook county and an apparent scarcity in New York resulting in potatoes being thrown away at times in Maine and still selling at a dollar a bushel in New York, is a striking illustration. When the facilities of distribution and exchange are improved this condition should be remedied, and when remedied every one should be able to afford three square meals in our great cities and the farmer should get his fair share of the dollar. If he does get his fair share there will be little question of food supply.

Therefore are you surprised that I am an optimist and do you wonder that I am proud of our industry and the place it holds as a co-worker with the farmer in the agricultural and industrial development of our country?

Extracts from a paper presented by W. H. Bowker at meeting of the National Fertilizer Association at Hot Springs, Va., July 12, 1915.

### EXPERIMENTS WITH FARMYARD MANURE.

Extensive experiments made by the West of Scotland Agricultural College on the storage of manure under cover and in the field, showed that when stored for four months in well trodden heaps the indoor manure lost 16.5 per cent in weight and the outdoor manure lost 20.6 per cent, with an average annual rainfall of 39.32 inches. The indoor manure lost 20.4 per cent of its nitrogen and practically none of its phosphoric acid and potash, while the outdoor lost 28.4 per cent of its nitrogen, 21.1 of its phosphoric acid and 28.3 of its potash. The rotted manures were in each case poorer in total and available nitrogen than the fresh, the losses in this respect being greater in the outdoor than in the indoor manure. The greatest loss was in ammonical nitrogen, amounting to from 70 to 80 per cent of that of the fresh manure, 18 per cent of the total nitrogen of which was in ammonical form. There was a slight increase of amid and of insoluble nitrogen in rotted manure. There was no loss of phosphoric acid and potash where there was no drainage. The average increase of crop (potatoes and turnips) in favor of manure stored under cover was 7 per cent.

### BOOK NOTICE.

"Poultry Diseases and their Treatment" is a well illustrated book by E. J. Wortley, which gives in concise and practical form symptoms and treatments for the various diseases which attack poultry. It is a concise handbook for the practical poultryman, contains 125 pages and is cloth bound. Published by Orange Judd Co., and can be ordered through the Michigan Farmer for 75c net.

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The FARM BOY  
and GIRL  
SCIENTIFIC and  
MECHANICAL

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

TOMMY GROVE was standing in front of the new novelty store window looking at the display. There was an aeroplane kite nearly three feet long, and Chinese dragon kites, and bird-kites—all kinds of gorgeous, high-colored things, it seemed, except the plain old-fashioned sort with a long bobbed newspaper tail. That was the kind Tommy had at home, and it had been made by the skillful but tremulous fingers of his old grandfather.

There was the right sort of breeze stirring, and it was the beginning of the kite season. All the young people seemed to have kite-flying in the

blood, for those on the street talked of little else, and already a dozen or so more or less gorgeous affairs were jerking and nosing into the air, restrained from below by excited, sky-gazing boys and girls. Tommy had thought of taking out his own kite just as soon as he got back from the post-office, but a sight of the kites mounting into the sky, and a look into the shop window, rather disheartened him.

There were a good many young peo-

## The Kitory—By F. H. SWEET

ple in town, for the summer hotel was full of guests, and it was derisively called "The Kiddery" by the village people on account of the number of boys and girls it looked after. The village was very healthy, with good water and air and drainage, and city parents had got into the habit of sending or bringing their children up here for long visits. A number of them were on the sidewalk now, by themselves or with parents or nurses. Just as Tommy was turning away, a gen-

tleman and two small girls and a boy stopped in front of the show window.

"Just look at that aeroplane!" cried the boy eagerly. "Isn't it a beauty? I guess that would fly up into the sky all right! Buy it, father!"

"Well, I suppose I'll have to," resignedly. "But I haven't much faith in such showy fellows. Why don't they keep some of the old time bob-tailed kites like I used to fly when a boy? I wouldn't give one of them for a dozen of these painted advertisements. But I suppose they're out of fashion now."

"You mean a plain flat kite, with a great long tail of bobbed paper?"

## WORLD EVENTS IN PICTURES



Austrian Engineers Repairing Railway Blown up by Russians in Recent Galician Retreat.



Galician Refugees Returning to their Homes After the Austro-German Army Drove the Russians Back.



Tank Cars at Bayonne, N. J., set on Fire by Strikers.



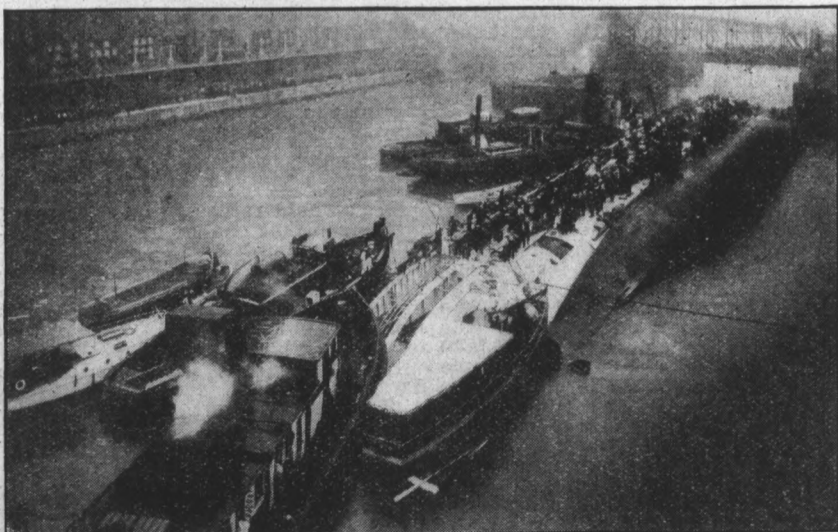
Inhabitants of Isonzo Welcome the Arrival of Italian Soldiers.



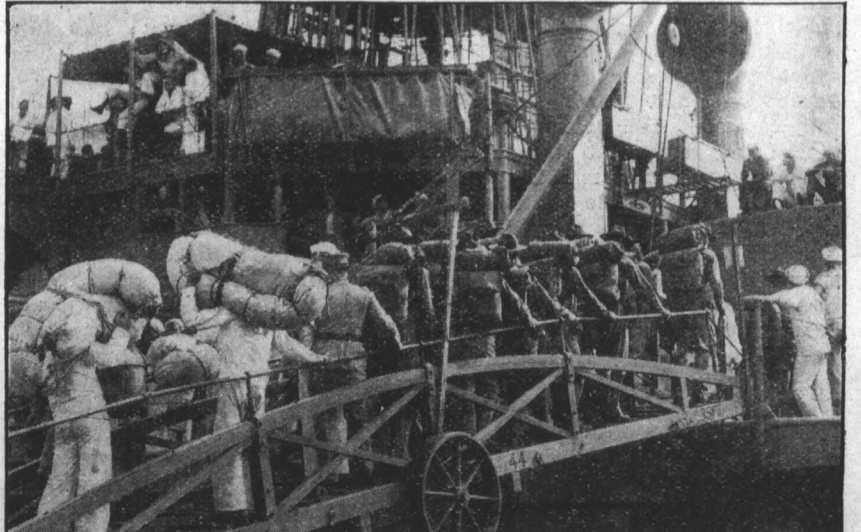
Two Youthful British Soldiers in the German Detention Camp.



Armenians Repulsing the Turks in the Siege of Van.



View of Steamer Eastland Overturned in Chicago River, where over 1,000 Lives were Recently Lost.



U. S. Jackies Embarking on the Battleship Connecticut to Reinforce Admiral Caperton's Command in Hayti.

"Yes, but I don't believe you know quite what I mean. I haven't seen one since I was a boy."

"I think there's one up on top of the hill, at the little brown house," declared the boy. "I was by there yesterday with nurse, and a boy was flying a kite that I'm pretty sure was the kind you mean. And it went away up in the sky, higher than any I've yet seen."

"That sounds like the old-fashioned sort," approved the gentleman. "They would beat any of these new-fangled things. Maybe you're right. We'll make our regular walk over that way after lunch. If it's so, I'll find where the boy got his, and buy each of you one; or if he made it, we'll hire him to make some more. That's the kind of kite that would sell—or ought to. But here," taking some silver from his pocket and handing it to the boy, "you may as well buy the aeroplane and try it, then if we get the other sort you can judge the two."

Tommy had lingered a little and heard all the conversation. Now he sped along the sidewalk toward home, his heart full of elation. The gentleman and his companions were "boarders." He could tell that from the way they looked, and, being boarders, they knew things. And the gentleman had said that old-fashioned kites were the best, the very best. He would go home and send his up into the air at once, so high that everybody could see.

But as he ran on another thought came to him. Money was scarce in the Grove family, and to help out a little his mother wove carpet rags, and Grandfather plaited baskets, and Tommy himself delivered milk for a neighbor nights and mornings. But during these later years Grandfather was becoming a good deal of a child again, and he liked to be with Tommy and make and fly kites better than to weave baskets. Tommy already had two fine kites, and there was the frame for a third, which, as the old man said would be all ready in case one of the other kites got lost or broken.

When Tommy reached home he found his grandfather seated on the sunny side of the house with some basket wood across his lap, but the tremulous hands were idle and the old eyes were gazing dreamily across the valley. But the gaze dropped as the boy stopped beside him.

"Pretty fine wind for kites, Tommy," he suggested.

"Yes, it's fine," Tommy agreed. "But say, Gran'ther, let's get out that kite frame and be at work on it. Maybe you can sell some," and he told what he had heard at the store window in quick, excited sentences. "And they're to come by here this afternoon," he finished; "and if we can get this one done maybe they'll buy all three. You could make me another, you know."

"Sell kites!" the old man quavered, scarcely less excited than Tommy. "Who ever heard o' such a thing! But if I could 'twould be sights pleasanter than making baskets. Tommy, Gran'ther & Co., Kite Makers & Sellers, he, he!"

He rose stiffly and laid the basket materials aside, and shuffled toward the house. Tommy gathered up the basket work and followed him. When they came out their arms were full of stocks and paper and string, and on the wrists of the old man hung a pail, from which the handle of a brush protruded. That was his glue pot.

"Sell kites," he repeated, as he spread his work conveniently around him. "Never heard o' such a thing. What you s'pose one ought to be worth, Tommy?"

"Don't know," answered Tommy. "Haven't any idea. But the aeroplane was marked three dollars, and the cheapest kite in the window, a small dragon, was marked a dollar and seventy-five. What do you think one ought to be worth?"

"Well, I dunno," thoughtfully, "but it takes nigh half a day to make a

good one, so it ought to sell for much as twenty-five cents. That would be fifty cents a day, which I s'pose is all I'm worth these times, though I used to make good wages. Now you hold that end o' the stick while I measure the paper."

Tommy helped with the body of the kite until the old man began to paste, then was set to bunching paper upon the string for the tail. But at last there seemed nothing he could do, so he rose.

"Guess I'd better do another job before anybody comes round, Gran'ther," he said; "and that is paint a sign. If we're going into business we need a sign, so folks will know. There's some black paint left in the cellar."

He searched around until he found a smooth board, about one foot by three, and then got the paint and wrinkled his face in anxious thought for some time before commencing to work. But at last his face cleared, and dipping the brush into the paint pot he began.

The old man was aroused by hearing the board being nailed to the end of the house. Craning his neck around curiously, he read in bold black letters, "THE KITERY."

"Sort o' made up name, ain't it?" he queried. "But I guess it'll be as good as any, 'long's it 'tracts 'tention. Who is that coming up the hill yonder?" suddenly, as he turned back to his work. "Are they the ones?"

"Yes," Tommy answered, his voice trembling a little with anticipation. "They're coming straight here. I'm glad the kite's just being finished, and that it's such a nice looking one."

"This is the place, father," said the boy, a few minutes later, as his party drew near and grouped themselves about the kite maker.

"Yes, so I see," acquiesced his father; "and that is exactly the kind of kite I used to fly when a boy. And—why, certainly, there's the sign on the house," smiling a little as he noticed the board just nailed up. "So you sell kites?"

"Going to, if folks'll buy," answered Gran'ther; "but ain't yet. Fact is, Tommy heard what you said down in front of the store, and came and told me. I made this, thinking of you."

"Really?" exclaimed the gentleman. "Then it was nice of you both. And as I'm the originator of a new business I suppose it's up to me to send you some customers. I'll have to speak to all my young friends at the hotel. Now what is a real kite worth?" "Well, I dunno," hesitated Gran'ther. "Seems as if I ought to be worth fifty cents a day, and it took most half a one to make that. Would twenty-five—"

"Pshaw!" interrupted the gentleman. "I'm ashamed of you, sir! And for skilled labor, too. Why, I paid three dollars this morning for a flimsily made aeroplane, and it's already broken up. Suppose we say two dollars. That seems a fair price; and I would like two more—what!" as Tommy came hurrying from the house with a kite in each hand; "got them already! But I don't like to take yours, boy."

"That's all right," assured Tommy eagerly. "We're glad to sell, and Gran'ther will make me another."

"Very well," smiled the gentleman, "and I can assure you we are glad to buy."

He counted some money and slipped it into Gran'ther's hand. "There are six dollars for these three," he said; "and I will advertise your work at the hotel. I'll promise you at least five more orders from my nephews and friends, and I think other boys will know a good thing when they see it. Now," to Tommy, "I want you to come out on the hill and show my young people a little, for I'm afraid I've grown rusty."

Gran'ther watched them wistfully as they moved away, as if he would like to do a little kite flying, too. But just

now there was something even nearer to his heart. He shuffled round to the back of the house.

"Mandy, oh, Mandy!" he called shrilly.

A middle aged woman hurried out. "What is it, father?" she asked anxiously. "Don't you feel well?"

"Feel well," exultantly, as he thrust the six dollars into her hand. "Guess I do feel well! Mandy, I earned all that, and two of it in less than half a day! Four dollars a day, Mandy! And there's more coming. I ain't so old, after all, daughter, not so awful old."

Something in the pathetic eagerness of the old man brought moisture to the daughter's eyes. She placed her hands upon his shoulders.

"You old, father," she chided. "What put such an idea as that in your head? You're only eighty-three, and I've known men of ninety who worked and said they felt real young. You've made more today than lots of strong young fellows."

The old man chuckled gleefully. "So I have, so I have," he mumbled. Then he shuffled out on the hill to help Tommy fly the kites.

## THE RED MIST.

By RANDALL PARRISH.

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### CHAPTER XXII.

#### A Step Nearer.

I saw it all clearly enough now, although her situation was not quite as desperate to my mind as it appeared to her. Yet it might result even as she feared, for Pickney would certainly be furious at the indignity of his treatment, and Raymond was of a disposition to seek revenge; while all I knew regarding Ramsay was, that he was a rigid disciplinarian, little given to acts of mercy. I could not ignore her plea, nor would I misconstrue it. It was fear which thus drove her to me; she had more confidence in my kindness than in their justice—that was the whole story. The poor girl was so frightened she had chosen blindly—she could perceive nothing, realize nothing, except the necessity for immediate escape. My own resolve was instant.

"Do not say any more, Noreen," I said soberly, but making no attempt to touch her. "I understand now. You mean you wish to ride with me?"

"Yes," "It will be a hard journey, and I cannot guess the end. But you trust me fully?"

"Yes," "We are to be friends, real friends?" "I trust you; is not that enough? All I ask now is, do not leave me here alone."

Her fingers clasped my coat, her eyes suddenly lifted to my face.

"Promise me that, Tom," she begged brokenly. "It will be all I ask."

"Surely; we will go together," and I gripped her hands tightly in mine.

"Whatever happens I will do my best. But we must go at once."

"Yes, and—thank you."

We crept forward along the shadow of the orchard fence, until we mingled with the horses fastened at the hitching rail. There were seven altogether tied there, and I selected among them, as best I could in the darkness, two that seemed well adapted to our purpose. I helped her silently into the saddle, thrusting one of my revolvers into the empty holster, and then mounted myself. There had been no noise, no disturbance, and the sleeping camp behind remained quiet. Only one light gleamed from an upper window of the hotel, and we were safely beyond its reflection. The girl was but a dim shape, the riding cloak she wore completely hiding her form. I could no longer distinguish the sound of distant music, but the courthouse was still aglow.

"Which way had we better go?" I asked, my face close, our horses touching.

"Along the south road at first; there is a cut-off just back of the old school."

"And the pickets? Do you know where they are posted?"

"At the ford of the Green Briar—the main ford."

"There are none at Benton?"

"No; I do not think they even know the river is fordable there; it is not on the maps."

We rode forward slowly, my hand on her bridle rein, keeping in the deeper shadows along the side of the road, until we passed beyond the last house of the village. I felt no fear of encountering the pickets posted at the Green Briar, for the wood trail she mentioned, leading off just this side of the old red schoolhouse, would take us a quarter of a mile east. If we could attain Benton's Crossing before daylight our chances of getting hidden in the mountains were most excellent. If the camp was not alarmed for another half hour, our pursuers would be given a hard task. Strange, though, that the Federal scouts had never located the Benton ford. To be sure it was narrow, and of no value in high water, yet an ideal place for raiding parties to cross, and all those hills be-

yond were full of guerilla bands eager to strike quick and get safely away. That they dared to attack small bodies of troops, and especially poorly guarded wagon trains, had been demonstrated more than once, and this secret ford gave them easy opportunity. The Cowans certainly knew of its feasibility, and the wonder was they had never utilized it before. The longer I thought the more I began to dread the unknown dangers ahead—the gauntlet we must run before attaining the Confederate lines. We could baffle pursuit, but if once we came into contact with those irregulars of the mountains—merciless, irresponsible—no one could predict the result. And every mile of the way we must now traverse lay directly through their country—a region bare, inhospitable, open to all the nameless horror of civil war, where men fought like wolves, and woman suspected every stranger. I glanced aside at the girl, riding so silently at my side, but she was a mere shadow in that darkness. Should I tell her the fear that almost paralyzed me, now that I faced it clearly? Should I compel her to return, and permit me to go on alone? I could skulk along through the night, discard my horse, travel afoot, and thus avoid encountering any of those villains. I was myself a mountaineer, and knew the secret trails—alone, on foot, with no one else to care for, or defend, I could discover some unguarded passage. But with her beside me, the two of us mounted, such a feat was almost impossible. I must find her food and shelter, and we could not travel on horseback without leaving a trail unconcealed. To be sure I knew her of old; that she was strong, resourceful, fearless—yet she was a woman to be protected from insult, to be guarded against exposure; more, she was the woman I loved.

But would she be in any less danger if I compelled her to return to Lewisburg? To be sure, nothing worse than imprisonment would be her fate at the hands of the Federal authorities—but she would be exposed to indignities, to almost certain persecution from Raymond. If I understood the inner nature of the fellow his one thought now would be revenge, and he would halt at nothing in an attempt to attain it. I believed she feared him more than all else; that she would prefer the exposure and danger of the mountains rather than remain alone within the scope of his power.

"Noreen," I said, turning my face toward her. "Do you really think it best to try this ride with me?"

"You do not wish me to go?" she asked, as instantly reining up. "You want me to return?"

"No, not that. I have no thought, but for your own good. Only do you understand the perils through which we must pass in those mountains?"

"Yes, I do understand," she answered soberly, "and I comprehend, as you cannot, the danger of my returning to Lewisburg. I will never go back there; but, if you think it best for us to part, I will endeavor to reach Charleston alone."

"You would rather go on with me?" "I made that choice, but if you consider me a burden—"

"No, it is not that, Noreen," I interrupted, touched by the regretful tone of her voice. "It was of you I was thinking; not of myself. Then we go on together?"

She was silent, her eyes on the darkness ahead.

"It must be your decision," I insisted.

"I made my choice an hour ago," she answered frankly.

I waited an instant, thinking she might say more, but she sat motionless in the saddle. Just what her decision signified I could not judge. It seemed to me that between two dangers she had simply chosen the one

she deemed to be the lesser. It was not affection for me, but fear of others, which urged her forward. Grasping her bridle rein I rode on through the dark without another word. The decision had been made; now we must both of us abide the consequences.

## CHAPTER XXIII.

## The Raiders Pass.

AT the schoolhouse, appearing a mere blur on the side of the hill we turned west, following a narrow weed-grown bridle path through a tangle of second growth timber. Seemingly no one had traveled this way for months, and I had to dismount in order to discover the choked passage. It was small wonder its existence had been overlooked by hurrying Federal scouts, and left unguarded. Benton's cabin had been burned six months ago, Noreen told me, and the old man was believed to be dead. Few others ever used this cut-off, or had occasion to pass this way, and the weeds had quickly taken possession. I was obliged to feel for the worn trail, as it wound here and there along the slope of the hill, and then finally down a shallow depression toward the river bank. The horses stepped cautiously, pressed closely together in the narrow rut, and the only noise was the occasional stumble of a hoof. Where the cabin formerly stood on a point of land, nothing remained visible but a gaunt chimney, and the remnant of a rail fence. I skirted this latter, guided by the shining of the water of the river beyond, and thus we came down to the shore. My memory of the spot was hazy and uncertain, and I stared across at the black woods opposite, shading my eyes in an endeavor to distinguish some forgotten landmark.

"Have you ever crossed here?" I asked doubtfully. "I scarcely remember where the ford lies?"

"Yes," she replied, leaning forward, "with my father a year ago. Benton came down and showed us the course; but I did not think much then of what he said. We took the water directly in front of the house, here at the end of the point, and—oh, yes; there was a dead tree with one great limb forking out on the other bank, we were to aim directly for. Can you see anything like that?"

I hollowed my hands and looked, but nothing along the opposite shore appeared with any distinctness—it was a mere blur of trees.

"Was the ford straight across?" "I think slightly to the left; another point juts out there. See, the river is narrower right across in that direction," and she pointed. "I am sure we only partly met the current. There is something dark against the sky now; higher up above the tree line. I am not sure that is the dead limb, but it must be almost directly in line. Do you see what I mean?"

"Yes; at least I imagine so. We must risk it."

I swung up into the saddle, and resumed my grasp of her horse's rein.

"We'll ride together, but keep your feet free in the stirrups. If your horse misses his footing let go of everything else, and cling to his tail; he'll tow you ashore, and you used to swim."

"So you remember my accomplishments? I am not in the least frightened. Don't worry about me," and she held out her hand. "You'll not find me a bad soldier."

"I am certain of that—not if you are still the same girl I played with." Her hand was in mine, and was not withdrawn.

"I—hardly think I am," she answered soberly, a little catch in her voice. "I am not a girl at all any more, but I keep something of the same spirit, I hope."

I have never understood what spell there was about her to keep me silent. I had never before lacked audacity, yet I dare not speak the words that were on my lips. Whether the personality of the girl held me embarrassed, or the peculiarity of our relationship, I do not know. Surely there was nothing in her manner, or words, to indicate such a thing, yet the thought had taken firm possession of my mind that she was the victim of circumstances; that she accompanied me merely to escape from threatened danger; that her graciousness was largely acting, and that she would remain a companion only so long as I continued respectfully attentive. I knew I loved her; I felt now that I had loved her ever since we were boy and girl together. The touch of her hand sent a wild thrill through me, and my heart throbbed to the memory that she was actually my wife. But I dare not permit her to even guess the truth, for I felt that she regretted the weakness of that moment and would resent the slightest reference to it. I could only hope that time, and courtesy combined, would awaken her interest in me. If I could serve her quietly, the very love I gave might arouse response—but not yet.

I released her hand, venturing upon

no reply, and we rode down the steep bank into the black water. The horses advanced slowly, cautiously, and I made little effort to guide them, although from that lower level, I felt assured I saw the fork of the dead tree silhouetted against the sky above the opposite bank. There were a few stars out, and their light reflected along the surface of the water, the faint gleam more confusing than helpful. The current was strong, but steady, and the stream deepened rapidly, until we were obliged to lift our feet to keep them dry. The bottom seemed to be rock strewn, and occasionally the horses stumbled, splashing us with water; once her mount stepped into a hole, and plunged desperately to regain footing, but the girl never uttered a sound, and my grip held. Half-way across I was certain as to the dead tree, and aimed our course straight by its guidance. The sullen sweep of the water, out of the darkness above, into the darkness below, and the brooding silence, lay hold on my nerves. The black shore we were approaching was full of mystery, forest shrouded.

"What is over there?" I asked, unable to keep still, and feeling the companionship of my own voice.

"Nothing; just a trail through a strip of woods up a long hill. The river road is only a few rods back—the road to Hot Springs."

"There is no house near?"

"Only the old Cowan place, two miles south, but that has been burned down."

"And to the northeast?"

"I have never been that way."

Nor had I, yet it seemed to me that was by far the safer course for us to follow. Cowan's gang was to the south, their headquarters somewhere in Monroe county. No doubt the range of mountains we must cross would prove the rendezvous of other bands no less dangerous, but we would be safer with any of them than in the hands of Cowan. Besides that upper country was occasionally patrolled by troops, and the guerillas would be less aggressive in consequence. It would be comparatively easy to avoid the soldiers, for we would not attempt to travel by daylight.

The water began to shallow, and we drew in under the shadows of the wooded bank. It was so dark I could discover no break in the forest growth and was obliged to dismount, and wade about on foot before I could locate the narrow path that led up out of the dale. This mounted steeply, a mere gash cut through the tangled undergrowth, compelling us to advance in single file, I ahead leading my horse. The passage was so narrow and rough that caution was impossible in that darkness; we must venture, and trust to luck. So we pushed our way through to the top of the rise, and came suddenly to an open space, where a dozen acres had been cleared, the stumps of trees still standing in a field of weeds. I would have plunged straight ahead had not Noreen halted me with a low cry of warning while we were yet hidden within the wood shadow.

"There is a man over yonder," she said in a breathless whisper. "Ay, more—see! They come toward us."

I was not sure I saw, yet I backed the horses into the thicket, and stood at their heads, gripping their nostrils. Noreen slipped from her saddle, and joined me, peering out through the interlaced branches. Over her shoulder I glimpsed a section of the open field, and saw the dim, indistinct shadows advancing. They were men on foot, walking so closely bunched as to make it impossible to distinguish their number. The leader, a yard or two in advance, apparently knew the way well, and the others pressed on after him across the open ground almost on a dog trot. Indeed, they were upon us before we gained more than a swift glimpse of them, plunging into the narrow opening that led down to the river. There was no attempt at silence their hurrying feet stirring up the dead leaves, and voices calling out warnings along the line, or raised in sudden profanity. The noise thus made saved us from discovery, the horses moving restlessly in spite of our efforts at control; but without suspicion the file swept past, scarcely a dozen feet from where we stood, and disappeared in the dense blackness below. I counted thirty-three men, vague, shapeless shadows, each bearing a gun, and, as the last straggler crashed by, and disappeared, I felt Noreen's hands clasp my arm, and glanced at her.

"They have all gone," I said reassuringly.

"Yes, I know," her words a whisper. "Do you know who they are?"

"Only to make a guess. They were shadows rather than men—but they were not soldiers."

"That was Cowan's gang," she said positively. "It was Anse in the lead."

(To be continued.)



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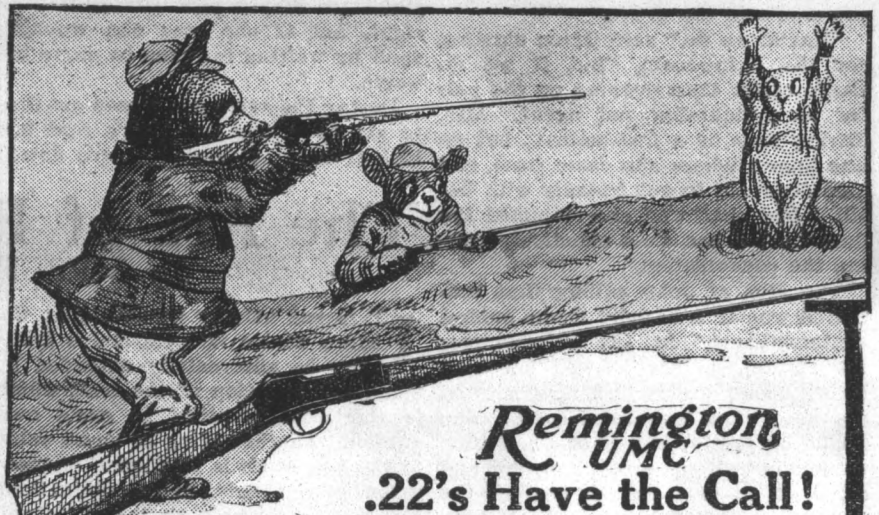
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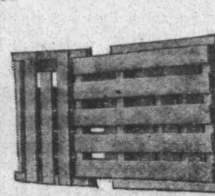
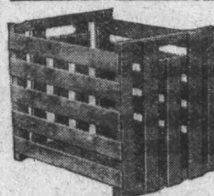
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# Woman and Her Needs

## At Home and Elsewhere



OUR new neighbor went to town this morning," said John Ludlow, spearing a slice of bread with his fork before Grace could catch up the plate to pass it to him. "She's some classy lady, Gracie. You wouldn't need that fashion paper you signed for last month if you took time to study her style."

Grace's mouth tightened in a hard little line. "I've no doubt I could learn a great deal besides fashions if I took the trouble to study her," she said grimly. "I don't see where you get time to see how stylish she is. I thought you were so rushed with work you wouldn't have time to stop for your own funeral."

"We've always got time to look at a pretty woman, eh, Bill?" John answered with a wink at the hired man, "and she certainly is a beauty. She's bright, too. I heard her talking down at the store last week and she knows what's what. Always has an answer for everybody. Why don't you call on her, Grace? I'd like to know her better."

"I haven't time to visit my friends, let alone making new acquaintances," said Grace. "I don't believe in picking up with everyone that comes into the neighborhood, anyway. Wait until you see what they are, my mother always said."

"And in the meantime let them die of loneliness," said John. "Don't you know the law says a man's innocent till he is proven guilty? But you women suspect everyone who won't give you a diagram of their lives from the cradle to the grave."

"Maybe we do," said Grace starting for the living-room, "but if we do that's better than opening up the parlor to a lightning rod agent. Mrs. Baring may be a fine woman, but no one knows where she came from, and I don't intend to get friendly with her till I find out," and she slammed the door behind her, thus effectively closing the conversation.

The idea of John calling that red-haired woman a beauty! Grace sniffed contemptuously in the mirror over the mantel, as she viewed her own brown locks which just now showed the need of a brush and comb. She might be pretty, too, if she had time to doll herself up every morning and drive off to town in the cool of the day. She pushed her hair back from her forehead impatiently and looked searchingly for wrinkles. Thank Heaven there were none, though it was a miracle after all she had been through that summer. And what had all her hard work got for her? Instead of being appreciative John took occasion to admire the first pretty woman who came into the neighborhood; actually stopped his work to stare at her driving by! Well, if he thought she was going to call on Mrs. Baring and invite her there for him to get acquainted with he was quite mistaken. Mrs. Baring would sit home alone a good many days before she took the trouble to call upon her, and with a virtuous feeling of superiority Grace returned to the kitchen and began the tri-daily task of dishwashing.

Nevertheless her aversion for the new neighbor did not keep her from running to the window to watch her drive by when she sighted the high-stepping bay and the up-to-date trap coming over the crest of the hill. If there was one thing more than another

## The Domestic Crucible-14.

### Grace Decides Against the "Angel Unawares."

er that Grace admired it was a fine horse and a smart conveyance, and she told herself that it was the outfit and not the woman that interested her. Her interest in the horse did not keep her from surreptitiously inspecting the driver, however. The glance that swept the turnout took in the smart little hat with its clusters of flowers, the neatly fitting gaberdine suit, with set-in sleeves and 1915 skirt and the putty colored driving gloves that covered the firm, dexterous hands. A jealous pang shot through Grace's heart as she thought of the kimoni-sleeved coat she had to wear this summer and involuntarily she wondered if the sleeves could not be cut over. Not that she would copy Mrs. Baring. Indeed not, but the fashion papers all showed plainly that kimoni sleeves and sloping shoulders were entirely out.

Then her reflections were brought to an untimely end by a fresh stab. Aunt Ann was actually waving her hand at that woman in a most friendly manner. Of all things, to be so free with a complete stranger! But, then, Grace reflected, Aunt Ann was queer anyway. And besides, she was past 60 and had no men to worry about. Grace turned from the window with a frounce generated of one part honest doubt as to the propriety of entertaining strangers and nine parts jealousy. Maybe Mrs. Baring was all right, but if she was she wouldn't spoil by waiting for time to prove her worth.

During the afternoon Grace got time to get down her last year's coat and look it over. It certainly was dowdy

after a vision of what this year had done to the styles. She got out her fashion magazines and hunted through it for direction for making over a kimoni sleeved garment, and found what she thought would do. A little ripping and cutting and a bit of stitching would completely change the garment, and she straightway reached for her sharpest scissors and began to snip. The process of making over was so absorbing that she quite forgot time and was just trying on the bast- ed coat when John slammed in for supper.

"That looks more like it," he said admiringly. "I thought that thing of yours looked queer after I saw Mrs. Baring's."

Grace snatched the coat off, and flung it on a chair. "Mrs. Baring is not the only woman in the neighborhood who knows what's stylish," she snapped. "The rest of us could look like fashion plates, too, if we could squeeze out the money to buy new clothes every time the styles changed. I'll have supper in ten minutes," as the door between the kitchen and dining-room banged viciously behind her.

Whatever faint possibility there had been of Grace's calling on the new neighbor vanished, killed by the jealous spasm that seized her. Not that Grace, usually so honest with herself and others, admitted she was jealous. She told herself she hadn't time for new friends, and that it was far better to be cautious in making acquaintances, especially when the strangers were so ultra-modern in clothes and conversation.

DEBORAH.

## The Art of Blending Fruits

### By MRS. E. O. SWOPE

IT is not usually thought that the more choice and expensive fruits may be successfully extended by using a foundation of the fruit which is the most plentiful in one's own garden. Another thing of equal value to the housewife is that some of these extensions, blends, and combinations are more agreeable to the taste and less trying to the digestion.

My experience has been that rhubarb, crabapples and any juicy, tart apple from the orchard are the best and most common foundation juices. Rhubarb is first on the season's list, then apples, etc.

Speaking of red pineapple, "where did you get them and did they cost more than the ordinary kind?" This was the exclamation when I first tasted rhubarb-pineapple preserves. These were made from the red-stalked variety of rhubarb, the sauce was a brilliant color and very delicious. The pineapple is finely shredded and cooked until tender in just sufficient water to cover it nicely, next the rhubarb is cut and added. The right proportion to use is one part pineapple to two of rhubarb, using a large cupful of sugar to a pint of the cooked fruit. After the combination is stewed until soft I add the sugar and let the mixture simmer for 15 minutes, then it is sealed in jars while hot.

A really delicious marmalade is

made of rhubarb and oranges. For proportions use two quarts of the rhubarb cut fine, to one dozen nice sized oranges and three pounds of sugar. First slice off the yellow rind, remove the seeds, then slice the oranges into the kettle into which the rhubarb and the sugar have already been put. Cook slowly until the consistency of marmalade. Be very careful to save all the juice of the oranges, and should the skins be very soft and oily, do not use the yellow part of more than three-fourths the number.

The jam mixtures of currant and gooseberry, and currant and raspberry are too well known to cause any further discussion, unless I may say that equal quantities of the fruit bring the best results. But if we desire a very choice, richly flavored jelly, it can be had by an even blend of red currant and red or purple raspberry. Either the nursery or wild fruit can be used, whichever we have. My method is to seal the hot, strained juice and put it away until the crabapples are ripe. If the crabapple tree does not bear this year, use Baldwins or some other good variety from the orchard. Those that have blown down will answer this purpose. Use even quantities of raspberry and apple when possible. However, I have had very satisfactory results with one part raspberry and two parts of crabapple juice.

I have also carried currant juice over the summer months and combined it with crabapple. Another good jelly blend that many of my friends have complimented is wild grape and crabapple. Currant, wild grape and crabapple make a pleasing combination for jelly, and it will be hard for the guests to say which it is, as it has a very peculiar flavor.

Two more excellent blends of fruit are the barberry, apple and quince, apple. Because of the pungency of both, one part can be used to two parts of the apple. For jelly I use a good tart apple, for sauce I use a good juicy sweet apple. Pears may also be substituted, but it is very important that they possess what the barberry and quince sometimes lack, plenty of juice.

Another good mixture for making jelly of a very pleasing flavor is the juices of sour cherries and wild grapes. Using crabapple with the cherry juice is very good.

There are many other combinations equally delicious, but the above will afford a great variety of experiments and each one will have a flavor peculiar to itself. Every housewife should try one or more of these. You will be delighted with the results, and you can have your friends guessing when they taste the different combinations.

### HOME QUERIES.

Household Editor:—Could you or anyone tell me where I can get a book on fortune-telling or palmistry?—B. M. B.

..We can not give addresses of business firms in this paper. Such requests must be accompanied by a stamped envelope.

Household Editor:—Will someone give reliable recipe for making dill pickles like those sold in stores?—Reader.

To make dill pickles place a layer of dill leaves over each layer of cucumbers as they are picked and put in the brine. Or put one or two dill leaves in each can when the pickles are scalded in the vinegar.

Cranberries may be washed and placed in cans, and covered with cold boiled water and will keep for years. When opened they are soft as though cooked, but are perfectly good.—Mrs. F. R. H.

Thank you for recipes for uncooked berries and grapes. Several others have sent them in.

Household Editor:—Will someone kindly tell how to finish a floor covering made of burlap for kitchen or dining room.—Mrs. L. E. K.

### A "HAPPY BABY."



BY AILEEN ROFF.

"Come little fluff, are you hungry? Come an' share my bread and milk, An' let me pat your head of silk. But be sure you know your place, An' don't lick my hands or face."

## Farmers' Clubs

### Associational Motto:

"The skillful hand with cultured mind is the farmer's most valuable"

### Associational Sentiment:

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

### PRACTICAL WORK IN THE FARMERS' CLUB.

If one who has attended Farmers' Club meetings fairly regularly for nearly a score of years, and who has carefully followed the reports of local meetings published in the Michigan Farmer since the inauguration of the Farmers' Club Department may be allowed space for kindly criticism, he would gladly avail himself of it. In this connection it would be proper to say that the writer has a very high opinion of the value of the Farmers' Club, as at present conducted, to the people of any community, particularly the Club members. But there would seem to be opportunities for a broadening of Club work to an extent which would make the organization of still greater benefit to the members and to the whole community as well.

The Club is an educational institution of no small value, yet in the discussion of questions members often reflect preconceived ideas without evidence of special preparation. It would be an excellent plan to get reference books, reports, etc., from the state library bearing upon the subjects to be discussed and place them at the disposal of the members who are to participate in the discussions. This could easily be done by submitting the subjects to the state librarian and asking for references, or better yet, by having a committee of the Club look up authorities on the subjects proposed for discussion.

Another way in which most Farmers' Clubs could increase the educational value of their meetings would be through the securing of outside speakers on topics of economic importance to the members. This is very easy of accomplishment, since the teaching staffs of our state educational institutions can be called upon freely for work of this kind with assurance that such calls will be responded to in every case where it is at all possible. Besides that, men who have made a notable success along any particular line will be glad to respond to similar calls and attend Club meetings generally without charge other than the payment of their expenses. The holding of special lecture courses during the winter also offers an educational opportunity which but few Clubs have improved, but the Clubs which have once engaged in this line of effort will be found enthusiastic in their praise of its educational possibilities.

There are likewise problems which it would be greatly to the benefit of every community to settle definitely which the Farmers' Club could be largely instrumental in working out at very small cost to the members, as for instance the growing of a new crop, the testing out of varieties, the efficiency of different methods of soil preparation, etc., all of which work could easily be conducted by an interested committee with whom the members of the Club would co-operate, the report of such trials to be given at some meeting at the close of the experiments, to the great benefit of all concerned.

The Farmers' Club could also well be made the nucleus of organizations for conducting co-operative enterprises of various kinds, and instead of being made a mere occasion for routine work and social enjoyment, it could be made of real economic value to the entire community.—A. F.

## Grange.

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

### FARM HOME DEDICATED BY GRANGES.

The Grange from the first has been continually striking its roots deeper into the ideals and institution of the rural home. The finest fruit of its strength in this direction is seen in the new practice of the dedication of the farm homes of its members by the Grange as an organization. The service used for this purpose is the crowning gift of that tireless expounder of Grange principles and sentiments, Hon. Mortimer Whitehead.

The first time this ceremony has been observed in our county of Washtenaw and, so far as I know, in the state, was on July 14, when the home of J. B. Steere was formally dedicated by Pittsfield, Union and Ann Arbor Granges. The Steere family consists of father and mother and nine children, all energetic, alert-minded, and educated in the Ann Arbor schools, State University or Ypsilanti College, between which institutions their home is located upon the trolley line. This home is unique; it is independent spirited and individual as its inmates. Indeed, the house and grounds strike even the stranger within their gates as the outgrowth of a virile, happy family life in which toil and recreation are cheerful yoke fellows. It is the "ideal farm home" of which we prate but too seldom discover.

To this home came officers and members of these two local Granges bidden by its owners to dedicate it to the noble ends inculcated by the Order and to confer upon it the name by which it is henceforth to be known. On account of the mid-summer crowding work, no attempt had been made to hold a rehearsal of the dedication ceremony but, despite this impromptu character, the service was very effective. Its central feature is a flower-laden altar which little children drape with the national flag and on which officers of the Grange in turn place their tributes with appropriate sentiments. Then follows the unveiling of the name selected for the farm home. In this instance the name, "The Steerage," stood revealed when a tiny child drew aside its covering; and, of course, a speech was next in order by our host, Brother Steere. Nor were his remarks the least impressive and thought-provoking part of the program. Stanch, fearless, absolutely democratic himself, this honored apostle of liberty and justice told his friends and neighbors that he had chosen this name, not for any facetious reason, but because he meant it to stand for the best principles of true democracy and that he hoped by this means to help incite in his children the determination to keep the home in the family for generations to come.

Following the formal dedication the company distributed itself in groups over the lawn, the house and porches and enjoyed ice cream and cake.

The free use of favorite Grange and patriotic songs throughout the dedication service and the abundance of familiar Bible texts which occur in it make this new Grange ceremony at once strong and simple, yet so easy to render even with little practice, that I heartily commend its use to other Granges.

JENNIE BUELL.

### COMING EVENTS.

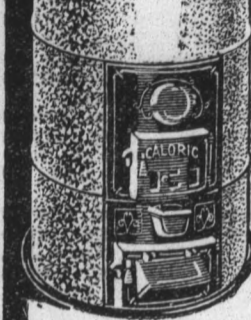
Gratiot County Pomona Grange will meet with Summer Grange, Thursday, August 26. A state speaker will be in attendance.

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(Patented)

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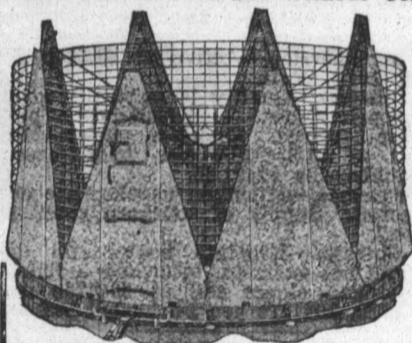
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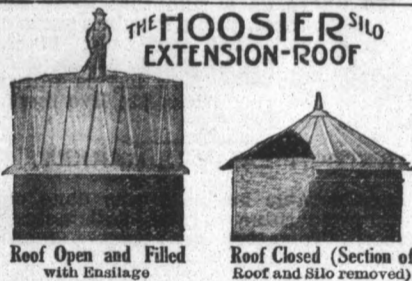


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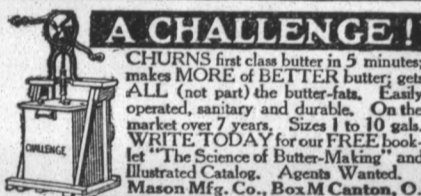
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# Markets.

## WEATHER FORECAST.

Report for week beginning August 11 for the region of the Great Lakes. There is a tropical disturbance over the southern windward island section and the weather for the territory east of the Mississippi river for the coming week is largely dependent upon the movement of this disturbance. At present the indications are as follows: For the region of the Great Lakes, fair weather for several days except probable showers on Wednesday or Thursday over lower lake region; unsettled towards end of the week with showers probable. Moderate temperature.

## GRAINS AND SEEDS.

August 10, 1915.

**Wheat.**—Notwithstanding estimates put the wheat crop for 1915 as the largest ever harvested in this country, values have ranged higher the past week than the week previous. This was due largely to inclement weather which traders believed would limit the amount of merchantable wheat. On Monday when more encouraging weather prevailed there was bearishness aplenty and values sagged. However, it must be understood that the market is having good support under the pressure of the bumper crop. The American visible supply is the smallest in years for this season, foreign markets are higher and they need an enormous amount of wheat in Europe. The spring wheat harvest is here which will converge the early marketing with winter wheat and will probably enable buyers to bear the trade for a while. One year ago the price for No. 2 red wheat was \$1.01 per bu. Quotations for the week are:

	No. 2	No. 1	
	Red.	White.	Sept.
Wednesday .....	1.14	1.11	1.11½
Thursday .....	1.14	1.11	1.11½
Friday .....	1.13	1.10	1.10
Saturday .....	1.14	1.11	1.11
Monday .....	1.13	1.10	1.10
Tuesday .....	1.14	1.11	1.13½

Chicago.—September wheat \$1.07½; Dec., \$1.08; May \$1.12½.

**Corn.**—The government estimate of corn is less than the trade had figured upon, however at the opening this week the grain followed the trend of wheat. Unusually good weather will be needed to make marketable corn of much of the crop. One year ago the price for No. 3 corn was 88c per bushel. Quotations for the week are:

	No. 3	No. 2	
	Mixed.	Yellow.	
Wednesday .....	82	83½	
Thursday .....	83	84½	
Friday .....	82½	84	
Saturday .....	82½	84	
Monday .....	81½	83	
Tuesday .....	82	83½	

Chicago.—September corn 74.7c; Dec., 64c; May 65.2c per bushel.

**Oats.**—The estimate of the government shows this grain to be in poorer condition than has been thought. The improvement in the weather will save much from being spoiled by the continuous rains. Prices are better than a week ago. At this date last year standard oats were selling at 45½c per bushel. Quotations for the week are as follows:

	Standard.	White.	No. 3
Wednesday .....	57½	57	
Thursday .....	58½	58	
Friday .....	60	59½	
Saturday .....	60	59½	
Monday .....	60	59½	
Tuesday .....	60	59½	

Chicago.—September oats 39.4c; Dec., 39.7c; May 42.7 per bushel.

**Rye.**—This cereal is inactive with the nominal price advanced 1c to \$1.02 per bushel for cash No. 2.

**Beans.**—Prices up 5c. Crop damaged by rains. Detroit quotations are: Cash \$2.65; September \$2.75. Chicago trade is quiet and steady. Pea beans, hand-picked, choice, are nominal at \$2.82@3; common \$2.62@2.80; red kidneys \$3.25@3.50.

**Clover Seed.**—Prime spot \$8.25; October \$8.50; alsike \$9.

**Timothy Seed.**—Prime spot \$3.35.

## 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 \$6.30; straight \$6; spring patent \$7.10; rye flour \$6.50.

**Feed.**—In 100-lb. sacks, jobbing lots are: Bran \$25; standard middlings \$29; fine middlings \$32; cracked corn \$28; corn and oat chop \$30 per ton.

**Hay.**—Market is steady. Carlots on track at Detroit are: No. 1 timothy \$22@23; standard \$21@22; No.

2, \$20@20.50; light mixed \$21@22; No. 1 mixed \$18@18.50; No. 1 clover \$14@15.

New York.—Steady. Prime \$29; No. 1, \$28@29; No. 2, \$26@27c; shipping \$22@23 per ton.

**Straw.**—Rye straw \$8@8.50; wheat and oat straw \$6.50@7 per ton.

## DAIRY AND POULTRY PRODUCTS.

**Butter.**—Receipts are large; much is going into storage. Prices are unchanged. Extra creamery 25c; firsts 24c; dairy 21c; packing stock 18c.

**Elgin.**—Smaller receipts brought an increase of ½c in price. Quotations for the week are 25c per pound.

**Chicago.**—Market is firm at prices about 1c lower than last week. Extra creamery 24@24½c; extra firsts 23@23½c; firsts 21½@22½c; seconds 20@21c; packing stock 18½@19c.

**Poultry.**—Market is firm and the demand is good for heavy hens; broilers also sell well. Live.—Broilers, No. 1, 19@20c; No. 2, 17@18c; heavy hens 15c; others 12@13c; ducks 14@15c; geese 10c.

**Chicago.**—Fowls are firmer and higher, springs slightly lower; other kinds are steady. Fowls, good weights 13½c; spring chickens 16@17c; ducks 12½@13½c; geese 8@10c; guinea hens \$2.75@3 per dozen.

**Eggs.**—Good eggs are firm. Much under grade stuff coming. Candling is necessary. Canded firsts sell at 18c; current receipts 16c.

**Chicago.**—Market is firm and prices slightly higher. Good fresh stock moves well. Miscellaneous lots, cases included 15@17½c; ordinary firsts 15@16c; firsts 17½@17½c.

**Veal.**—Quoted steady at 14@14½c for fancy, and 13@13½c for common.

## FRUITS AND VEGETABLES.

**Cherries.**—In demand at \$2.25@2.50 per bushel.

**Chicago.**—Choice fruit is scarce and sells well, but poor stock is easy. Sour sell at \$1@1.25 per 16-qt. case; sweets \$1@2.25 depending on quality.

**Raspberries.**—Steady and scarce. Reds are quoted at \$4@4.50 per bu; blacks at \$4@4.25 per bu.

**Chicago.**—Receipts of blacks light, of reds ample. Good stock of either sells well. Much poor stuff being received. Blacks 75c@\$1 per 24-pt case; reds 75c@\$1.25 per 24-pt. case, depending on quality.

**Blackberries.**—Active at \$1.50@1.75 per 16-qt. case.

**Chicago.**—Quality is generally good and prices low. Good fruit brings premium prices. Michigan dewberries sell at \$1.25@1.50 per 16-qt. case; blackberries \$1@1.25.

**Peaches.**—Michigan peaches are not quoted. Supply of southern stock is good.

**Chicago.**—Receipts heavy and demand not sufficient to absorb arrivals. Michigan clings sell at 50@75c per bushel, 10@17c per 1-5 bushel basket.

## GRAND RAPIDS.

Fall apples are coming in quantities now, with Duchess selling at 65@75c, and Astrachans at \$1.25. Plums and first Clingstone peaches are here and are selling around \$1.25@1.50 per bu. The potato market is slow, with supply greater than the demand, and 40c is top figure as a rule this week on the city market. Red raspberries are worth around \$1.75 per case; black caps \$1.50; blackberries \$1.25, and huckleberries \$1.75. New hay is worth \$11@13; new red wheat \$1; live fowls 11@12c.

## DETROIT EASTERN MARKET.

Considerable business was done on Tuesday morning at fairly satisfactory prices. Tomatoes are coming more freely with prices from \$2.25@3.50 per bu; potatoes 75c; apples \$1.25@1.50; cabbage, white 20c; do. red 65c; raspberries 20c per qt; blackberries \$3.25 per 24-qt. case; butter beans 75c per bu; plums \$2; eggs 28@30c; lettuce 30c per bu; loose hay offered around \$24 per ton.

## LIVE STOCK MARKETS.

### Buffalo.

August 9, 1915.  
(Special Report of Dunning & Stevens, New York Central Stock Yards, Buffalo, N. Y.)

Receipts here today as follows: Cattle 200 cars; hogs 115 d. d.; sheep and lambs 18 d. d.; calves 1200 head.

Good cattle sold 25c per cwt. lower, and the common and medium cattle were off 25@50c per cwt. The trade was very bad on the latter kinds and several loads are left over that could not be sold without a big sacrifice. Chicago and New York markets are in bad shape. We do not look for much advance on the common cattle from now on, as Texas cattle have started to move.

We had entirely too many hogs here today for the good of the trade, about 115 cars, including 25 held over

from Saturday. Our market was in a very unsatisfactory state. While the prices were a little bit higher, some grades sold no better than Saturday. Strictly pigs sold as high as 8c per lb; yorkers and lights from \$7.70@7.90, as to weights; light mixed \$7.40@7.50; extreme heavies from \$7@7.25, as to weight and quality. Late market was strong on anything light, but hogs weighing above 225 sold rather dull and some of this kind going over unsold. Best roughs sold from \$5.75@5.85; stags \$4.50@5. Our prices look low here compared with other markets and no doubt will have a stronger market balance of the week on anything handy.

The market was active today on lambs and sheep, with prices steady with the close of last week; most of the choice lambs selling at \$9.50. We look for steady prices the last of the week with moderate receipts.

We quote: Lambs \$9.25@9.50; cull to fair \$7.50@9; yearlings \$6.25@8; bucks \$3@5; handy ewes \$6.25@6.50; heavy ewes \$5.50@6; wethers \$6.50@7.25; cull sheep \$3@5; veals, choice to extra \$11.50@12; fair to good \$8.50@10.50. Heavy calves \$5@8.50.

### Chicago.

August 9, 1915.  
Cattle. Hogs. Sheep.  
Receipts today..22,000 25,000 12,000  
Same day 1914..10,845 17,474 25,567  
Last week.....39,161 125,449 71,545  
Same wk 1914..31,750 64,496 47,654

The cattle run today included about 3,000 head from the western ranges. Butcher stock sold freely at steady prices, but trade was late in the other kinds, and it looked as though the market would close 10@15c lower. Hogs were active and 5@10c higher, with sales at \$6@7.65. Sheep and lambs were active at steady prices.

Cattle prices fluctuated last week more than usual, with higher values on Monday, when the receipts were only 15,633 head, followed by declines later in the week, with larger offerings. Trade requirements on local, shipping and export account were not especially larger than usual, and killers discriminated against grass cattle, paying good premiums for fat corn-fed lots, with yearlings that were fat selling at better prices than heavy beefs. In fact, heavy steers were unpopular and moved off more slowly than heretofore. The bulk of the steers sold at \$8.60@10, with the best class of heavy steers taken at \$10@10.25, while the best yearlings brought \$10@10.40. Inferior to fair grass steers of light weight sold at \$6@7.50, common to medium warmed-ups at \$7.60@8.50, medium to good heavy steers at \$8.60@8.95 and good corn-fed at \$9@9.95. Yearlings sold all the way down to \$7.50@8.50 for the poorer offerings. The western range season opened on Wednesday, when 31 cars of Montana rangers arrived. They were in good killing shape and sold at \$7.55@8.50, averaging from 975 to 1153 lbs. Butcher cows and heifers met with the usual demand, with sales at \$4.90@9.50, fat little yearling heifers selling much the best, and the best cows going at \$8@8.50. Cutters sold at \$4.30@4.85, canners at \$3.50@4.25 and bulls at \$4.75@8. Calves found an outlet at \$5@9 for the heavier class, with the better class of light vealers going at \$10.50@11.50, the advance being in choice offerings.

Hogs sold last week at an extremely wide range of prices, with rallies much oftener seen in good corn-fed barrows than in the too numerous rough, grass-fed sows of the heavy packer class. Some increased runs of hogs brought about sharp breaks in values, and a drop of 15@25c took place on Thursday, with average quality of the offerings only fair, and about 6,000 hogs being left unsold at the close. Recent receipts averaged in weight 239 lbs., comparing with 249 lbs. one year ago and 236 lbs. two years ago. Fresh pork is having a big outlet, and provisions are in large request on domestic and foreign account with exports of 17,555,500 lbs. from this country in a recent week, comparing with 10,506,540 lbs. a year ago, but the heavy production of cured meats and lard results in unusually large accumulations. On August 1 Chicago warehouses held 172,586,573 lbs. of provisions, comparing with 184,286,743 lbs. a month earlier and 95,867,921 lbs. a year ago. Provisions have followed the same course as hog prices, and recent sales of pork were at a decline of over \$6 per barrel from the price of a year ago. During the last few days prices broke sharply, closing on Saturday at \$5.90@6.10 for heavy packers. \$6.15@6.30 for mixed packing, \$6.60@7.35 for selected butchers, \$7.40@7.55 for light shipping, \$6.40@6.80 for heavy shipping and \$5.25@7.45 for pigs.

Sheep, yearlings and lambs have been doing very much better for their owners recently than a short time ago, when prime flocks of lambs were selling around \$8 per 100 lbs. Native lambs and native ewes have shown up in fair numbers, with the ranges of

Idaho, Montana, Oregon and Washington furnishing a liberal share of the daily runs and lambs greatly predominating. Everything at all desirable in the live mutton line sold much higher than in other years, and advances from Missouri river markets speak of a demand for feeding lambs from the range at high prices, as high as \$8.10 per 100 lbs. having been paid. At the close of the week prices were: Lambs \$6.75@9.50; yearlings \$6.25@7.50; wethers \$6.25@6.90; ewes \$3@6.85; bucks \$4.50@5.50.

## THE BROOKWATER DUROC SALE.

The Brookwater Farm sale of Durocs on July 28 was well attended, and the offering was fully up to the high Brookwater standard set at previous sales. Although buyers included breeders from nine states, including Michigan, Ohio, Wisconsin, Illinois, Oklahoma, South Carolina, California and Louisiana, a considerable portion of the offering, including some of the best individuals, went to Michigan buyers. The 36 bred sows made an average of \$55.55 while the 13 spring pigs averaged \$38. The high price of the sale was \$133, paid for Orion Chief Belle IV, (by Tippy Col.), by Stuart Acres Farm, of Michigan. The open gilts, sold with free service to The Principal 4th, averaged close to \$100 per head.



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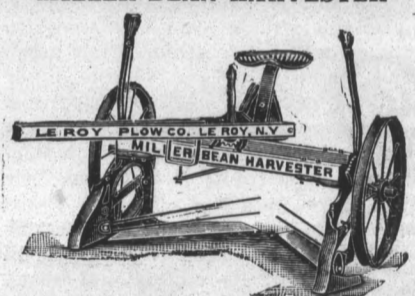
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## THIS IS THE LAST EDITION.

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

## DETROIT LIVE STOCK MARKETS.

Thursday's Market.  
August 12, 1915.  
Cattle.

Receipts 1501. There was another heavy supply of cattle on the local market this week and the quality as a rule was common, few good steers being in the receipts and not a head good enough to bring over \$8 a hundred. Many were light stocking grades for which the demand is very light on account of quarantine regulations still prohibiting their return to the farm for feeding purposes. The market was steady at last week's close on everything but bulls, which were 10@15c lower. Milch cow dealers who have been fighting hard to do business have about given up the struggle and it looks as though, so far as the yards are concerned, they will be unable to do business this summer. Best heavy steers, dry-fed \$8@8.50; best handy weight butcher steers \$7.50@7.75; mixed steers and heifers \$6.50@7.50; handy light butchers \$6@6.50; light butchers \$5.25@6; best cows \$5.75@6.25; butcher cows \$5@5.50; common cows \$4.25@4.75; canners \$3@4; best heavy bulls \$5.75@6; bologna bulls \$5.25@5.75.

Haley & M. sold Feldman 2 cows av 775 at \$4.50, 2 bulls av 900 at \$5.40; to Sullivan P. Co. 2 cows av 1125 at \$5.50, 1 do wgh 1050 at \$5.70 do av 936 at \$6.20 do av 995 at \$5.65, 6 butchers av 830 at \$6.35, 6 do av 763 at \$6.25, 1 cow wgh 870 at \$5.25; to Hammond, S. & Co. 4 cows av 887 at \$4; to Kamman B. Co. 2 steers av 850 at \$7; to Bresnahan 1 heifer wgh 539 at \$5.50; to Hammond, S. & Co. 19 butchers av 600 at \$6.10, 20 steers av 937 at \$7.50; to Applebaum 3 butchers av 543 at \$5.90; to Feldman 10 do av 838 at \$5.20; to Grant 10 do av 566 at \$5.60; to Breitenbeck 17 do av 862 at \$7; to Mich. B. Co. 6 cows av 1000 at \$5.75, 12 butchers av 583 at \$5.25, 5 steers av 800 at \$6.85, 3 cows av 1040 at \$5.50, 14 steers av 925 at \$7.60, 1 do wgh 920 at \$7.50, 5 cows av 860 at \$6.

Reason & S. sold Johnson 7 cows av 1140 at \$5.90, 4 do av 1122 at \$5.30 do av 970 at \$4; to Mason B. Co. 1 bull wgh 1780 at \$5.75; to Hammond, S. & Co. 2 steers av 1070 at \$7.75; to Sullivan P. Co. 2 bulls av 1095 at \$5.50, 3 cows av 1113 at \$5.65, 2 steers av 900 at \$8; to Fisher 1 cow wgh 1010 at \$4, 1 do wgh 1095 at \$5; to Mich. B. Co. 10 butchers av 914 at \$7; to Thompson Bros. 10 do av 855 at \$7.10.

## Veal Calves.

Receipts this week 503. Good grades of veal calves held about steady, the best bringing \$11@11.50, but common and heavy were dull and 50@75c lower, selling at \$5@9.50.

Roe Com. Co. sold Mich. B. Co. 2 av 190 at \$11.50, 5 av 130 at \$10.50, 6 av 155 at \$11, 2 av 275 at \$9, 16 av 160 at \$10.

Reason & S. sold Thompson Bros. 12 av 170 at \$11.75.

## Sheep and Lambs.

Receipts 3180. The sheep and lamb trade opened up Wednesday with best lambs selling at \$9.25@9.50, but broke around noon and were 25@50c lower on lambs and on Thursday the top lambs brought \$8.75 and dull at the decline as follows: Best lambs \$8.75; fair lambs \$8@8.50; light to common lambs \$6@7; fair to good sheep \$4.50@5.25; culls and common \$3@4.

Sandel, S., B. & G. sold Parker, W. & Co. 40 sheep av 110 at \$4.50, 15 do av 105 at \$4.25, 4 do av 125 at \$5, 14 do av 110 at \$5, 2 lambs av 75 at \$9, 5 do av 80 at \$9.25, 57 do av 80 at \$9.25, 50 yearlings av 80 at \$8, 39 lambs av 65 at \$9.25, 15 do av 80 at \$9.25; to Mich. B. Co. 13 do av 75 at \$9.25, 96 do av 45 at \$8, 7 sheep av 105 at \$5; to Newton B. Co. 28 lambs av 50 at \$5; to Sullivan P. Co. 53 do av 75 at \$9.25, 22 sheep av 115 at \$4.75.

Haley & M. sold Parker, W. & Co. 10 yearlings av 100 at \$6.50, 10 sheep av 138 at \$4.50, 173 lambs av 72 at \$9.25, 84 do av 68 at \$9, 10 do av 58 at \$6.50, 6 do av 80 at \$9.25; to Mich. B. Co. 83 do av 73 at \$9, 29 sheep av 100 at \$4.50; to Parker, W. & Co. 32 lambs av 80 at \$9.50, 202 do av 70 at \$9.25; to Mich. B. Co. 10 sheep av 123 at \$3.25, 71 lambs av 70 at \$9.

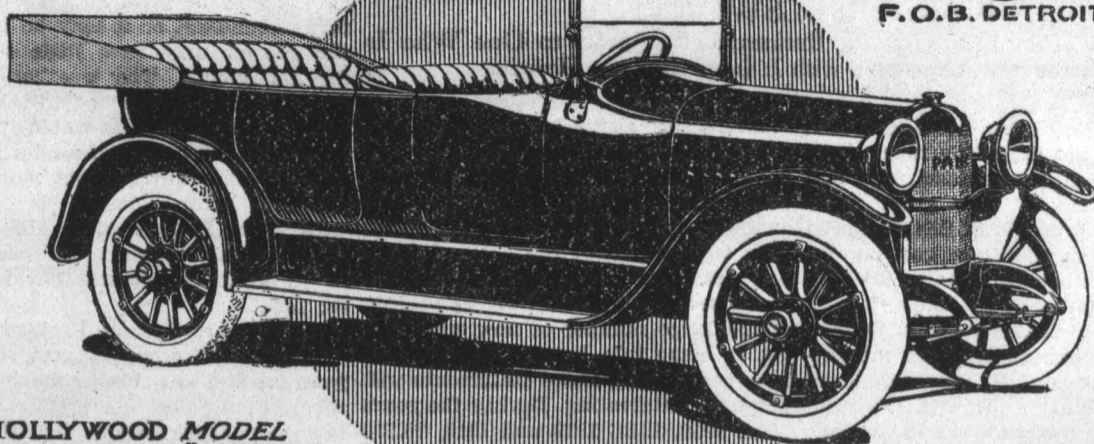
## Hogs.

Receipts 2498. In the hog division the trade was steady with Wednesday. Pigs and lights weights \$7.65@7.75; heavy \$7@7.25; mixed \$7.50@7.70.

NOTE.—At noon Thursday the federal government placed a strict quarantine on Saginaw county and nothing can go in or out of said county for any purpose. It has not as yet been determined whether the suspected cattle have hoof-and-mouth disease or not.

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Crops, Stock and Tools 107 Acre Farm \$3600

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## WHY PAY RENT

when you can buy the best farm land in Michigan at from \$12 to \$20 an acre on easy terms. Write for particulars.

STAFFORD BROTHERS, Owners, 15 Merrill Bldg., Saginaw, West Side, Mich.

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To hear from owner of good farm or unimproved land for sale. H. L. Downing, 104 Palace Bldg., Minneapolis, Minn.

## MICH. FARM

135 acres. \$2,000. Near Mt. Clemens. Ask Dr. J. J. Nooker, 511 E. Grd. Boul., Detroit, Mich.

For Sale—200 acres 30 miles from Detroit. Good stock farm, young orchard sixteen acres. Would take smaller farm or city property as part payment. J. L. BLACKWOOD, South Lyon, Michigan.

SNAP, 120 acres, 90 clear, balance woodlot, good loam S soil, 10 acres orchard, good buildings, creek, and water in buildings, on stone road 1 1/2 miles to town. Price \$4500 cash. Write Henry E. Brown, Ellsworth, Mich.

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FOR Sale—My 80 acre farm, all kinds of fruit, well fenced, first class buildings. \$4000 cash, balance terms. Bargain—make me prove it. Shady Lawn Stock and Fruit Farm, R. 2, Box 101, Fremont, Mich.

FOR SALE—80 acres, 10 miles from Harbor Springs, Mich. For particulars write owner. MRS. H. M. TURNER, R. F. D. 1, Pellston, Mich.

WANTED. A farm manager to take charge of a 200 acre farm in Oakland county, must have experience in general farming and fruit and be willing to work hard, in reply state age, experience, married or single, if married number of children. Address Box B-314, care of Michigan Farmer, Detroit, Michigan

## A Good Veterinary Book

Very often a Veterinary Book can save you money. We have been able to buy 1,000 copies of Gleason's Veterinary Book (latest edition) at 29 cents apiece. This book contains methods of training horses and curing their diseases. To old subscribers who now take the Michigan Farmer we will send this book for 29 cents, postpaid. To new subscribers we will send the book and the Michigan Farmer one year for 79 cents. This is a bargain, as the veterinary book would cost you at least 50 cents in any other way.

# Farm Commerce.

## Distribution the Real Problem

By R. H. ELSWORTH

A New View of the Fruit Growing Business as it Appears to One Who Is Thoroughly Acquainted with It from Both the Growing and Marketing Ends.

THE people of the Grand Traverse region are expecting much from the recently organized fruit and produce exchange. The great problem before the people of this region is that of getting the fruit growing industry onto a business basis.

### Potatoes Pay the Bills.

The Grand Traverse country has been a fruit growing section for several generations. It has produced some fine quality fruit with the right flavor and a few growers have made money out of the fruit game, some a fair amount and a very few decent fortunes. The most of the fruit growing in the past has been in the nature of a side line along with general farming. And in most of the cases there has been a goodly amount of potato growing along with the other farm work. The potato has been the source of a large amount of the accumulated wealth of the region. Much more than half the time the potato crop has been a profitable one. The annual gross returns for the region have varied from half a million to a million of dollars. The potato crop has probably built more barns and more comfortable farm houses than any other crop. The tuber has caused the clearing of more land, and has furnished the money for the purchase of more additional acres, than has all the fruit crops put together. It has even furnished a large share of the capital for the buying of the fruit trees and the financing of orchard propositions until they have come into bearing.

### Why they are Popular.

The potato has been the backbone of the prosperity of the region for several reasons. First the potato does well on new land, returns can be obtained in a comparatively short time, the capital needed to produce a crop of potatoes is not large, the technical knowledge required for the growing of a crop is not great, the potato is not as perishable as the fruits, there has been a local cash market for the potato for many years; furthermore, the climatic conditions are so favorable to the potato that there is never a total loss because of weather conditions. So because of the certainty of a crop and the certainty of a cash market the potato has been the mainstay of the farmers of this section.

Under favorable conditions fruit growing brings larger returns per acre than potato raising. Fruit growing calls for the greatest amount of intelligence of all the farm industries, it demands a larger amount of capital per acre than the other industries, and because of weather conditions has considerable of the element of speculation in its producing end, and because of the perishableness of the product has even a larger element of speculation in its marketing end. Fruit growing really calls for the largest amount of intelligence of all the agricultural industries.

### Only Recently Have Large Investments Been Made.

While the more venturesome of the people of northwestern Michigan have been experimenting with fruit growing for better than fifty years, and while a few have been eminently successful, it is only during the last twenty years that commercial orchards have become known and the rank and file of the farmers have made heavy investments in orchard enterprises. A fruit tree census of the orchards of Leelanau and Grand Traverse counties

made in 1913 showed that over 85 per cent of the trees than standing had been set since 1908. If the figures for the settings of 1914 and 1915 were available they would show that better than 90 per cent of the orchard trees now set were planted during the last seven years, and that fully two-thirds of the large number of new trees are yet to come into bearing. A few figures bearing out these statements will not be uninteresting. During the years 1909, 1910, 1911, 1912 and 1913, 70,718 apple trees were set in the territory covered by the census. The most of these trees are yet to come into bearing. The total number of apple trees set prior to 1909, according to the census, was but 31,885. The figures for the cherry orchards are even more significant. The total number of trees included in the census was 140,378, and of this number 125,533 had been set since the beginning of 1909. In five years the cherry orchard acreage increased almost ten fold. If we had the data for 1914 and the spring of 1915, the increase since 1909 would be found to be eleven or twelve fold.

### Two Classes of Problems.

The number of peach trees has increased from 5,000 in 1908 to over 95,000 in 1913. The total is now probably over 100,000.

The conclusions reached in an analysis of the figures returned by the census undoubtedly hold good for thousands of acres of orchard land not visited by the enumerators. Therefore it is safe to state that northwestern Michigan is just on the edge of the problems connected with the fruit growing. The Grand Traverse country has advertised itself as being engaged in fruit growing, but its past

him by word of mouth and recorded in books, as well as the advice and help of the officers of the experiment stations and the professors of the agricultural colleges. In a general way all the experience of those who have grown fruit is at his command. The one factor he cannot handle with certainty is that of the weather. The season may be good and the crop returns abundant, or it may be bad and the grower may have little to show for his efforts. The weather chance is a gamble that he has to take. On rare occasions unfavorable weather conditions can be overcome by smudge pots or other devices, but more often the fruit grower has to be content with what is dealt him. He has to do a certain amount of speculating as to what the season has in store for him.

### A More Serious Problem.

The second group of problems confronting him are those connected with the marketing of his product. These are really more serious than the growing problems, because they have not been so well mastered by his predecessors. Both problems and solutions are largely in a state of chaos. Many of the problems lack definiteness. They are intangible, oftentimes unrecognized, and rarely have they been sufficiently classified to permit of united action toward a definite solution. This is largely true because in the past fruit raising has been but a part of farming. This will not be the case much longer. There is going to be too much at stake to let things drift. Despite the unorganized condition, occasionally a grower has received returns that have hinted at prosperity if the industry were only organized and the uncertainty as to best methods removed. There is a chance here for constructive work along the lines of

scientific efficiency. Not only is there a chance but it is absolutely necessary that such work be done and be well done. Standards must be established and values determined.

### Eliminate Guessing.

This, then, is the great problem in the northwestern fruit section—the problem of putting the industry on a business basis. The investment in orchard and orcharding equipment is becoming so great that as many as possible of the uncertainties of the industry must be eliminated. Uniform methods with known elements as factors must take the place of the least resistance practices of the past. Exactness must, wherever it can, take the place of guess. The industry must be removed from the realm of luck.

### Growers Must Take the Initiative.

The work of putting the industry on a business basis has already been started and will be continued with such speed as the fruit growers may demand until the task has been accomplished. It is for the fruit men to obtain the desirable. They are the ones who have the heavy investments, they are the ones who have the most to gain, and also the most to lose, if they fail. They cannot expect the lawyers or the doctors or the shoemakers or the bakers to leave their own problems and come and solve those that belong strictly to the fruit farmers. The men, and women, in the country, with orchards that will soon bear generously are the people who must tackle the big task that is demanding attention, and they are doing this as is indicated by the great stir along co-operative lines. Within the last six months four co-operative fruit associations have been organized or have taken on a renewed lease of life. In each case the initiative has come from the men in the country, as it should.

## Get the Home Trade First

By W. TRUB

EVERYWHERE the farmer's products are in demand. There is not an inhabited township, nor a single hamlet nor village throughout the United States whose people could

the trail leads from the farm to the small village where, with other shipments it is assembled into carlots and forwarded to the large city. There it is parcelled out and some of the parcels sent back to the small country villages again, indeed, incidents are not uncommon of these products having been consumed but a few miles from where produced after they had traveled hundreds of miles by rail and water.

Of course, the reason for this seems apparent. The nation has been a large producer of agricultural products. In years gone by only a small portion of the surplus sent off the farms was consumed near where grown. In fact, much was shipped abroad. To get this surplus into the arteries of commerce with the least trouble demanded that it be forwarded to the nearest large city where it was stored with the surplus from a wide territory and then started on its road to far countries in train and boat loads. What a foreign demand did to bring grain to the large cities the packing houses did to bring live stock, so that the farmers of America grew up thinking always that marketing had something in common with the large cities only. It is little wonder that they place double emphasis upon supplying the score of large centers of population and utterly neglect the remainder of the country.

### We Are Now Large Consumers.

But the day has changed. The nation eats now as well as produces. In normal years comparatively little of our farm products get across the water to Europe and other lands. We have need of the bulk of them at home. The large cities that once welcomed the great streams of grain and live stock now compose but a small portion of our non-farming people. Here, and everywhere are men and women employed in other pursuits than agriculture. But a little over forty per-



In Distributing and Marketing Perishable Products Storage is Becoming an Increasingly Important Factor. Through suitable storage facilities only will it be possible for Growers to Realize the Maximum Returns from these Products.

and present activities are as nothing compared with the problems that it will have to face in the early future, when the trees, including in the settings of the last seven years, begin to bear to their maximum.

There are two types of problems that challenge the skill and resourcefulness of the professional fruit grower. One class of problems has to do with the care of his orchards and the production of fruit; the other with the turning of his products into negotiable wealth. The growing problems are the easier for the fruit man to master. He has the benefit of the experience of his predecessors as given

long survive without some channel through which they can reach a few of the common agricultural products.

Why is it, then, that we have almost altogether neglected the little stations, the quiet villages, the bustling towns, and the thousands of smaller cities, in marketing what is grown on our farms?

### A Historical Reason.

That this has been done can hardly be denied. It is no rare discovery to find the commission men in a few of our large cities supplying hundreds of the country merchants with farm produce. Time and again in following the course of a crop to the last buyer

cent of the 100,000,000 people in the country live upon farms. The remaining 60,000,000 must all be fed, and we are trying to distribute the farm produce to them in the same manner that we sent it abroad. We seem to want it all to go to the score or so of large centers for some unexplainable reason.

Multiply the Avenues of Distribution.

Now to go on doing this is economically wrong. There is not one law of business, transportation, or economics that demands a continuation of these great central markets for feeding all our people. The system results in congested traffic, congested markets, and we are quite apt to think, in a few congested pocket-books. It offers the very finest opportunity for manipulators to do almost what they wish with the trade.

What we need at the present time are not a few exchanges through which products are obliged to pass to reach the consumer, but thousands of lines of communication and transportation that will get products to where they are actually wanted at the least effort and the minimum of cost. Shorter routes will do much. They will lessen transportation charges; they will reduce the traffic injury to the product; they will deliver the product in fresher condition; they will discourage the multiplication of commissions; in fact, this simplifying of the marketing of common farm products will go far toward making the man who grows and the one who buys satisfied, not alone with the transaction but with life in general, and do not think too lightly of this last point.

Should Help the Ninety and Nine.

There are several communities in this state, however, where the spirit of co-operation has taken root and is developing splendidly. Out of a small beginning some of these associations have grown to good size and there is confidence in the memberships that they will continue to expand. The leaven will keep on spreading until it leavens the whole lump, no doubt.

But where there is one person who has a membership in an active co-operative society that undertakes to perform some of that member's business there are a hundred farmers who have no such affiliations. And most of these hundred farmers cannot expect any early help by co-operating.

So it is up to individuals to see that the nearest man of those who needs their surplus gets it. If the South Haven farmer who sold a vealed calf to a Chicago commission man had looked about before he did so he would rather have made a bargain with his neighbor who afterwards bought the same calf when it had been shipped to a metropolis and back again. There cannot be a great deal of wisdom behind a plan that takes Michigan apples to New York and brings New York apples back to Michigan, even granting that the eastern fruit is as good as that grown in Michigan. If there is a market sufficiently attractive in Michigan to draw apples from the east our own fruit growers should find those holes and fill them. To this end individuals, associations and firms should work—to first satisfy the home demand and then, if there be a surplus, market where the net profits will be greatest. This simple program would not overlook the little hamlets and villages, would shift much of the bulk from the big city's exchange, would multiply the channels of distribution and incidentally would help both the producer and the consumer in the way of getting more efficient service and greater satisfaction.

A Chicago live stock commission house advises its country patrons as follows: "Those shipping grassy cattle would do well to take them off grass for two or three days and substitute hay and oats or hay and corn as this will serve to get the grass out of them, make them shrink less in transit and both look and sell better on the market."

# Oakland

## High-Speed Motor

Model "38"

Means More Explosions, More Revolutions, More Power, Less Fuel

**T**HE big, dominating feature of this Oakland "38" is its high-speed motor. "High-Speed Motor" applies entirely to the motor and not to the speed of the car. Light, quick power pulses that melt into a continuous flow—eliminate vibration and give you a store of power on tap for any speed of the car—creep at three miles an hour or go the limit. Quick "getaways"—hills, mud or sand—steady road running.

Instead of the explosion of terrific, racking force, as in ordinary four-cylinder motors, there are many more power impulses of less violence with no pause between—hence, no vibration. Greater velocity of fly-wheel balances power and reduces car strain. Minimum fuel consumption.

Four cylinders of a minimum number of parts—light weight—low upkeep. This type of motor is standard

equipment with the best European builders. It costs more to build. Each part is lighter and stronger.

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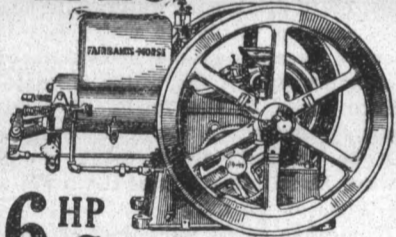
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This Oakland "38" \$1050  
High-Speed Motor



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Complete with battery and accessories—ready to run.



**6 HP Gasoline Engine**

**Will Saw** heavy cord wood as fast as it can be handled to and from the saw.

**Will Pump** up to 180,000 gallons water per hour depending upon the lift.

**Will Grind** 30 bushels per hour of small grain, corn on cob or mixed cereals, all ground fine in one operation.

Strength, weight, durability, workmanship and fuel economy, all guaranteed by Fairbanks-Morse quality.

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Warehouses in 30 large cities where delivery can be made.

**Ditching Made Easy**  
with this common sense farm ditcher and road grader. No wheels or levers. Nothing to get out of fix. Simple—Practical.  
Price only one-fourth of big machines. Does same work. Soon pays for itself. Write for full information and introductory proposition.  
Owensboro Ditcher & Grader Co., Inc., Box 330 Owensboro, Ky.

**WANTED**—By the year, an experienced, reliable farm manager, with ability to see and perform work. Address Box 8-514 care of Michigan Farmer, Detroit, Mich.

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Every boy, young or old, would be proud to carry one of these watches. It is 16 size, with a nickel case. Stem set and wind. Regular watch movement with hair spring. Guaranteed by the makers and repaired free of charge for one year, if given ordinary care. Any boy who really wants a watch can easily earn one in one afternoon.

The watch alone free for sending three subscriptions to the Michigan Farmer.





## Will you join my Special farmers party for a tour of California farms and fairs?

Go this fall—on the *Santa Fe Farmers' Special*—spend two weeks seeing by auto the farms and homes of Southern California and San Joaquin Valley. Also take in the two great expositions at San Diego and San Francisco.

Do this in company with a comfortable, sociable party of rural folks who, like yourself, want to inspect the home-making inducements of sunny California. Take your wife along, too.

I am getting up a *special limited party* of people interested in the business of farming to make this trip under my personal escort, because I believe I can best prove to you, by this method, what the Santa Fe has so long been trying to tell you about this country.

I want you to see the San Joaquin Valley and talk to the people about the greater production per acre, the balmy, healthful climate, the year-round growing season. You will be the *guests of many communities* in Southern California and San Joaquin Valley. You will be *taken on auto trips* to see their farms, orchards and homes. We have no land to sell. We just want you to see and know California.

**Two Fairs—and  
California—  
for One Fare.**

C. L. Seagraves,  
General Colonization Agent,  
Atchison, Topeka & Santa Fe Ry.,  
2264 Railway Exchange, Chicago.

Let me tell you at what *small cost* this trip will be made. We will live on our own special cars most of the time, so saving hotel bills. Go with us on the Santa Fe, stop a day at Grand Canyon and return Santa Fe or any direct route.

This party will *leave Chicago October 14*, reach San Francisco about October 30, and return from there at your pleasure up to December 31. A second party will leave on date to be announced later. You'll see rural California—as you could see it in no other way. You'll see the two great world expositions. Also you'll see the Grand Canyon of Arizona.

Write me to-day  
for itinerary,  
particulars and rates.



### POULTRY.

#### BARRED PLY. ROCKS

First prize winners at Chicago, Cincinnati, Indianapolis, etc.  
Eggs from fine Utility Matings that are bred to lay, \$1.50 per 15, \$4 per 50, \$7 per 100. From best exhibition pens \$10 per 15, \$25 per 50. Prompt delivery and good hatch guaranteed. G. Earl Hoover, R. 7, Matthews, Ind.

**Barred Rock** Hens \$1.50 each, eggs with the kick in them 15 for \$1.25, 100 \$6, baby chicks 100 \$15. W. C. COFFMAN, R. No. 6, Benton Harbor, Mich.

**BARRED ROCKS**—Parks 200-egg strain stock and eggs in season. FRED ASTLING, Constantine, Michigan.

**BARGAIN SALE**—Barred Rock Hens \$1.00 and \$1.50; R. C. White Leghorn Hens \$1.50 and \$2.00; S. S. Hamburg Hens \$1.50 and \$2 while they last. RIVERVIEW FARM, Route 8, Vassar, Michigan.

**Buff Rocks**, 3 out of 4 firsts Chicago, 1914. Eggs bal. of season \$1.50-15; \$6-100. S. C. Buff Leghorn eggs \$1.15; \$5-100. Pen of 12 Buff Leghorns \$10. 20 Buff Rock Hens, 75 cents to \$2.50, including Chicago and Minneapolis first prize winners. Bird Lawn Farm, Lawrence, Mich.

**Pine Crest White Orpingtons**—Splendid early hatched cockerels and pullets, Belgian hares and Collie puppies. MRS. WILLIS HOUGH, Pine Crest Farm, Royal Oak, Michigan.

**RHODE ISLAND REDS and PLYMOUTH ROCKS.** R. Males 5 to 12 lbs., according to age \$2 to \$5; P. R. hens weight 5 to 9½ lbs., eggs 15 for \$1.00; P. R. eggs \$5 per 100. Mammoth Bronze Tom Turkeys, 8 to 38 lbs., according to age \$5 to \$25, 10 eggs \$3. A. E. Cramp ton, Vassar, Mich.

**Rose Comb Brown Leghorn Cockerels** from Mad. Sq. winners 50 cts. up according to age. CLAUDIA BETTS, Hillsdale, Michigan.

**ROSE and Single Comb Rhode Island Reds.** Prepare to improve your flock by getting hens or young cockerels now from these laying strains at \$1 each. Jennie Buell, Ann Arbor, Mich.

**SALE ORPINGTON Cockerels**—12 wks. \$1; 8 wks. 75c. 8 wks. pen, 8 pullets, 1 cockerel \$10. S. C. Kellerstrass, white. M. E. Thompson, Redford, Michigan.

**Slaughter Sale of Barred & White Rocks** Cocks \$3.00 to \$5.00. Hens \$1.00 to \$3.00. Young stock after September 1st. Riverview Poultry Farm, Box 798, Union, City, Mich.

**S. C. White Leghorns**, breeding cockerels and yearling hens for sale. Also young white Pekin breeding ducks and drakes. Write for prices. Sunnybrook Poultry Farm, R. 3, Hillsdale, Mich.

**SILVER Laced Golden and White Wyandotte Eggs** for hatching. Ten cents each or 30 for \$2.50. I pay parcel post charges. C. W. BROWNING, Portland, Michigan.

**White Wyandotte Eggs**—50c for 15, \$4.00 for 100. My two best pens \$2.00 for 15, \$3.75 for 30. DAVID RAY, 202 Forest Ave., Ypsilanti, Mich.

**White P. Rocks, Pekin and white runner ducks,** White guineas, eggs and day old ducks and chicks. H. V. HOSTETLER, St. Johns, Michigan.

### DOGS.

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

**FOR SALE**—Pedigreed Scotch Collie puppies. Color dark golden sable with white markings. For prices address CHAS. A. BEATTY, R. 2, Milford, Michigan.

**Trained Running Fox Hounds**—30 Fox and Coon hound pups. Puppies. Send stamp. W. E. LECKY, Holmesville, Ohio.

#### Split Hickory \$39.25

THINK what that means. My big new 5% profit plan has split prices the lowest ever known. Get the New FREE Book.

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The Ohio Carriage Mfg. Co.  
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All Standard parts in 1, 1½, 2 and 3½ tons. We will demonstrate in any part of state.  
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126-130 FARMER ST., DETROIT  
Take Woodward Ave. car to John R. St., hotel half block east.  
Catering especially to the farmer and his family. Make this hotel your home when in the city. Hot and cold running water and telephone in every room. Rates \$1.00 per day and up. European plan. Bell phone: Cherry 1400-1401. A. R. SAGE, Manager.

#### Bags For Sale

2,000 grain bags 10 cts. each; 5,000 one, two, and two and one-half bushel potato and onion bags; 3,000 flour and feed bags. All kinds of bags bought and sold.  
**MICHIGAN BARREL AND BAG COMPANY,**  
283 Franklin St., Detroit, Mich.

**WANTED—AN IDEA.** Who can think of simple your ideas, they may bring you wealth. Write for "Needed Inventions" and "How to get your Patent and Your Money." RANDOLPH & CO. PATENT ATTORNEYS, DEPT. 67, WASHINGTON, D. C.

**4000 FERRETS FOR SALE**  
Price list free. C. J. DIMICK, Rochester, Ohio.

## Poultry.

### KEEPING HENS FOR PROFIT.

(Continued from last week).

Two hours before time to roost hens should be given liberty to run to pick flies and bugs and such insects as they can find, and then called just before roosting time to the yard and given a substantial evening meal made up of such feeds as barley and corn. That kind of feed will sustain the animals during the night and enable them to maintain a condition that is necessary for the maintenance of the strength and vigor of the fowl.

In the winter time the evening meal can be made up of the same kind of feeds, and yet they should be warmed and never fed cold, because a large amount of moisture is held in the kernels and if frozen requires a good deal of heat and energy of the body to take out the frost and make it possible for digestion. Changing from warm to cold feeds has often caused the flock to stop laying in cold weather.

### Comfortable Conditions.

The comfort of the flock should be one of the prime considerations. When caring for the flock do not compel the hens to endure the hot sun without shelter in the summer time. If there are no trees within easy access under which they can secure shelter, some shade can be furnished, like putting up a temporary shelter which will make a comfortable place for them to spend the time during the heat of the day.

During the winter time the prime object should be to keep the hens comfortable both day and night. Do not compel them to resist cold winds outside, or to endure cold drafts inside the hen house. While pure air is absolutely essential, it should be supplied without drafts.

Let the roosting place be so arranged that the hens can get on to their roosting place without much effort, and do not allow very much air space above the fowls. A large amount of cold air coming down from above will invariably chill the fowls at night during cold weather and prevent egg production. This point is too often overlooked and is the cause of failure with very many who undertake to produce eggs in winter time.

Do not compel the fowls to eat snow in order to get drink in winter time, or to drink cold water. The heat necessary to warm the water can be secured cheaply with a little fuel, or, in other words, if the water is heated before given to the fowls, they will energy required to warm it before it can be utilized. Some drink should always be within reach of the fowls at all times of the day.

If one has cows' milk they can utilize that to great advantage. It is rich in albumen, and is one of the best egg producers with which we are familiar. It furnishes an excellent drink, and it renders the feed, when mixed with it instead of water, palatable and nutritious. In fact, the digestion and assimilation of the feed mixed with milk is more complete than when water is used.

On the whole, the conditions on the farm can be so arranged that egg production can be continuous throughout the whole year. This statement we know to be true from actual experience. If the caretaker will be regular in attending to the feeding and caring for the flock, maintaining conditions that are comfortable for the hens all the time, we know that it is possible to produce eggs in paying quantities throughout the whole year.

In concluding we will say, in selecting the flock each year do not keep old hens, even if they have been persistent layers. Remember that the good layers exhaust themselves in about two years; therefore we will say in

making up the flock each year make it up of pullets and yearling hens of the right conformation and descended from the right class of stock. If these directions are complied with there is no good reason why the hens on the farm cannot be made to yield a liberal and paying income.

Wayne Co.

N. A. CLAPP.

### TREAT FOWLS WITH KINDNESS.

If you start making friends with your young fowls, your next hens will be tame ones. Wild hens cause commotion and loss all through the season of hatching and rearing. The young birds will fatten and thrive better when kindly treated and kept quiet and contented. Anything that scares poultry and sets them in a flutter works against their well-being.

If you have a few choice birds you desire to exhibit at shows this season handle them gently and kindly and then when they are on exhibition they will not huddle down in a corner, too flustered to show off to a good advantage. I have a friend who has a fine flock of pure-bred fowls but he takes no pains to gentle them, when he wants to call them up to show a visiting fancier they will not come, and they are tight-feathered and frightened into looking bad when one happens to get near them.

There are many things that frighten poultry and fill them with apprehension. A hurried trip to the nest or chasing a cockerel with the dog when you want chicken for dinner, will do more harm than can be undone in a long time. A fright is recorded in their memories more incisively than all one's good offices. If birds are kept tame, and if you will move among them slowly and quietly, admit nothing to the poultry yard that will cause commotion, they will come to you quickly at the call.

The docility of any breed depends a good deal upon the docility of the owner. Even the Leghorns, so often spoken of as a wild breed, may be made fairly docile if treated right. The caretaker may win their confidence by habitual kindness. We begin with the young birds at meal time, talk to them while they are eating, pet them—and accustom them to being handled.

It is a mistake to try to frighten the desire to sit out of a broody hen. The mother instinct should be treated sympathetically. Her broodiness the hen cannot help and we should cure this feverish condition, not frighten or punish her. Some folks will throw broody hens violently off the nest several times a day. This is cruel and demoralizing to the rest of the flock. It is expensive to disturb the normal chatter and cackle of a busy flock. Excitement of any kind I have noticed causes a very perceptible and immediate falling off in the egg yield.

Indiana.

FRANCES WOOD.

### TREATMENT FOR BLACKHEAD.

We have some turkeys which seem to have what is called blackhead. What can I do for them?

SUBSCRIBER.

The recommended treatment for blackhead is to isolate the affected bird and put it in a dry, well-lighted place which is free from cold and draughts, feeding sparingly of soft, easily digested foods, with little grain, especially corn. Preventive measures are to keep the birds on fresh ground, isolating sick birds, the destruction of dead birds and the protection of healthy birds from contamination carried by other poultry or wild birds such as sparrows and crows.

For birds under three months of age, the following medical treatment is recommended: One-half grain copers in the morning and a two and a half grain pill of salicylate of soda in the evening. Epsom salts should be given every three or four days, and the grounds and floors should be well sprinkled with lime.

## BREEDERS' DIRECTORY

Scotch Collies For Sale:—well bred pups, males \$8; females \$5. Parents good stock drivers. Pups ready to ship. Set 1 Post Office order. E. HIMEBAUGH, Hillsdale, Michigan.

## CATTLE.

## LAST BIG SALE

### OCT. 21, 1915

SALE PAVILLION, Howell, Mich.

## ABERDEEN ANGUS

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

## ABERDEEN-ANGUS

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

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

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

MILO D. CAMPBELL CHAS. J. ANGEVINE

## BEACH FARM

### GUERNSEYS

Combine the blood of the following great producing sires and dams:—

Masher Sequel	57 A. R. Daughters
Galaxy's Sequel	37 A. R. "
Glenwood Boy of Haddon	25 A. R. "
May Rose King	21 A. R. "
Dairymaid of Pinehurst	910 lbs. fat
Dolly Bloom	886 "
Imp. Itchen Daisy	714 "
Selma of Pinehurst	762 "
Stanford's Princess	725 "

Bulls for sale only.

A Dairy Show Every Day.  
CAMPBELL & ANGEVINE, Coldwater, Mich.

## Elm Row Guernsey Bulls For Sale

Priscilla's May King 1909 4 years old. From Adv. Reg. Sire and Dam, and will enter the A. R. list before 1917. Has five dams with A. R. records over 700 lbs. Healthy and sure, and the best bid before Sept. takes him. Reason. Have bought another to avoid inbreeding. Also two bulls 11 months old, by the above sire and from Adv. Reg. dams with good records. Fine individuals and price right.

G. W. RAY, Albion, Mich.  
Cars stop at farm on M. U. T.

For Sale—Reg. Guernsey Cattle and BERKSHIRE BULL CALVES  
JOHN EBELS, R. 10, Holland, Michigan.

## GUERNSEYS—REGISTERED

### HICKS' GUERNSEY FARM, Saginaw, W. S., Mich.

GUERNSEYS—Write for prices and particulars. 2 bulls 1 year old. Several bull calves, all from A. R. cows and cows on test. Geo. N. Crawford, Holton, Mich.

GUERNSEY BULLS FOR SALE, ready for service from A. R. Dams. If you want the right kind write for price and breeding. BYERS & BARNES BROS., Coldwater, Michigan.

HEREFORDS; Two last Oct. bull calves for sale. Big fellows. ALLEN BROS., Paw Paw, Michigan.

## Do You Want A Bull?

Ready For Service.

From a grand daughter of The King of the Pontiacs. Sired by a bull that is more than a half brother to the Champion Holstein Cow of the World, and whose dam is a 30 lb. 64% fat daughter of Pontiac Aggie Koradyko who has more 30 lb. daughters than any other living bull. If you do write for pedigree.

EDWIN S. LEWIS, Marshall, Mich.

## Espanore Farm,

### LANSING, MICHIGAN.

Home of the great Holstein bull "Pledge Spofford Calamity Paul"—sire of a 35-lb. cow and three over 30 lbs. If you are looking for a bull calf of this kind of breeding write for prices and pedigrees.

CHASE S. OSBORN, } Owners.  
ADAM E. FERGUSON, }

## I 4-YEAR-OLD BULL

by a 31-lb. son of Pontiac Koradyko, and out of 27-lb. dam. 2 two-year-old and three yearling bulls. The above bulls have breeding and individuality to spare. Also a few richly bred bull calves. These will be priced right. This is a chance to get a valuable bull for little money. Get busy, as this ad. will appear but twice.

L. E. CONNELL, Fayette, Ohio.

## 3 Choice Jersey Bulls 3

### FOR SALE AT BROOKWATER FARM

AS FOLLOWS:

**Brookwater Eminent Lad** 128246. Sire, one of the best sons of **Oxford Lad**. Dam, an imported daughter of **Eminent**. Calved Feb. 9, 1914. A strong robust but typey solid colored ready for service bull. Price \$125.00.

**Brookwater L. D's. King**. Calved Oct. 21, 1914. Sire, Benedictine King 86100 sire of several daughters in the Register of Merit. Dam, Loretta D's. Pogs 232648 with R. of M. records of 440 lbs. butter with two daughters with R. of M. records of 483 and 524 lbs. butter respectively. This bull is solid colored and choice.

**Brookwater King Chita**. Calved Sept. 2, 1914. Sire, Benedictine King. Dam, Chita of M. a good producing cow. Bull a dark squirrel gray and an excellent individual. Price \$75.00. These bulls must be seen to be appreciated.

**BROOKWATER FARM, Ann Arbor, Michigan.**

## 100 Guernseys at Public Auction

at Gustavus, Trumbull County, Ohio, Saturday, August 21st, 1915, Beginning at 10:00 A. M.

50 Registered Cows and Heifers, many rich in the blood of Governor of the Chene, Glenwoods, Galaxy's Sequel and Golden Noble breeding, including nine imported cows. 50 Heavy Producing Grade Cows, fresh and close springers. This stock is young, healthy, in nice condition, and Tuberculin tested. Gustavus is reached by Youngstown Branch New York Central Lines. Off at Kinsman. Morning train leaves Ashabula 7:05. Morning train leaves Youngstown 6:20. Catalog on request. Address B. E. TOTTEN, Farmdale, Ohio, Route 2.

## HATCH HERD

YPSILANTI, MICHIGAN

Registered Holstein-Friesian sires, grandson's of World's greatest dairy sire, out of choice A. R. O. dams and King Pontiac Jewel Koradyko; Brother of K. P. Pontiac Lass 4415; average record of 50 dams in his pedigree 31.25 in 7 days; average per cent of fat three nearest dams 4.37; of his own dam 4.93. Sires in first three generations already have over 600 A. R. O. daughters. A few females bred to "King". Prices reasonable.

## The Two Greatest Bulls

KING OF THE PONTIACS

DE KOL 2d's BUTTER BOY 3rd

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

**BIGELOW'S HOLSTEIN FARMS,**  
BREEDSVILLE, MICH.

## "TOP-NOTCH" HOLSTEIN

20, 25, 30, 35 and 37-lb. Bulls from large milking. A. R. O. dams. Nice variety from three farms to select from. Breed Better; Get the Best.

McPHERSON FARMS CO., Howell, Michigan.

REGISTERED Holsteins—Herd headed by Albina Bonte Butter B. Boy. His dam has A. R. O. records as follows: at 2 yrs. milk 450, but at 18.85; 4 yrs. milk 604.8, butter 27.03; at 6 yrs. milk 620, butter 28.55 lbs. W. E. READER, Howell, Mich.

\$100 Gets 5 mo. 1/2 white grandson of Friend Hengerveld De Kol & Maplecrest Pontiac Flora Hartog. 30 lbs. butter 7 days, 1232 lbs. in 1 yr. M. L. McLAULIN, Redford, Mich.

FOR SALE—REGISTERED HOLSTEIN BULL born Feb. 26, 1915. Mostly white. Dam has A. R. O. record, also Chester White Pigs. CHARLES I. COOK, Box 438, Fowlerville, Michigan.

**HOBART W. FAY**  
Holstein-Friesian Cattle.  
MASON, MICHIGAN. Established 1934

**High Class HOLSTEINS** My herd is headed by Smithdale Alcartra Pontiac, whose dam is the famous Alcartra Polkadot. Have few young bulls and females for sale at reasonable prices. Will buy a few heifers about 15 months, not bred. Farm 1/2 mile from court house. SETA B. RUBERT, Howell, Mich.

FOR SALE Registered Holstein Bulls ready for service, and bull calves, also females. FREEMAN J. FISHBECK, Howell, Michigan.

HOLSTEIN BULL CALVES—Don't buy until you write us. No better breeding in Michigan. Long Beach Farm, Augusta, Kalamazoo Co., Mich.

HOLSTEIN CATTLE and Duroc Jersey Swine. Choice pigs of both sex ready to ship. Prices reasonable. E. R. CORNELL, Howell, Michigan.

\$200 Buys one registered Holstein yearling heifer and one bull 19 months old not akin. 1/2 white. King Segis and Johanna breeding. B. B. REAVEY, Akron, Mich.

**MICHIGAN HOME AND TRAINING SCHOOL**  
LAPEER, MICHIGAN  
Breeder of High Grade Holstein Cattle. Lists and prices upon application.

**HOLSTEIN CATTLE and O. I. C. SWINE**  
ELMER E. SMITH, Redford, Michigan.

**Holstein-Friesian Breeder**—The best families of the breed represented. D. D. AITKEN, Flint, Michigan.

Yearling Reg. Holstein Bull. A sister by the same dam has 30 lb. 64% fat world's milk record and making nearly 1000 lbs. butter in a year. DEWEY C. PIERSON, Hadley, Mich.

**ONLY \$25.00 DELIVERED**  
Holstein bull calf 15-16 pure bred, by 24-lb. butter bull. Heavy producing dam. Rougemont Farms, Detroit.

Maple Lane Register of Merit Jersey Herd. Tuberculin tested by U. S. Government. For sale bull calves and heifer calves from R. of M. dams and grand dams, and Hood Farm Sire. IRVIN FOX, Allegan, Michigan.

**THE WILDWOOD JERSEY HERD**  
Registered Jersey Cattle of Quality. Tuberculin tested. Majesty's Wonder No. 90717 heads the herd. Bull calves for sale, also a two-year-old bull that is right. For prices and description write or come. ALVIN BALDEN, Capeo, St. Clair Co., Michigan.

Lillie Farmstead Jersey Cattle. Bull calves from R. of M. Cows, also heifer calves and several bred heifers for sale. Colon C. Lillie, Coopersville, Mich.

Jerseys. Bulls ready for service, extra quality sired by Jacoba's Fairy Emsanon, No. 30712, from high producing dams. SMITH & PARKER, Howell, Mich.

**JERSEYS—THE REGISTER OF MERIT KIND,**  
BROOKWATER FARM, R. No. 7, Ann Arbor, Mich.

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

**FISHERTON FARM JERSEYS**—Some fine grandsons of Hood Farm Pies' 9th, from Register of Merit dams. FISHERTON FARM, Pontiac, Michigan.

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For "Beef and Milk"  
Registered Bulls, Cows and heifers Scotch-topped roans, reds and white for sale. Farm at L. S. & M. S. Depot. also D. T. & L. K. Y.  
**BIDWELL STOCK FARM**  
Box B, Tecumseh, Mich.

Shorthorns For Sale, farm 1/2 mile east of Davis crossing on A. A. R. R. W. B. McQUILLAN, Chilson, Liv. Co., Michigan.

**MILKING SHORTHORNS**—TWO BULLS 10 months old. \$125 and \$150.  
DAVIDSON & HALL, Tecumseh, Michigan.

**Shorthorn Cattle of both Sex for Sale**  
W. W. KNAPP, Howell, Michigan.

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

Dairy Bred Shorthorns of best Bates strains. Young bulls 7 months old for sale. Price \$100 each. J. B. HUMMEL, Mason, Mich.

## HOGS.

**Durocs & Victorias**—Grand bunch of Gilts due March and April. Comprising the blood of Superba, Defender, Much Col., Orions and others. A few young boars. M. T. STORY, Lowell, Mich.

FOR SALE—Berkshire hogs, both sexes and different ages. Bred gilts for fall farrowing. Poll Angus Bull Calf, not registered. Price right. Chase's Stock Farm, R. 1, Mariette, Mich.

**Royalton Bred Berkshires**—Boar pigs ready to ship last of July at 12 weeks weeks age with registry papers. Write for pedigree and prices. D. F. VALENTINE, Supt., Temperance, Mich.

**Berkshires.** Two fall gilts bred for Aug. & Sept. farrowing and a choice lot of April gilts for sale. A. A. FATTULLO, Deckerville, Mich.

**For Sale Duroc Jerseys Bred Gilts** for Sept. farrow. Carey U. Edmonds, Hastings, Mich.

**HAMPSHIRE SWINE**—Breeding stock of all ages from most popular strains. Write for breeding. Inspection invited. Floyd Myers, R. 2, Decatur, Ind.

**WEST WINDS HAMPSHIRE SWINE.** Booking orders for sow pigs immediate shipment. No males to offer. E. P. Hammond, owner, N. A. Wiser, manager, Pontiac, Mich.

WOULD like to hear from those desiring to start a herd of thoroughbred Chesters. Prices atractive. F. W. ALEXANDER, Vassar, Michigan.

**Big Type, O. I. C's and Chester White Swine.** 400 fall pigs either sex, special prices for the next 30 days, also bred gilts and service males and we are booking orders for spring pig all our stock is good enough that I will ship O. I. C. D. and reg. free in the O. I. C. or Chester White Asso. We won, more prizes than all other breeders put together, at Ill. and Wis. State Fairs. Write for Show record.

**ROLLING VIEW STOCK FARM**  
Cass City, Michigan.

**O. I. C. PIGS** of March and April farrow and Red Polled Bulls. Write JOHN BERNER & SON, R. 4, Grand Lodge, Mich.

**JEWETT'S REGISTERED O. I. C.'s**  
Growthy type. Photos. J. Carl Jewett, Mason, Mich.

**O. I. C's**—Sows bred to farrow last of June and July. Prices reasonable. G. F. ANDREWS, Danville, Michigan.

**O. I. C.**—Gilts bred for Aug. and Sept. farrow. Will take orders for March and April pigs. H. W. MANN, Danville, Michigan.

**O. I. C's**—Spring pigs, pairs and trics, not akin, from state fair winners. AVONDALE STOCK FARM, Wayne, Mich.

**O. I. C's—STRICTLY BIG TYPE**  
Gilts bred for Sept. farrow and March pigs now ready to ship. Extra good ones at prices that will move them. Pairs not akin. I will be pleased to ship them O. O. D. and record them free in purchaser's name. NEWMAN'S STOCK FARM R. No. 1, Mariette, Mich.

**O. I. C. SWINE**—Are you on the choice bred sow to farrow the last of Aug. or fore part of Sept.? If you are, write me. I have them. A. J. GORDEN, R. No. 2, Dor, Michigan.

**O. I. C's**—8 last fall gilts bred to farrow last of Aug. and in Sept. Big growthy stock, also last Spring pigs and one last fall boar. 1/2 mile west of depot. OTTO B. SCHULZE, Nashville, Mich.

**O. I. C's**—all ages both sexes. Priced to sell. time given. Satisfaction guaranteed. A. R. GRAHAM, Flint, Michigan.

**O. I. C. Pigs, 8 to 10 Weeks Old \$10.** Pairs not akin \$15. Registered free. C. J. Thompson, Rockford, Mich.

**O. I. C.** Choice Gilts bred for Sept. farrow. Serviceable boars. Spring pigs not akin. ALVIN V. HATT, Grass Lake, Michigan.

THIS  
**O. I. C.**  
SOW WEIGHED 932 LBS.  
AT 23 MONTHS OLD  
IONIA GIRL

I have started more breeders on the road to success than any man living. I have the largest and finest herd in the U. S. Every one an early developer, ready for the market at six months old. I want to place one hog in each community to advertise my herd. Write for my plan, "How to Make Money from Hogs." C. S. BENJAMIN, R. No. 10 Portland, Mich.

**Way Brothers Stock Farm.** The home of the big bone O. I. C. Hogs. Stock for sale. Registered free. J. R. Way, Pompeii, Mich.

**FOR SALE**—Fancy bred gilts, fall males, spring pigs, of the large, smooth kind. Price to sell. JOHN McNICOLL, Station A, R. 4, Bay City, Mich.

**Capitol Herd Duroc Jersey Swine.** Established 1888. Spring pigs for sale, satisfaction guaranteed. Express prepaid. J. H. Banghart, East Lansing, Mich.

**Heavy Bred Duroc Jerseys.** Breeding stock and some good Show pigs for sale. M. A. BRAY, Okemos, Ingham Co., Michigan.

**DUROC JERSEYS**—Spring pigs either sex. Gilts bred for Sept. farrow to a son of Volunteer Grand Champion at Internat'l Stock Show Chicago. F. J. Drott, R. 1, Monroe, Mich.

**DUROC Jersey bred gilts, bred for Aug. and Sept. farrow from leading blood lines; also a few good boars.** Write for circular and prices. W. C. Taylor, Milan, Mich.

**Duroc Jersey**—March pigs either sex, sired by a son and Chicago Show in 1912. E. H. Morris, Monroe, Mich.

**DUROC JERSEYS**—Fall and spring pigs either sex, from choice strains. S. C. STAHLMAN, CHERRY LAWN FARM, Shepherd, Michigan.

**BIG TYPE P. C.** Either sex, pairs or trics not akin. Bred sows and gilts. Have several 1000 lb. boar prospects. Absolutely no larger breeding. Everything guaranteed right. FRANK KRUGER, Havena, Mich.

**POLAND CHINA** Spring Pigs from heavy boned prolific stock. Sows bred for Summer and Fall pigs at close prices. ROBERT NEVEY, Pierson, Michigan.

**Poland Chi as, either sex, all ages. Something good at a low price.** Bargains in boars ready for service. P. D. LONG, R. F. D. 8, Grand Rapids, Mich.

**POLAND CHINAS** of the big type. Boars ready for service. Sows bred for spring farrow. A. A. Wood & Son, Saline, Mich.

**LARGE TYPE P. C.**—Either sex, pairs and trics, not akin. Am booking orders for bred gilts. W. J. HAGELSHAW, Augusta, Mich.

**Big Bred Poland Chinas.** Fall gilts bred weighing from 250 to 300 lbs. ROBERT MARTIN, R. F. D. No. 7, Hastings, Mich.

**Large Strain P. C.** two extra good Summer Yearling Boars: a few choice sows bred for Aug. & Sept. farrow. Spring pigs that are beauties, sired by Big Defender, the boar that everybody goes wild over. Come and see him. H. O. SWARTZ, Schoolcraft, Mich.

**BIG TYPE POLAND CHINAS.** Some choice boars now ready to ship. Satisfaction guaranteed. G. W. HOLTON, R. No. 11, Kalamazoo, Michigan.

**FALL PIGS AT HALF PRICE**  
Bred from the largest strain of Poland Chinas on earth, none bigger. If you ever expect to own a registered Poland China, this is your opportunity. Get busy and order at once. Pairs and trics not akin \$15 each. J. C. BUTLER, Portland, Mich. Bell Phone.

**Big Type Poland Chinas.** You can buy a pig now cheaper than you can next fall. We guarantee satisfaction.

BEAN CREEK FARM, ADDISON, MICHIGAN

**BIG TYPE P. C.** Chief of Irvingwood 84375 Hoosier Giant 2nd Bred sons. Spring pigs, can please you in price. MRS. J. E. BRAITHWAITE, Brant, Mich.

**BIG Type boars by Big Smooth Jumbo.** Greatest boar in State, 748 lbs at 17 mo. These boars are long, tall, big bone, sold at farmers prices, shipped C. O. D. Call or write. Wm. Waffle, Coldwater, Mich.

**REGISTERED YORKSHIRES**  
Imported Strain. Both sexes. Prices Reasonable.

**Hatch Herd, Ypsilanti, Michigan.**

**50 YORKSHIRES**—All ages. Red Polled Cattle, Oxford Dorn Sheep, W. P. Rocks, I. B. Ducks. E. S. CARR, Homer, Mich.

**FOR SALE** Lawence Lodge Yorkshires. Boars from 3 to 8 mos. old. Weanling pigs to ship Sept. 1st. GEO. McMULLEN, Grand Lodge, Mich.

**For Sale—Yorkshire Gilts** from large litters, bred for fall farrowing. Waterman & Waterman, Ann Arbor, Mich. Meadowland Farm.

**Mulefoot Hogs**—Weanling pigs, pairs not akin. Bred sows and gilts for fall farrow, two service boars. C. F. BACON, R. 3, Britton, Mich.

**Lillie Farmstead Yorkshires.** Boars ready for service. Gilts bred for Sept. farrow. Spring pigs, pairs and trics, not akin. Colon C. Lillie, Coopersville, Mich.

**YORKSHIRES**  
Bred gilts, service boars, September and October pigs. Prices reasonable. W. C. COOK, R. 42, Ada, Mich.

**WANTED:**—To buy some GRASS BREED PIGS.  
Address R. D. No. 1, Box 96, Standish, Michigan.

**HORSES**

**FOR SALE**—Registered Percheron Stallion Mares and Fillies at reasonable prices. Inspection invited. F. L. KING & SON, Charlotte, Mich.

**Pigeon Pony Farm**—Reg. Shetland Ponies, mostly spots, 1 spotted stallion and young stock for sale. Dr. W. T. Morrison, Pigeon, Mich.

**Registered Percherons**  
Brood mares, Fillies and Young Stallions. Priced to sell. Inspection invited.  
L. C. HUNT & CO., Eaton Rapids, Michigan.

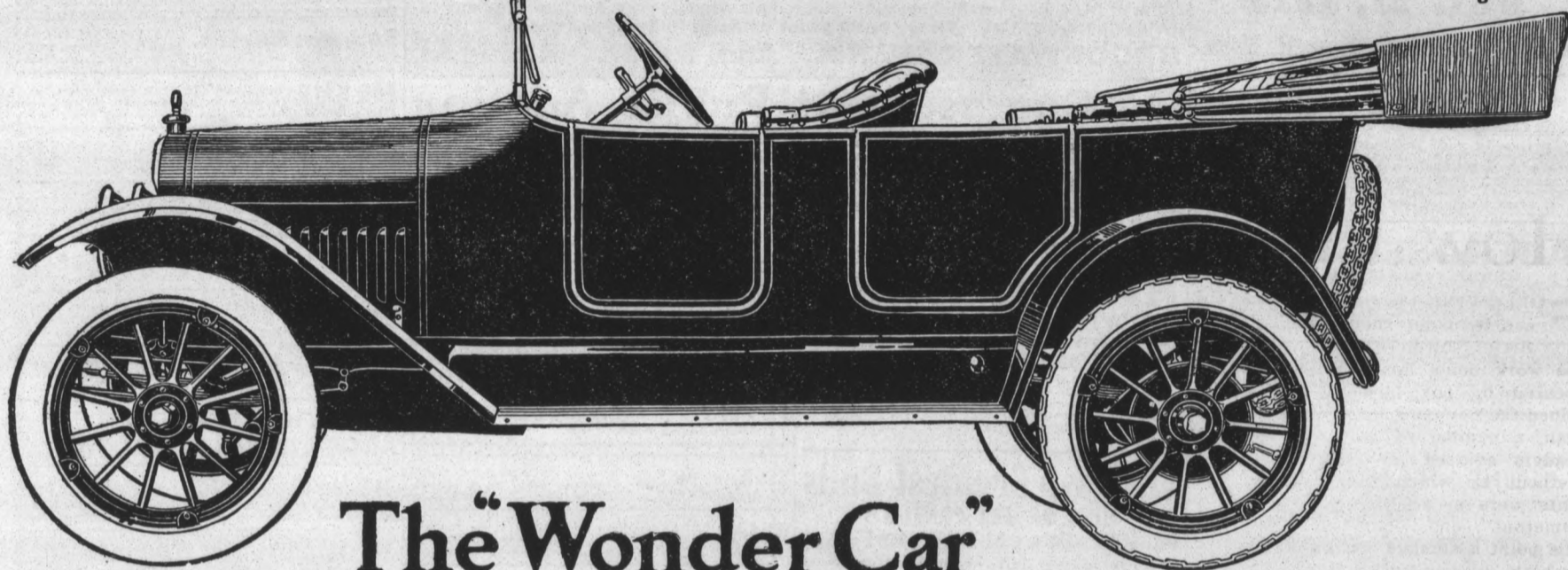
**SHEEP.**

**Black Top Delaine Sheep.** Yearling rams for sale. Fred E. Reichert, Elm Ridge Farm, Ann Arbor, Mich.

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

# 1916 Maxwell \$655

Including Electric Starter and Electric Lights



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The new 1916 Maxwell shatters all low "first-cost" records for a real automobile. Think of it—a full 5-passenger car—an absolutely complete car, with electric starter, electric lights, high-tension magneto, and every refinement—a luxurious car—a beautiful car—a powerful 50-mile-an-hour car,—yet a light-weight real economy car—for \$655.

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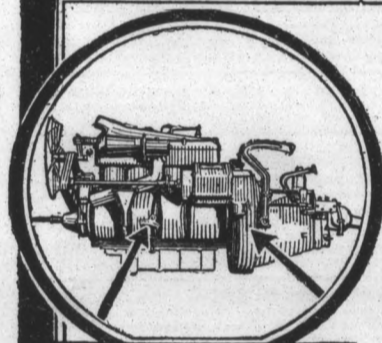
Electric Starter and Electric Lights	Electric Horn	Handsome Rounded Radiator and Hood	Easy Riding and Marvelous Flexibility
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New Stream-line Design			
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Every feature and every refinement of cars that sell at twice its price

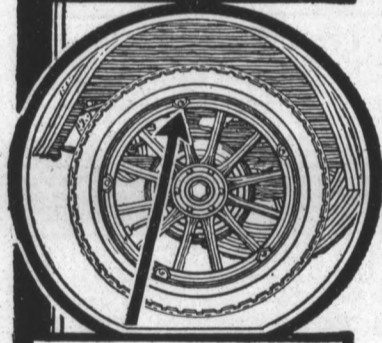
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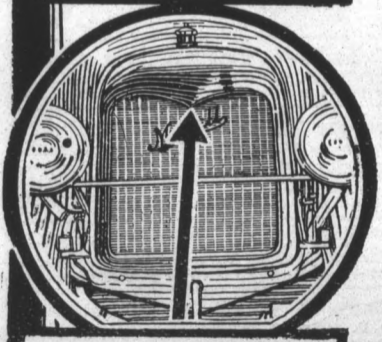
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4-cylinder Unit Power Plant with enclosed fly-wheel and clutch.



Demountable Rims are regular equipment of the 1916 Maxwell.

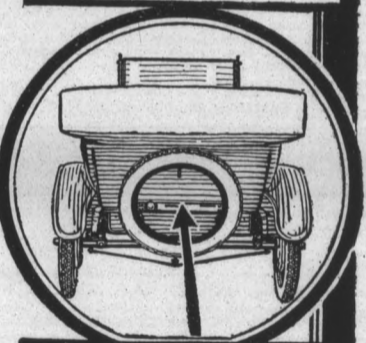


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Built complete by the three gigantic Maxwell factories at Detroit, Dayton, and Newcastle.



Speedometer, fuse box, ignition, lights, battery regulator, all mounted flush on instrument board.



Note the compact arrangement of spare tire carrier, tail light and license bracket.



Perfect-fitting, "one-man" mohair top; quick adjustable storm curtains, rolled up inside of top.

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