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The Problem of Good, versus Bad Roads.

THE ultimate solution of our highway problem is difficult of accomplishment. We have come to speak of it as the good roads problem, but the problem of bad roads is a more familiar one to the average Michigan Farmer reader. The movement in favor of better roads has slowly but surely gained momentum in Michigan in recent years. The building of more permanent highways has been greatly stimulated by our state reward road law, which has now been in force for several years. Through this law there have been built several hundred miles of state reward roads. By far the greater percentage of state reward road has been built in counties in which the county road system is in force. This is a natural consequence of the fact that under the county road system a definite policy of highway improvement is possible and there is greater regularity and continuity in this work of improvement than could possibly be the case where townships act independently.

Many townships have, however, taken advantage of the opportunities offered by the state reward roads law and built considerable stretches of permanent roads

with state aid. The general interest in the betterment of our highways also made possible the enactment of the new highway law, providing for a cash highway tax in lieu of the old highway labor tax. While there are, and doubtless will for some time continue to be, marked differences of opinion regarding the merits of the two systems, it seems to be reasonably certain that the new system will remain in force. There is a natural and marked reluctance on the part of the taxpayers of many townships to make liberal appropriations for the permanent betterment of the roads. Yet there is, undoubtedly a growing interest in this subject throughout the state, and, as the question of the adoption of the county road system will be voted upon in ten Michigan counties at the coming spring election, a brief discussion of some of the phases of the so-called good roads problem will be timely.

There is, perhaps, no phase of this problem which will be of more interest to the average Michigan Farmer reader than the evolution which has taken place in the construction of permanent highways in recent years. When the good roads

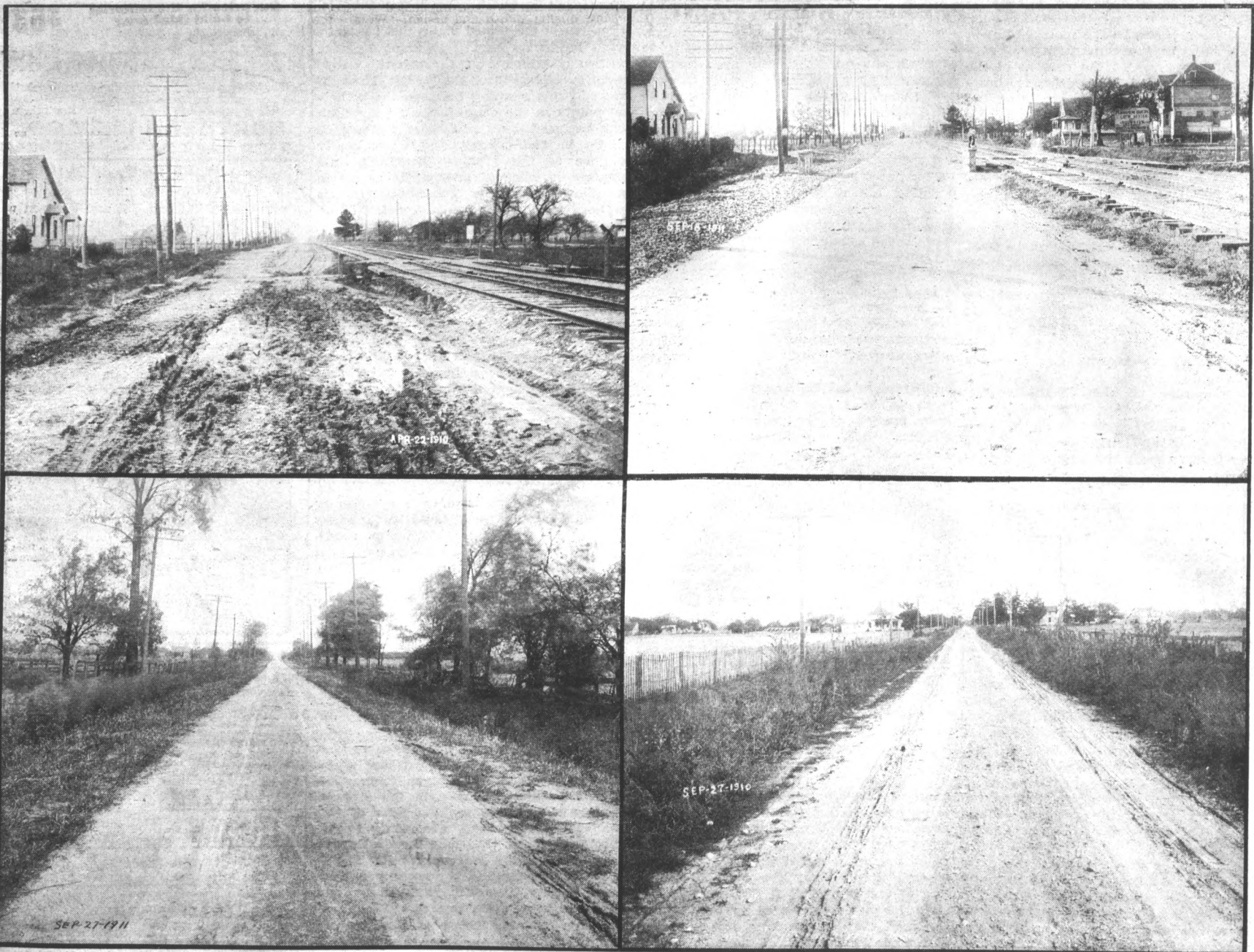
propaganda was first inaugurated in Michigan the gravel road was the type most generally favored in the permanent improvement of our highways, for the reason that there was a cheap supply of gravel available by the roadside in many localities throughout the state. The gravel roads which have been built in localities where the traffic conditions were not too exacting have given, and will continue to give, excellent service for many years.

But in the evolution in road building which was the natural result of years of experience in road improvement, the gravel type of road later gave place to the macadam type, or roads built of successive layers of crushed stone of varying fineness firmly rolled and compacted together. These roads have given excellent satisfaction in places where the traffic was too heavy to be successfully withstood by an ordinary gravel road. There are many miles of macadam road which are still in excellent condition after years of satisfactory service, and many more miles should be built in sections of Michigan to which this type of road is well adapted during future years. But in

localities where traffic is exceptionally heavy, as upon the main traveled roads leading into Detroit and other large cities, and where heavy traffic is interspersed with swift moving automobiles which sweep the fine particles of powdered rock from the roadway as they are ground up by the heavier vehicles, the macadam road has not given as satisfactory wear and has been found more expensive to maintain.

The first roads built by the board of county road commissioners of Wayne county, after the adoption of the county road system, were of a bituminous macadam type, but, after experimenting with concrete roads, the latter type of highway has been adopted exclusively for the main traveled roads in close proximity to Detroit.

The concrete road is built in large square blocks, the width of the roadway, the edges of these blocks being reinforced with steel at the joints and provision is made for expansion and contraction, which is a necessary factor in the permanency of the roadway. On the main traveled roads, this concrete section is 16 feet wide and seven inches



The Upper Scenes Show a Section of the Grand River Road, in Wayne County, before and after the Building of the Concrete County Road. The First of the Lower Scenes shows a Bituminous Surfaced Concrete Road and the Second a Recently Built Gravel Road in Wayne County.

thick, the concrete being 1-1½-3 mixture. A four-foot shoulder of crushed stone or washed gravel is used at each edge of concrete, making a permanent roadway 24 feet in width. The surface is only slightly crowning, which insures the distribution of traffic and adds greatly to the life of the road. The cost of this road, including drainage, culverts, etc., approximates \$14,000 per mile.

While this is considerably more than the cost of macadam the cost of maintenance is much less. This is illustrated by the fact that on two miles of macadam road laid on the old Grand River Turnpike four years ago the cost of maintenance has been approximately \$2,500 per mile, due to the disintegration of the surface from the combined action of heavy traffic and swiftly moving automobiles, as above noted. Within the past four years the board of county road commissioners of Wayne county have built approximately 33 miles of concrete roadway and the total cost of maintenance for the entire 33 miles has been less than \$200, most of which was incurred in cleaning out ditches or repairing culverts, rather than in repairs made to the roadway itself, the expense on which was confined wholly to retarding some of the expansion joints. The problem as to how this type of roadway could be repaired, in case the surface became rough, has apparently been solved by the application of what is known as a bituminous surfacing, which is composed of hot tar and clean sand, and which gives a durable wearing surface that can be applied to the thickness of a quarter inch for about five cents per square yard.

In view of the experience of the Wayne county road commissioners, which is substantiated by a report of the chief engineer of the State Highway Department of New York, to the effect that it is now costing from \$800 to \$1,200 per mile to maintain the macadam roads in that state in good repair, it would appear that the more expensive type of road would be the cheaper in the end, wherever traffic conditions are exacting. In other sections a macadam road would be so much cheaper to build that this advantage may be largely or wholly offset, particularly where traffic conditions are such as to make this type of road reasonably permanent. In still other localities, gravel will for many years be the material which will be used in the construction of permanent highways. In the opinion of the Wayne county road commissioners, however, the economy in using gravel on the main traveled roads of that county is questionable. A gravel road eight inches in thickness, with 12 feet of metal and 23 feet over all, constructed of the best quality gravel—which is not available in this county and has to be shipped in at an expense of \$1.00 per ton (3,000 tons being used to the mile), has cost approximately \$4,500 per mile. In localities where good gravel is available close at hand, the expense would be very materially reduced, as doubtless would the expense of the macadam road where native rock is available and is crushed on the ground.

But under the traffic conditions which obtain in Wayne county, on the main roads leading into Detroit, it is the expressed opinion of the Wayne county road commissioners that it is cheaper in the end to build the best type of road, which, so far as experience in Wayne county is concerned, appears to be a concrete road.

Wayne county has, of course, a very considerable advantage over other counties in the state in the matter of constructing expensive roads, in that it has within its boundaries a rich and populous city, whose taxpayers are willing to contribute to the permanent improvement of the county's highways. The same is true, in a somewhat lesser degree, of Kent county and other counties containing cities of considerable size. Yet the fact remains that some of the interior counties, such as Mason and Kalkaska, have done more than many more populous and wealthy counties in the state toward the permanent improvement of their highways. Doubtless they did not find the solution of the good roads problem easier than did the people of other counties, but they sooner recognized the difficulty of solving the problem of bad roads in any other satisfactory manner.

In addition to having many poor roads, we may well be described as being road poor, since the mileage of roads in many sections of the state is out of proportion to the ability or readiness of the people of those sections to rapidly bring about their permanent improvement. The solution of the good roads problem will thus necessarily be a gradual one, but it

is one which should not be neglected in any locality. If no more can be done than to grade down the worst hills and apply gravel to the sandiest and muddiest spots, this, together with a liberal use of the split-log drag at suitable seasons of the year, will go far toward eliminating the problem of bad roads, since the poorest part of any road prescribes the limit of its efficiency for the accommodation of public traffic.

The solution of this problem, so far as it has been accomplished, has been one of evolution and such we believe it will continue to be. But there is one fact which should not escape the interested reader, and that is that the township or county which is active in permanent highway improvement is getting the benefit of the state reward at the expense of other localities which are inactive. Also, where permanent roads are constructed under the county system, the roads so constructed are maintained by the county, thus relieving the townships of that much of the burden of highway maintenance and making it that much easier for them to improve other roads in the township. For these reasons, as for many others, it is a matter of public economy to take an early and active interest in the solution of this problem of good roads.

HOW CAN WE BEST SECURE GOOD ROADS?

Everybody would be pleased with better wagon roads. We need them. No one disputes this. But the best way to get them and how to pay for them are subjects upon which people differ.

It is not right for the farmer to bear the whole expense of building better wagon roads. While the wagon roads of the country are of more importance to the farmers probably than to anyone else they are not used alone by the farmers. Other people use them and other people want to use them more than they are doing at the present time, besides good roads are one of the most valuable assets of any town or city. Therefore, the towns and the cities ought to help build the wagon roads and they can afford to do it. Furthermore, it would be absolutely impossible for the farmers of this country to build permanent wagon roads in any reasonable length of time. They couldn't do it. It will cost too much. There isn't profit enough in farming to warrant the outlay of any such amount of money as would be necessary to ever make county roads, or the principal roads in a county or a township.

It is an immense undertaking to build the railroads of the state or the electric roads between different towns in the state, but what would be the expense of building the railroads compared to the permanent improvement of all of the wagon roads in the state. It is simply a stupendous question. If we wait for the farmers of this state to build permanent and enduring highways we will wait a long time. Just simply because it will be impossible for them to do it alone. And people have finally awakened to this fact and our cousins in the towns and cities now agree that it is their duty to pay their share towards the permanent improvement of the country roads. They seem to be more willing now to bear their portion of the expense than many farmers are. The farmer has become discouraged. He has contemplated this proposition for a long time and the more he thought about it the more stupendous seemed to be the undertaking and he simply gave it up and made up his mind that he must forever plod in the mud or through the sand. But now, since the people of the cities and the towns have come to his aid and are willing to help he is gradually awakening from his lethargy upon this subject and is practically ready to again put his shoulders to the wheel and bear his share of the expense for more permanent highways.

The County as the Road Unit.

After we decide to do a thing then the next question is how shall it be done. The farmers of a community can hardly agree upon what road to improve first. There is a whole lot of human nature in all of us. We would like to see the road in front of our premises improved first. But it may be that the road in front of our premises will do very little good to anybody else. We may not live upon the main line of travel and there is usually enough that do not live upon the main line of travel so that it is almost impossible for a neighborhood to settle upon the road that ought to be first improved and made permanent. Gradually growth of public opinion, coming from actual experience along this line is finally result-

ing in the fact that people see that it is necessary to have a larger road unit for the improvement of the public highways than that of the township or the road district and consequently the county road system has been evolved. Whether it is policy to go farther yet and have a state road system and even farther yet and have a national road system or not, is a question. We are hardly prepared yet to discuss this proposition. The trouble is where will we stop if we have a state road system and where could we stop if we once started the idea of a national road system. But we have got to the point where it is necessary to have a county road system. Localities smaller than a county cannot handle this road system and handle it properly.

The County Road System.

Under the county system a board of county road commissioners is elected by the people of the county. This board can lay out what is known as county roads. These are the main roads in the county, the roads which will benefit the largest number of people. Of course, it is impossible to benefit everybody with county roads but we have to work on the idea of the greatest good to the greatest number and that is the only system which will ever accomplish this and give us permanent roads. These road commissioners lay out county roads subject to the approval of the board of supervisors.

My own county of Ottawa has just recently adopted the county road system and the newly appointed board of road commissioners have looked the county over carefully and decided to have five permanent county roads. One of them to connect Grand Haven, the county seat, with Holland, thus connecting the two largest towns in the county. Another one extends from Grand Haven toward Grand Rapids as far as Kent county, where it will be met there by a county road in Kent county running to the city of Grand Rapids. Another from the city of Holland running toward Grand Rapids in the same manner to Kent county where that will be met by a county road in Kent county running to the city. Still another running through the central portion of the county. Then another main road is to run north and south through the county. When we get these main roads permanently built it will be a great convenience to the people of the county. These roads might be likened to trunk lines of railroads which run through the entire country. They are the trunk lines of wagon roads running between the principal points in the county, the roads which will be used by the largest number of people in the county, and consequently will be of the greatest benefit to the greatest number of people. It seems to me that the county commissioners are to be commended upon the selection of these roads. Every part of the county is recognized and every part of the county is to be benefited by them and all of the taxable property of the county will be taxed to build them. To be sure, there will be now and then a citizen who will derive little benefit from these principal roads but more people will derive benefit from these roads than they would from any other road, consequently all should be willing to help build them.


Township Roads.

Now, when a county gets the main county roads built, then each township, acting as an independent unit, should build roads which will help connect the township with these main county roads. After that is done then each community or neighborhood should build better roads connecting with these township roads. In that way we will soon have a great network of good roads covering every neighborhood in the entire county. Of course, what will apply to Ottawa county will apply to every other county in the state. It is the system. You can't have good roads without a system. Farmers acting independently will never build them. The people of a county as a whole must act together in order to get them.

State Reward Law.

It is well known, of course, that we have in Michigan a state reward law which allows the state of Michigan to pay \$500 a mile to any township in the state of Michigan that will build a mile of permanent gravel road according to the specifications of the Good Roads Department, and \$1,000 for every mile of macadam roads built in the same way. Ottawa county has only received a small amount of this state reward. We haven't been up-to-date. Some of the northern counties of the state have received thousands and thousands of dollars of state

(Continued on page 37).



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PASTURE AND FERTILIZER QUESTIONS.

In an old permanent pasture, part tamarack swamp and part tillable upland the soil of upland being gravel and sand, what would be the best grasses to sow to renew the upland, which has partially run out? How much pasturing can growing woods stand without being injured? When clover and timothy follow oats or wheat, can they safely be pastured after grain has been cut? Is Hungarian millet a good roughage? What effect will too much millet have on horses, cattle and sheep? On ground that is partly gravel over sand and partly sand alone, how can I tell what fertilizers are needed and how much is necessary? What would be the best grasses to use to start a new permanent pasture on land above described?

Jackson Co.

J. W. W.

In answering the first question I would like to know whether J. W. W. intends to plow this land and re-seed it or whether he intends to try and improve it by sowing grass seed on the pasture in the present condition. It would make some little difference in the seed to be sown. I take it that he is going to harrow or disk up the pasture the best he can and sow on some grass seed with the idea of improving it. In this case he wants to disk it as thoroughly as possible and then I would sow a mixture of common red clover, alsike clover, timothy, and red top. If, in addition to disking it and re-seeding it he could give it a good top-dressing with stable manure, or if he hasn't any stable manure then a good general fertilizer, it would help very much in establishing the sod.

I don't believe that you can pasture growing woods at all without injuring them. If you want to grow a good forest keep all kinds of stock out of it. If you don't they will eat off the young trees, they will destroy all of the seeds that germinate, and you will have nothing left but just the decent sized trees that you have now. Your woods never will perpetuate themselves. On the other hand, if you keep all stock of every description out of the woodlot and only cut the mature timber and are careful about falling it so as to not smash down the small timber, the woodlot will keep improving all the while and will perpetuate itself.

I would not pasture a new seeding after oat or wheat harvest at all. It certainly injures it. The tramping of stock on the young plants before they are fairly established and the cropping of the plants off too close in many places is positively injurious to them and I consider it a very extravagant and unbusinesslike policy. If the young seeding of clover gets so high that it begins to head out, instead of turning in stock to tramp it down I would clip it with a mowing machine and leave it on the ground. This clipping will act as a mulch and help protect it during the winter time and you will have a much heavier crop next year than as though you had pastured it close in the fall.

Hungarian millet makes a splendid feed, almost equal to hay. It will not injure horses or cattle or sheep or any kind of stock if it is cut when it ought to be. Cut it before the seeds are formed, cure it as you would hay and you can feed it without any hesitancy whatever, but if you leave it until it gets nearly ripe and feed it to horses they eat these seeds. The seeds of the millet act as a diuretic and work too much upon the kidneys, and you cannot feed it in liberal quantities.

The only way to find out just exactly what kind of fertilizer is most needed upon your soil is to experiment some yourself. Get different brands of fertilizer with different analyses and sow them side by side. Use small quantities, but keep track of it, and in this way you can learn more than anyone else can tell you. In a general way, sandy land is liable to be deficient in potash and phosphoric acid and I would use a fertilizer rich in these elements.

In making a permanent pasture on sandy, gravelly soil I would use red clover, alsike clover, some alfalfa, orchard grass and meadow fescue, and I would seed it early in the spring and keep all stock off the first year.

COLON C. LILLIE.

WILL USE POWER HUSKER.

Although husking my corn by hand I am not convinced that it is the cheapest.

The figures given for hand husking will not apply to very many sections of the state. If you can hire it husked at all, it will cost from four to six cents per bushel, besides drawing corn and fodder.

I have husked with a machine and so far as the husking is concerned, I have not a word to say against it. Suppose there is a husk left on the corn, and per-

haps now and then an ear unhusked, what hurt does it do?

Then, again, that shelled corn. If there is a hundred bushels it looks as though there must be a good crop of "King Corn." I believe we can throw it on the barn floor, feed the hogs, and all of the stock and not lose an ounce. Another way is to run it through the fanning mill, mix it with oats and feed it to the sheep.

The only thing I can see against machine husking is the keeping of the fodder. If we can devise some way to keep it from heating, we have solved the question. For myself I shall try mixing dry straw with it at the time of husking.

If I live to raise another crop of corn and can get a machine it will be husked that way.

Those that want to enjoy the health-giving benefits of kneeling down on the cold, damp ground can do it; but so far as I am concerned I have never been able to see very much pleasure in that kind of work. I will take my pleasure in knowing that my corn is husked, and that I am ready for winter.

Hillsdale Co.

M. M.

LIME FOR CLOVER.

I have noticed several times in the Michigan Farmer articles on the use of lime to get a catch of clover. Now I find it hard to get a catch and I think it is on account of the land being acid. Will you please tell me where you get the lime and if it is air-slaked when you get it, what it costs per ton and how much to sow to the acre? Also, how do you apply it? Also, would like to know if we would derive any benefit from the use of land plaster in our locality? I am located in Missaukee county.

Missaukee Co.

H. A. S.

Of course, you can test your land for acidity and if it gives an acid reaction there isn't any question but what it will pay to use lime. Even if it is not acid it might pay to use lime, but nobody can tell you this for certain. You would have to make an experiment yourself. Use some lime on a part of a field and note the results. Just north of you at Bay Shore is some of the best lime rock in this whole country, analyzing about 98 per cent pure carbonate of calcium. You can get this lime for about \$2 per ton in bulk f. o. b. the lime quarries. This is not air-slaked lime but ground limestone before it is burned. Distribute it broadcast. This can be done from the wagon with a shovel or by hand or you can get a machine for spreading lime for about \$35. You should apply anywhere from 1,000 lbs. to two tons of ground limestone per acre, depending, of course, upon the condition of your soil.

Land plaster gives results on new land by making the potash in the soil more available for the use of plants. On older soils in which the store of latent plant food has largely been converted into available forms this temporary benefit is not apparent.

COLON C. LILLIE.

HOW MUCH CORN SHOULD A MAN PLANT?

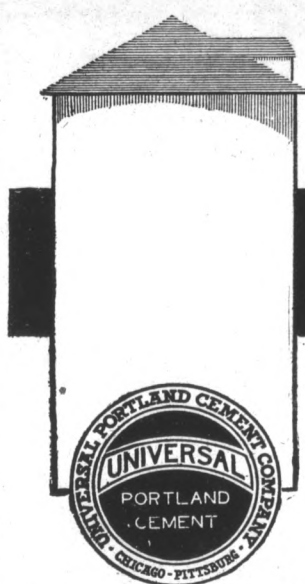
I read Mr. Washburne's description of how he raises 100 acres of corn. After I read it, I wondered if Mr. W. ever saw a plow, harrow, corn planter or corn harvester, or just dreamed of all this. Mr. W. claims he plants 25 acres per day in a field 120 rods long, and with a good lively team. Well, I guess they would need to be some steppers, and the corn would be, "oh, so scattered!" And poor horses, I'm afraid they would not last long.

I will place Mr. W. in a fine, level field, 160 rods long, (which would be to his benefit), and he is to plant 25 acres in 10 hours' actual work. With the planter set for 3 ft. 8 in. rows he must necessarily drive a stretch of 28 and a fraction miles in order to plant the 25 acres. Now he must turn around 56 times during the day. I will give him less than three minutes per turn to restake wire and fill box and do things up proper, letting the horses take one good breath, and go. This time takes up two and one-half hours, which leaves seven and one-half hours actual driving time to make the 28 miles, or each mile in a 16-minute clip with a corn planter. Mr. W. is also a great hand with a corn harvester and never grows tired in shocking up those small shocks.

I have had wide experience with different planters, but can not come up with Mr. W. I plant from six to ten acres per day, with a good steady team, and I would like to have my job of planting compared with Mr. W.'s even if he plants 14 acres per day.

Hillsdale Co.

C. A. ZACHONE.



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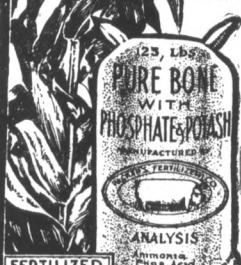

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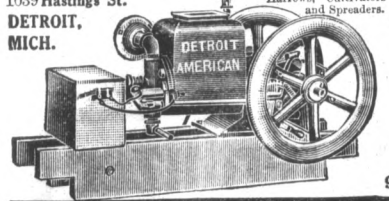
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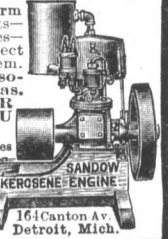


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LIVE STOCK

FEEDERS' PROBLEMS.

The Feeding Value of Roots.

Will you kindly give me through your paper the relative feeding value of carrots, turnips, ruta-bagas and mangels as compared with ear corn at 35c per bu., or cull beans at \$1 per cwt.? At present I am cooking the beets for growing pigs and was surprised to read the article by Mr. Lillie claiming there is no value in the cooking, as I supposed roots cooked were of more value than when fed raw. I am buying the roots for 15c per bu., delivered at my farm, and, as I am contemplating buying several thousand bushels for next year, I am anxious to know the value.

Ogemaw Co.

W. H. S.

The comparative value of roots and grain for hogs has been quite well established by numerous tests, both in this country and in Europe. The results of several trials at the Ohio Experiment Station showed 615 pounds of roots to save 100 pounds of grain as an average. In Danish experiments, six to eight pounds of roots were found to have saved one pound of grain. In various experiments to determine the comparative value of different kinds of roots, it has been determined that the value of the roots depends more upon the dry matter contained than upon the sugars and starches present. Rutabagas contain about two per cent more dry matter than the turnips or mangels, and would thus have a slightly higher feeding value, considered from the standpoint of their dry matter content. Probably it would be a conservative and safe basis to figure eight pounds of roots equal to one pound of grain in feeding value and, where the roots were cooked and mixed with meal, probably the comparative feeding value of the roots would be greater than eight to one.

Now with regard to cooked feed for hogs, it is true that at very many trials at different experiment stations throughout the country it has been found to be unprofitable to cook the ordinary grains for hog feed. In some instances the cooked grain has given inferior results to the uncooked grain, and even in the cases where slightly better results have been secured, the gains have not been enough more economical to pay for the cost and labor of cooking. However, because this fact has been established does not necessarily mean that cooking would not be profitable with some feeds, the palatability of which would be increased by the process of cooking. Potatoes, for instance, cannot be successfully fed to swine unless first cooked and roots of all kinds are rendered more palatable if cooked and meal is added to the mass before it is fed.

This increased palatability has much to do with the benefits derived from this element of the ration, and undoubtedly where roots are fed cooking will be found profitable for this reason. Also, there are some grain feeds that give better results when cooked, cull beans being one of these feeds. This grain is not only rendered more palatable to the hogs, but as well more easily digestible by cooking, and besides there is considerable advantage in feeding a warm ration to the hogs in very cold weather, which is insured by cooking the feed.

Of the grains mentioned at the prices quoted, cull beans would be more economical to form the base of the ration, since they are considerably higher in their protein content than corn, and would make a well balanced feed when cooked with the roots and fed with a little ear corn. At \$1 per cwt., they would thus be a cheaper feed than the ear corn at 35 cents per measured bushel.

The Feeding Value of Skim-Milk.

What is the value of skim-milk per cwt. for feeding?

Ingham Co.

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The results of a number of experiments conducted to show the relative value of skim-milk as compared to grain for pig feed, shows that the more economic results are secured when from one to three pounds of skim-milk is fed to one pound of corn meal. When so fed, the average of a number of trials shows 327 pounds of skim-milk to save 100 pounds of grain. The average value of skim-milk decreases as the quantity of skim-milk per given amount of grain is increased. Danish experiments have shown that six pounds of skim-milk are about equal to one pound of grain, but in these experiments a comparatively large proportion of skim-milk was used to a given amount of grain.

The results noted above, showing that

327 pounds of skim-milk to save 100 pounds of corn meal when fed in the proportion of one to three pounds of milk to one pound of corn meal, were deduced from 19 trials with 88 pigs of all ages, the experiment being carefully conducted at the Wisconsin station. At present prices for corn, the relative value of skim-milk would make it worth in money something like 34 cents per hundred pounds for pig feeding. This is perhaps an extreme value to place upon skim-milk, and yet when the fact is considered that it balances up the corn meal in the ration for the growing pigs, there is no doubt that its value in the ration is considerably enhanced for this purpose, particularly in the growing of fall pigs to early maturity, for which purpose the above value would be a conservative estimate.

WINTER MANAGEMENT OF THE FARM WORK HORSES.

One of the most important points to be considered in the winter management of the farm work horses is to have them in good condition to perform hard work next spring. Of first importance is a light and well-ventilated stable. Many horse stables, especially in parts of the country where the winters are unusually severe, have but few windows. It is impossible to keep a stable sanitary and comfortable without plenty of fresh air and sunshine. Windows should be placed as high from the floor as possible so that when they are opened during the day there will be less draft directly against the horses. In the writer's stable there are several windows, and by opening two or more at different times, according to the wind and sun, the change of air is made without making an undue draft upon the horses.

A great cause of discomfort, darkness and impure air, is the old-fashioned dark standing stall. These stalls, that are planked clear to the top are not only unhealthy, but they afford ideal places for filth to accumulate and disease germs to multiply. The horse is far more comfortable if he is kept in a box stall; however, box stalls occupy a great deal of floor space and consequently cannot be used in the average farm barn.

Cleanliness is an exceedingly important thing in carrying horses through the winter in good condition. The average farm horse is not given the food and care he deserves during the winter months. While it is not always possible to give farm work horses grooming every day when they are idle, yet there is no reasonable excuse for keeping the stables filthy and foul-smelling and not providing some means whereby the horses can obtain plenty of fresh air and outdoor exercise. On most farms straw is cheap and plentiful and all that is required to keep the horses clean and comfortable is the desire to do decently the things which our means will allow. If the horses are not used at some kind of work every day they should have a yard to exercise in when the weather is favorable. The horse cannot build up body vigor and strong and supple muscles without fresh air and outdoor exercise. The care of work horses in the winter should be with a view to the building up of strong muscles and energy for work, and only such methods should be adopted as are conducive to that result.

If the horse gets good care and plenty of nourishing food and does not maintain a good flesh condition, something is wrong and in more than two-thirds of the cases it is his teeth. The health and disposition of a horse depends in a large measure upon good teeth and an easy, comfortable mouth. A competent veterinarian should be employed to examine the horse's mouth and see that the teeth are kept in good working order. The mouth and teeth should be gone over carefully to see if there are any sharp or rough edges on the teeth that will lacerate the cheeks or tongue. By filing down these sharp points and edges he will be comfortable, as it allows the full chewing of his food, improves his health and temper and causes him to behave nicely and work well. Decayed teeth often cause an overgrowth of the corresponding teeth on the opposite set and this overgrowth should be leveled down so as to permit the uppers and lowers to come together and present a perfect grinding surface. The horse frequently declines in condition because his teeth are so decayed or overgrown that he cannot chew his food. A good veterinarian can fix up a horse's teeth in a short time and at a surprisingly small cost. If once placed in good working order and examined from time to time it is little trouble to keep them so.

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The Marvelous McVICKER

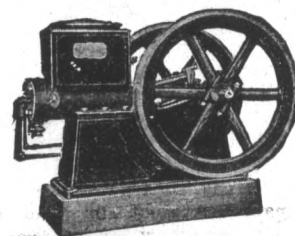
has only one-third the number of parts that are in the ordinary engine. Most makers still cling to a lot of useless parts that date back to the infancy of the gas engine, when it was about as unwieldy and clumsy as could be. The need for these useless parts passed away long ago, as gas engine construction improved, but a lot of makers still cling to them. Nowadays, however, they only mean extra adjustments, extra attention, extra liability to trouble.

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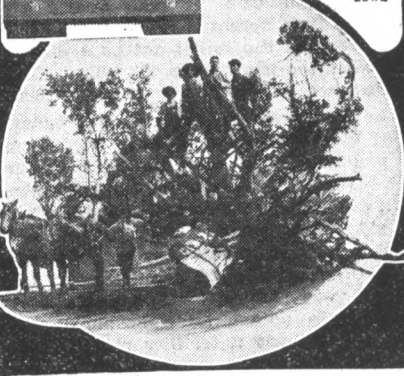
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The care of the feet during the winter is greatly simplified if the shoes are removed as soon as the farm work is completed in the fall. Of course, it is necessary to keep horses well-shod if they are worked during the winter. However, it is seldom advisable to keep the shoes on horses that are not doing regular work or being driven about on slippery roads. The feet are the most important part of a horse and their perfect soundness is essential if the animal is to work in comfort. If the horse is not properly shod he should not be taken out when the roads are slippery. On the other hand, he should not be allowed to stand in the stable with his shoes on so long that the outside walls of the hoof overgrow the shoes. Watch the horse's feet carefully.

Whether brood mare or gelding it is the healthy, well-fed horse that exhibits the greatest endurance in the collar, so the winter management imposes liberal and judicious feeding. The superb vigor so characteristic of high-class farm horses cannot be maintained by feeding half-rations. The weak, emaciated horse, loses money for his owner by lack of endurance and decreasing vitality. Such weak, run-down horses should not be tolerated, much less courted, even if feed is high. The expense of maintaining farm horses is a large item. It may be as much as \$100 a year; it can scarcely be less than \$50. When to this is added interest, taxes and depreciation of horses, no arguments should be necessary to convince a farmer that he should get the most work possible out of every farm horse. It costs to feed the idle horses and for this reason it is a fundamental economy to feed as few horses as possible and have them in the best of condition to go into the spring's work and perform steady, every-day service.

Good feeding does not consist of stuffing the horse for a number of weeks before he is put to work on heavy grain feeds. Regular and careful feeding on a good allowance of clean, palatable hay and just enough wholesome grain feed to keep him in a thrifty, flesh gaining condition is all that is required to keep him in good shape for a hard spring's work. Probably the greatest mistake made in feeding horses is that of feeding too much roughage. The horse has a comparatively small stomach and is not capable of handling a large amount of coarse feed like the cow. Where 10 to 15 pounds of roughage are required by the average work horse many farmers feed all they can be induced to eat. Their digestion becomes weakened, their intestines clogged and their general appearance sluggish. On many farms the horse's manger is filled with hay three or four times a day. In many cases sick and out of condition horses may be cured by merely cutting down on their roughage ration. In my own practice I feed my horses two feeds of cut hay mixed with grain mornings and noons and at night a liberal feeding of bright, clean hay. I feed about three pounds of cut hay with the grain ration, which is varied to meet the needs of the horses that are being fed. From six to eight pounds of hay is fed at night. A grain ration of from six to nine pounds should be sufficient for a horse that is not doing hard work. A mixture of corn and oats makes one of the best grain rations available on the average stock farm. If the corn and oats are crushed and mixed with cut hay the danger of impaction is greatly reduced, because the food must be consumed more slowly. If plenty of roughage is thoroughly mixed with the grain the danger of deranging the animal's digestive system is reduced to the lowest possible degree. Alfalfa and clover are excellent hay feeds to cut and feed with the grain and the danger of dust is eliminated if the mixture is sprinkled with water at feeding time. When feeding cut clover and alfalfa with the grain ration it gives a wider variety to feed timothy or mixed hay for the roughage ration at night.

The supply of water must be pure and plentiful. The watering pails or troughs should be clean. When the horse is in normal condition he should have all of the water he will drink. Water before he is fed because it passes through the stomach rapidly. Judgment must be used in watering horses that are being worked, but idle horses are not likely to drink too much water if given to them twice a day. The horse that is being worked requires different treatment and food from the ones that are idle, consequently what I have said regarding the care of idle horses would not apply with equal force to the horses that are being worked regularly during the winter months.

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2 Miles in	1:56
14 Miles Averaging	1:56 1/2
30 Miles Averaging	1:57 1/2
45 Miles Averaging	1:58
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Dan Has Broken World Records 14 Times.
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VETERINARY

Advice through this department is free to our subscribers. Each communication should state history and symptoms of the case in full; also name and address of writer. Initials only will be published. Many queries are answered that apply to the same ailments. If this column is watched carefully you will probably find the desired information in a reply that has been made to some one else. When reply by mail is requested, it becomes private practice, and a fee of \$1.00 must accompany the letter.

Effects of Distemper.—My horses had distemper last fall and have not made a very good recovery. One of them has had suppurative trouble since and his skin is in a sort of scurfy condition. Another one seems to be dull and dumpy. A. S., Reese, Mich.—Give your horse that has suppurative trouble 1 dr. iodine potassium and 2 drs. Fowler's solution at a dose in feed three times a day. Good grooming twice a day and clothing the body warm will soon improve skin. The scaly spots should be softened with vaseline. Give the dull horse 1 dr. ground nux vomica and 2 drs. bromide of potash at a dose in feed three times a day.

Lymphangitis.—Last fall one of my mares had an attack of lymphangitis, but made a fairly good recovery. She is now suffering from a second attack and I would like to know what to do for her. I have fed her condition powder right along, expecting it to purify her blood, but she fails to improve. J. H., Vassar, Mich.—Every horse that has had an attack of lymphangitis should be fed with care, their bowels kept open and not fed more than one-third grain ration when idle. They should be exercised some every day. Give 2 drs. iodine potassium and 1/2 oz. powdered nitrate of potash at a dose in feed three times a day. Irritating liniments should not be applied.

Sprained Leg.—I bought a 15-year-old mare at auction sale; she was lame in left hind ankle. I have blistered her twice without results. B. F., Ann Arbor, Mich.—Mix together one part tincture cantharides, one part aqua ammonia, one part turpentine and three parts raw linseed oil and apply to fetlock joints twice a week.

Bone Spavin.—Have a horse that has bone spavin affecting each hind leg. One spavin came on two years ago, the other just formed. How shall I treat this case in order to insure best results? E. T., Elkton, Mich.—It can be safely stated that few spavined horses are given enough rest when being treated, to insure a recovery. Give your horse two months' absolute rest and apply one part red iodine mercury and four parts lard to hock joints three times a month. If at the end of two months, he is still lame have your Vet. fire him.

Bald Scar on Fetlock.—Our eight-year-old mare was cut on barb wire last year, making wound on fore part of fetlock which healed fairly well, but a large scar remains and it is without hair. What can be applied that will grow hair on bunch? R. K., Luther, Mich.—It is doubtful if hair will ever grow on scar, there is no better remedy than vaseline to grow hair.

Lymphangitis.—I have a five-year-old horse that took lymphangitis three weeks ago and has been treated by our local Vet. This horse is not lame, but pus comes from back part of hock where a curb is located. G. W. McI., Shelbyville, Mich.—Reduce his food supply, feeding mostly bran, timothy hay and roots. Give 2 drs. iodine potassium and 1/2 oz. powdered nitrate of potash at a dose three times a day. If his leg is not much inflamed bandage over cotton. He should have walking exercise.

Hernia.—I have a three-year-old filly that has a navel breech about the size of a small hen egg. By placing the finger in center of bunch it can be easily moved into body. What had I better do for her? W. F. S., Palmyra, Mich.—The only treatment that has any good effect is surgical work and this is not a good time of the year to do it. All things considered, you had better leave her alone until April, then have her operated on.

Snagged on Thigh.—Colt 12 months old snagged herself, making wound on hind leg between stifle and hock joint. Have given her good care and applied different kinds of medicine without help. E. S. C., Marion, Mich.—If the wound is still open apply equal parts powdered alum, oxide of zinc, boric acid, and tannic acid, or apply one part iodoform and eight parts boric acid. If there is no opening, then apply equal parts iodine ointment and belladonna ointment once or twice a day.

Surfeit—Mange.—Nine-year-old mare is covered with small dry scabs and one of her legs is quite sore. K. K., Nunica, Mich.—Give your mare a dessertspoonful of Donovan's solution at a dose in feed three times a day. Feed her enough well salted bran mash and roots to keep her bowels open. Apply one part oxide of zinc and five parts vaseline to sores once a day.

Partial Loss of Control of Leg.—Two-year-old colt has had for about four months a peculiar motion; while walking he swings left hind leg out occasionally. He has a small bunch on back part of hock which I blistered several times. He trots or runs as smooth as he ever did. M. K., Dundee, Mich.—Give 1/2 dr. ground nux vomica at a dose in feed three times a day. This is given to stimulate his spinal cord and nerve. Apply one part iodine and eight parts lard to bunch on hock every day or two.

Heifer Has Wart.—I have a heifer that has 50 or more warts, some of them long, others flat. J. H., Slocum, Mich.—Cut off those that have necks and apply acetic acid to flat ones three times a week.

“PEER-HO”



Gall Cure Collar

Under the face of the collar is a heavy pad of curled hair that is smooth and will not form lumps. The result, no sore shoulders. Ask your dealer to show you Peer-Ho Collars and Harness.

Pierson & Hough Co.,
Detroit, Mich.

U.S. PAT. NO. 528-166

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Amazing “DETROIT” Kerosene Engine shipped on 15 days' FREE Trial, proves Kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing.

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The “DETROIT” is the only engine that handles coal oil successfully; uses alcohol, gasoline and benzine, too. Starts without cranking. Basic patent—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h. p., in stock ready to ship. Complete engine tested just before crating. Comes all ready to run. Pumps, saws, thrashers, churns, separates milk, grinds feed, shells corn, runs home electric-lighting plant. Prices (stripped), \$29.50 up. Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate amazing, money-saving, power-saving “DETROIT.” Thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, we will allow you Special Extra-Low Introductory price. Write to Detroit Engine Works, 149 Bellevue Ave., Detroit, Mich.

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United States Bonded Engine. Burns gas, gasoline, kerosene, distillate. Consider these 12—Advantages—12

1st, Pays for itself in fuel saving in short time. 2nd, No violent vibration. 3rd, Greatly reduced bulk. 4th, Easily portable; mounted anywhere. 5th, Every engine part and horse power guaranteed. 6th, Absolutely frost proof. 7th, Positively most economical running engine made. 8th, Only engine with pulley on both sides. 9th, Small pulley on cam shaft, for very slow machines. 10th, Perfect Lubrication, cooling & ignition. 11th, Lowest cost engine in the world. 12th, Made by reputable firm, 60 years in business.

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BROOD SOW SALE

FRIDAY, JAN. 19, 1912.
I will sell 55 sows, 4 boars. I have big and medium type. Don't miss this sale. Write for catalogue.

WM. WAFFLE, Coldwater, Michigan.

FOR SALE AT AUCTION—Jan. 30, 1912, along with other live stock and farm tools, 1 registered Percheron stallion coming 3 years old and 4 head of pure bred Shorthorn cattle. For particulars address R. D. Bird, St. Johns, Mich.

BREEDERS' DIRECTORY.

CATTLE.

ABERDEEN-ANGUS.

Herd, consisting of Trojan Erics, Blackbirds and Fries, only, is headed by Egerton W. a Trojan Erica, by Black Woodlawn, sire of the Grand Champion steer and bull at the International in Chicago, Dec. 1910. A few choice bred young bulls for sale.

WOODCOTE STOCK FARM, Ionia, Mich.

AYRSHIRES—One of foremost dairy breeds: young bulls and bull calves for sale. Berkshire swine. All pure bred. Michigan School for Deaf, Flint, Mich.

Guernsey Bull Calves from large A. R. ancestors. **ALLAN KELSEY, Lakeview, Mich.**

GUERNSEY BULL—Reg. 9 months old, half price for quick sale. One 3 months old \$35. **W. W. BURDICK, Wayland, Mich.**

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A Fine Young Bull, born January 4, 1911.

Sire—King of the Hengervelds, whose sire has 8 daughters that have official records that average over 30 lbs. butter in 7 days and 12 daughters that average over 100 lbs. milk in one day and whose dam has an official record of 29.27 lbs. butter and 63.2 lbs. milk in 7 days at 4 years 7 days old. Dam—Winona De Cole 2d, who gave 1404 lbs. milk in 10 months and traces to Imported Clothilde, who gave 2000 lbs. milk in one year, fourth largest year's milk record. He comes from large producers on both sides, is a good individual, nicely marked with a little more white than black. Price \$100.

McPHERSON FARMS CO., Howell, Michigan.

BULLS-HOLSTEIN-BULLS

One \$50 Bull

One \$60 Bull

One \$70 Bull

One \$80 Bull

We have some very choice ones a little higher.

Write for description and pedigree.

Long Beach Farm, Augusta, [Kalamazoo] Mich.

I Did Not Sell 20 Holstein Bulls in Nov.

I Want to Finish the Job in December.

Send for my Dec. Announcement. Select a bull from it, order him QUICK. Several from A. R. O. dams, and sired by Johanna Concordia Champion, the only bull in service whose grand dams average 34.06 lbs. butter in 7 days. Also yearling heifers bred to him.

L. E. CONNELL, Fayette, Ohio.

HOLSTEIN BULLS

FOR SALE

Registered bulls from four to ten months old for sale that are closely related to Hengerveld De Kol, De Kols 2nd Butter Boy 3rd, and Colantha 4th's Johanna. The dams are heavy milkers and mostly in the A. R. O. Prices reasonable. Send for list. Bigelow's Holstein Farm, Brodsville, Mich.

For Sale—3 Registered Guernsey Bulls; 5 registered large Yorkshires sows, bred. For prices write John Elbers, R. No. 10, Holland, Mich.

HEREFORDS—7 bulls from 2 mos. to 2 years old, all reg. and of the very best breeding. Also big boned Poland China hogs. **ALLEN BROS., Paw Paw, Mich.**

Holstein Bulls 1 month to 1 year old. Their sire is of the present most popular advertised breeding. **ROBIN CARR, Fowlerville, Mich.**

HOLSTEIN BULL calf, sired by best son of Pontiac Butter Boy and from equally good dam. **C. D. WOODBURY, Lansing, Mich.**

Holstein Heifers for Sale. Few thoroughbreds and high grades, bred to excellent grandson of Pietertje Hengerveld Count De Kol. **ROUGE MONT FARMS, Detroit, Michigan.**

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REGISTERED JERSEYS For Sale—Some combine the blood of St. Louis and Chicago World's Fair Champions by HERMAN HARMS, Reese, Mich.

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Crystal Springs Jerseys for Sale from high testing cows. **C. A. BRISTOL, R. No. 2, Fenton, Mich.**

LILLIE FARMSTEAD JERSEYS. Cows all in yearly test. Four Bulls old enough for service. Several splendid Bull Calves. A few Heifers and Heifer Calves. I guarantee satisfaction or money refunded.

COLON C. LILLIE, Coopersville, Michigan.

FOR SALE—3 yearling Holstein-Friesian bulls, also bred heifers \$150 to \$200 each. Bull calves \$40 to \$60. 33 years a breeder. Photos and pedigrees on application. **W. C. JACKSON, South Bend, Ind., 729 Rex St.**

BUTTER BRED JERSEY BULLS FOR SALE CRYSTAL SPRING STOCK FARM, Silver Creek, Allegan County, Michigan.

JERSEY BULLS FOR SALE Sired by Temisia's Interested Prince 71648, whose dam made 73 lbs. butter in one year, authenticated test. Choice individuals. Prices Reasonable.

BROOKWATER FARM, ANN ARBOR, MICH., R. F. D. 7.

JERSEYS of the best breeding. Cows officially tested. A few bull calves from cows making splendid records. **SAMUEL ODELL, Shelby, Mich.**

Red Polled Bull Calves 6 to 7 months old, \$40 to \$50. Cows \$50 to \$75. Also Percheron Stallion 3 years old, fine style, a big bargain at \$250. **E. BRACKETT & SON, Allegan, Mich.**

FOR SALE—2 Yearling RED POLLED BULLS, price \$60 each if taken now. **J. M. CHASE & SONS, Ionia, Mich.**

Dairy Bred Shorthorns—a few bred heifers for sale, price \$75.00 each. Cash or good note. **J. B. HUMMEL, Mason, Mich.**

SHEEP.

Oxford Down Sheep—Good Yearling Field for sale. **I. R. WATERBURY, Highland, Michigan.**

Oxford Ewes—Registered and bred to imported rams for sale at farmers' prices. Address **B. F. MILLER or GEO. L. SPILLANE, Flint, Michigan.**

Reg. Rambouillets—Wish to close out both sexes. All ages, low price. Farm—2 1/2 miles E. Morrice, on G. T. R. R. and M. U. R. J. Q. A. COOK.

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Durocs and Victorias—Elegant spring pigs, either sex, living prices. **M. T. STORY, R. F. D. 48, Lowell, Mich.**

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BERKSHIRES—12 Gilts at \$25; 8 at \$30; 5 tried Sows at \$35 and up. All bred. Best blood lines. **Elmhurst Stock Farm, Almont, Mich.**

Berkshires—Bred sows, bred gilts and boars ready for service. The best of breeding, splendid individuals with fancy heads, at reasonable prices. **C. C. COREY, New Haven, Michigan.**

FOR SALE, BERKSHIRES—2 boars & 8 gilts farrowed in June also a choice lot of Aug. and Sept. pigs, sired by Handsome Prince 3d & Marion King. **A. A. PATULLO, Deckerville, Mich.**

Berkshires—Buy a service Boar now, cheap. Other stock also for sale. **C. S. BARTLETT, Pontiac, Mich.**

O. I. C. Service Boars, Gilts bred for April farrow Glenwood Stock Farm, Zeeland, Mich. Phone 94

O. I. C. SWINE—Males weighing from 175 to 250 lbs. each. Also a very choice lot of gilts. **GEO. F. ANDREWS, Dansville, Ingham Co., Mich.**

O. I. C. SWINE—My herd is chiefly descent of the Royal strain both males and females. Write for Live and Let Live price on pairs and trios, not akin.

A. J. GORDON, R. No. 2, Dorr, Michigan.

O. I. C's For Sale—type, either sex, pairs not akin, some fine bred gilts, choice lot of fall pigs all ages. **OTTO B. SCHULZE, Nashville, Michigan.**

O. I. C.—Bred gilts by Champion boar, \$25 each, for January shipment. **C. J. THOMPSON, Rockford, Michigan.**

O. I. C. Sows bred for spring farrow. OTIS GREENMAN, R. 4 Bellevue, Mich.

O. I. C's—Boars all sold. Choice young sows weighing 180, also 60 Aug. & Sept. pigs, either sex, pairs not akin. Order early. **Fred Nickel, Monroe, Mich., R. 1.**

O. I. C.—Spring boars all sold. A few lengthy gilts to be bred for April farrow. Choice Aug. & Sept. pigs, cheap. **A. NEWMAN, R. No. 1, Marlette, Mich.**

O. I. C's—All ages, growthy and large, sows bred, Males ready, 100 to select from. Attractive prices on young stock. **H. H. JUMP, Munith, Mich.**

O. I. C. swine and Buff Rock cockerels of down for quick sale. **G. D. SCOTT, Quimby, Mich.**

UR Imp. Chester Whites and Tamworth swine won 245 1st at Fairs in 1911. Service boars, also sows bred for spring farrow of either breed that will please you in quality and price, **Adams Bros., Litchfield, Mich.**

Improved Chesters—Young breeders of March, April and May farrow, either sex. A few tried sows for sale when bred. Also attractive cattle. **W. O. WILSON, Okemos, Mich. Both phones.**

DUROC JERSEYS. CAREY U. EDMONDS, Hastings, Mich.

Duroc Jerseys for Sale—Boars and Gilts, also Fall pigs (both sexes) bred from State Fair winners. Prices reasonable. Write or call and see. **R. G. VIVIAN, R. 4, Monroe, Mich.**

FOR SALE—20 Choice Bred Sows due to farrow April. **JOHN McNICOLL, R. No. 1, North Star, Mich.**

DUROC-JERSEY BOARS of the large, heavy boned type and good in quality, also gilts and fall pigs for sale. **M. A. BRAY, Okemos, (Ingham Co.) Mich.**

FOR SALE—DUROC-JERSEY bred sows, pigs and Shepherd Pups. Express prepaid. **J. H. BANGHART, Lansing, Mich.**

30 High Class Boars ready for service. Special prices for 30 days. Plenty of growth, style and finish. Satisfaction guaranteed. Come or write. **J. C. BARNEY, Coldwater, Mich.**

LARGE TYPE P. C.—Largest in Michigan. Pigs sows. Weigh 160 to 175 lbs. at 4 months. My motto—“Not how cheap but how good.” Will pay expenses of those who come and do not find what I advertise. **W. E. LIVINGSTON, Parma, Mich.**

For Sale—Thoroughbred Poland China Swine. Prize winners at State and County Fairs. **W. F. QUIRK, Big Rapids, Michigan.**

Poland Chinas—Extra good spring and fall pigs either sex. **L. W. BARNES & SON, Byron, Shiawassee Co., Mich.**

FOR SALE—A CHOICE P. C. BOAR, “Oakwood Medler,” sired by “Victor.” Dam by “All right every way.” A few choice Minorca cockerels. **R. W. MILLS, Saline, Mich.**

POLAND CHINAS—Either sex, all ages. Something good at a low price. **P. D. LONG, R. No. 8, Grand Rapids, Mich.**

FOR SALE—Poland China boars and sows, Holstein Bulls, White Holland Turkeys, Barred Plymouth Rocks, Collie Pups. **L. Birkenstock, Fall River, Wis.**

Butler's Big Type Poland-Chinas—size, bone, quality, for everything in Poland Chinas. If you want a nice boar to head your herd, a brood sow or fall pigs, Pairs not akin, or a reg. Jersey bull of any age write us. Our prices are very low. **J. C. Butler, Portland, Mich.**

Poland China Gilts bred for April farrow. Light Brahmas, White Wyandotte and Barred Rock cock's. **E. D. Bishop, R. 28, Lake Odessa, Mich.**

Poland Chinas—Bred from large type. Stock all ages, both sexes, at Farmers' prices. **W. J. HAGELSHAW, Augusta, Michigan.**

POLAND CHINAS—Sows bred for April or May farrow, fall pigs, fall pigs, both sexes pairs not akin. **R. J. LANE, R. 7, Clare, Michigan.**

SPECIAL SALE on Poland China Boars, Sows Bred and fall pigs. Also Dairy bred Shorthorn Bull Calves. **ROBERT NEVE, Pierson, Mich.**

Big Type P. C. Boars and Sows sired by Expansion. **A. A. WOOD & SON, Saline, Michigan.**

Mulefoot Hogs—Stock of all ages for sale. Price right. Best quality. Bred sow Sale Feb. 1 at Lima. **G. C. KREGLow, Ada, Hardin Co., Ohio.**

LARGE Improved English YORKSHIRES, both sexes, all ages. Gilts bred for spring farrowing, \$20 while they last. **M. O. WILSON, Morley, Mich.**

YORKSHIRES FOR SALE—Gilts bred for spring farrowing, also Aug. pigs, both sexes. **WATERMAN & WATERMAN, Ann Arbor, Mich.**

LARGE IMPROVED YORKSHIRES—All ages. Either sex. Gilts bred for April and May farrow. Prices reasonable. **W. C. Cook, Route 42, Ada, Mich.**

Lillie Farmstead Yorkshires.

Boars old enough for service. A few bred Sows, fall pigs, pairs and trios not akin. I will sell you fall pigs at prices that will surprise you. Satisfaction guaranteed. **COLON C. LILLIE, Coopersville, Mich.**

Cow Coughs—Sprained Tendon.—I have a ten-year-old cow that is in fairly good condition, but troubled with a cough. I also have a twelve-year-old mare that sprained tendons of hind leg when she slipped. O. H. W., Caro, Mich.—Give your cow 1 oz. powdered licorice, 1 dr. powdered opium and 1 dr. powdered lobelia at a dose in damp feed two or three times a day. Clip hair off tendons and apply cerate of cantharides once a week.

Luxation of Joints.—Every step my three-year-old colt takes his joints seem to slip in and out of place, but he shows no lameness. The stifle joints seem to be most affected and I would like to know what to apply. W. J. D., Royal Oak, Mich.—Feed him well and exercise him moderately and as soon as he gains more strength his joints will be all right. A very good liniment to apply is composed of equal parts turpentine, aqua ammonia and olive oil.

Stringhalt.—For the past few weeks one of my three-year-old colts jerks up one hind leg, but only when first starting to walk. This colt seems to be right every other way. A subscriber, Lake Odessa, Mich.—Your colt has a mild attack of stringhalt, the only remedy is a simple surgical operation which consists in removing a section of a small tendon situated at lower and outer part of hock joint. Your Vet. can doubtless perform this operation and it can be done without casting colt; have him use a six per cent solution of cocaine.

Indigestion—Acidity of Stomach.—My seven-months-old colt is very much out of condition, has a poor appetite for food, but has a strong inclination to eat rotten wood and filth. No need of your prescribing a remedy to be given in feed for he will not eat it. W. H. Ann Arbor, Mich.—Dissolve a dessertspoonful of bicarbonate of soda in his drinking water and give him three doses a day, if he will not drink it dissolve it in a half pint of water and pour it down him. Also give a tablespoonful fluid extract gentian and the same quantity of fluid extract cinchona at a dose three times a day. Feed him food that he is most fond of.

Bone Spavin.—I have a six-year-old horse that has been troubled with bone spavin lameness for the past 18 months and I have tried several remedies, besides having him treated by our Vet. without good results. C. Z., Lent, Mich.—The true hock joint, or what is commonly called the pulley articulation, must be involved and if so his case is incurable. Have your Vet. fire him and give him two months rest.

Dislocation of Patella.—Have a two-year-old filly that is fed corn and timothy hay which has trouble in left stifle joint. The cap slips out of place and seems to fall back into position very easily. J. D. McG., Vanderbilt, Mich.—The ligaments that hold cap in position are weak. Clip off hair and apply cerate of cantharides once a week.

Weak Heart—Grease Heel.—I have a seven-year-old Percheron mare in foal which panted considerable when worked last summer. She is now troubled with sore legs above fetlock, and stocks. These sores on hind leg discharge a yellow, grease-like matter. J. S., Onondaga, Mich.—Give your mare a dessertspoonful of Donovan's solution and 1 oz. cooking soda at a dose in feed three times a day. Dissolve ¼ lb. acetate lead, 3 ozs. sulphate of zinc and 3 ozs. carbolic acid in a gallon of water and apply to sore heels three times a day. Wet and filth will prevent her heels from getting well.

Poisoned Legs.—Three months ago my mare was pastured in alsike which caused her heels to become sore and it required some time to heal them. Her heels are in fairly good condition, but she has been in an unthrifty condition ever since. B. S., Siloam, Mich.—If the skin of legs is still rough apply one part oxide of zinc and four parts vaseline daily. Give her a dessertspoonful Donovan's solution, a teaspoonful tincture nux vomica and 1 oz. fluid extract gentian at a dose in feed three times a day. If her membranes are pale give a teaspoonful powdered sulphate iron at a dose in feed night and morning.

Heifer Does Not Come in Heat.—Holstein heifer, 14 months old, has not yet come in heat. Would like to breed her in order to have her calf when not much more than two years old. A. J. S., Mt. Pleasant, Mich.—Give her a dessertspoonful of powdered capsicum, 1 dr. ground nux vomica at a dose in feed three times a day. You had better increase her grain supply.

Lack of Vigor.—Our three-year-old bull has always been rather slow in serving cows, although sure. Lately he has refused to serve cows, but is in good flesh. C. G. J., Birmingham, Mich.—He should have more exercise, this will increase his strength and vigor. Also give him 2 drs. ground nux vomica, ½ oz. ground ginger, and ½ oz. ground gentian at a dose in feed three times a day.

Barrenness.—My five-year-old cow freshened in July, 1910, since then she has come in heat regularly, been served by three different bulls and fails to get with calf. E. T. A., Osseo, Mich.—Dissolve 1 oz. bicarbonate soda in a quart of tepid water and wash out vagina three times a week and be sure and treat her when she first comes in heat. If she has a vaginal discharge inject her daily with the following lotion, which is made by dissolving 1 dr. permanganate potash in a gallon of tepid water.

Two Openings in Same Teat.—Have a heifer with first calf that has opening inside of teat as well as end. J. C. L., Bay City, Mich.—Scarfify edges of opening inside of teat, stitch edges together with carbolized silk or catgut and apply boracic acid. It is no easy matter to close an opening of this kind, and you may find it necessary to milk her through a milking tube.

Barren Heifer—Ringworm.—Heifer 19 months old, healthy and thrifty, but nearly always in heat. She has been bred several times, but fails to get with calf. I also have another heifer that has

several sore spots on skin about the size of a 50 cents silver piece. T. L., Kaleva, Mich.—She will perhaps never breed on account of an abnormal condition of the ovaries. Apply tincture to sore spots twice a week.

Hard Milker.—Heifer came fresh two months ago and is healthy, but she is a hard milker and I would like to know how this work can be made easier. A. M. F., Metamora, Mich.—Use a milking tube and if you are not supplied The Lawrence Publishing Co. can mail you one. The ¾ inch costs 35c, and the 3-inch 30c.

Piles.—One of our pigs is troubled with piles and his bowels are constive. W. B., Niles, Mich.—Give either castor oil or epsom salts in feed to open bowels and they should be kept open by feeding roots or well salted slop. Dissolve 4 ozs. sugar lead and 2 ozs. of tannic acid in a gallon of water and apply to sores twice a day.

Loss of Appetite—Partial Paralysis.—One of my sows has lost her appetite and is also losing use of hind parts. She is a large sow and a valuable one if she can be cured. E. V. B., Clarkston, Mich.—Perhaps she has not had sufficient exercise and been fed an unbalanced ration; too much corn and starchy fat producing foods and not enough muscle, tendon and bone nourishing food. Feed her oats, oil meal and roots. Give her a teaspoonful of air-slaked lime with each feed. If her bowels are constive give her castor oil or epsom salts to open them. She should be kept dry and warm and give her 15 grs. powdered nux vomica at a dose in feed two or three times a day. This will act as a spinal stimulant and you had better apply equal parts turpentine, aqua ammonia and sweet oil to back three or four times week.

Spinal Meningitis.—Have been a reader of the Michigan Farmer for many years and frequently come to you for advice and would like to know what ails my lambs. I have 200 fattening lambs; all seem to be doing well and gaining right along. Am feeding corn and oats twice a day, bright oat straw for roughage mornings, clover hay and cornstalks at night with plenty of salt and Sal-Vet. The water comes from a well some 200 feet deep, but the water is very muddy. Thirteen of the 200 lambs are now dead, five of them died in one day. The food seems to be digested, but the lining of stomach somewhat decayed, easily torn loose, liver light colored, with several white specks and is spongy. Have noticed only two sick and they soon became paralyzed. The others were found dead in shed when I went to look them over in the morning. D. C., Jonesville, Mich.—I am inclined to believe that their water supply is perhaps infected with germs which produce spinal meningitis and by making a change you may lose no more. If their bowels are constive give them enough epsom salts in feed to open them. Are you sure that your barnyard sap is not emptying into well? I have known cases of this kind that produced similar results. Their food supply may possibly be causing their sickness; however, I doubt it.

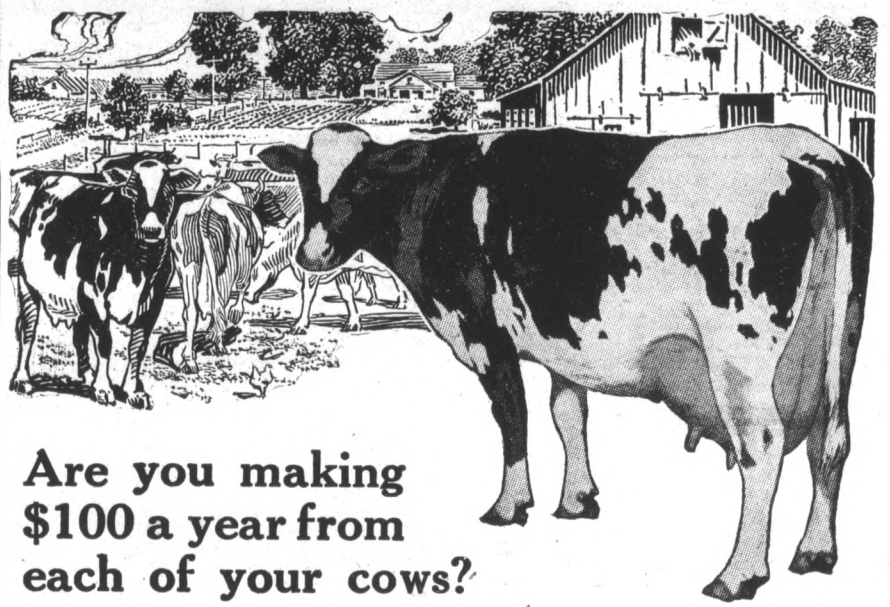
LIVE STOCK NOTES.

Several days ago E. W. Willoughby, of Iowa, marketed at Chicago a consignment of fed-western lambs that averaged 86 lbs. at \$6.40 per 100 lbs. They were purchased as feeders in the South Omaha market early last September at \$4.90, averaging 54 lbs. These were the first lambs that Mr. Willoughby ever handled, and his venture was highly successful, he stating at the time of their sale that they were well bought and well sold. During the 90 days they were on feed, they made an average gain of 32 lbs. Run on a second growth clover until the frost killed it, they were then started on a light grain ration of oats and shelled corn, which was gradually increased, and when they were on a full feed the oats were dispensed with. Clover hay was the roughage.

Feeders of cattle are learning to look with favor on well-bred range cattle, although some still hold aloof, fearing that their wild life on the range will render them undesirable for life on the farm, where conditions are so different from those of their earlier life. It has been found that range cattle such as are grown these times take readily to their changed surroundings and do well on corn and hay, making highly satisfactory gains. Of course, the range cattle of today are wholly different from the old-time cattle of the range, being well bred animals that will certainly stand a favorable comparison with the finest native cattle. Better feeder cattle than the Hereford, Angus, Galloway and Shorthorn range steers and heifers shown at the International Live Stock Exposition at Chicago and at the Royal at Kansas City could not be asked for.

The federal authorities have experienced considerable trouble in putting a stop to shipments of immature veal from the southeastern portion of Wisconsin and the southwestern part of Michigan to Chicago for a year past. A dozen farmers and dealers were arrested and convicted for this offense.

According to the recent report of the tariff board, woolen manufacturers import about 170,000,000 lbs. of wool annually, the domestic production aggregating about 330,000,000 lbs. Only limited quantities of carpet wools are grown, and in 1909 the carpet and rug manufacturers of the United States bought foreign wools valued at \$11,636,000 and purchased only \$57,000 of domestic wools. The duty on these imported wools averages about 36 per cent ad valorem. Since 1909 the sheep industry of this country has undergone a falling off of extremely large proportions, and the shrinkage in flock values in many instances amounts to from 25 to 50 per cent.



Are you making \$100 a year from each of your cows?

Or are you one of those farmers who is keeping his cows instead of his cows keeping him? \$100 a year from a cow is no more than a good average. Any farmer should get that provided: *First*—that his cows are of the right type—*ie*—good milkers. *Second*—that they are properly fed and intelligently handled. *Third*—that he is located in a good dairy location.

\$1800 from 15 cows

That is what G. H. Merten got from his herd of Holsteins, on a small farm near Villa Ridge, Missouri. Each cow averaged through the year \$10 a month in milk production.

Merten is a good dairyman in the right place. He is located on the main line of the Rock Island, between St. Louis and Kansas City, and has the advantage of these two big markets where butter fat brings a high price the year around. He is also located where dairy feeds can be produced at the lowest cost.

This matter of location is worthy of your serious thought. If you are not making \$100 a cow you may be in the wrong location. Sometimes as little as 40 miles makes the difference between a good and a bad location.

There are some particularly good locations for profitable dairying along the Rock Island Lines. Professor H. M. Cottrell, an expert of national reputation, formerly Professor at the Kansas and Colorado Agricultural Colleges, and now in charge of the Rock Island Lines

Department of Agriculture, has made a careful study of every locality along the Rock Island Lines. He knows the best places for each branch of farming, and can tell you the very place where you are most likely to succeed. He will also give you the benefit of his vast experience on the best methods to pursue to make a success in your new location.

The Rock Island Lines Department of Agriculture is at the service of all farmers now living along the Rock Island Lines and those who are thinking of moving there. I hope you will take advantage of this means to obtain greater efficiency and profits as well as a better location.

Drop me a line and tell me about yourself and what you want to do. You will be given careful, personal, expert advice without cost or obligation.

Book on expert dairy methods, FREE!

Prof. Cottrell has written several books on expert methods of farming. His book "Making Money in Dairying" is the next best thing to a course in an Agricultural college. It is worth dollars to any farmer who will read it. No matter where you live you'll profit by it. You may have a copy free, if you will write me today.

The statements herein made have been fully investigated and can be absolutely relied upon.
L. M. Allen, Passenger Traffic Manager, Rock Island Lines,
431 LaSalle Station, Chicago
John Sebastian, Third Vice-President

Galvanized Wire Per 100 Lbs. \$1.25

GREATEST SALE ON RECORD

Best Quality Barbed Wire at Wrecking Prices

We bought from Manufacturers an enormous stock at an exceedingly low price. You get the benefit. All this Wire is put up on reels regularly, same as you would buy it from any concern. Prices quoted below are for prompt acceptance only:

Lot No. 2 A. D. 25—Painted Barbed Wire, full weight, 2 and 4 point, about 100 lbs. to the reel, per 100 lbs., \$1.50
Lot No. 2 A. D. 26—Galvanized, same as above, per 100 lbs., \$1.35
Lot No. 2 A. D. 27—Special Barbed Wire, put up on reels, containing 80 rods exactly to the reel, light weight, Price per reel for the painted, \$1.30
Lot No. 2 A. D. 28—Price per reel for Galvanized, 80 rod reels, \$1.40

Now is the time to place your order while these remarkably low prices exist. Never before have such quotations been made. No one can equal our low prices. We urge you to buy now, even if you are not ready to have your Wire go forward. We will accept a reasonable deposit and enter your order, shipping at such time as suits you. We can ship immediately from our Chicago stock.

26-inch Hog Fencing Extra Heavy Galvanized

Per Rod 15c Lot No. 2 A. D. 31—Here is a fine heavy weight smooth spring wire galvanized Hog Fencing, 26 inches high, strongly constructed. The best all around fencing manufactured. Don't compare this fencing with the cheap light weight kind so extensively being advertised. This is a Fence built for continuous and lasting service. It's the kind of a Fence every up-to-date owner ought to have. Absolute satisfaction guaranteed. Price, put up in 20 and 40 rod coils, per rod, 15c. This same fencing is furnished in all heights from 20 to 50 inch at correspondingly low prices.

A complete line of Poultry Fencing in all heights. "Premier" Driveway and Farm Gates at 1-3 less than usual prices. Also a complete line of Walk Gates and Poultry Gates. Write for our prices on Ornamental Lawn Fencing. We can furnish anything needed at a material saving in price. All quotations in this advertisement are made subject to prior sale on account of limited stock.

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Our catalog on Wire and Fencing quotes lower prices than that offered by any other concern in the world. We can furnish you anything required in Fencing, Wire, Staples, Nails, etc., etc.

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Write for our low quotations, advising us how many you need and what length.

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High Grade BB Telephone Wire at 40 per cent saving. Write for quotations.

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Chicago House Wrecking Co., 35th & Iron Sts., Chicago

When writing to advertisers please mention the Michigan Farmer.

Smooth Galvanized Wire, Per 100 Lbs., \$1.25

Lot No. 2 A. D. 29—Suitable for Fencing, Stays, Grape Vines or any purpose where ordinary Wire is used. This Galvanized Wire which we offer at this remarkably low price is new regular stock, except that it comes in irregular lengths, ranging anywhere from 50 to 250 ft. We bundle these lengths together in coils of 100 lbs. The wire itself is exactly the same as what you would buy in the regular way. The only difference being that these lengths are not continuous. This Wire is known as Galvanized Wire Shorts. It is extensively used by fruit growers, fence builders and for all kinds of repairs, etc. Absolutely new, smooth, clean wire. Price per 100 lbs. as follows:

No. 6 gauge.....\$1.25
No. 7 gauge.....\$1.35
No. 8 gauge.....\$1.40
No. 9 gauge.....\$1.50
No. 11 gauge.....\$1.60
No. 12 gauge.....\$1.75
No. 14 gauge.....\$1.85

Above prices are based on orders for at least 100 lbs. Place your order promptly, as these low prices will soon exhaust our stock.

WIRE NAILS, Per Keg \$1.50

Lot No. 2 A. D. 33—10,000 kegs of new regular Wire Nails, put up 100 lbs. to a keg. These Nails are mixed, all kinds in a keg. We do not guarantee any regular assortment. They are same as made by Nail Factories. Make a fine handy assortment. There is nothing the matter with these nails outside of the fact that they are mixed together. This certainly is an opportunity for you to make a purchase. Our price, per keg, \$1.50

Wire for Reinforced Concrete

Lot No. 2 A. D. 30—Our reinforced concrete stays are made of heavy galvanized wire, superior to smooth or twisted wire. They cannot slip and are acknowledged the best. We can furnish any length. Price per 100 lbs., \$2.25

GALVANIZED STAPLES

Lot No. 2 A. D. 35. New regular Fence Staples, put up in 100 lb. kegs, also in smaller packages. When ordered in less than 100 lbs., our price, per pound, 3c. Price per keg of 100 lbs., \$2.50

THE DAIRY

CONDUCTED BY COLON C. LILLIE.

THE VALUE OF BEET TOPS FOR FEED.

What value in dollars would you place on 12 acres of sugar beet tops, beets going 12 tons per acre? They are to be fed from the field the coming winter. I have no silo to put them in.

F. P. S.

So far as I know there has never been a careful feeding test of beet tops and so their value would be nothing more or less than a guess. I have fed them and compared them with corn silage. My opinion is that a ton of beet tops is worth as much as a ton of corn silage when they are fed in connection with other foods. I don't think that they are a kind of food that you could feed liberally and use for the entire amount of the succulent food. But feeding one feed a day I think they will take the place of a feed of corn silage. Now what is a ton of corn silage worth? People differ with regard to the value of that. It is probably worth \$3.50 a ton. Now, the next proposition is to know how many tons of beet tops are on 12 acres of sugar beets that will go 12 tons per acre. F. P. S. can find this out better than anybody else can that I know of. It wouldn't be a difficult task if he has a pair of platform scales. I would like to know myself. Just judging the way an ordinary farmer would, I have come to the conclusion that beet tops are worth about \$10 per acre for feed. I can't give you very definite figures to prove this but from my experience in feeding I think that they are worth about that much. I wouldn't want to sell my beet tops for less than that.

A GRAIN RATION WITH SILAGE AND WHEAT STRAW FOR ROUGHAGE.

Will you formulate a ration from the following grains where one is using wheat straw, corn ensilage and a limited amount of oat straw for roughage: Cottonseed meal at \$30 per ton; linseed meal at \$30; wheat bran, \$30; wheat middlings, \$30; old process oil meal, \$38; gluten meal \$32. This ration is for Holstein cows and heifers weighing from 1,000 to 1,500 lbs. They are giving from 25 to 60 lbs. of milk a day.

Wayne Co.

F. W. S.

Cows, to do their best, ought to have something for dry roughage besides wheat straw and I think that F. W. S. could afford to buy hay even at the present price, to feed his cows at least once a day. He has got to feed more grain and grain is high as well as hay. Of course, you can get along with corn silage and wheat straw. It takes a heavy grain ration and a grain ration that contains high-priced protein foods to balance up the roughage. But, of course, if the hay cannot be procured then you have got to feed all the corn silage and all the wheat straw that they will eat and to balance up this ration I would feed a grain ration composed of one part cottonseed meal, one part linseed meal, and one part wheat bran, mixing them all together thoroughly and then feeding liberally. Cows with this roughage should have a pound of grain ration for every four pounds of milk which they produce. A better rule would be to feed a pound of grain for every pound of butter-fat which they produced in a week.

CULL BEANS FOR MILCH COWS.

I have a quantity of bad beans and would like to know if I grind them with corn whether they will make good feed for milch cows and fat cattle.

St. Clair Co.

J. B.

Beans are not as good a feed for live stock as peas, simply because they are not as palatable, the cows don't like them so well. Palatability is an important feature of good dairy rations. Then again, you can't feed a heavy ration of bean meal to cows because bean meal makes "tallowy" butter. The product is hard and crumbly and is not first-class butter. You can, however, use bean meal as a portion of the grain. Beans are rich in protein and will take the place of ground peas so far as that is concerned, in a ration. If they were only as palatable and if they did not affect the quality of the butter they would be just as valuable as peas. If you can get the beans dry and grind them they would be easier to feed. If you cannot get the beans dry enough so that you can grind them, cook them. By a little bit of coaxing you can get cows to eat boiled beans and you can

get fattening steers so that they will consume a heavy ration of boiled beans. Boiling them is undoubtedly the very best way to prepare them for hogs and they make a most excellent feed for hogs when used in connection with corn. Michigan has a lot of cull beans this year owing to the unusual fall weather and pains ought to be taken to so prepare them that they can be consumed for stock feed. They ought not to be wasted.

WHAT IS LACKING IN RATION?

Will you please tell me what is lacking in my ration? I feed shredded corn fodder night and morning, red clover hay at noon, ground corn and oats, about two-thirds corn and one-third oats. My cows are falling off in milk while I am increasing grain ration. Should my cream test drop in winter when the cream screw is not changed?

Newaygo Co.

W. A.

You haven't enough protein in your ration for your cows to do their best. You can't get a ration with sufficient protein from the feeds which you are feeding. Corn and oats are not rich enough in protein to balance up the ration. I would therefore get oil meal, cottonseed meal, or gluten feed and mix 100 pounds of these ingredients with 200 pounds of your ground corn and oats and then feed a pound of grain per day for every three or four pounds of milk produced, or a pound of grain per day to each cow for every pound of butter-fat produced in a week; and I should expect the cows to gain in their milk and give more profitable returns.

There are a good many conditions which would cause the test of cream to vary with the same separator. If your milk is colder than you have been running it through the separator, that will change the test. If you don't run the separator at the same speed, that will affect the test. If anything happens that your cows don't give as rich milk, that will change the test of the cream. Many people have a varying test from the fact that they do not always use the same amount of warm water to rinse out their separator bowl after they get through separating. If you use a little more water one time than you do another to rinse out the separator bowl and run it into the cream can it must certainly affect the test. If you only have a small amount of cream this last cause may affect the test materially.

A GOOD RATION.

What grain do you think best to feed in connection with threshed corn fodder, clover hay and oat straw? I thought to mix 200 lbs. of wheat bran, 200 lbs. of dried beet pulp, or 100 lbs. of corn meal, 100 lbs. cottonseed meal and 100 lbs. of linseed meal. I feed a pound of this grain a day for every pound of butter-fat that the cow produces in a week.

Bay Co.

A. J. B.

I think it would be hard to get a combination of grains that would make a better ration than the one which A. J. B. proposes to use. There is a great variety of good foods and they are put in in just about the right proportion to make a good ration. I think, however, if he will cut out the 200 lbs. of wheat bran and feed the dried beet pulp and cottonseed meal and the linseed meal and the corn meal that he will get just as good results and it will cheapen his ration somewhat. Wheat bran is pretty high-priced at the present time for the digestible protein which it contains. The amount he proposes to feed each cow is as good a rule to follow as can be prescribed.

WHAT SHOULD CREAM TEST?

I am selling my cream to a creamery. I have churned butter for a test. Out of 16½ lbs. of cream I got 6 lbs. and 6 ozs. of butter. What should such cream test with a Babcock tester?

Montcalm Co.

J. P. L.

No one can figure this problem out very accurately for the simple fact that we don't know the over-run in the butter. Sixteen and one-half pounds of cream made 6 lbs. and 6 ozs. of butter, but what we want to know is how much butter-fat this 6 lbs. and 6 ozs. of butter contains and that is something that we can't find out because we don't know the per cent of over-run. But supposing that it is good normal butter and contains 82 per cent of butter-fat, then the 6 lbs. and 6 ozs. of butter would contain about 5.23 lbs. of butter-fat. Then, if 16½ lbs. of cream contained 5.23 lbs. of butter-fat the cream would test 31.7 per cent butter-fat. We cannot get accurate results because there is one unknown quantity in the proposition which we have to assume but this will probably make but little difference.

THE CLIPPER EXCELS

THE MOST PROFITABLE WORK THAT CAN BE DONE ON THE FARM

Is to select and clean all seeds and grains for sowing. This will improve the quality of the seed and bring it up to the highest standard. It will improve the quality, increase the yield and free your land from foul weeds. For this reason you should reclean all clover and other seeds that you buy before sowing. This is just as important as it is to clean your seed, grain and corn from your granary before sowing.

Every farmer knows that Large, Plump, Heavy kernels of seed, grain or corn will produce more and stronger plants, which will increase the yield and improve the quality. Admitting that this will benefit your crop only 10%, what would be your gain for one year? To say nothing of ridding your land of foul weeds, etc.

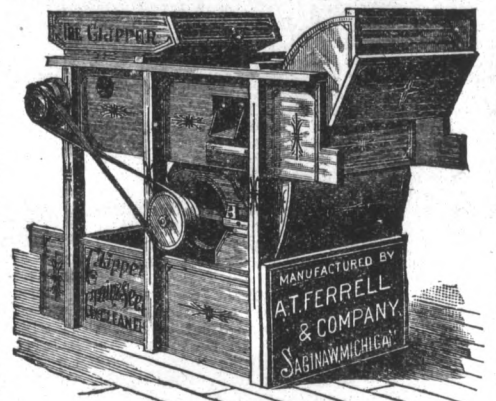
The U. S. Agricultural Dept., State Experimental Stations and all Prominent Seed Houses use the "CLIPPER" Cleaners for doing just this kind of work and recommend them.

BECAUSE their experience has proven The "CLIPPER" to be the Most Successful Machine for Grading and Cleaning All Seeds and Grains.

This machine will do the same high-grade work as our large \$400 machines. We Guarantee Satisfaction. Prepay the Freight. Give Thirty Days' Free Trial. You To Be The Sole Judge.

Three factors stand out prominently in farm progress—the soil, the working of same and the seed; none of which can be neglected, if bigger and better crops are aimed at. Distributing points in every grain growing state. Shall we send you our catalog and terms?

A. T. FERRELL & COMPANY, - Saginaw, Mich.



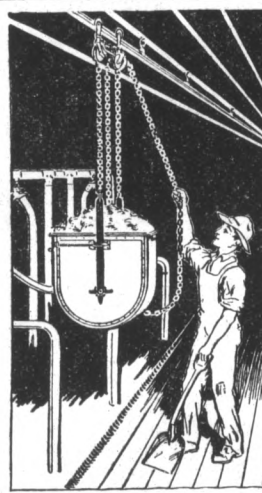
Easy For The Boy

A LOUDEN LITTER CARRIER changes barn drudgery into child's play. With powerful worm gear (an exclusive Louden feature) 1 pound pull on the chain lifts 40 pounds in box—a boy can hoist half a ton.

Raises and lowers any distance up to 25 feet. Stands where put; can't fall. Fill the box, raise it and give it a shove. It carries the load out of the barn to manure spreader or litter heap, wherever you want it; dumps load automatically and returns to you.

The Louden Way is the way to Cleanliness, Economy and Profit in the barn. Our 40 years experience in fitting barns is at your service for the asking. Have your dealer send us rough ground plan of your barn and we will send you price. We make full line of stalls and stanchions, hay tools and door hangers. Write for catalog of Barn Equipment and valuable book on manure uses.

Louden Machinery Co., 603 Broadway, Fairfield, Iowa.



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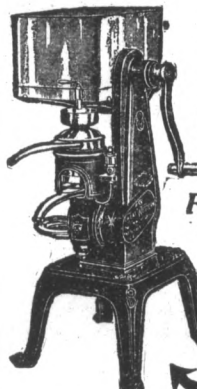
Our free book is a gold mine of cream and butter-profit facts. It tells you how to get all the cream, highest quality cream, with least work and biggest profits for the longest term of years. It shows you in plain figures how to make from \$5.00 to \$15.00 more from every cow, per year, whether you now own a cream separator or not. Don't you want this great book, FREE? Get all the

Facts You Want to Know About Separators

Read about the Great Western. Note that the bowl delivers cream from the top and skim-milk from the bottom, so there's no chance of their mixing. It is self-draining and self-flushing; there are no long tubes, no minute slots, corners, crevices, or ragged edges to hold milk and collect dirt. The Great Western is ball-bearing throughout. Perfectly uniform balls, 50 to 100% harder than regular. Ball races tempered so file cannot touch them. We will arrange for you to get a Great Western on any kind of a trial to prove our claims are not strong enough.

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THE ROSS SILO

The value of ensilage for dairy or cattle feeding is known to all. To get results care must be taken in selecting a silo. The ROSS SILO is absolutely guaranteed to produce the right kind of ensilage. Why? Because it IS THOROUGHLY MANUFACTURED and has features that are important and found on the Ross Silo only. Profit by our experience and build a ROSS SILO. Catalog explains all.

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SCIENTIFIC SWEEP MILL

This No. 6 triple geared, double acting sweep mill has more capacity and will do better work than any other two-horse mill; it

Turns Corn TO DOLLARS

Avoid waste, and make big profits by grinding your feed with one of our mills. We make power mills also for engines of any size. Send for free catalog.

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Will be saved this winter to the 15,000 users of Indiana Silos. Are you getting your share? There is another winter coming. Our best salesmen are the 15,000 Indiana Silos now in use.

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The largest manufacturers of Silos in the world. Address nearest factory: 382 Union Bldg., Anderson, Indiana "Indiana Bldg., Des Moines, Iowa" Silo Bldg., Kansas City, Mo. Good Agents wanted everywhere.

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SUPERIOR DUPLEX MILL

Double grinding rings with saw tooth grooves grind twice as much as any other feed mill of same size with one-third less fuel.

Force feed; never chokes. For Gasoline or Steam Engine. Grinds corn on cobs or in shucks, shell corn, wheat, oats, alfalfa, clover, cotton seed, coarse or fine. Easy to operate. Fully guaranteed. Catalog FREE. Write today.

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BOWSER SWEEP MILLS

Different from all others. 4 or 2 horses. Grind Corn with shucks and all small grains. (Also make 10 sizes of belt mills) FREE—Booklet on "Feeds and Manures"

D. N. F. Bowser Co., South Bend, Ind.

SUGGESTIONS ON FEEDING CORN ENSILAGE.

Corn ensilage is a food which may be termed "grass like." For this reason it can be used very much as pasture in the feeding of domestic animals. The analysis of good corn silage, however, will show that it is richer than a great many of the pasture grasses and therefore will go farther in feeding.

As soon as the silo is filled the feeding operation may start and though it be in the heating process, it will be just as good food and will be relished by the animals quite as much as old silage. It is generally conceded, however, that silage which is several months old is better than newer silage. Some feeders prefer silage that is six months to a year old. However, it may be safely said that silage can be fed from the time the blower pipe is taken out of the silo until the feeder desires to open his silo and this may be after it has stood for several years.

Silage is strong in carbohydrates, the principal food requirement for all animals but needs protein to balance it. Alfalfa hay is perhaps the cheapest and best for this purpose. Throughout the alfalfa belt it should form a part of the ration where silage is used. This is not necessary but simply makes it possible for the feeder to gain a greater economy in his operations and at the same time give the animal a wholesome, balanced ration.

Corn silage may be fed out of doors in bunks, in the stall or, in fact, any place where animals can eat it without waste. In very severe weather it is best to feed silage inside, as some will freeze and this will be hard for the stock to masticate, although the feeder need not be alarmed over feeding freezing ensilage. It will not injure the animals, but frozen food is not easy for them to consume.

In feeding milch cows it is a very good plan to give the hay in rack outside or some place where the animals will not waste it, and feed the ensilage in the barn after milking. It may be given twice a day in rations from 10 to 15 lbs. at a feeding or 20 to 30 lbs. per day. Some large animals will take as high as 40 to 50 lbs. of silage per day and make good use of it. In feeding fattening stock or steers, silage may be fed twice a day in smaller rations ranging from 10 to 15 lbs. at a feed for grown stock and for young animals from 6 to 12 lbs. Sheep will consume from 2 to 4 lbs. daily and horses from 4 to 12 lbs. when not working. It is not advisable to feed work horses large quantities of silage no more than to give them large quantities of new grass.

Feed the ensilage so that the animals will eat it up clean, as it spoils or freezes when exposed to the air for several days.

Univ. Neb. PROF. C. W. PUGSLEY.

ARRANGEMENT OF STALLS IN THE DAIRY BARN.

This is the month when farmers study those questions that are laid aside during the active portions of the year. They include building problems, and these find ready listeners on almost every farmstead during these more or less unoccupied days. A much discussed proposition to dairymen is the method of arranging cow stalls in the barn. This question properly comes before those who are remodeling old barns, as well as those who are constructing new ones for the purpose of accommodating dairy animals.

The method usually followed is to have the cows arranged in two rows facing each other. Between the two rows is a feed alley and behind the cows are located a gutter and room for doing the necessary chores. If this arrangement could be reversed decided advantages would be gained, the new arrangement being to have the cows face the walls, a feed alley located in front of each row of cows and a common alley passing between them for removing the manure and doing other chores.

There are several advantages in this last arrangement: In the first place, it reduces the labor in removing the manure. It permits throwing the manure directly into the wagon when it can be hauled to the field. This is done by making the center aisle wide enough so that a team can be driven through. The manure is removed from the gutters directly into the wagon, thus necessitating only a single handling of the manure and also guaranteeing, so far as possible, that the manure will be taken at once to the field, thereby saving the greatest possible amount of fertilizing value.

A second benefit from this arrangement is that there is usually less confusion in

stabling the cattle. With two entrances to the stable and the cattle arranged on two sides of a central feeding alley, animals from one side are likely to go in at the wrong entrance and thereby cause trouble. This is generally avoided with the system above referred to or, at least, should they become mixed they could be more easily reduced to order.

A third advantage is that the cows are better protected. Every chore boy knows that the center of the barn is much warmer than that part nearest the walls. By arranging the cattle so that their heads come nearest the walls the parts of the animal needing most protection from cold and drafts are nearest the center of the barn.

Again, the animal secures more benefit from the air in the stable. When facing each other the tendency is to force the breath from one animal across to the opposite side for the other animal to rebreathe, and thus the atmosphere at the center of the stable is charged and surcharged with impurities while that adjacent to the wall may be more or less pure. With the cows facing outward this is largely avoided, and especially so when modern methods of ventilation are employed to get good air into the barn and let the bad air out. The fresh air inlets, which are generally arranged along the sides of the barn, admit the outside air and directly it is breathed by the animals only to be forced out of their lungs and distributed well over the stable, and carried out by the ventilator flues.

Another possible advantage comes in the control of sunlight that is admitted through the windows. Fungus and bacterial diseases develop most rapidly under the shelter of the walls below the windows. When the cows are stabled so that the gutter comes near to these walls the condition becomes much worse. By making this portion of the stable a feeding alley this difficulty is largely overcome since the moisture developed in the stable is located at the farthest point from the walls and where the sunlight can reach it, if windows are properly constructed.

Every man to his own liking, but the above is the general plan of barn arrangement followed by progressive dairymen.

Wayne Co.

A. H.

TESTING IS A SIMPLE MATTER.

A great many of the dairy farmers of this country have repeatedly read of or heard the institute workers talk about the Babcock test but have paid very little attention to the matter as their mind had a hazy conception of a lot of complicated and costly apparatus that was beyond the understanding of an ordinary mortal. In reality, the test is a very simple matter and easily understood by almost anyone. Also, anyone who is progressive and aims to be up-to-date cannot afford to keep cows without knowing what cows are paying him and what ones are not. The way to know this is by making use of the Babcock test. Dairy farmers will do well to impress upon their minds that the test is simple and that the apparatus costs but little when we consider its great value.

Making a test of the milk is a very easy matter. A representative sample is taken and a pipette holding 17.6 cubic centimeters is filled to the mark. The pipette is marked to deliver just 18 grams of milk. The milk is placed in the test bottle, an acid measure holding 17.5 cubic centimeters is filled with sulphuric acid and added to the milk. The acid will dissolve all the solids of the milk except the fat and the fat then rises to the top and gives a clear reading. The milk and the acid are next thoroughly mixed; the test bottles are placed in the tester and whirled for five minutes then enough water is added to bring the floating fat up into the granulated neck of the bottle and it is then whirled for one minute before taking the reading. Owing to the attraction glass has for the liquid, the top and bottom of the fat column will be curved. Chemical analysis shows that in reading the fat on whole milk, the reading should be taken at the widest limits of the fat column while cream readings should be taken at the narrowest limits. The necks of the bottles are so graduated that the butter-fat required to fill one division weighs 0.18 grams or 1-100 of the weight of the milk. A reading of 3.4 indicates that 3.4 per cent of the weight of the milk is pure butter-fat. The cream and skim-milk testing bottles are based on the same principle. Cream, however, is weighed because the full contents of the pipette cannot be discharged into the testing bottle.

SUBSCRIBER.

DE LAVAL Cream and Butter Triumph as Usual At National Dairy Show

Cream and butter produced through the use of DE LAVAL CREAM SEPARATORS made the usual clean sweep of all Highest Awards at the great 1911 National Dairy Show (including the annual convention of the National Buttermakers Association) held in Chicago October 26th—November 4th, just as has always been the case since the organization of the National Association in 1892.

WHOLE MILK CREAMERY BUTTER

The sweepstakes or highest award in this class was won by A. J. Anderson, Otisco, Minn., with a score of 97.50 who says: "I have been using De Laval separators for ten years and would not think of using any other."

FARM SEPARATOR BUTTER

The sweepstakes in the gathered cream factory made butter class was won by R. O. Brye, of the Readstown Creamery Co., Readstown, Wis., with a score of 97.33, this prize winning butter being made from the cream of farm patrons using De Laval separators exclusively.

Mr. Brye says: "I was raised on a dairy farm, where my father used a De Laval separator, and my own separator experience covers a period of twenty years. I have found the De Laval machines everything that is claimed for them."

HIGHEST PRIZE CREAM EXHIBIT

The highest award for cream was made to Nichols Bros., Bloomfield, Ky., with a score of 98.80, who say: "If we didn't use the best separator we could not have made this record. Our experience has proved the De Laval the only separator that 'delivered the goods'!"

DE LAVAL PRODUCTS ALWAYS SUPERIOR

Would-be competitors are naturally forced to make many claims for their separators. But the superiority of De Laval cream and butter, as evidenced by the winning of all highest prize awards the world over for twenty years, is something so overwhelming as to be indisputable and unanswerable even by the most reckless would-be competitor.

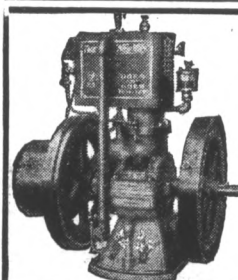
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PRACTICAL SCIENCE.

HOW PLANTS GROW.

BY FLOYD W. ROBISON.

Experimental.

(Continued from last week.)

If one can learn to cultivate the very desirable habit of close observation he will meet with many interesting facts which arm him for his practical farm work later on. The study of how plants grow and how plants feed is an interesting study in itself but it is not necessary to approach it from an aesthetic standpoint because it carries with it many valuable pointers which are of service in the practice of an intensive agriculture. As uninteresting as the study of the germination of the seed may appear to be from a practical standpoint a close observation of the manner in which different seeds germinate gives us a clue to the best methods of the handling of those seeds through their life history. We are going to illustrate this by an actual experiment and follow it through for the benefit of our readers and attempt to show the application of the study.

We have selected for our experiment four ordinary quart mason fruit jars into the bottoms of which we have introduced about three inches of ordinary moist soil. This soil is of a sandy nature and will not puddle nor become plastic when it becomes moist. We have labeled these jars A, B, C and D respectively. Into the jar A we have placed on top of the soil one dozen kernels of wheat. In the jar B we have scattered on the surface at convenient intervals one dozen radish seeds. Jar C contains, in the same manner, one dozen peas and jar D contains one dozen beans. Over the seeds in each one of these jars we will now place about one inch of fairly moist soil. The caps are now screwed on the jars and they are placed in a warm place in the house.

As outlined briefly in our previous lesson, due to the principle of osmosis the seeds begin soon to swell, moisture goes in from the outside, and in the course of a few days germination takes place, that is, growth starts. In the growing process the seed puts out two stems, one of which goes upward toward the light and the other penetrates into the soil beneath. As soon as this process has begun, by close observation we will see quite a different behavior in the seeds in the different jars.

The Germination of the Wheat in Jar A.

The seeds of wheat have sprouted and the tiny blades of grass have forced their way between the particles of soil and appear protruding above the surface. The thin blade has had practically no difficulty in reaching up into the light. Its very texture and physical appearance indicates that it may work its way through the soil, even though that soil may be quite compact in its physical characteristics.

How About the Seeds in Jar B?

The first manifestation of growth from the exterior in the case of the radish seeds in jar B, is a slight elevation of the ground, or cracking of the surface of the ground in the efforts of the little plantlet to force its way to the top. In other words, the radish seed creates a greater commotion in the soil than does the kernel of wheat. The seed leaves in the radish are clumsy, blunt and have greater difficulty in forcing their way between the particles of soil than does the wheat.

Jar C.

The seeds in jar C have appeared without any difficulty and we find here again that peas create very little commotion in the soil and the plantlet finds its way to the surface between the particles of soil almost as easily as do the seed leaves or blades in the case of the wheat.

Jar D.

The seeds in jar D, however, seem to have had the greatest difficulty of all in sending their plantlet into the atmosphere above the soil. Beans, we will observe, do not send up slender blade-like stems as is the case of the wheat plant, but if we will observe the stem has been heavily burdened with the two halves of the bean itself which this little slender stem has been compelled to carry with it in its struggle to get into the light. It would seem almost as though the plant had actually backed out of the soil into which the seed was originally placed instead of germinating and growing in the same way that the other seeds have done. As time goes on throughout the course of a few days this slender stem strengthens itself and the halves of the bean, we find,

have formed themselves into two clumsy, thick leaves, very similar to what has taken place in the case of the radish seeds in jar B, except that they are considerably larger and heavier.

Seed or Plant Types.

We have studied here two definite types of seeds, each type, because of its life habits, requiring a definite mode of treatment in planting and in cultivating, which mode of treatment in detail is essentially different. First of all, it is apparent that to a plant whose seeds, like the wheat and the pea, have so little difficulty in forcing their way up between the soil particles into the light and air, little difficulty is experienced by such a crop even in the heaviest of soils. We are reminded of the truth of this statement when we know that wheat thrives well on heavy soils. As a rule, our maximum production per acre of wheat is on some of the heaviest soils, that is, heavy clay.

Heavy clay is, as a rule, an ideal soil insofar as the fertility elements are considered. Many of our other crops, however, will not thrive on heavy clays, not because they are incapable of extracting from that soil the various soil nutrients which they need, but because the life habit of those plants will not permit of their operating in a soil so compact as is heavy clay.

Radishes and beans are especially adapted to loamy, lighter soils. When beans are planted on heavy clay soils and such seeds as radishes are planted on heavy clay soils, the percentage of germination is exceedingly low because of the very great difficulty which these plants experience in forcing their way to the top of the soil, burdened as they are with the thick seed leaves which are forced up with the stem.

Depth of Planting.

Not only does this study which we have made regarding these two types of plants indicate to us the kind of soil to which they are better adapted, but it also indicates to us an important lesson with regard to the method of planting to produce the greatest percentage of germination and the most valuable results regarding these types of plants. The seeds, such as the radish, and the bean, which, in getting started in life have such an important struggle at the outset, should not be planted deep in the soil. A sufficient amount of soil covering the seed and a reasonably firm rooting is as much covering as this type of plant should have. We are reminded that many times radishes, beans, and seeds of a similar type do not germinate or, more properly speaking, do not come up, and our observations have shown us that this may be easily caused by planting too deep in the soil. Melons, clover, carrots, cucumbers, in fact, most of the common seeds belong to this type and they should be planted very close to the surface, simply rendering the soil compact enough to insure a sufficient amount of moisture to the seed to permit of its proper and prompt germination.

Seeds that create little disturbance, such as the wheat and the pea, as shown in jars A and C, may be planted to a depth of from ten to twelve times the thickness of the seed. Seeds which have heavy leaves and in which the stem is compelled to bear the burden of the seed leaves in forcing its way to the top, should be planted very near the surface, perhaps not deeper than four or five times their thickness.

Packing the Soil.

The above experiment illustrates another principle which our observation has shown us may exercise likewise a very important influence on the growth of the plant. It is the question of packing the soil firmly about the seed, or the question of rolling the soil after planting.

Experimental.

Let us follow in this instance, another experiment which more closely fixes this point in our mind. We have added for this purpose two other fruit jars similar to the ones employed in the experiments mentioned above, which we have labeled E and F. In the bottom of each of these two jars we have placed about three inches of ordinary moist soil. We will now select about one dozen beans such as we used in jar D in our previous experiment and scatter over the surface of the soil in these two jars. The seeds are again covered to a depth of, say, two inches with moist soil.

In jar E we have pressed the soil very

firmly about the seeds. In jar F we have left the soil as when originally put in, very porous and loose in texture, and without any packing whatsoever. We will now place these two jars likewise in a room where it is warm so that we may observe the process of germination again. In the course of a few days we will find that a large percentage of the bean seeds in jar E, in which the soil was packed firmly about the seeds, have come up, while in the case of the seeds in jar F very few, if any, have come up. We are reminded that the packing of the soil firmly about the seed will thus hasten very greatly the period of germination in such a case.

Application.

The lesson we would learn from this observation is that rolling or packing after planting the seeds at a season of the year when it is dry will insure the more speedy germination and growth of the seed. In the planting of a field of wheat sometimes we will observe that the seed seems to come up in patches all over the field and a close observation of this point will frequently show that these patches of seed which have simply germinated in advance of the others, really occupy the spots which have been firmly pressed down by the feet of the animals during the planting process, or by the packing of the soil from the footsteps of the men working on the field.

Rolling a Wet Field.

During a wet season when the time factor is pressing, to pack the soil firmly about the seed insures the giving of that seed more water than is desired for its speedy germination and tends to rot the seed. The lesson we have learned in this observation would teach us to study this packing or rolling very carefully and in the above case the seed should be drilled or sown loosely in the soil so that it will not draw to it more than a normal amount of moisture.

In dry weather the packing of the soil firmly about the seed hastens germination. In wet weather the employing of the roller and the packing of the soil about the seed retards germination because it furnishes an excessive supply of water which encourages the rotting of the seed. The roller, then, is an implement which is an accessory to farming in dry weather but may cause much mischief if used indiscriminately.

In confirmation of the above, suppose now we were to vary our experiment and keep the soils in the jars E and F very moist indeed. We would then find that the beans in jar F would germinate and come to the surface more quickly than would the seeds in jar E. In fact, the seeds in jar E might never come to the surface because of the excessive moisture which has encouraged rotting of the seed. The seeds in jar F have had the same quantity of water on them but because of the porosity of that soil and the fact that it was not pressed or packed, or, as we would say on a large scale, followed by a roller, has insured that only a normal supply of water has reached the seed and consequently it was able to germinate and grow. Likewise the rolling, or packing, of the soil in very wet weather makes it much more difficult for seeds of the bean type, the radish type, etc., to force their way to the sunlight above.

LABORATORY REPORT.

We desire to call attention to a phase of the Food and Drugs Act which has not been called generally to the attention of farmers and feed manufacturers.

Under Notice of Judgment No. 1146, one thousand bushels of oats in 160-lb. sacks were seized by the Inspector of the Department of Agriculture and a libel was filed by the United States attorney in the southern district of Mississippi, praying condemnation and forfeiture of the goods. This product was labeled "No. 3 white oats." Examination of the sample taken from this consignment was made by the Bureau of Chemistry of the Department of Agriculture and shows the following composition: Oats, 66 per cent; barley, 25 per cent; corn, 1 per cent; seeds and stems, 2 per cent. A decree, condemning and forfeiting the product was entered by the judge in the case and the goods forfeited to the United States.

This fact is interesting as indicating the very commendable determination of the Department of Agriculture to restrict the meaning of these commercial products to a common sense interpretation, and at the same time marks an attempt to set a more or less rigid commercial standard which likewise is very commendable at this time.



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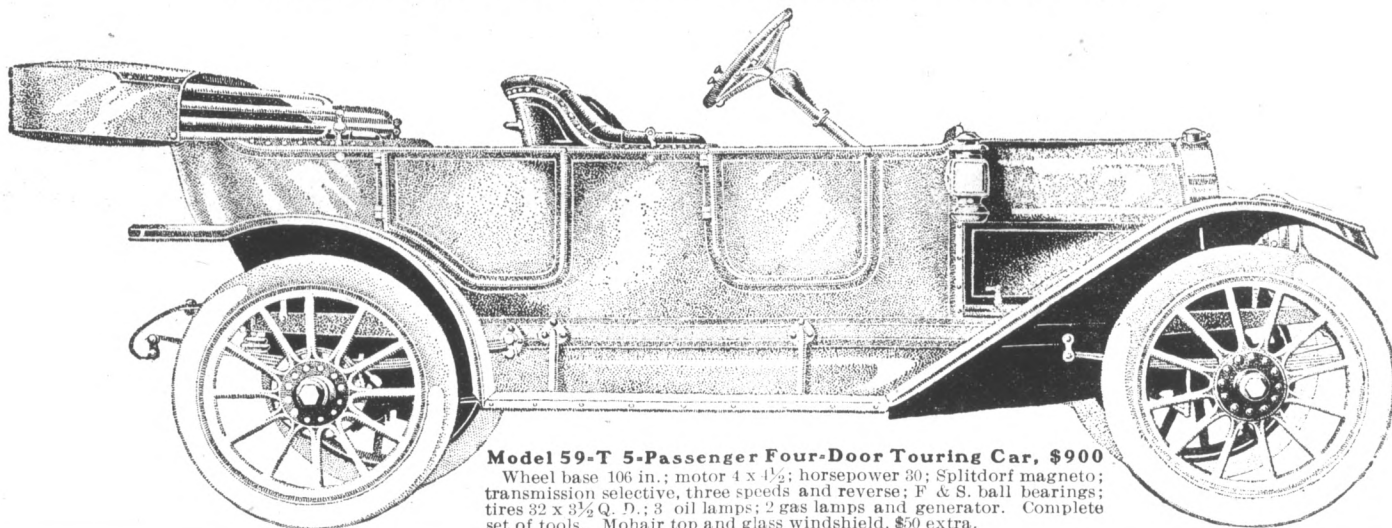
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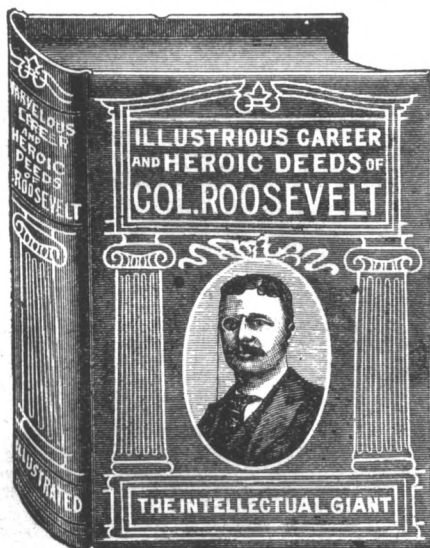
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Detroit, Mich.

DETROIT, JAN. 13, 1912.

CURRENT COMMENT.

In view of the interest manifested for solving the road problem, better roads in many localities of Michigan, we are presenting in this issue some facts and opinions regarding the methods which have been adopted for the building of permanent roads in two widely separated counties in Michigan. Both of these counties have adopted the county road system. Wayne county has already voted a bond issue of \$2,000,000 for the permanent improvement of the highways within the county, while Ottawa county will vote upon the proposition for bonding the county for \$600,000 for permanent road improvement at the spring election. Reference is also made to the fact that the work of permanent road improvement has been carried on extensively by some of the more northern counties of the state, and that the proposition of adopting the county road system will be voted upon in ten Michigan counties at the coming spring elections.

These facts are presented simply to show how some of our Michigan counties are solving the road problem. Truly, it is a vexed question, not easy of solution in the average Michigan township. The question of adopting the county road system is one upon which there is a wide difference of opinion among farmers of the state. In several counties, where the subject was under consideration by the board of supervisors, the proposition was not submitted to the electors for the reason that the supervisors felt that there was a lack of public sentiment in its favor.

As plainly stated in the article above mentioned, however, it is but fair that the people of the city, as well as the farm owners, contribute toward the building of permanent roads, and the county road system is the only practical plan by which this can be accomplished. For this reason the advantages of the system have been presented in this issue for the consideration of the reader who will be called upon to vote upon the question of its adoption at the coming election. The final solution of the road problem very properly rests with the people of the several townships and counties, and whatever the reader's final judgment may be upon the desirability of adopting the county road system, he should carefully consider the arguments presented in its favor, as well as the disadvantages which may occur to him, in order that his final

opinion may be an intelligent one, and that his influence may contribute toward the best solution of this vexed problem.

A Result of the Tax Investigation.

The facts and figures with regard to present taxation conditions in Michigan, as revealed by the two reports of the special commission of inquiry into taxation in Michigan, have pointed out inequalities in the assessment of the different classes of property which should prove of value to the state tax commission in its future work.

An act passed by the last legislature gives this body greater control over local assessments than it has enjoyed in recent years and, as a natural consequence, the tax commission has become active in gathering data for work along the line suggested. At the present time the commissioners are gathering information from the several counties to be used as the basis of equalizing assessments upon different classes of property.

With the added authority given to the tax commission, our tax laws are now adequate to correct any inequality in assessments, and it is plainly the duty of this body to bring the classes of property shown to be paying less than their share of the burden of taxes, up to a valuation which will be fair in its relation to the assessments levied upon other property at its present valuation.

The special commission of inquiry, in their last report, recognized the fact, first presented by Mr. McBride, of Shiawassee county, to the State Association of Farmers' Clubs at its meeting in 1910, to the effect that the personal equation of its owner and operator enters into the valuation or sale price of farm land to a much greater extent than is the case in any other class of property. This principle was made the basis of a resolution by the State Association of Farmers' Clubs at its recent meeting.

Also, the figures presented show that outside of this fact the farms of the state are now paying a fair and just rate of taxation as compared with other properties, and about twice as high a rate upon actual valuation as is paid on an average by the corporate properties of the state. Thus is the contention of the individuals representing other interests, that the farm properties of the state are under-assessed, plainly shown to be wrong.

We have always maintained that the farmers of Michigan were paying more than their fair share of state taxes and that attempts to increase the assessed valuation of the farms of the state should be viewed with suspicion and disapproval. However, the farmers as a class would not object to the application of the letter of the law in the assessment of their properties at a full cash value, provided that same policy is carried out with all other properties.

As above stated, we have sufficient law to bring about equality in taxation without any new legislation at this time, and if, as a result of recent investigations of taxation, this is accomplished through the medium of the state tax commission, the farmers of the state will be benefited rather than otherwise.

The proposition of whether we shall have a separation of state and local taxation is a more complex one, which will be discussed in future issues.

The Live Stock Meeting.

As announced in a previous issue, the twenty-first annual meeting of the Michigan Improved Live Stock Breeders' and Feeders' Association will be held at the Agricultural College at East Lansing, on January 16-17-18. While the full program for this meeting is not available for publication in this issue, it will contain features of interest and undoubted value to dairymen, cattle feeders and farmers who are interested in any kind of live stock. The various State Breeders' Associations will meet on the first day and the general meeting of the association will take up the succeeding days.

This meeting is one which should interest and attract every farmer in the state who can possibly arrange to attend. Upon our live stock industry depends, to the utmost degree, the maintenance of the fertility of our farms and the permanency of our profitable agriculture. This is a department of farm management which has been too long neglected by many Michigan farmers, and there is no better place to become enthused with the possibilities and advantages of any branch of live stock production upon the farm than at this general meeting, which unites those interests in every branch of live stock production within the state.

HAPPENINGS OF THE WEEK.

National.

Sunday the thermometer registered 18 below zero, and over a large number of counties of the state the mercury was down to 10 degrees below. The cold wave broke on Monday with a snow storm and relieved the distress caused in many quarters.

Nearly the entire Atlantic coast of this country was swept by a severe storm last Friday. Only two lives have been reported lost, but the damage to shipping interests is large. The Atlantic fleet of the United States navy, which was en route to Cuba, suffered considerable damage by being hit with the storm, not a single vessel of the whole fleet escaping damage. Search has failed to locate three of the torpedo boats. The Carolina coast is strewn with wreckage.

A tentative agreement has been made for the merger of the telephone interests in Bay City, Saginaw and surrounding community. It is held out that the combination would enable a reduction in rates to be made.

The unusual low temperature which prevailed over the entire country for the past week brought the customary amount of suffering that accompanies such cold waves. With one exception, the temperature at Detroit reached the lowest point in 15 years, it having dropped to four below last Friday. At Marshall, Mich., on

The stock market occupied an unusually strong position following the holidays. The review of business for the year 1911 has given general confidence to the present situation and financial interests are showing a disposition to invest holdings rather liberally.

Inquiry into the affairs of the United States Steel Corporation was removed last Wednesday at Washington. A subpoena has been issued for Andrew Carnegie to appear before the committee to give testimony concerning certain phases of the corporation's business.

The Oakland County Board of Supervisors last week refused the electors of that county permission to vote upon the county roads system, the votes standing 16 to 12. This is the second time that the scheme was defeated by the county legislature.

The National democratic committee is in session in Washington. It is reported that Col. Wm. J. Bryan lost control of affairs in test votes taken on Monday.

Rear Admiral Robley D. Evans, known as "Fighting Bob," died suddenly at his home in Washington, Jan. 3, of acute indigestion after being ill less than two hours. His courage in the Civil War, his resourcefulness shown at Valparaiso, Chili, when he rescued American sailors from the hands of that government, and his gallantry at Santiago, Cuba, together with many other experiences and victories that proved him a man of rare naval ability, won him a permanent high place in the hearts of the American people.

Four men were injured and damage estimated at \$200,000 was caused by fire in a five-story brick building at Baltimore last Sunday.

Foreign.

The British government has inaugurated a naval war staff. The staff is divided into three divisions: The intelligence division will deal with war information; the operation division will settle war problems, and the mobilization division will make necessary war arrangements. Winston Churchill, who is at the head of the admiralty, promoted the scheme.

It appears that the British government has tabled a proposed treaty, which it hoped to make with the United States for the establishment of a joint international commission to regulate railroads and other public utilities doing business in Canada and the United States. The reason for refusing to carry out the plan was the rejection of reciprocity with this country by Canada at her last fall's election.

A message has come to this country from Mr. Calhoun, United States Minister to China, asking that American troops be immediately sent to aid in keeping traffic open between Peking and the outside world. The success which has attended the rebels in the campaign has encouraged them to move northward, and preparations are now being made for this. Fully 30,000 troops are well equipped for the advance.

A manifesto has been issued by Dr. Sun Yat Sen, provisional president of the Republic of China, to the different world powers, presenting the political conditions in China, showing the necessity for a revolt against the Manchus, declaring that the new government will protect foreigners and guaranteeing the establishment and maintenance of a stable and just government over the territory of the former Empire.

Russia is demanding of the Chinese government that the latter recognize the independence of Outer Mongolia. The situation in the Chinese Empire will likely make it necessary to accede to the demand. The demand of Russia is interpreted by the European press to mean that the country desires the control of Mongolia.

Fighting continues in Ecuador for the control of the government of the country. An engagement last Sunday resulted in a defeat of General Plaza's forces by those under General Montero. The United States gunboat Yorktown arrived at Guayaquil.

MICHIGAN CROP REPORT.

Wheat—In answer to the question, "Has wheat during December suffered injury from any cause?" 228 correspondents in the state answer "yes" and 280 "no," and in answer to the question, "Has the ground been well covered with snow during December?" 51 correspondents answer "yes" and 479 "no."

The total number of bushels of wheat

marketed by farmers in December at 112 flouring mills was 192,081, and at 114 elevators and to grain dealers 215,563 or a total of 407,644 bushels. Of this amount 304,122 bushels were marketed in the southern four tiers of counties, 89,200 in the central counties and 14,322 in the northern counties and upper peninsula. The estimated total number of bushels of wheat marketed in the five months, August-December, was 7,000,000.

Sixty-seven mills, elevators and grain dealers report no wheat marketed in December.

The average condition of live stock in the state is reported as follows, comparison being with stock in good, healthy and thrifty condition: Horses and sheep, 95; cattle, 94 and swine 96. The average prices Jan. 1 of some of the principal farm products in the markets where farmers usually market such products were as follows:

The average price of wheat per bushel was 88c; rye, 83c; shelled corn, 66c, and oats 47c. The average price of hay per ton was \$17.32. The average price of fat cattle was \$4.50 per cwt.; of fat hogs \$5.69 per cwt., and of dressed pork \$7.50 per cwt.

The average price of each class of horses was as follows: Under one year old, \$51.72; between one and two years old, \$85.85; between two and three years old, \$132.45 and three years old and over \$162.49.

Milch cows were worth \$41.73 per head. Cattle other than milch cows, under one year old, \$12.11; between one and two years old \$20.56; between two and three years old, \$31.02 and three years old and over, \$39.53.

Sheep under one year, \$3.24 and one year old and over, \$3.75. Hogs not fattened, \$5.08 per cwt.

The prices given are for the state: The price of wheat is 1c lower than one year ago and rye 11c; corn 12c; oats 13c and hay \$3.78 higher.

The average prices of horses, etc., one year ago was as follows: Under one year old, \$52.51; between one and two years old, \$85.40; between two and three years old, \$123.26, and three years old and over, \$162.01.

Milch cows, \$43.90 per head. Cattle other than milch cows, under one year old, \$12.77; between one and two years old, \$21.41; between two and three years old, \$32.50, and three years old and over, \$41.41.

Sheep under one year old, \$3.90 and one year old and over, \$4.78. Hogs not fattened were worth \$6.44 per cwt.

NATIONAL CROP REPORT.

Final Estimate of Crops for 1911.

In making the final estimate of the acreage and production of crops in 1911, the Bureau of Statistics has used the census report of the acreages in 1909 as a basis, from which revised estimates for both 1910 and 1911 crops are made.

Using the census figures for acreage in 1909 as a basis, the Crop Reporting Board of the Bureau of Statistics estimates the acreage, production, and value of important farm crops of the United States in 1910 and 1911 to have been approximately as follows:

Crops.	Acreage.	Production.
	Acres.	Bushels.
Corn, 1911	105,825,000	2,531,488,000
Corn, 1910	104,035,000	2,886,250,000
Corn, 1909	98,383,000	2,552,190,000
Winter wht., 1911	29,162,000	430,656,000
Winter wht., 1910	27,329,000	434,142,000
Winter wht., 1911	20,381,000	190,682,000
Spring wht., 1910	18,352,000	200,979,000
Spring wht., 1911	49,543,000	321,338,000
All wheat, 1910	45,681,000	635,121,000
All wheat, 1909	44,261,000	683,350,000
Oats, 1911	37,763,000	922,298,000
Oats, 1910	37,373,000	1,180,513,000
Oats, 1909	35,159,000	1,007,129,000
Barley, 1911	7,627,000	160,240,000
Barley, 1910	7,743,000	173,832,000
Barley, 1909	7,698,000	173,321,000
Rye, 1911	2,097,000	33,119,000
Rye, 1910	2,185,000	34,897,000
Rye, 1909	2,196,000	29,520,000
Buckwheat, 1911	838,000	17,549,000
Buckwheat, 1910	860,000	17,598,000
Buckwheat, 1909	878,000	14,849,000
Flaxseed, 1911	2,757,000	19,370,000
Flaxseed, 1910	2,467,000	12,718,000
Flaxseed, 1909	2,083,000	19,513,000
Potatoes, 1911	3,619,000	292,737,000
Potatoes, 1910	3,720,000	349,032,000
Potatoes, 1909	3,669,000	389,195,000
Hay, 1911	43,017,000	*47,444,000
Hay, 1910	45,691,000	*60,978,000

*Tons (2,000 lbs.)

MICHIGAN FARMERS' INSTITUTES.

The following is a partial list of the Farmers' Institutes to be held in Michigan during January:

County Institutes—Eaton Co., Charlotte, Jan. 17-18; Ingham Co., Mason, Jan. 19-20; Van Buren Co., Lawrence, Jan. 17-18; Isabella Co., Mt. Pleasant, Jan. 16-17-18; Clare Co., Clare, Jan. 19-20.
 One-day Institutes—Huron Co., Harbor Beach, Jan. 13; Verona Mills, Jan. 15; Grant, Jan. 16; Owendale, Jan. 17; Midland Co., Pleasant Valley, Jan. 13; Geneva, Jan. 15; Averill, Jan. 16; Hope, Jan. 17; Midland, Jan. 18; Crane, Jan. 19; LaPorte, Jan. 20; Allegan Co., Laketown, Jan. 15; Douglas, Jan. 16; Ganges, Jan. 17; Glenn, Jan. 18; Leisure, Jan. 19; Sanilac Co., Marlette, Jan. 18; Shabbona, Jan. 19; Argyle, Jan. 20; Snover, Jan. 22; Carsonville, Jan. 23; Crosswell, Jan. 24; Peck, Jan. 25; Brown City, Jan. 26-27.
 Lenawee Co., Medina, Jan. 13; Hudson Center, Jan. 15; Cadmus, Jan. 16; Rome, Jan. 17; North Rome, Jan. 18; Addison, Jan. 19; Lime Creek, Jan. 20; Macdon, Jan. 22; Holloway, Jan. 23; Morenci, Jan. 24; Ridgeville, Jan. 25; Ogden Center, Jan. 26; Blissfield, Jan. 27. Newaygo Co., Newaygo, Jan. 13; Croton Township, Jan. 15; Ensley, Jan. 16; Lapeer Co., Dryden, Jan. 13; Imlay City, Jan. 15; Lapeer, Jan. 16; Hadley, Jan. 17-18. Montcalm Co., Lakeview, Jan. 13.

Profitable products of East Texas

Arkansas
Homes and Harvests along the Cotton Belt Route

Suppose you had time

to travel through 10,000 square miles of the richest sections Southwest, stopping off in every county and investigating every farm opportunity—think how perfectly you could locate the one best opportunity for you.

A practical farm man made just such a trip through Arkansas and Texas. He first stopped at Piggott, in northern Arkansas, went out and talked with Farmer Gray (who bought for \$57 per acre a better improved farm than his Indiana place at \$105 per acre.) He got the views and experiences of other farmers there, asking questions that an experienced farmer would ask who was planning to locate in that section; and took actual photographs of the stock and farms. Then he went to the next county—and so on, clear down to Lufkin, Texas, where J. E. Berry tells of starting with \$12 capital and making \$8300 in 6 years from dairying.

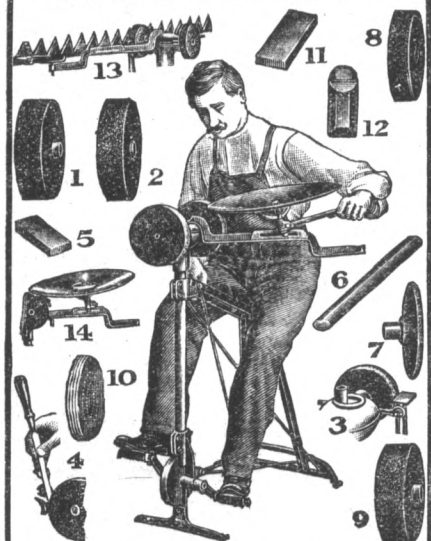
The result is two books with 115 actual photo pictures and 100 pages of plain farm facts, as given by farmers themselves, describing every kind of farm opportunity Southwest. They are the next best thing to an actual trip there, and will show you where your best opportunity is.

I will send you FREE

copies of these splendid books; I will also tell you about the low fare excursions Southwest twice a month via Cotton Belt Route. Write me now.

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New Labor Saving Farm Machine



Without putting you under any obligation I will send you this new, all steel, shaft drive LUTHER FARM TOOL GRINDER for try-out on your farm, just to show how easy it is to keep farm tools keen and bright with the rapid Dime-Grit sharpening wheels, how much better you can do your work and the time and money it will save.

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FREE TRIAL OFFER—Write for 40 page book, also circular containing special introductory offer. Write today. Address C. J. Luthier, Pres. Luthier Grinder Mfg. Co., 1104 S. 1st Bldg., Milwaukee, Wis.

HOW CAN WE BEST SECURE GOOD ROADS?

(Continued from page 26).

reward and they are getting a lot of good permanent stone roads. But many of the counties in the southern part of the state have done nothing. Yet they have been paying their share of the state in building state roads for other people. Now Ottawa county has awakened to the fact that some of this money belongs to them and the county road commissioners, after consulting with the board of supervisors and making this plan that I have just described, propose to build one mile of road in each township of the county, but to build these roads on the lines as laid out for the county roads. Then another year each township could build another mile and have it connect with the mile the year before, and so on, and finally we would get good roads for the entire district and the state would help pay for them.

The only trouble with this proposition is that it is going to take so long a time to get these county roads. A mile in each township will be of very little value. The farmer can't haul a good load to town if there is only one mile of good road and the rest of it is soft road. Of course, it will be a pleasure to get onto this mile but it doesn't help him from a business standpoint, because he has got to load his team for the poor roads and not for the good ones. It will take a long time to get much benefit out of this system and yet this would be much better than anything we have ever had before. Realizing that we ought to have these county roads built sooner than can be done under this system it was proposed to bond the county for \$600,000, five per cent bonds, payable in 20 years, and build these roads just as fast as this money can be judiciously expended. The board of supervisors thought favorably of this plan and have voted to submit to the people at next spring's election this question of bonding the county for good roads.

Now the question is, will it carry. A debt of \$600,000 looks large to the individual citizen. It is an immense amount of money. For one community to assume anything like this, or a few men, the proposition would not be practical, but when the whole taxable property of the county of Ottawa, with a valuation of \$25,000,000, undertakes to assume a proposition to pay \$600,000 with five per cent interest in 20 years then the proposition becomes reasonable and practical. If you will figure it over carefully you will find out that every taxpayer can afford to do it, that it will cost no more each year than to build one mile only in each township and if this proposition carries then we can see that in a few years we will have these county roads, at least, permanently constructed. We will have five trunk lines of wagon roads running in every direction in this county to the principal places where the majority of people want to go that will be permanent roads, roads that won't cut up in wet weather, roads that the farmer can haul a maximum load over with his team.

Under any other system it would be impossible for the people of this generation to get very much good out of the permanent roads. It will take so long to get them that we will be simply working for the next generation. Of course, that is laudable. We who have children are largely working for the next generation anyway, but I don't believe in working entirely for the next generation and not getting something out of life as we go along, so I don't believe in building these roads under a system that will prevent us from having some benefit of them while we live, and give the next generation the entire benefit. If we can carry the bond issue of \$600,000 and go to work and build these permanent county roads then we of today will have some benefit from them. We can pay the interest and as the bonds keep maturing will pay those bonds, but we will leave the greater part of those bonds to be met by the people in the future who will use the roads more than we will. Why isn't this a just proposition? Why should we think that we can't afford to have a good road unless we can pay spot cash for it? Why isn't it a business proposition? Why isn't it proper for us to think that the next generation, and even second generations, should pay part of the money necessary to have good roads? They can well afford to do so.

In this way, and in this way only, can we have good roads in this or any other county, so that people of middle age today will get any particular benefit out of them at all.

COLON C. LILLIE.

Buy the One Plow That Will Serve Your Every Need

Why spend your good money for a plow that only answers one purpose, when for about the same price you can get a real, ALL-PURPOSE plow? An implement that will do perfect work in any field on your farm.

What a vast saving and convenience to be able to plow (at any depth up to 8 inches) tame sod, heavy clay, sandy loam, mixed soil, stubble fields, old corn-fields, etc.—all with one plow!

The Rock Island Universal Plow does all those "stunts," a fact to

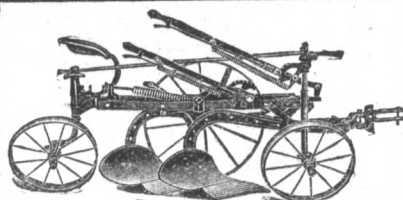
which thousands of farmers gladly testify.

Moreover, this remarkable plow turns over each slice flat and smooth. Leaves no kinks—no air spaces between top soil and subsoil to let in air and dry up precious moisture. And even though hot, dry weather sets in, your crop goes on growing, because top soil lying flat on subsoil allows moisture to be taken up from below, just like a lamp wick takes kerosene out of a lamp bowl.

The Rock Island (C.T.X.) Universal Plow

has been in use for three years. Under the most difficult tests ever given a farming implement it has proven its right to the title, "The World's Only Universal Plow." Take for instance:

Down at Pickering, Missouri, 55 farmers gathered on a neighbor's farm to see the



Note peculiar corkscrew, auger-like twist of mouldboard. A slice of any thickness spreads out evenly without crimping and turns clear over, burying all trash. No spilling into furrow or slopping forward onto land. Lightest draft and easiest on horses of any plow. We own the patents on these mouldboards and they cannot be had on any other plow.

new plow perform. Fifty-five pairs of eyes watched it keenly as their neighbor put it through the "paces." They rendered the following unanimous verdict:

"We, the undersigned, have today witnessed a demonstration with the Rock Island Liberty Gang Plow on Mr. Swinford's farm, and express our unqualified approval of its light draft and perfect work in difficult condition of soil; turning a smooth, flat furrow and covering all trash. It handles sod as perfect as a breaking plow and fully deserves the title of a 'Universal' plow. The C.T.X. Bottom is a wonder." Signed by 55 Farmers.

The names and addresses of these fifty-five men can be had for the asking.

Write! Don't tie up your money in several plows when you can get one plow that does the work of three or four, and at reasonable cost. Send for complete story of the "Universal" and letters from farmers who use "Universals." We gladly send this information free. Merely say on postal, "Tell me more about the new plow." Then put your name and address below and send postal to

ROCK ISLAND PLOW CO.

284 Second Ave. Rock Island, Ill.

There Should Be A Copy Of This Book On Every Farm



You need it for the information it contains on the care and use of saws and tools. It points the way to greater economy and satisfaction through the use of

DISSTON

SAWS TOOLS FILES

It broadens your knowledge of tools and the purposes for which they are intended. It is by understanding what tools to use and where to get the best that you can accomplish the greatest amount of good work with the least labor and expense and at the time the need arises. This book illustrates and describes the saws and tools made by Henry Disston & Sons in the largest and most efficient plant in the world devoted to such manufactures.

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The DISSTON book is free—write for your copy at once.

HENRY DISSTON & SONS, Inc., Keystone Saw, Tool, Steel and File Works, Philadelphia, Pa.

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Three 10-cent packages mailed for 25 cents. One package of each of above (60 high grade cards) mailed for 50c; 100 for 80 cts. We mail a special assortment of any of the above subjects for 60c per 100.

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GARDEN FREE CULIVATOR

SEED SAMPLE FLOW

DRILL OUTFIT

To quickly introduce this wonderful little tool for the home garden, we will give complete outfit as sample to purchaser of only 60 cts.

papers of "King's Northern Garden Seed" AGENTS may secure outfit at NO MONEY COST. Send no money.

Write for descriptive circular and list of seed.

KING SEED AND IMPLEMENT CORP., RICHMOND, VA.



Not a Toy

WANTED—First-Class Renter FOR 200-

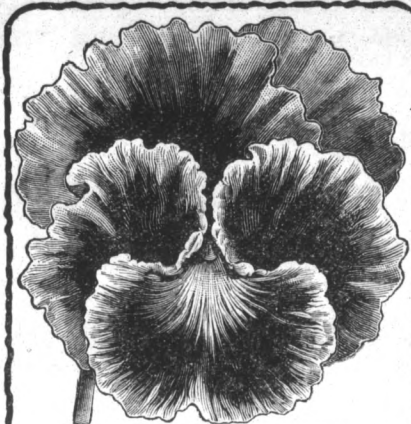
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My new Seed Catalogue is a wonder. Contains everything in seeds, bulbs, small fruits and plants worth growing. 600 illustrations; 176 pages. Any gardener sending his name on a postal card can have it for the asking. Send for it today. Address

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Send 5 cents (stamps) mention this paper, I will enclose in the catalogue a packet of the above GIANT pansy.

16 CENT SEED SALE

10,000 KERNELS OF Selected 16c FERTILE SEEDS for

1750 Lettuce	1000 Celery
750 Onion	100 Parsley
1000 Radish	500 Cabbage
100 Tomato	1000 Carrot
1750 Turnip	100 Melon
1700 Brilliant Flower Seeds, 50 sorts	

Any one of these packages is worth the price we ask for the whole 10,000 kernels. It is merely our way of letting you test our seed—proving to you how mighty good they are.

Send 16 cents in stamps to-day and we will send you this great collection of seeds by return mail. We'll also mail you free our great 1912 catalog—if you ask for it—all postpaid.

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Seeds, Plants, Roses,

Bulbs, Vines, Shrubs, etc. Hundreds of car lots of **FRUIT and ORNAMENTAL TREES**. 1,200 acres, 50 in hardy Roses, none better grown. 47 greenhouses of Palms, Ferns, Ficus, Geraniums and other things too numerous to mention. **Seeds, Plants, Bulbs, Roses, Small Trees, etc.**, by mail, postpaid. Safe arrival and satisfaction guaranteed. Immense stock of **SUPERB CANNAS**, the queen of bedding plants. Acres of **Pæonias** and other **Perennials**. 50 choice collections cheap in Seeds, Plants, Roses, etc.

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New Crop Grown at Farmer Prices. In addition a lot of extra **FREE SEEDS** thrown in with every order.

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Our Grand Big Illustrated Catalog of all Farm and Garden Seeds is now ready and free to you. Write for it today. Send names and address of neighbors who buy seeds. Address

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SHENANDOAH, IOWA Box

12 FOR \$1.00 **Guaranteed Trees** **12 FOR \$1.00**
at Wholesale Prices

Buy direct from us (the growers) and save 50 to 100 per cent. All stock of high quality and grown in Danville, "Home of the Best Trees," where Sells is unknown.

12 PEACH TREES, \$1.00.
3 Elberta, 2 E. Crawford, 3 L. Crawford, 2 Champion, 1 Carman, 1 E. Rivers. All fine 1 year, well-matured trees. True to name or money back. Write now for free catalog of other bargains and complete line.

Reilly Bros. Nurseries, 1105 Reilly Rd., Danville, N. Y.

Fruit Trees

800,000 APPLE
675,000 PEACH

We grow what trees we sell direct from bearing orchards, hence you run no risk in buying of us. Free from scale, fresh dug and personal attention given each order. Everybody write for free illustrated catalog. Established 26 years; 250 acres.

2 Apple Trees 1 McIntosh and 1 Banana post paid for 25 cents.

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Healthy, acclimated, high grade, true to label fruit trees and plants for Northern States at wholesale prices, direct from nursery to planter. Send for catalogue.

CELERY CITY NURSERIES, Desk E, Kalamazoo, Mich.

FRUIT TREES

Choice Western New York Grown. Fresh from the ground. Lowest Prices. Catalogue Free.

BLOSSOM NURSERIES, 581 Blossom Road, ROCHESTER, N. Y.

HORTICULTURE

WE SHOULD GROW MORE PEPPERS.

The culture of green peppers in Michigan is not carried on to any great extent except to supply a very limited local demand for use in making pickles and various other forms of sour condiments, as chow-chow, chili sauce, catsup, etc. Very few people make use of them as daily or even occasional food upon the table, but of late years summer resorters coming into the state from Missouri, Arkansas and some other states, have asked for them as summer vegetables, and in a number of localities they are now raised quite commonly to meet this demand.

It has usually been supposed that they grew to perfection only in a hot climate, but experiments in their culture here in Mason county, on the poorest sandy land, have demonstrated, when the land is properly prepared, that the highest measure of success can be attained. The writer has produced them for several successive years, and each year has suc-

ceeded in producing finer and larger crops upon a given space of ground. The past season we had 12 rows, each 100 feet long in our garden, from which we harvested over 50 bushels, making a yield of between 900 and 1,000 bushels per acre. Some of these peppers are of enormous size, measuring from 18 to 20 inches in circumference the long way, and from 16 to 17 inches around the short way. Many of the specimens weighed as much as 15 ounces, and there were hundreds that would weigh from 12 to 13 ounces. The largest ones were of the Chinese Giant variety, the next largest the Ruby King, and the earliest and most prolific, but smaller, the Neapolitan, the latter being comparatively new and ripening three or four weeks earlier than the other kinds. Some of these Neapolitan bushes yielded from 40 to 45 peppers about the size of large goose eggs each. The Chinese Giant and Ruby King bore, upon each bush, from 10 to 20 very large peppers.

I set out the plants about June 1, or later, if necessary to avoid frosts or cold weather, putting into each hill a compost made the year before of hog manure, hen manure and well rotted barnyard manure. When they don't start to growing quickly, I sprinkle a little nitrate of soda around each hill. I set the plants one and a half feet apart in the row, and the rows two feet apart. This gives me about 15,000 plants to the acre. I then run the hand cultivator through them about once in two weeks.

There are various methods of preparing them for the table. The most simple and cheapest way is to cut the pepper open, remove the seed, and cut into slices about one inch wide. Put these slices into a stew pan and let them boil in shallow water for 15 minutes, then fry them down and dress with butter and salt.

Another way is to cut open the end of the pepper, remove the seeds and stuff with chopped cold meat, chicken, or veal, mixed with bread crumbs or crackers and cabbage, and bake them for a half hour. They can then be sliced with a sharp knife, and a little butter spread on

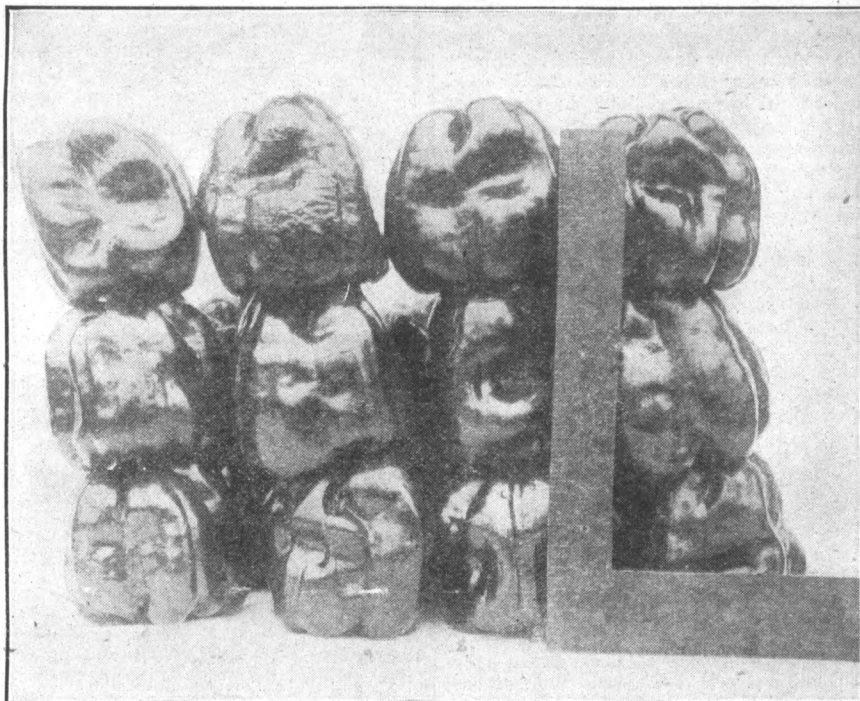
the slices. There are many other ways that will suggest themselves to the experienced cook, of making palatable food from these fruits, and the more one eats of them the more they want them. They are said to be a most healthy and nutritious food by dietitians who have made a study of such matters. They are also used quite extensively by some people as mangoes, being stuffed and pickled for winter use.

The illustration which I send you is of a dozen peppers selected from this year's crop, all of them weighing from 13 to 15 ounces each. They were grown on a pure sandy soil from plants set out after the first of July, and are of the Chinese Giant variety.

A. M. SMITH.

NATURE'S STOREHOUSE FOR VEGETABLES.

Every time the ground thaws a little we enjoy the best of the vegetables, and often when it isn't thawed we get impatient and long for some of the crisp things of the garden to the extent that a stout pick and a strong arm makes great holes in the frozen soil. It is all right to put vegetables into pits and root cellars and



Twelve Peppers from Mr. Smith's Garden Weighing from 13 to 15 Ounces Each.

basements, but, after all, nature will keep some things better than anybody else can do it.

We dig a clump of horseradish for use with the fresh pork and throw the whole mass into a tub of water to thaw out. Of course, it is a messy job, but the fine strong vegetable well repays the trouble. There should be no attempt made to thaw it by a fire, but it should slowly come to its prime in the cold water. Many families grate and seal a lot of horseradish before winter sets in, but this is only a makeshift at best. For fresh pork we want the "teary" sauce and are willing to go to some trouble for it.

Parsnips are treated in the same manner when the ground is frozen and they come out so white and brittle and sweet that the basement supply goes begging until the last outdoor one is gone. These parsnips dug on mild days and well washed bring fine prices in market, for many people prefer these outdoor vegetables to the best storage ones. There seems to be something about the long stay in the frozen ground that adds to the flavor immensely.

Salsify is another vegetable that does not take as kindly to storage as to nature's own methods, and carrots are good if not frozen too hard. Cabbage protected by bards and straw or some light covering will be found very good in winter, and it is white and crisp. Of course, it should be thawed out very carefully.

Garlic for seasoning is also to be had from the garden all winter. Some people prefer the ripened bulb of market, but the flavor of the fresh vegetable suits us better. We always have a little garlic sausage each winter and use the green bulbs for this purpose. Steeped in hot water it seems much better than the dried bulb.

So while gathering in the winter's supply of vegetables we always leave some things in the ground for the days when we long for green, growing things. We pass by canned goods and cellar supplies for these outdoor vegetables, and feel that they are a part of the season's luxuries.

H. RICHMOND.

Kill the Scale

with the one most reliable remedy against the SAN JOSE SCALE.

Spray NOW with BOWKER'S LIME-SULPHUR

Write for Book and Price List to
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We ship also from
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Bigger Fruit Profits

Here is a spray pump invented by fruit growers. It was our endeavor to secure the best spray pump to use on our 300 acre fruit farm that produced the

ECLIPSE SPRAY PUMP

It overcomes every defect found in other makes—it has proved itself best in actual work. Put an Eclipse to work on your trees and earn bigger profits. Write for our fully illustrated catalogue. It tells why you should spray—and why you should do it with an Eclipse. It's free. Write to-day.

MORRILL & MORLEY MFG. CO., Benton Harbor, Mich.

Standard Spray Pump

Used with bucket, barrel or knapsack. Sprays the tallest fruit tree from the ground. Does the work in half the time. Sprays whitewash and cattle "dip." Made of brass and warranted for five years. Write for special offer or send \$4. Expressage prepaid. Money refunded if not fully satisfied.

STANDARD STAMPING CO.
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"Improved Sunshine" Sprayer

Simplest and most effective made. Any one can use it. Solid brass upper and lower cylinders. All brass plunger. Brass valve seat and extra large air chamber. Guaranteed. Only Agitator Made Having Four Paddles. All others have but two. Makes the work easy. Simple to operate and produces a constant uniform spray. Send for descriptive circular.

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LESSONS FROM THE APPLE GATHERING.

It is fortunate for us that the punishment received for most of our mistakes and shortcomings is intended to be reformatory, and while we are suffering on account of previous blunders made wilfully or otherwise, it is usually easy for us to form good resolutions.

Apple-picking in Oceana county this past fall furnishes a fine illustration of the truth of what we are trying to say. Orchards in localities where San Jose scale is known to be present were quite generally sprayed last spring with lime and sulphur mixture at winter's strength.

A good many sprayed just before the blossoms opened, with a weaker solution of lime and sulphur or with Bordeaux mixture. More sprayed after the blossoms fell than ever before but very few did any spraying whatever to destroy the second brood of codling moth and so our apples, while they were comparatively free from worms in the blossom end, had plenty of them in the sides.

Apple scab was not very prevalent this last season and consequently it was not a good time to note the comparative merits of Bordeaux mixture and lime and sulphur in the control of this difficulty. Still, there was some scab and apples not sprayed, or sprayed imperfectly, that showed it quite badly here and there, while varieties like the Vanderveer, Pippin and Snow, which usually suffer so much from scab were very fine indeed, where thorough spraying had been done. It is refreshing to recall the expressions made by many, while picking apples last fall. "If I live until another spring, I'll spray." "I will spray next year even if I have to neglect the other farm work." "A few trees in my orchard were sprayed but poorly and the difference was very noticeable." "I believe I shall spray twice in August next year, for some of my trees were sprayed very thoroughly early in August this year and the apples are very fine and free from wormholes in the sides."

Expressions like the above are common and point to better practice in fruit growing in the future. One needs but to stand on the street in town these days and compare the loads of apples that come in to learn the value of thorough spraying.

It is to be hoped that lime and sulphur mixture will control apple scab as well as Bordeaux. The indications thus far seem to be that it will, but its use last year upon plum and cherry has not proven as satisfactory, and personally I shall favor the old "Bordeaux Mixture," for these trees, until experience has demonstrated to the contrary.

Apple gathering last fall taught again the lesson of proper pruning. We cannot afford to grow too much wood for if we do the apples do not color up. Without the color they lack the flavor also, and if the tops are too thick it is very hard to gather the fruit. Too many apples in number grow on the trees, and they are inferior in size.

Another lesson that is brought home to the apple grower is the need of better marketing facilities. The consumer will pay well for superior fruit, if he can get it and everyone who grows apples for sale in quantities, large or small, should unite in an effort to secure perfectly honest packing and in a purpose to find some way to get the apples to the consumer with less of sacrifice on the part of the man who grows them.

Oceana Co. W. F. TAYLOR.

EXPERIMENTS WITH HOME-MADE SPRAYS.

Among the numerous reports from experiment stations by the Department of Agriculture is one dealing with tests conducted by the New York Station on the use of home-made concentrated lime-sulphur mixtures in various sections during the past three years.

With dilute mixtures of the home-made concentrate fairly satisfactory results were obtained so far as effect on the foliage of apple trees was concerned. In a number of orchards slight injuries were noticed on the more tender leaves, especially following the spraying after blossoming. These injuries were generally obscured by the new growth in from seven to ten days. Damages of a more serious nature occurred in a few orchards. Drooping of fruit and leaves were noted in one experiment. Nearly all reports noted relative absence of russeting of apples on trees sprayed with home-made concentrate.

No-Rim-Cut Tires

Proved Average Oversize, 16.7%

Goodyear No-Rim-Cut tires are advertised as 10 per cent oversize.

We claim that this oversize adds 25 per cent to the tire mileage.

Lately we made a comparison, based on cubic capacity, with five other leading makes of tires.

And No-Rim-Cut tires, on the average, proved 16.7 per cent larger than the other tires of equal rated size.

Only three tires out of 20 comparisons came within 10 per cent of our size.

That means in air capacity, not in

mere outer measurements. It is air that carries the load.

Each one per cent oversize means one per cent extra carrying capacity.

Oversize means to save blowouts—to increase the tire mileage—to cut down tire expense.

And you get this oversize in No-Rim-Cut tires without any extra cost.

That is one of the reasons why these patented tires now far outsell any other type of tire.

Adopted by 127 Leading Makers

For the year 1910, 44 leading motor car makers contracted for Goodyear tires.

For the year 1911, 64 makers came to them.

For this year we have contracts from the makers of 127 leading cars.

That shows how car makers—the men who know best—have come to the Goodyear tires.

tire—23 per cent of all ruined tires are rim-cut. That is proved by actual statistics.

A punctured tire may be wrecked in this way by running 200 feet. A soft tire may be wrecked without puncture.

No-Rim-Cut tires save that ruin and worry.

Then 10 per cent oversize, under average conditions, adds 25 per cent to the tire mileage.

It means an over-tired car to take care of extra weight. It saves the blowouts due to overloading.

And No-Rim-Cut tires, as told above, average 16.7 per cent oversize.

These two features together—No-Rim-Cut and oversize—under

average conditions cut tire bills in two. Tens of thousands of motor car owners have proved that.

No Extra Cost

These patented tires used to cost one-fifth more than other standard tires. Now they cost an equal price.

These tires which can't rim-cut cost the same as tires that do. These oversize tires cost the same as skimpy tires.

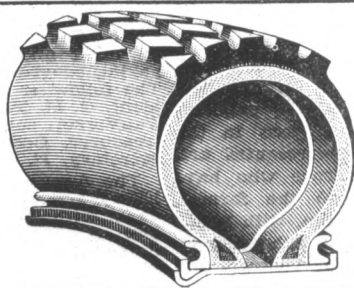
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In every way they are as near perfection as tires can ever get.

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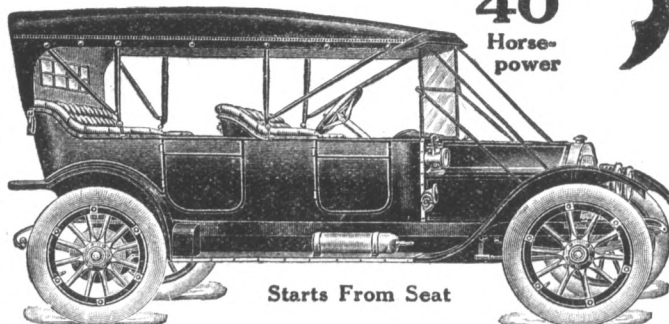
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GRANGE

THE LECTURER'S PROGRAM AT THE STATE GRANGE.

The so-called "Lecturers' Conference" or "Lecturers' Session" has become a permanent and most enjoyable part of the annual State Grange meeting. It consists of a program, prepared and conducted by the State Lecturer, designed to impress upon the membership, and upon lecturers especially, the need and the value of good program work. At Kalamazoo this program was the outstanding feature of the week, consuming the major portion of Wednesday afternoon's session. Even then, lack of time made it necessary to drop one topic and to carry one feature over to the evening session.

"A program for every meeting" was the slogan chosen by the State Lecturer, and the program was prepared with a view to driving home the fact that the Grange which does not have a program at every meeting is not thoroughly alive or living up to its possibilities. The topics covered a wide range and each was illustrated, thus exemplifying a program from which every member of a Grange would get something of interest and benefit.

Following the State Lecturer's report, the formal program opened with a song by C. S. Bartlett that was roundly applauded. The social topic, entitled "Play," was then presented in a well-written paper by Mrs. Emily Warner Green, past lecturer of Cass Pomona Grange. Touching the importance of giving the same attention and direction to recreation and play that is given to work, and the relation of the Grange to this movement, Mrs. Green said:

There seems to be a wave of play sentiment sweeping over the country, bringing with it the Boy Scouts, the Girl Guides, Play-ground Associations and similar organizations designed to teach children how to play. If this play spirit can be cultivated in country districts and directed to right ends, it may prove another powerful factor in staying the tide that is flowing toward the cities.

We have adapted our work to modern conditions. We are now asked to do what is of equal importance—organize and direct our recreation so that it will be as fine as our work. But, in doing this, we must keep in mind that the highest value of play in the country is not to promote health, but to develop social life and to encourage co-operation. Little children on the sand pile learn the lesson of mutual rights. When they come to the playground and have to share toys and apparatus and play by the rule of the game, they learn mutual relationships.

What is the relation of the Grange to the true spirit of play? What are some of the things it can do to help in this movement? Here are a few of them:

1. Let Pomona Granges give more attention to recreations at their annual rallies, providing leaders who will start group games, direct contests and promote good-natured neighborhood rivalry. The aim should be to get everybody enlisted in the social spirit—not simply have a few contestants taking part while the mass of people, including all the little children, look on from the side lines.

2. Subordinate Granges can extend the benefits of the play movement in many ways, such as:

(a) By advocating games and play grounds at the homes of their members, and by securing athletic fields in the neighborhood for the use of boys and girls on Saturday afternoons and holidays.

(b) By recommending and working for an enlargement of most rural school grounds.

(c) By building up the community

pride in its organized play activities through the use of pennants, badges, cheers and other incentives to local spirit.

(d) By exchange of visits with other Granges when competitive games, plays and contests shall take place. This applies to both outdoor and indoor recreations.

(e) Finally, by seeking to direct the social instincts of young people as right and God-given, instead of suppressing and frowning upon them, Granges may promote a sane, wholesome community life. Where dancing and card-playing were once the only recreations known, a Grange may, if it will, so re-direct and dominate the social instincts of the neighborhood that a wide range of entertainment and recreation can be employed.

3. Especially let lecturers of all Granges introduce upon every program features that partake of the play spirit. So simple a thing as a grand promenade about the hall is magical in its recreative and socializing effects upon a roomful of people. Spelling down in ritual forms, charades, tableaux, plays, folk dances, character songs and recitations, all these cultivate sociability, teach people how to do graceful and refined things and break up the monotony of work thought. The using of children in their little games and motion songs upon the lecturer's program is advocated for more than one reason, while for older children and young people, no wider, richer field exists than that of dramatizing scenes from history, poetry, art, fiction and local life.

After the reading of this paper a number of primary and eight grade pupils from the Western Normal College, headed by their teachers, presented a number of simple marches, drills and games which told, more plainly than can be done in words, of the confidence, grace and wholesome social spirit born of well-directed play and entertainment. No other part of the afternoon's exercises was so much appreciated and enjoyed.

Another feature which properly belongs with this topic, but which was not presented until the evening session, was a demonstration of the value of plays, tableaux and pageants as means of education, recreation and inspiration. An original pageant, "The Farmer Feeds Them All" was given as an exemplification, the affair being conducted by Mrs. Dora H. Stockman. As the curtain rose, in the center of the stage was seen a farmer bearing a huge cornucopia filled with food products. Behind him stood Ceres, Pomona and Flora with their offerings of grain, fruit and flowers. One by one there passed before the farmer persons representing the various classes of people dependent upon him for food—the doctor, the lawyer, the city laborer, the school girl, the minister, the society woman, the woman of the middle class with her market basket, the trusts, the scrub-woman, the entertainer, the carpenter and, last of all, Uncle Sam who brought the "world" to the farmer to be fed.

Then came the tableau, represented in the photo reproduced below, "The Farmer in the Future." At the farmer's left are grouped the people of the pageant, with Ceres, Pomona and Flora in the rear. On his right are represented art, music, literature and science who have each brought offerings to the farmer. Standing on each side of him, with hands clasped, guarding him, are Athena, goddess of horticulture and agriculture, and Vesta, goddess of the sacred hearthstone, while a young woman, a seer of the future, is in the act of placing the laurel wreath upon his head.

COMING EVENTS.

Wayne Co., with Harmony Grange, at Romulus, Friday, Jan. 19.

FARMERS' CLUBS

Address all communications relative to the organization of new Clubs to Mrs. C. P. Johnson, Metamora, Mich.

WHAT THE LOCAL CLUBS ARE DOING.

As Reported by the Delegates at the Association Meeting.

Odessa Club, of Ionia county, has 80 voting members. This Club holds ten meetings during the year, with a vacation in the month of July and a picnic in August. Monthly meetings are held at the homes of the members. The Club uses yearly printed programs. The membership dues are 50 cents per family.

The Washington Center Club, of Gratiot county, is in its 14th year. This Club has 70 members and an average attendance of 43. Twelve meetings are held during the year, including a temperance meeting in March and a Club fair in October. At the fair last October there were over 200 entries, many of the classes being better than those at the county fair. A chicken-pie dinner is served at the Club fair each year. Another feature is a Children's Day in June. The members are mostly adults, although the young people are becoming interested. The Club sends different members as delegates each year with the result that they become interested and frequently attend meetings when they are not delegates. Six members of the Club were present at this year's annual meeting.

CLUB DISCUSSIONS.

Co-operation Among Farmers.—The Salem Farmers' Club held its December meeting at the home of Mr. and Mrs. Fred Bird. This was the annual meeting, 75 or 80 guests and members of the Club being present. The members discussed the excellent dinner, and afterward the equally excellent program. Robert Ross read a fine paper on "Co-operation among farmers." He said in part: "Since the early ages—the stone, the bronze, and the tribal ages—the tendency of our race has ever been toward improvements, and now, with the best form of government in the world, we have need to look to ourselves that there be not serious errors in management and abuse of power. The protection which protects only a few of the people is unfair. Such was the recent reciprocity treaty. A co-operative system could be established among farmers which would do away with much of the unfair dealing. An intelligence bureau, which would give the farmer a better idea of crop values, might be arranged for, and Farmers' Clubs and Granges welded together into a unit for public righteousness." Chas. Ross gave a talk on tariff and a petition was circulated asking congress for a reduction on sugar. The following officers were elected: President, G. H. Thompson; vice-president, A. VanVorse; secretary, Miss Ruth Ross; treasurer, George Roberts, corresponding secretary, H. C. Thompson.

The Annual Meeting of the Hadley and Elba Farmers' Club was held at Brookdale, with Mr. and Mrs. Chas. Farrar, Dec. 2. At the close of the sumptuous dinner the meeting was called to order by President R. J. Pierson. All joined in singing and Rev. Barnum offered prayer. The minutes of the last meeting were approved as read, and the roll call responses elicited much laughter. The report of the delegates, Mr. F. G. Bullock and Mrs. Carrie B. Snooks, was well given and proved very interesting. Mr. and Mrs. C. P. Johnson, Mr. and Mrs. Wm. Brewer, and Mr. and Mrs. A. M. Bullock were elected as committee to prepare the

program for the Farmers' Institute. The entire staff of 1911 officers was re-elected for the ensuing year as follows: President, R. J. Pierson; vice-president, C. A. Davenport; secretary, Mrs. C. P. Johnson; treasurer, Mrs. Carrie Snook; chaplain, Rev. C. W. Barnum; the program committee for 1912: Mr. and Mrs. J. W. Tower, Mr. and Mrs. C. P. Johnson, Mr. and Mrs. F. A. Smith, Mr. and Mrs. Wm. Bartenfelder, Mr. and Mrs. B. C. Snook. Adjourned to meet at Fairview with Mr. and Mrs. W. E. Ivory, Jan. 11, 1912. This will be the annual oyster dinner and a cordial invitation is extended to all our friends.—Mrs. C. P. Johnson.

Conway and Handy Farmers' Clubs met with Mr. and Mrs. H. Benjamin, Dec. 22. A large crowd was in attendance and a fine dinner was served by host and hostess as usual. The subjects discussed were as follows: "Would it be a safe investment to pay present prices to start a herd of Holstein cattle?" Decided yes, for the man who was willing to put forth the efforts required in this business. "Does education unfit girls for the farm?" Miss Grant handled this subject very nicely by placing the "ifs" and "ands" and "maybes" before the people and leaving the decision with them. "Education would not unfit girls for the farm but we can be good farmers' wives without the education." "Our trip west," was the subject of a talk by W. E. Slave. A recitation of unusual interest was given by S. Horton. Election of officers resulted as follows: President, W. M. Horton; vice-president, Adam Meyer; recording secretary, Mrs. Geo. Stowe; corresponding secretary, Mrs. S. R. Holmes; treasurer, Mrs. E. E. House. Delegates' report of state convention was rendered. Adjourned to meet with W. E. Stowe and wife in January.—Mrs. S. R. Holmes, Cor. Sec.

Michigan Farmer's Club List.

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

EXPLANATION.—The first column is the regular subscription price of the other papers. The second column gives our price for a year's subscription to both the other paper and the Michigan Farmer. The third column gives the price at which the other paper may be added when three or more are ordered. Example: We will send the Michigan Farmer and Detroit News-Weekly Journal for \$1.50. If, for instance, McCall's Magazine also is wanted add it at 40c making total \$2.00. Any number of papers may be added at third column price if they are for a subscriber to the Michigan Farmer.

If you want the MICHIGAN FARMER THREE YEARS and the other papers one year add \$1.00 to the second column price. For the Michigan Farmer 5 years add \$1.75. We do not send samples of other papers. Address the publishers direct.

Send all orders to the Michigan Farmer or through our agents.

We will take your order for any publication you want whether listed or not. Write for rates.

NOTE.—So long as a subscriber is on our list for one or more years he may order at any time any publications at third column price. So that a three of five year subscriber does not lose the advantage of the reduced price if he wants any other paper next year or the year after.

Subscriptions ordered to Canada require postage. Write for rates unless postage is known, in that case include with order. Postage on Michigan Farmer alone to Canada is 1 cent per week.

NAME OF PUBLICATION.	See explanation above.		
Daily, (6 a Week.)	\$	\$	\$
Journal, Detroit Mich., on rural route	2 50	3 50	2 55
Times, Detroit, Mich., off	5 00	5 25	4 75
Herald, Grand Rapids, Mich.	2 00	2 25	1 75
Press, Grand Rapids, Mich.	2 50	3 00	2 50
News, Grand Rapids, Mich.	2 00	2 50	2 00
Courier-Herald, Saginaw, Mich., (inc. Sunday) on R. R.	2 50	2 50	1 60
News, Cleveland, Ohio.	2 00	2 25	1 85
Tribune, Bay City, Mich.	2 00	2 25	1 85
Blade, Toledo, Ohio.	2 00	2 25	1 85
News-Bee, Toledo, Ohio.	2 00	2 50	1 60
Tri-Weekly, (3 a Week.)			
World, New York, (3 a week)	1 00	1 65	75
Semi-Weekly, (2 a Week.)			
Journal, Detroit, Mich.	1 00	1 60	70
Weekly Newspapers and Current Comment			
Blade, Toledo, Ohio.	1 00	1 25	35
Jommoner, Wm. J. Bryan, Editor, Lincoln, Neb.	1 00	1 50	60
Inter Ocean, Chicago (w.)	1 00	1 25	35
Cattle, Sheep, Swine, Poultry, etc.			
American Poultry Journal, Chicago (m.)	50	1 25	35
American Poultry Advocate, Syracuse, N. Y. (m.)	50	1 25	35
American Sheep Breeder, Chicago (m.)	1 00	1 50	90
American Swineherd, Chicago (m.)	50	1 25	35
Breeders' Gazette, Chicago (w.)	1 75	1 90	1 00
Poultry Boston, Mass. (s-m)	50	1 25	35
Cleanings in Bee Culture, Medina, O. (s-m)	1 00	1 50	60
Hoard's Dairymen, Fort Atkinson, Wis.	1 00	1 65	75
Horseman, Chicago (m.)	2 00	2 50	1 60
Jersey Bulletin, Indianapolis, Ind. (w)	1 00	1 80	90
Kimball's Dairy Farmer, Waterloo, Ia. (s-w)	40	1 25	35
Poultry Keeper, Quincy, Ill. (m.)	50	1 25	35
Poultry Success, Springfield, O. (m.)	50	1 25	35
Reliable Poultry Journal, Quincy, Ill. (m)	50	1 25	35
Swine Breeders' Journal, Indianapolis, Ind. (s-m)	50	1 25	35
Popular Magazines.			
American Magazine, (m.)	1 50	2 00	1 10
Etude, Philadelphia, Pa. (m.)	1 50	2 00	1 10
Hampton's Magazine, N. Y. (m.)	1 50	2 00	1 10
Metropolitan Magazine, N. Y. (m.)	1 50	2 00	1 10
Mechanical Digest, Grand Rapids (m.)	50	1 15	25
McClures, Magazine, N. Y. (m.)	1 50	2 00	1 10
Musicalian, Boston, Mass. (m.)	1 50	2 00	1 10
Outing Magazine, N. Y. (m.)	3 00	5 25	2 35
People's Home Journal, N. Y. (m.)	50	1 30	40
Pearson's Magazine, New York (m.)	1 50	2 00	1 10
Red Book Magazine, Chicago, Ill. (m.)	1 50	2 25	1 35
Success, N. Y. (m.)	1 00	1 65	75
Ladies' or Household.			
Designer, N. Y. (m.)	75	1 50	60
Harper's Bazar, N. Y. (m.)	1 25	1 85	95
Housewife, N. Y. (m.)	50	1 30	40
McCall's Magazine, N. Y. (m.)	50	1 30	40
Mother's Mag., Elgin, Ill. (m.)	50	1 35	45
Modern Priscilla, Boston, Mass. (m.)	75	1 50	60
Pictorial Review N. Y. (m.)	1 00	1 75	85
Woman's Home Companion, N. Y. (m.)	1 50	2 00	1 10
Religious and Juvenile.			
American Boy, Detroit Mich. (m.)	1 00	1 65	75
Little Folks, Salem, Mass. (m.)	1 00	1 70	80
Young People's Weekly, Elgin, Ill. (w.)	75	1 40	50

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Those subscribing for the Michigan Farmer in combination with other papers are allowed premiums just the same as if the order was for the Michigan Farmer alone. One premium only for every Michigan Farmer order. Orders for other papers alone will receive no premium under any circumstances.



Flash-light Photo of Tableau "The Farmer in the Future," presented at recent State Grange Meeting.

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Pinex is a special and highly concentrated compound of Norway White Pine extract, rich in gualiacol and other natural healing pine elements. Simply mix with sugar syrup or strained honey, in a pint bottle, and it is ready for use.

Pinex has often been imitated, but never successfully, for nothing else will produce the same results. The genuine is guaranteed to give absolute satisfaction or money refunded. Certificate of guarantee is wrapped in each package. Your druggist has Pinex or will gladly get it for you. If not, send to The Pinex Co., 232 Main St., Ft. Wayne, Indiana.

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POULTRY AND BEES

SUCCESS IN TREATING FOR ROUP AND CANKER.

Observing the articles on treatment of rousy fowls in recent issues of The Farmer, I wish to submit the results of an experience along that line. One cold October I had 20 young fowls shipped here from Grand Rapids. Shortly after arriving they developed a very serious throat and lung trouble which, from inquiries on the subject, I diagnosed as roup, and not a mild form, either. Before I fully realized the seriousness of the situation three of the fowls died.

My chief motive in writing this is to correct the idea that sick poultry can be treated merely by putting medicine into some food before them, or into their drinking water, for a sick fowl will not eat or drink very much. I gave condition powder, dry, on the tongue, following it with a little warm milk every morning. Then I prepared a mixture which was made of equal parts of turpentine, kerosene and lard, or hen's oil, or sweet oil. Taking this to the hen-house on a hot stove griddle, I held each fowl very firmly and cleaned its mouth with a swab which had been saturated with the mixture. I used a clean new swab, also a fresh portion of the mixture, for each fowl. The swabs were made by tying a piece of clean white cotton or cloth around the end of a small stick or splinter. We treated some twice a day and others every night, which is the best time as the disease is then most easily detected by the fowl's breathing.

I will add that about 60 fowls in another pen became infected. We treated every one of these and saved them. This was two years ago and I have since then had good success with fowls from that flock, having raised about 200 chickens the past season.

Emmett Co.

Mrs. J. S.

Curing Canker in Windpipe.

In a recent issue of The Farmer I noticed the inquiry of J. L., of Kalamazoo county, whose trouble was diagnosed as cankerous roup. In the reply to his query the difficulty of successfully treating canker when the sores have invaded the windpipe of the fowl was mentioned, and experience bearing on that point will certainly be of interest and benefit to many poultry owners.

Some time ago I purchased some chickens and, after a few days, discovered that two of them had canker in a well developed stage. Being very busy I neglected to attend to them at once. When I found time to care for them I discovered that the disease had reached the windpipe. I felt that it was too late and that these victims of neglect would surely die. However, I decided to experiment with them and, to my surprise and delight, they are alive and well today.

To begin the treatment, I made six little swabs by stripping the web from goose quills and cutting off about eight inches of the quill end. To the small end of each of these I tied, securely, a strip of rather coarse cotton. The strip was about an inch wide and two inches long, wound about the quill and tied with white thread so as to make it a little rough. Taking one of these I dipped it into a carbolic acid solution (one part of the acid to 10 parts of water) and swabbed out the windpipe thoroughly but quickly.

The results of my experience impel me to offer the following directions for the treatment of such cases: Use the swab once, then take a fresh one; do not put the same one back into the fowl's mouth a second time. Use two for each treatment and treat the fowl every hour until three treatments have been given. Then give to each fowl a level teaspoonful of salts and some soft, warm, nourishing food. Keep them in a clean, warm coop where there is no danger of drafts and I believe you can effect a cure in every case. I neglected to say that the affected fowls were removed from the flock when the first symptoms were discovered.

Wayne Co.

J. P.

ANNUAL CONVENTION OF MICHIGAN BEE-KEEPERS.

(Concluded from last week.)

Mr. Bartlett's talk on out apiaries was discussed at some length, various members asking questions and contributing experience as follows:

Pettit—When do you begin putting on supers?

Bartlett—As soon as the bees begin to work on the clover.

Manly—Do you allow the queen to go into more than one upper story?

Bartlett—Very seldom. I used to worry more over taking care of 200 colonies than I do now over 400.

Tyrrell—Why do you put the empty supers next to the brood?

Bartlett—Because I can get more honey that way.

Manly—My experience is that I get just as much by putting them on top. I also confine the queen below and take a few swarms if I have to.

Bartlett—It makes it easier in extracting to have the queen below and saves any of the brood getting into the honey when extracting.

Pierce—I never find a queen but what will fill two hive bodies full of brood. We make a mistake in restricting them.

C. F. Smith—I never have any trouble with bees going above, and I don't use excluders either. I get just as much honey by putting the supers on top as I do when I put them next to the broodnest.

Bartlett—I have tried that plan and had much trouble with it.

"The Future of Michigan Bee-keeping" was presented by Pres. Townsend, who said: "I began bee-keeping when much of the country was virgin forest. As the little clearings were made white clover began to creep in and basswood gave a good flow about every other year but was always a fickle yielder. Intensive farming has cut out much of this white clover and the basswood is mostly gone. Alsike is our future prospect. The aroma of alsike honey is hard to beat. The best locations are variable and many once good locations are now a thing of the past. I predict that most honey of the future in Michigan will come from clover. When your own yard goes bad the outyard will solve the problem. The plan is to scatter so that you will secure honey from some yards each year. The more you can handle in each yard the cheaper you can handle them. Foul brood will clean out the back-number bee-keepers and leave the field to the specialist who looks after his bees."

Leonard S. Griggs, who handles one of his four yards for comb honey exclusively, advised keeping up the production of comb honey, since it helps to hold up the price of the extracted. He finds little difference in the financial returns from comb and extracted honey. He uses the 10-frame hive with two division boards, one on each side. This causes the bees to go up on the sides of the hive and the outer rows of sections are filled first. At the height of the season he places all supers on top and leaves them until the close of the season. He declared that he has no travel stain and thinks he gets a better grade of honey by this method. In replying to questions he said that a poor season is better for extracted honey than for comb, and that he is Italianizing his bees notwithstanding the fact that some hybrids do almost as well as the pure Italians; also that he rears most of his queens and likes the plan better than buying.

L. C. Wheeler gave a short talk on the production of extracted honey, after which there was a short discussion of wintering methods. Regarding cellar temperature C. F. Smith, of Cheboygan Co., said that he keeps his cellar anywhere between 40 and 80 degrees; that he piles the hives up like cordwood, without ventilation, and has not lost any colonies to speak of since he began leaving the covers off, which was some 25 years ago. He pays no attention to the bottoms, sometimes leaving them on and sometimes off. When asked whether the bees do not get out of the hives he admitted that they do and that mice sometimes get in, but a supply of sugar mixed with arsenate of lead has obviated the latter trouble. When removing them in the spring he simply uses plenty of smoke. He admitted that his cellar is sometimes damp but he has had few losses.

The removal by death of three prominent members of the Association—Hon. Geo. E. Hilton, W. Z. Hutchinson and James Heddon—was officially announced and appropriate resolutions were drafted and adopted.

The prizes offered for exhibits of honey and wax were awarded as follows: Best 10 sections comb honey—1st, T. Markham; 2d, F. Rasmussen. Best 10 jars extracted honey—1st, David Running; 2d, Ira D. Bartlett; 3d, Leon C. Wheeler. Best 10 lbs. wax—1st, David Running; 2d, Ira D. Bartlett; 3d, Leon C. Wheeler. Best three sections comb honey—1st, T. Markham; 2d, F. Rasmussen.

LEON C. WHEELER.

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Woman and Her Needs At Home and Elsewhere

THINGS REALLY WORTH WHILE.

MY life is not at all what I thought it would be," said a woman sadly. "I never expected to spend it in doing housework and taking care of babies. I was going to marry a man with money and do a great deal of charitable work and church work. I wanted to go out socially, too, and belong to the leading clubs and organizations. Instead I am a mere nobody, doing nothing at all that counts, while other women with not half my brains are doing the things I wanted to do."

"Doing nothing at all that counts," and yet she was bringing up two sturdy, healthy children, training them into regular habits, ways of obedience and politeness, teaching them respect for other's rights, fear of God and love to man. Her children were the models of the block, always clean and neat as pins and usually polite and good natured, though to be sure they had enough "naughty spells" to show that they were human. Her home was the neatest in the street, her meals always on time to the minute, always appetizing and always temptingly set forth. Her husband never found a button off and his clothes were always well brushed and pressed. All the work that these things entail was done by this one small woman, and yet she complained bitterly that she "did nothing that counts."

And the sad thing about it is that scores of women are making themselves miserable over the same thing. They can do housework and bring up children beautifully and therefore it seems nothing to them. "Anyone can do housework," they sniff scornfully, "I want to do something everyone can't do." But as a matter of fact everyone can't do housework well, as a peep into thousands of homes would testify, or at least if they can do it they don't. Good housekeepers are as rare as good artists and good musicians and good authors. There are one hundred poor or mediocre housekeepers and mothers to every really first-class one, just as there are a thousand people who think they can sing, to every Melba or Patti.

And even if every woman were a good housekeeper there is no reason why housekeeping should be counted "nothing worth while." Really, when you look at it in a sane, unbiased way, it is the most "worth while" thing in life. How many arias could an opera star warble if she hadn't her three meals a day and her perfectly ordered home? How many masterpieces could an artist paint if he lived on poorly cooked viands in a dirty, neglected garret? How far up the ladder of success can a man go without the comfort of a well-kept home and the prosaic certainty of a good dinner served by a reasonably cheerful wife. To be sure, some men succeed in spite of their wives and homes, but the average man is more apt to succeed if he is comfortable and well-fed.

Bringing up children, too, is disheartening work at times, but after all is said and done, there isn't anything that pays better. We can't always see it that way, especially the morning after the baby cries all night long with colic. But when you see a childless woman left a widow at fifty or sixty, and then contrast her loneliness with that of the widow with a family of children, all clamoring for "mother to live with them," you hug your baby closer and forget all about how really maddening a spell of colic is.

After all, your husband and children are the only ones that count, and therefore working for them is the only work that counts in the end. It may sound a little grander to say that Mrs. Smith took a car full of poor children to the seashore and gave them a picnic than it does to say that Mrs. Smith took her little Johnnie and Mary out in the woods for the afternoon, but it isn't a bit more important nor worth while. It simply amounts to this, that you do for your own children what some rich woman does for someone else's little ones. You do exactly the same thing as the other woman, but yours is a natural, motherly act, while hers is artificial mothering. You

are repaid by the love and adoration of your husband and children, silent though it may be, while she is repaid by the glaring headlines of the daily paper.

The trouble with the work of mothering and housekeeping is that it never shows unless you don't do it. If you do your work well, everyone takes it as a matter of course and no one ever thinks to speak to you about it. "Why shouldn't she do it well? It is her duty" is their attitude. But if you begin to get slack, to omit any detail, however seemingly trivial and unimportant, then it shows and everybody talks and the remarks are most unpleasant.

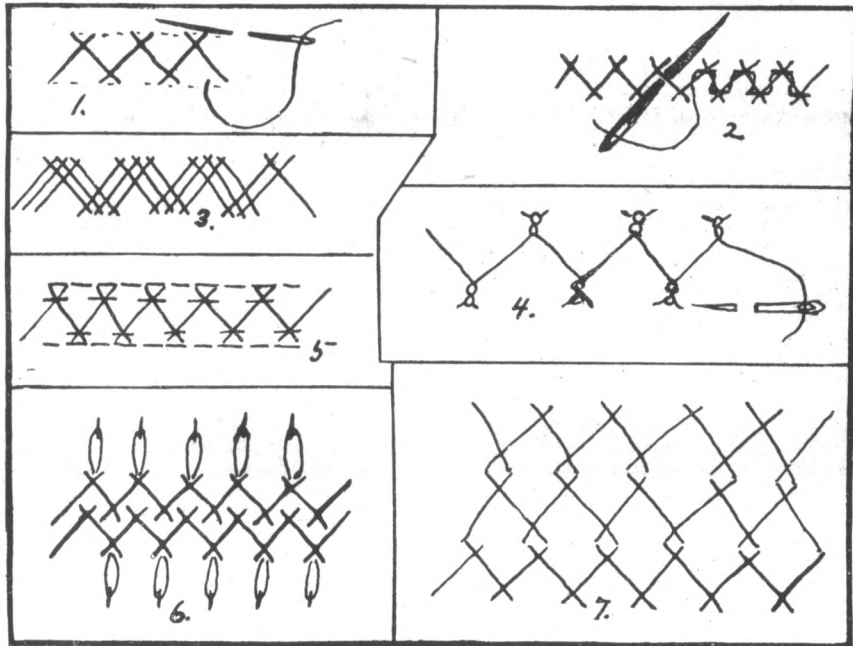
And in the end nothing pays such good interest on the labor invested as home-making. When old age or trouble come the only ones who really care for you are the ones you have cared for. The outside friends and acquaintances murmur polite words of sympathy but they never assume any of the burdens you are no longer able to carry. It is your own who will do for you, the husband and children for whom your work now too often seems "nothing at all that counts."

DEBORAH.

HERRING-BONE STITCHES.—No. 14.

BY MAE Y. MAHAFFY.

The ordinary herring-bone stitch, pictured in No. 1, is largely used for finishing seams in flannel or other materials which it is not advisable to turn under.



It is extremely useful in this capacity, or for the purpose of joining two edges or hems together, acting as a fagotting or insertion. It is also often utilized in an ornamental fashion for the right side of various linens either in white or colors. It is especially adapted to simple decorative effects for underwear, baby clothes, and the like, giving just the needed touch of handwork.

The stitch is made from left to right, and is sometimes called cat stitch. Two stamped or imaginative lines are required. Bring the thread through on one line and take a short stitch on the other line, the needle pointing toward the end where the work was started. The next stitch is taken in a similar manner on the opposite line, and the work progresses back and forth in this way from one line to the other.

In the usual way the stitches are spaced a little, but they may be crowded together, so that the background is almost covered. This method is used in old-time embroideries, and many of our later workers make use of it for long, narrow spaces, such as petals of carnations and chrysanthemums, blades of grass, and the like, as well as conventional lines, scrolls, etc. Used in this fashion two lines of back stitches appear on the wrong side. It is often possible to interchange the stitchwork, using the back stitching

on the right side of transparent materials, the crossed threads showing through in a pretty fashion.

One of the possibilities of this useful stitch is seen in No. 2. The plain herring-bone is first worked; then a thread of another color is twisted or interwoven around the crossed threads. This is known as fancy or twisted herring-bone.

Double or triple herring-bone is simply the placing of two or three threads of the same or different colors, in groups, as in No. 3. It is also possible to twist another thread about these, as in No. 2.

Another form of twisted herring-bone is illustrated in No. 4. In this, immediately after taking a stitch on one edge the thread is coiled about the long stitch before being carried to the opposite edge for another short one. This may be used as a fagotting stitch or insertion, too.

Couched herring-bone is shown in No. 5. The usual herring-boning is outlined on either edge with rows of back stitches, and other back stitches are used to cross each intersection of the long stitches. This opens the way for the admission of one or two extra colors.

Two rows of herring-boning, with bird's-eye stitches, or daisy loops, placed in regular rows along the edges, as in No. 6, forms a dainty trimming for waists, dresses, lingerie, or household linens generally. Two or three colors may be combined if desired, and altogether an effect is gained at but little outlay for material or in time which far surpasses many of the fancy trimmings procurable at high prices.

Interlaced herring-bone appears at No. 7, and may be used as a filling for large

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while any good needlewoman can sew the fur on neatly.

One very good frame was made from one of those immense canvass crowns so much in vogue a season or two ago. The satin covering was ripped off and laid aside for future use, and a pasteboard

also. The velvet may be plain or shirred several times across the top of the muff, and if desired the fur may all be arranged upon the outside, leaving one side of the muff, the side to be held against the body, with only velvet upon it, as fur wears off with rubbing. The sides should



Fig. II.

bandeaux inserted in the crown to raise it up a little off the head. However, the inclination of all the winter hats is to fall low over the face and hair, so the bandeaux must not be too wide, though it should go all the way round the head. This particular crown was draped with brown velvet over the top, and bands of brown fur were applied around the sides. A huge rosette of velvet at one side, in the center of which nestled a bunch of golden brown flowers, and two quills completed the stylish but inexpensive hat.

The old fashioned big long boas can be ripped apart and laid out flat, and by means of a little piecing, a neat and serviceable collarlette evolved. To employ a furrier to do this work is expensive, but any woman by paying attention to the following details can do it well herself.

A paper pattern should first be cut and fitted to the shoulders, that there may be no mistakes when cutting the fur.

Figure 1 shows a good shape which may be made with either a square or a round

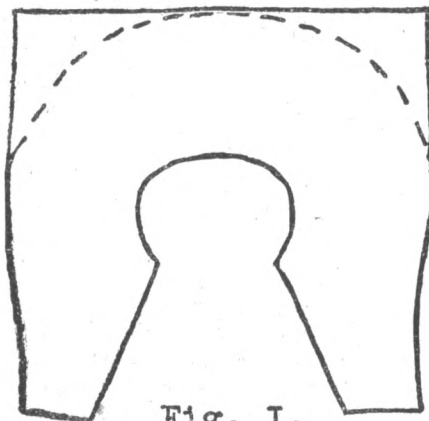


Fig. I.

back. If one has sufficient fur the fronts may also be made longer. When laid out flat, the boa will be found to be much the shape of Fig. 2. The pattern chosen for the collarlette should be laid on it and the back cut from the center as shown by the dotted lines. The fronts can be cut from the ends. Care should be taken in piecing to see that the fur lays all the same way, and if this is nicely done they may be pieced two or three times without its showing.

To cut, lay the boa fur side down upon a table and arrange your pattern upon it. Mark around pattern with chalk, and, leaving the boa fur side down, cut through the skin with a sharp pointed knife. This is important as cutting with shears wastes the fur and makes the piecing very noticeable. Before cutting the fronts turn fur over and determine how they must be laid to make fur match nicely, then turn back and proceed with the marking and cutting as before.

The collarlette should be lined with some good good material and tails or tassels added as a finish. Braid ornaments with tassels can be purchased at the stores for from 35 to 50 cents each. The tails can be made by cutting fur into strips about a quarter of an inch wide, this to be done with a knife as before described. These strips are sewed together, making one long one. A knot is tied in a piece of very heavy cord, the kind that comes round express packages, and one end of the fur strip securely sewed to this. The other end of the cord which, to facilitate the process of making should be quite a little longer than the length of tail desired, should be fastened securely to some object or held by some other person while the strip of fur is wound round and round the cord, taking care to pull the fur all into one direction until the desired length is obtained. Another knot is then tied in the cord and the fur strip securely sewed to that. The extra ends of both cord and fur strip are then cut off and the tail sewed to the collarlette.

Muffs.

Muffs are also made by combining velvet and fur. They are very large, though not heavily padded as formerly, and are made of the velvet, padded with one or two thicknesses of wadding, and lined. Then strips of fur are sewed around the ends and sometimes through the center

be sewed together from the bottom up, leaving only a small opening near the top on either side through which the hands are passed.

A REVIVAL OF CROSS-STITCH.

Cross-stitch embroidery is enjoying a revival this fall, a revival which makes it one of the most popular embroideries. It is so easily done that the veriest novice can learn the art, perhaps the reason of its popularity. While it is pre-eminently a stitch for canvas or other coarse weave cloths, it is used, too, on the finest linen, a coarse cloth stamped with the pattern being laid over the finer cloth and cut away when the work is completed.

Huck towels embroidered in colors in cross-stitch are quite the thing. Then there are children's bibs with bunnies and ducks for the design. Dainty pin cushions of sheer linen are brightened up with cross-stitch and even fine handkerchiefs have a design of cross-stitch in the corner. Indeed, there seems to be no sort of embroidered article that is not done in cross-stitch this fall.

THE "TIE-ON" BLOUSE.

"The lazy woman's waist," that is the way some refer to the new "tie-on" blouse. It is modeled on the lines of our old friend, the surplice waist, and is without fastening. No hooks, buttons or pins are needed. The long sash may be tied in the back, in front or at the side.

Made in soft silks, either plain or figured it is attractive on girlish figures and promises to be popular with the woman or girl who has little time to spend on her toilet.

MICHIGAN FARMER PATTERNS.

These patterns may be obtained from the Michigan Farmer office at the prices named. Be sure to give pattern number and the size wanted.



No. 5582, Children's One-piece Dress Buttoned at Sides and with Separate Guimpe. Cut in sizes 2, 4, 6 and 8 years. Age 4 requires for dress, 1½ yards of 36-inch material with ¾ yard of 27-inch contrasting goods. The guimpe needs 1¼ yards of 36 inch goods. Price, 10 cents.

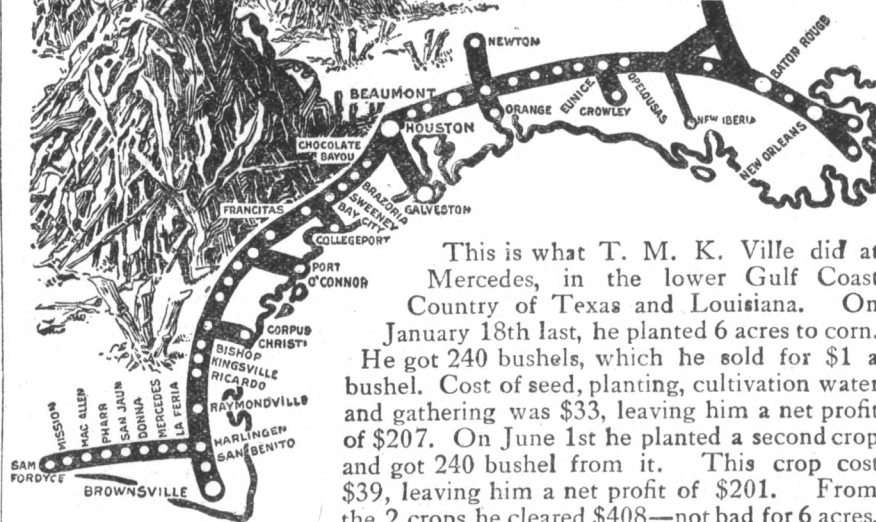
No. 5270, Ladies' One-piece Over-Blouse. Six sizes, 32 to 42 inches, bust measure. Size 36 needs 1¼ yards of 36-inch material. Price, 10 cents.

No. 5298, Ladies' Empire Dress. Six sizes, 32 to 42 inches bust measure. Size 36 needs 4½ yards 44 inches wide. Price, 10 cents.

No. 5092, Ladies' Three-piece Skirt. Cut in 6 sizes, 22 to 32 waist measure. Size 24 requires 4 yards of 36-inch material. Price, 10 cents.

No. 1543, Boys' Russian Suit. Three sizes, 2, 4 and 6 years. For 4 years it requires 3¼ yards 27 inches wide. Price, 10 cents.

Two 40 bushel crops of Corn on the same Land



This is what T. M. K. Ville did at Mercedes, in the lower Gulf Coast Country of Texas and Louisiana. On January 18th last, he planted 6 acres to corn. He got 240 bushels, which he sold for \$1 a bushel. Cost of seed, planting, cultivation water and gathering was \$33, leaving him a net profit of \$207. On June 1st he planted a second crop and got 240 bushel from it. This crop cost \$39, leaving him a net profit of \$201. From the 2 crops he cleared \$408—not bad for 6 acres, and he can now grow a crop of fall potatoes on the same land and market them before Christmas. This is not unusual in the

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HOME AND YOUTH

THE GAME JOHN FOUND.

BY FRANK H. SWEET.

The "cold week" of 1895 is still remembered throughout the south, and whenever extremes of weather are spoken of the old settlers have a way of bringing forward incidents of the cold week to refute the assertions of the new weather pessimists. The following is substantially a true story.

The cold came so suddenly and unexpectedly, and with such severity, that in some sections the small wild animals and birds were unable to withstand its rigors. Especially was this true of the mountainous parts of Virginia and the Carolinas and Tennessee. In some places small game was almost exterminated. Squirrels died by thousands; where quail had been abundant, during the next few years even old hunters rarely heard their cheerful whistle. I have heard them tell of finding whole flocks starved or frozen to death under the snowdrifts of the mountains.

Well up the side of one of the Shenandoah Valley ridges is a small two-room-and-loft cabin, similar in structure and simplicity to most of its neighbors, and occupied by a hard, half-grown family of boys and girls and their easy-going parents.

John Blackburn, the youngest, was under thirteen, though he was strong and looked older. And, unlike his brothers, John was in the habit of seeking jobs among the valley farmers whenever their work crowded and they needed help. This was usually in planting and haying and corn husking time. In winter John stayed at home and hunted, for then there was no work for him. John knew nothing of book learning, but was considerable of a naturalist and botanist in a backwoods way. In his corner of the loft, and in numerous pens and cages outside, were many trophies of his hunting and collecting trips.

Snow began to accumulate in the valley soon after Christmas and remained on the ground until about the first of April. About all the farmers did was their necessary chores, and about all the older Blackburn boys did was to lounge around their cabin and smoke. John, however, was away most of the time, leaving the cabin with the first light of the day and only returning when it was too dark to see. And usually he brought back pheasants or partridges or some new pet for his collection.

But during the cold week he, too, remained in the cabin, only venturing out now and then after fuel. By the time the weather moderated the snow was impassable in many places. Food, however, was getting very scarce in the cabin, and John was practically the only one to get it. No one expected anything from the easy-going father, and the older boys were not much more responsible.

So taking his gun and a small piece of corn pone, John started forth in search of something to eat. Half a mile from the cabin was a long narrow ravine or small valley, where birds were in the habit of feeding among the thick, low-spreading branches of cedars and hemlocks. John had often found them there, and he felt confident that the severe cold of the preceding week had forced some of them into the ravine for protection.

But for several hours he floundered about in the snow without meeting anything except an emaciated bluejay, which he disdained to shoot. When he felt hungry he sat down upon a fallen tree and carefully removed the piece of cornbread from its newspaper wrapping. He had given up all hope of a pheasant or turkey by this time, and felt if he could get a rabbit or even a squirrel, he would be satisfied.

Presently he heard a slight noise at the other end of the tree, and looking in that direction he saw a squirrel emerging from a hole in the decayed trunk. His gun was leaning against the tree, and he was about to reach for it when he noticed that the squirrel, instead of being frightened as he expected, was coming directly toward him. A moment, and the small animal was on his shoulder, then creeping down his arm, and before he was aware of its intention, the squirrel was nibbling ravenously at the cornbread.

"Land-a-mercy!" ejaculated John, under his breath; "the little creeter's a-most starved."

He had no intention of killing the squirrel, now. Pity, and the confidence of the small animal, had driven away all thought of self and the destitution at home, and

he waited patiently for the squirrel to satisfy its hunger.

But after a few seconds of eager nibbling, the squirrel suddenly caught a piece of the cornbread in its mouth and ran back to the hole. Knowing its provident nature, John thought it would conceal the bread and return for more. But instead of that, the squirrel seemed to communicate with others inside the tree, for presently several more heads appeared at the opening. John's face broadened into a grin.

"Sakes! If he ain't goin' to bring out the whole fambly!" he laughed. "Well, let 'em come; only I'm afraid the bread won't hold out."

But the newcomers only advanced a few yards, then they lay down on the tree and began to pant. John looked at them curiously, then with sudden comprehending pity.

"Why, the little creeters are jest plumb starved!" he cried, as he rose hurriedly and moved toward them.

They waited his approach without any show of fear, and when he crumbled the bread upon the log they ate as only starving animals could. In a few seconds the last crumb had disappeared.

"I do wish I had some more," John said, compassionately. "Well, I reckon I can find enough at home to keep 'em from starvin'." 'Twon't do to leave 'em here."

He was wearing an old patched overcoat of his father's, with big pockets, and one after another the squirrels were placed in their capacious depths. None

of the small animals attempted to escape. Evidently they were too weak.

Thinking more of their hunger than of himself or the necessity of procuring game for the cabin inmates, John struck into the deep snow, intending to take a short cut home. But as he passed around behind a thick clump of cedars he stopped with a half suppressed exclamation of excitement. There, not thirty feet away, was a full grown deer, with head erect and just turning to flee. John's gun was at his shoulder in an instant, and the deer's first bound was his last.

How he got home John hardly knew, but when he reached there he was covered with snow and trembling with excitement. Deer were not plenty in these mountains, and this was the first one he had ever captured.

Old Blackburn never exerted himself unnecessarily, but John's news fired his father to unwonted enthusiasm. Provisions were about out, and the deer meant fresh meat for some time to come.

Ropes and a strong pole were secured and John led the way back to the little ravine where he had shot the deer. The animal was fastened to the pole and, after much hard work and floundering through the snow, was brought to the cabin.

The next day John made a box for the squirrels, and by the time the snow disappeared in early April, all of them had grown sleek and fat. The latter part of April one of the valley farmers engaged John to work for the season; but, before leaving, the boy liberated all of his pets, including the squirrels.

THE BACHELOR UNCLE

BY EVERITT McNEIL.

"Not long after becoming a scout grandsire's skill and daring attracted the attention of Washington, who often times had need of brave and clear-headed men to undertake hazardous and secret enterprises; and one night he summoned grandsire to his presence.

"General Washington sat at a small table near the center of the room, with a rough map of Boston and the immediate country spread out before him. The moment grandsire entered Washington dismissed all who were in the room with him; and then, rising abruptly from his chair, he looked grandsire straight in the face for a full minute. Grandsire was a man of great size and strength, a broader and a taller man than was Washington himself, yet he was without the awkwardness that usually goes with a huge frame. The eyes of Washington kindled as they rested on the clear-faced giant before him.

"Jonathan Delvin," he said, still keeping his eyes on grandsire's face, 'can you pass through the British lines and enter Boston tonight?'

"I can try sir," answered grandsire.

"And if captured?"

"I can die, sir, like an American," said grandsire, firmly.

For a moment Washington regarded him in silence, as if loth to sacrifice so noble a man; then he said, in a low voice: 'It is for the good of our country.'

"I will go, sir," said grandsire.

"Washington reseated himself by the table, and looked closely at the map. Presently he lifted his pen and made a mark with red ink on the paper. 'Come here,' he said to grandsire.

"Grandsire stepped quickly to his side. 'Do you know where this spot is in Boston?' he asked, pointing to the red mark he had made on the map.

"Grandsire bent over the map for a moment, then he straightened up. 'Yes, sir,' he answered. 'It is the old Fenton home. I know the place well. The house is of red brick and a great elm stands by the gateway.'

"Very good," said Washington; placing his hand in his bosom, he brought out a small thin packet, tightly wrapped in oiled paper and tied with red tape with a wax seal protecting the knot. 'At an hour past midnight tonight,' continued he, speaking very low but distinctly, 'a tall man, wrapped in a black cloak and carrying a small bundle done up in white paper, under his left arm, will pass by this house. Meet this man, at this place, at that hour, and ask him the way to a good inn. If he directs you to the Red Lion give him this packet quickly, and return with all speed and caution with the packet he hands you. If captured, destroy the packet in your possession, if possible. Do you understand?'

"I do," answered grandsire.

"Report to me at once on your re-

turn.' Washington paused for a moment, then he asked: 'You know what capture means?'

"Hanging for a rebel spy, sir," answered grandsire, calmly.

"You are a brave man and a true patriot," Washington said, handing grandsire the packet. 'This venture means much to the cause of liberty. May God guard it and you! You may go,' and Washington bowed his head reverently and his lips moved, as if in prayer.

"Grandsire thrust the packet into his bosom, saluted, and went directly to his tent. A half an hour later, when he came out, he wore the rough garb of a farmer and was without weapon of any kind, save a heavy walking-stick.

'It was now 9 o'clock of a stormy February night. A cold wind drove the steadily falling rain fiercely before it, and the night was so black that grandsire could scarcely see his hand when held before his eyes. But the rain, and the darkness, and the chill of the cold wind were his protectors. The sentinels would be numbed with the cold and blinded by the darkness and the driving rain.

"Fortunately grandsire knew every British picket line and the post of every sentinel, almost as well as did the English officers, and, aided by the stormy night and, possibly, by a kindly Providence, he had passed beyond the inmost line of guards by 12 o'clock and stood within the city of Boston. So far he had not been seen by a human being since leaving the American outposts. But the packet was yet to be delivered!

"The Denton House lay about a half a mile to his left, and was situated a little back from the busy part of the city, on a quiet residence street. There was no one moving in the streets of Boston, except the guards, and grandsire found little difficulty in avoiding them, for the cold and the wet of the night numbed their senses and sent them shivering to any shelter that offered; yet, not for a moment did he relax his caution. He could not afford to take a single chance. Too much was at stake in the venture.

"At length he came to the Denton House. All was silent and not a human being was in sight. Grandsire straightened up and started to walk by the place. Just as he came abreast of the great elm tree by the gate he heard the sound of footsteps to the front of him; and the next moment the tall shadowy form of a man, completely enveloped in a black cloak and carrying a small bundle done up in white paper, under his left arm, appeared in the path before him.

"Friend," said grandsire, pausing and gripping the stout stick firmly in his right hand, for he had determined to strike the man down instantly should he give the wrong answer or make a suspicious movement, 'I am a stranger. Will you direct me to a good inn?'

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"There is none better than the Red Lion," answered the tall man, in a deep muffled voice.

Instantly grandsire placed the packet in the hand outstretched to take it; and at the same time, received a similar packet in return. Without another word, he had hardly paused in his walk, the tall figure passed by him, and was instantly swallowed up in the darkness.

"Grandsire heaved a great sigh. The half of the desperate enterprise had been safely accomplished. But his exertions had been prodigious, and he was soaking wet and chilled to the marrow. He felt that he must have an hour's rest, and the warmth of a fire, and the strength of good food before undertaking the return; and he knew that he could get these at his Aunt Dorothy's. Aunt Dorothy was his mother's only sister, a maiden lady who lived with an old servant in a little house not four blocks away from where grandsire now stood. He believed her loyal to the American cause; but, even if she were not, he felt certain that her love for him, to whom she had been like a second mother, would be his sufficient protection. Then, there was another reason why the desire was strong within him to see his Aunt Dorothy. Mistress Betty was in Boston, had been in Boston all during the siege; and Aunt Dorothy could tell him about her. He had heard of the gay times the British had been having, of the balls and parties given by the officers; and often the name of Mistress Betty had come to him coupled with the name of Evan Wilton, now a lieutenant in His Majesty's army; and he had breathed hard and sworn wickedly to himself at each hearing. Now he was minded to know the truth of how matters stood with Mistress Betty.

"The night had grown colder, and the sleet of the frozen rain, driven by the wind, cut his face like the lash of a whip. Grandsire's teeth began to chatter. Cold and hunger were driving the strength out of him. He must find food and fire; and he made his way straight to the little one-story house where his aunt lived, and tapped softly on the low window of the room where she slept. All was dark within, but, almost at the first tapping, the curtain was lifted and he saw the white face of his aunt at the window.

"Hush!" called grandsire. "It is Jonathan Delvin come to visit his good aunt in spite of King George's army."

"He heard a startled exclamation, and then the window was thrown open quickly, when Aunt Dorothy stuck her head out and looked at him sharply.

"Hush! Keep quiet! Go around to the door and I will let you in," she whispered, excitedly, the moment she had made certain the man was grandsire. Then, hurriedly dressing, she threw open the door and pulled grandsire inside. The moment he was in and the door shut and locked, she exclaimed, breathlessly: "Jonathan Delvin! of all men in the world you are the man I most wished to see! Mistress Betty—". She broke off abruptly. "But, how comes it that you are in Boston? Inside of the British lines? If you are caught?"

"I will hang, good aunt," said grandsire, throwing one arm around the little woman and kissing her heartily. "But, now that I am here, can't you give me something to eat? I am nearly frozen and as hungry as a bear," and going to the fireplace he piled the wood on the glowing coals.

"Aunt Dorothy bustled about excitedly, and soon had an abundance of warm food on the table for the big man who, by this time, was steaming before the fire, in the meantime pouring a continuous stream of questions into his ears and seldom pausing long enough between queries for him to answer. As he ate, her nervousness and excitement increased, until she bubbled and boiled like her own teapot; and the moment the last mouthful was down she exclaimed: "There, the news won't spoil your appetite now! Jonathan Delvin are you still minded to make Mistress Betty your wife?"

"That I am," responded grandsire emphatically.

"She is to wed Lieutenant Wilton tomorrow night at ten o'clock," said Aunt Dorothy, her eyes snapping with excitement.

"Grandsire sprang to his feet with an oath.

"Hush. 'Tis her father's command. Lieutenant Wilton tells her that you are paying court to Colonel Greene's daughter, Mistress Nancy—"

"It's a lie! I'll—"

"Sit down! Keep quiet! Mistress Betty believes it not. But the wedding must

go on, unless—" Aunt Dorothy paused and looked grandsire straight in the eyes. "Tis a dark night, and a brave man might take a willing woman back with him to the American camp. Her home is unguarded."

"Grandsire leaped to his feet and caught the little woman up into his arms. 'I'll do it! Right from under the very nose of her father and her Tory lover! I—' The thought of the little packet in his bosom came to mind, and he dropped Aunt Dorothy, and straightened up as if about to give a military salute. 'To-night, I can not! I must return, as I came, alone! It would be the blackest dishonor for me to do otherwise. But,' and his words came from between his shut teeth, 'tomorrow night I will return. I vowed I would wed Mistress Betty, if she would have me, though the whole British army stood between us, and that vow I will keep, even if in the keeping I find death. But how can I know that Mistress Betty is still minded that I should be husband to her?'"

"Her own sweet lips told me so not longer ago than early candle light of this very night, and begged me to get word to you that you might come to her rescue; for," and Aunt Dorothy smiled, 'she has faith that big Jonathan Delvin would fight his way safely through the whole British army massed in front of her, if she but called him to her. Truly she is heart-broken, and I very much fear that death will be the bridegroom tomorrow night, if you come not.'

"I will come," said grandsire grimly. "Now tell me where this wedding is to take place, and what company is to be there."

"Quickly Aunt Dorothy related all the particulars of the coming wedding; and, when she had done, grandsire said: 'Good. I know the house from garret to cellar; and its location is lonely and far away from any body of soldiers and near the river. Give Mistress Betty my most devoted love, and bid her to be of good cheer. If I live there will be other than the invited guests at the wedding tomorrow night. And, good aunt, pray most fervently that this wild storm holds past the wedding hour. Now I have tarried longer than I should and must go. Never will I forget this night's kindness. Good-by.'

"The storm still raged fiercely, yet grandsire did not feel the bitter cold of the wind, nor the sharp sting of the sleet against his face, as he again plunged into the darkness of the night. His blood was on fire, and every nerve tingled with the thought that Mistress Betty loved him and yet would be compelled to wed another on the morrow if he came not to her rescue; and with this thought was mingled the ever fearful one of his present one, and what his capture would mean to Washington and to the patriot cause. Possibly, in the lover's anxiety he lost something of the patriot's caution, for suddenly, when all but the outmost line of pickets had been passed safely, from out the darkness directly in front of him came the sharp challenge of a sentry: and he saw, not ten feet away, dimly outlined the guard with his musket pointed straight at his breast, and he heard from behind, a second challenge and felt the sharp prick of a bayonet pressed against his back.

"Don't shoot! For God's sake, don't shoot!" cried grandsire, throwing up both hands, and beginning to tremble so that his hands clapped together. "I've been to see my sweetheart in Boston, and it was so dark I thought I could sneak through the lines and get back on the farm—Ouch!" and grandsire jumped a foot in the air, stimulated by the point of the bayonet behind him. "Don't kill me! I'll surrender! I'll do anything! I'll—"

"Shut up," said the sentry in front, pressing his bayonet against grandsire's breast. "Don't move, or me and Jack'll spit you on our bayonets," and, by way of emphasizing his words, he brutally jabbed his bayonet in until the point broke the skin of grandsire's breast.

"Thus, held up between the two bayonet-points and with teeth chattering and knees trembling, the corporal of the guard found grandsire.

"Lord, 'e's big enough!" said the corporal, as he placed grandsire between two soldiers and marched him to the guardhouse.

(Continued next week.)

Aunt Sophie—"And is Tommy a good little boy at school?" Tommy—"Yes, auntie." Aunt Sophie—"And why is Tommy a good little boy?" Tommy—"Cause it's better fun to see the other boys get a tannin' than to get one yourself."

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MARKETS

DETROIT WHOLESALE MARKETS.

January 10, 1912.

Grains and Seeds.
Wheat.—The market this past week favored the bulls mostly, prices ruling steady until Tuesday, when a decline of one-half cent resulted. The milling demand in this country shows improvement due to a better flour market. Receipts have fallen off and the American visible supply was materially reduced. In Argentine railroad strikes interfered with the delivery of grain at the seaports. The weather there cleared up for a short time, but excessive moisture is again reported to be damaging the crop. The cause of the break in price on Tuesday was ascribed to a very liberal increase in the world's visible supply. It is a mystery, however, to discover just where the surplus comes from, for, besides the decrease in the American supply and the interference with transportation in Argentine, the amount afloat is shown to be reduced and in Russia there is reported a famine that promises to affect a large part of the Russian population about the Caspian Sea, which is the center of the wheat producing region of that country. There has been no large demand from Europe for supplies from this country, but it is believed that in the course of events buyers must come here to fill their orders. One year ago the price for No. 2 red wheat was 98c per bu. Quotations for the week are as follows:

	No. 2	No. 1	May	July
Thursday	97 1/2	95 1/2	1.01 1/2	.96 1/4
Friday	97 1/2	95 1/2	1.01 1/2	.96 1/4
Saturday	97 1/2	95 1/2	1.01 1/2	.96 1/4
Monday	97 1/2	95 1/2	1.01 1/2	.96 1/4
Tuesday	97	95	1.01 1/2	.95 3/4
Wednesday	97	95	1.01 1/2	.95 3/4

Corn.—While the average price this last week ruled 1c below that of the former period, the cold wave has given the market a firm tone at the new figures. There were liberal receipts from farmers in the corn belt and the visible supply shows a quarter of a million bushels' increase. The local market is active and steady. One year ago the price for No. 3 corn was 48c per bu. Quotations for the week are:

	No. 3	No. 3
	Corn	Yellow
Thursday	62 1/2	63 1/2
Friday	62 1/2	63 1/2
Saturday	62 1/2	63 1/2
Monday	62 1/2	63 1/2
Tuesday	62 1/2	63 1/2
Wednesday	62 1/2	63 1/2

Oats.—This grain advanced with wheat but the feeling is a little unsteady at the higher figures. There was a decrease in the visible supply. The local market is dull. One year ago the price for standard oats was 35c per bu. Quotations for the week are:

	Standard	No. 3
		White
Thursday	50 1/2	50
Friday	51	50 1/2
Saturday	51 1/2	51
Monday	51 1/2	51
Tuesday	51 1/2	51
Wednesday	51 1/2	51

Beans.—The cold snap has increased the demand for beans and prices are firm at higher figures than ruled a week ago. Offerings are improved in quality and dealers are taking a very active interest in the trade. Quotations are as follows:

	Cash	Feb.
Thursday	2.32	2.33
Friday	2.32	2.33
Saturday	2.32	2.33
Monday	2.32	2.33
Tuesday	2.32	2.33
Wednesday	2.32	2.33

Clover Seed.—Clover seed prices were not disturbed until Monday of this week when a 10c advance was made in cash and March seed, with alsike remaining steady at \$10.75. Quotations are:

	Prime Spot	March	Alsike
Thursday	12.50	12.50	10.75
Friday	12.50	12.50	10.75
Saturday	12.50	12.50	10.75
Monday	12.50	12.50	10.75
Tuesday	12.50	12.50	10.75
Wednesday	12.50	12.50	10.75

Timothy Seed.—This product is unchanged at \$7.20 per bushel, the quotations being merely nominal.

Rye.—Rye prices have gone up 2c above the advanced figures of last week and cash No. 2 is now quoted at 97c per bu.

Flour, Feed, Potatoes, Etc.

Flour.—Prices have advanced from 10 @15c with a good demand:

Straight	\$4.25
Patent Michigan	4.85
Ordinary Patent	4.60

Feed.—Bran is higher while coarse middlings and corn and oat chop rule lower. Carlot prices on track are: Bran, \$28 per ton; coarse middlings, \$28; fine middlings, \$32; cracked corn, \$30; coarse corn meal, \$30; corn and oat chop, \$27 per ton.

Hay and Straw.—All prices jumped up. Market firm. Quotations are: No. 1 timothy, \$21@21.50; No. 2 timothy, \$19.50 @20; clover, mixed, \$19.50@20.50; rye straw, \$10.50@11; wheat and oat straw, \$9@10 per ton.

Potatoes.—The supply is declining and putting business on a better basis for sellers. Car lots on track are quoted at \$5@9c per bushel.

Provisions.—Family pork, \$17.50@20; mess pork, \$16.50; medium clear, \$16.25@17; picnic hams, 9 1/2c; bacon, 12@13 1/2c; pure lard in tierces, 9 1/2c; kettle rendered lard, 10 1/2c per lb.

Dairy and Poultry Products.

Butter.—There was no change in either creamery or dairy butter last week. The trade is quiet but firm at the old figures. Quotations are: Extra creamery,

36c; first do., 35c; dairy, 21c; packing stock, 20c per lb.

Eggs.—The cold wave caused a shrinkage in the egg output which developed a bullish influence and caused an advance of 3c per dozen, current receipts, cases included, being quoted at 30c per dozen.

Poultry.—Chickens, both dressed and live, are higher than last week. Dressed geese are also up, while ducks and turkeys remain about steady. The market is firm. Quotations are as follows: Live

—Turkeys, 16@17c; geese, 11@12c; ducks, 14c; young ducks, 15c; spring chickens, 12@13c; No. 2 chickens, 10c per lb; hens, 10@11c. Dressed—Chickens, 12 1/2@13c; hens, 11@12c; ducks, 17@18c; geese, 14@15c; turkeys, 18@19c.

Veal.—Market rules higher. Fancy, 11 @12c; choice, 9@10c per lb.

Dressed Hogs.—Light, \$7; medium, \$6.75; heavy, \$6.50 per cwt.

Fruits and Vegetables.

Cabbage.—Now selling at 2 1/4@2 1/2c per pound.

Onions.—Higher at \$1.25@1.35 per bu.

Apples.—Baldwins and Greenings, \$2.50 @3; Spy, \$3@3.50; Ben Davis, \$2@2.50; Snows, \$3.50@4 per bbl.

OTHER MARKETS.

Chicago.

Wheat.—No. 2 red, 96@97 1/2c; May, \$1.00 1/2; July, 94 1/2c.

Corn.—No. 3, 60 1/2@61c; May, 64 1/2c; July, 64 1/2c per bu.

Oats.—No. 2 white, 49 1/2@50 1/2c; May, 49c; July, 45c per bu.

Barley.—Malting grades, \$1.05@1.32 per bu; feeding, 80@90c.

Butter.—Barely steady under increasing receipts. Creameries, 26@36c; dairies, 23@31c.

Eggs.—The cold weather is affecting egg receipts and prices have advanced 3c during the week. Quotations are: Firsts, grading 45 per cent fresh, 33c; ordinary firsts, 28@30c; at mark, cases included, 22@31c per dozen.

Potatoes.—Under moderate offerings and quiet trading this market is steady with last week's quotations ruling. Michigan stock is now quoted at 93@95c per bu; Wisconsin, 90@92c; Minnesota, 93 @95c.

New York.

Butter.—Cold weather and lighter shipments have advanced the better grades 1@1 1/2c. Creamery specials are quoted at 39 1/2c per lb; extras, 38@38 1/2c; firsts, 34@36c; seconds, 30@33c.

Eggs.—All grades 3@4c higher; market strong. Fresh gathered extras, 36@37c; extra firsts, 35c; seconds, 31@33c; western gathered whites, 34@38c per dozen.

Poultry.—Dressed—Strong at slightly advanced prices. Turkeys, 12@21c; fowls 13@16 1/2c; western chickens, 10@16 1/2c per lb.

Elgin.

Butter.—Market firm at 36c. Output for the past week amounted to 618,000 pounds.

THE LIVE STOCK MARKETS.

Chicago.

January 8, 1912.
 Cattle. Hogs. Sheep.
 Received today14,000 25,000 24,000
 Same day last year.....31,007 42,728 38,480
 Received last week.....60,490 137,920 128,294
 Same week last year.....60,482 129,875 84,254

This week opens with cold weather, accompanied by a snow storm, and stock trains are late in getting in. Furthermore, the railroads in many instances declined to accept consignments of stock last Saturday on account of the unusually cold weather, and the stock receipts are going to be much smaller than is usual Mondays, although it is impossible to say how large they will be at this time. The run of cattle is especially small, and sellers are calling prices anywhere from 10c to 25c higher, butcher stock being especially active. Hogs are a good 10@15c higher, with light weights going briskly at \$6.10@6.45 and the best heavy hogs at \$6.65. Sheep and lambs are irregularly higher, with the better class of lambs going readily at \$6.90@7.15, while prime yearlings are quotable at \$6, with none sold so far, however. Prime wethers sell up to \$4.85 and the best ewes up to \$4.50, the demand for choice muttons exceeding the supply. Much larger receipts of live stock are expected later in the week.

Cattle were marketed much more freely last week than during Christmas week, the stock yards keeping open for business on New Year's, so that there was no break in trade. The supplies were again divided very unevenly, with an unusually small run Monday and a quick rise of 10@15c in prices, followed by a break in values Wednesday on liberal offerings. The following day scarcity of the best grade sent these up again, but there was no aggressiveness displayed in the demand for the commoner grades and medium weight steers, and these held barely steady. The great bulk of the beef steers received during the week sold between \$5.50 and \$8, with choice to fancy heavy beefs selling at \$7.75@8.50 and the commoner light weights at \$4.75@5.75. A medium class of steer sold between \$6 and \$7, and good cattle brought \$7 and upward, yearlings of desirable kinds going at \$7@8.50. There is all the time a decreasing movement marketward of well fattened heavy cattle, and evidently these are going to command high prices all the winter. The commoner steers have not been selling much higher than a year ago, but the choicer lots are much higher than in former years. Fat butcher stock, too, is doing well, with quite moderate offerings of cows and heifers, which are bringing \$3.50@6.65. Canners are selling at \$1.90@2.90, cutters at \$2.95@3.45 and bulls at \$3.25@5.75. Decreasing receipts of calves have made some sharp advances in prices, and choice light-weight vealers have brought \$8@9 per

100 lbs., the commoner heavy calves going at \$3@5. There was fair animation in the stock and feeder traffic, prices ruling higher under smaller offerings, with killers taking most of the best heavy feeders. Stockers found buyers at \$3.25 @5.25 and feeders at \$4.75@6.10, but not many feeders sold near the top figures. Milk and springers sold at \$30@65 each, the best ruling \$5 higher. Beef steers selling at \$7 and over showed advances of 10@15c.

Hogs were marketed last week much more liberally than a week earlier, and some declines in prices followed, but speculators purchased so freely that sharp rallies in values followed, forcing the packers to pay advances. As usual, choice heavy hogs led off in advances, with at times a large demand from eastern shippers. However, the spread in prices for all kinds of swine was extremely narrow as compared with the wideness of quotations that prevailed some time ago, even little pigs failing to show their former remarkable discount in prices. A great many mere pigs are still showing up among the daily receipts, and many farmers persist in marketing light young hogs in order to avoid winter feed bills, although the best authorities do not hesitate to advise against such a course of action. Fresh pork continues to have a large consumption, owing largely no doubt to its relative cheapness, and all that checks sales of cured hog meats is their dearthness in retail meat markets everywhere. Stocks of provisions are gaining rapidly, the Chicago stocks Jan. 1 aggregating 107,049,871 lbs., compared with 83,079,665 lbs. a month earlier and 67,181,893 lbs. a year ago. Hogs sold at the week's close at \$6@6.50, against \$5.75@6.30 a week earlier.

Sheep and lambs were marketed last week very much more freely than during the closing week of 1911, Christmas having broken into that week, but so good was the general demand that prices ruled extremely strong for fat mutton on the hoof, with prime lambs advancing to the highest figures recorded in several months. Killers made the usual discrimination against poorly finished stock, and in sending in warmed-up consignments owners are cheating themselves. Everything favors the man who hangs on and makes his flocks as fat as butter, although there is always a possibility of making animals weigh too heavily, for popular taste favors light cuts of mutton. Feeding lambs continue in good demand, with extremely few offered. There was an average advance of 10@15c in sheep and of 25@40c in lambs last week, lambs selling at \$4@6.85; yearlings at \$5 @5.80; wethers at \$4@4.70; ewes at \$2.25 @4.25 and bucks at \$2.50@3. Feeder lambs sold at 5@5.50.

Buffalo.

January 8, 1912.
 (Special Report of Dunning & Stevens,
 New York Central Stock Yards,
 East Buffalo, N. Y.)

Receipts of stock here today as follows: Cattle, 160 cars; hogs, 80 double decks; sheep and lambs, 106 double decks; calves 800 head.

With 160 loads of cattle on our market here today, and with only 14,000 reported in Chicago, cattle of all grades carrying fat are selling fully 10@15c per cwt. higher than last week's prices, quality considered. Market fairly active, and everything about cleaned up at the close of the day.

We quote: Best 1,400 to 1,600-lb. steers \$7.85@8.25; good prime 1,300 to 1,400-lb. steers, \$7.50@7.75; do. 1,200 to 1,300-lb. do., \$7@7.50; best 1,100 to 1,200-lb. shipping steers, \$6.75@7.25; medium butcher steers, 1,000 to 1,100, \$5.75@6.50; light butcher steers, \$5@5.40; best fat cows, \$4.85@5.40; fair to good do., \$4.25@4.75; common to medium do., \$3.60@4.25; trimmers, \$2.50@3; best fat heifers, \$5.75@6.40; good fat do., \$5.25@5.60; fair to good do., \$4.50@5; stock heifers, \$3.50@4; best feeding steers, dehorned, \$5.25@5.50; common, \$3.50@4; stockers, all grades, \$3.50@4; prime export bulls, \$5@5.75; best butcher bulls, \$4.75@5.25; bologna bulls, \$4@4.50; stock bulls, \$3.25@4; best milkers and springers, \$4.50@5.50; common to good do., \$2.50@3.

Receipts of hogs today, 80 double decks, and with a good demand from western shippers as well as local packers, market opened active; the bulk of the choice quality yorkers, mixed, medium and heavies, sold at \$6.85, with a few decks of commoner quality around \$6.75@6.80; the bulk of the choice quality pigs selling at \$6.75; light yorkers from \$6.75@6.80; good kind of rough sows sold mostly at 6c per lb., and stags from \$4.50@5.50; hogs that were yarded in time to fill and sell are well cleaned up, market closing steady.

The sheep and lamb market was active today; most of the choice lambs selling for \$7.15. Look for steady to strong market the balance of the week. The sheep market was firm today; prospects about steady on sheep.

We quote: Best lambs, \$7@7.15; cull to common do., \$5.50@6; wethers, \$4.50@4.75; bucks, \$2.25@3; yearlings, \$5@5.75; handy ewes, \$4@4.25; heavy ewes, \$3.75@4; cull sheep, \$2@3; veals, choice to extra \$10.50@10.75; fair to good do., \$8@10.

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 or Louis Larson, Northwestern Agent, 109 W. Adams St., Chicago, Ill.

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THIS IS THE LAST EDITION.

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

DETROIT LIVE STOCK MARKETS.

Thursday's Market.

January 11, 1912.

Cattle.

Receipts, 613. Good grades strong at Wednesday's prices. Common slow; good bulls 10@15c higher than last week.

We quote: Extra dry-fed steers and heifers, \$7.50; steers and heifers, 1,000 to 1,200, \$5.50@6; do, 800 to 1,000, \$4.75@5.50; do, that are fat, 500 to 700, \$4@4.50; choice fat cows, \$4.25@4.75; good fat cows \$3.50@4; common cows, \$3@3.25; canners, \$2@3; choice heavy bulls, \$4.50@5.25; fair to good bolognas, bulls, \$3.75@4.25; stock bulls, \$3@3.50; milkers, large, young, medium age, \$4@5; common milkers, \$2@3.

Bishop, B. & H. sold Sullivan P. Co. 5 cows av 1,188 at \$4.75, 3 bulls av 1,380 at \$4.60, 3 cows av 1,153 at \$4.25, 3 do av 1,075 at \$4.25, 12 butchers av 715 at \$4.85, 9 do av 970 at \$5.85; to Mich. B. Co. 6 do av 666 at \$4.60, 6 cows av 971 at \$4; to Rattkowsky 3 butchers av 960 at \$4.25; to Mich. B. Co. 7 do av 820 at \$4.27 do av 960 at \$5.60; to Kull 15 do av 772 at \$5.35, 4 cows av 917 at \$3; to Hammond, S. & Co. 4 canners av 832 at \$2.75, 6 do av 690 at \$2.75, 1 heifer weighing 620 at \$4.25, 3 canners av 826 at \$2.90; to Nagle P. Co. 4 steers av 925 at \$5.75, 8 do av 690 at \$4.65; to Sullivan P. Co. 3 cows av 907 at \$3.50, 1 steer weighing 1,180 at \$7.50, 4 canners av 855 at \$2.85, 1 bull weighing 780 at \$3.25, 4 heifers weighing 702 at \$4.75, 1 bull weighing 1,290 at \$4.75, 3 heifers av 733 at \$4.50; to Thompson Bros. 1 bull weighing 1,800 at \$5.25, 3 cows av 955 at \$3.30, 3 do av 977 at \$4.80, 1 do av 947 at \$4; to Hammond, S. & Co. 1 bull weighing 1,130 at \$4.50, 6 steers av 1,055 at \$6.40, 4 do av 820 at \$4.50, 5 cows av 870 at \$2.85, 2 butchers av 590 at \$3.75; to Goose 12 do av 721 at \$3.75; to Kamman 12 do av 800 at \$3.25, 3 cows av 1,010 at \$3.50; to Goose 9 cows av 997 at \$3.50, 1 bull weighing 1,300 at \$4.75; to Nagle P. Co. 5 steers av 1,400 at \$7.50, 6 do av 1,055 at \$5.85.

Haley & M. sold Rattkowsky 1 bull weighing 1,520 at \$4.75; to Sullivan P. Co. 2 cows av 715 at \$4.40, 4 do av 1,035 at \$3.25, 2 do av 1,130 at \$4.20, 2 do av 715 at \$4.50, 5 butchers av 602 at \$4.15, 2 heifers av 940 at \$5, 1 bull weighing 1,320 at \$4.50; to Mich. B. Co. 7 butchers av 831 at \$4.80, 5 do av 810 at \$4.65, 1 cow weighing 1,150 at \$3.75, 1 do weighing 900 at \$3, 1 bull weighing 1,130 at \$4.50, 4 steers av 937 at \$5.35, 3 do av 666 at \$4.50, 1 bull weighing 1,100 at \$4.10.

Spicer & R. sold Mich. B. Co. 2 cows av 860 at \$3.50, 2 do av 935 at \$4.70, 7 steers av 1,003 at \$5.75, 12 do av 846 at \$5.40, 4 do av 737 at \$5.25, 3 bulls av 1,107 at \$4.65; to Nagle P. Co. 8 butchers av 772 at \$5.15, 1 cow weighing 1,230 at \$3.75, 2 cow and bull av 1,070 at \$4.25; to Hammond, S. & Co. 2 butchers av 660 at \$4.25, 2 canners av 715 at \$2.85; to Sullivan P. Co. 2 steers av 735 at \$4.75; to Bresnahan 2 cows av 880 at \$3.40.

Heeney sold Nagle P. Co. 3 steers av 750 at \$5, 6 cows av 1,058 at \$4.

Long sold Sullivan P. Co. 1 steer weighing 990 at \$6.

Youngs sold same 11 do av 1,000 at \$6, 3 cows and bull av 1,130 at \$5, 1 bull weighing 750 at \$4.

Veal Calves.

Receipts, 161. Market 25c higher than last week; steady with Wednesday. Best, \$9.50@10; others, \$4@9; milch cows and springers dull.

Bishop, B. & H. sold Sullivan P. Co. 1 weighing 110 at \$7.50, 1 weighing 150 at \$10, 2 av 130 at \$9.75; to Parker, W. & Co. 2 av 145 at \$10, 4 av 150 at \$7, 7 av 120 at \$9.75, 2 av 130 at \$9.50, 6 av 130 at \$9.50, 5 av 140 at \$10, 12 av 135 at \$9.75, 9 av 150 at \$9.75, 8 av 130 at \$9, 3 av 140 at \$9.75; to Newton B. Co. 2 av 160 at \$9.50, 14 av 135 at \$9, 1 weighing 260 at \$7, 1 weighing 110 at \$8, 2 av 160 at \$10.50, 2 av 120 at \$9.50, 6 av 150 at \$9.50; to Goose 3 av 100 at \$7, 3 av 130 at \$9, 2 av 160 at \$7; to Sullivan P. Co. 3 av 140 at \$9.50, 3 av 90 at \$7.50.

Spicer & R. sold Sullivan P. Co. 1 weighing 110 at \$8.50, 3 av 145 at \$10.25, 1 weighing 120 at \$8.50; to Parker, W. & Co. 2 av 180 at \$4.50; to Thompson Bros. 1 weighing 110 at \$9; to Goose 9 av 118 at \$8.75.

Sheep and Lambs.

Receipts, 2,979. Market steady with Wednesday, 25@35c higher than last week. Best lambs, \$7; fair lambs, \$6@6.50; light to common lambs, \$4@5.50; fair to good sheep, \$3@3.75; culls and common, \$2@2.75.

Bishop, B. & H. sold Thompson Bros. 5 sheep av 90 at \$2.25, 12 do av 85 at \$3.50, 21 lambs av 60 at \$5.25, 28 do av 48 at \$5.25, 10 sheep av 92 at \$2.50, 60 do av 90 at \$3.75; to Nagle P. Co. 69 lambs av 75 at \$7, 39 do av 50 at \$5; to Parker, W. & Co. 169 do av 70 at \$7; to Hayes 39 do av 50 at \$5, 25 sheep av 77 at \$2.50; to Mich. B. Co. 33 lambs av 85 at \$7, 95 do av 73 at \$7, 52 do av 50 at \$4.75, 21 sheep av 93 at \$3.25, 10 do av 72 at \$2.50, 154 lambs av 70 at \$6.75; to Sullivan P. Co. 13 lambs av 65 at \$6.25; to Hammond, S. & Co. 24 do av 60 at \$5, 21 yearlings av 95 at \$4.50; to Fitzpatrick Bros. 28 lambs av 50 at \$5, 20 sheep av 110 at \$3.50, 25 lambs av 48 at \$4.50, 23 do av 50 at \$4.50, 36 sheep av 120 at \$2.75, 14 do av 125 at \$3.50, 19 do av 120 at \$3.75; to Nagle P. Co. 98 lambs av 67 at \$6.75, 30 do av 72

at \$6.50, 26 do av 83 at \$7, 52 do av 81 at \$6.50, 26 do av 83 at \$6.50, 87 do av 80 at \$7; to Fitzpatrick Bros. 77 do av 78 at \$7, 55 do av 77 at \$6.50; to Mich. B. Co. 17 do av 77 at \$6.55, 117 do av 80 at \$6.90; to Barlage 1 buck weighing 190 at \$3, 30 sheep av 120 at \$3.75.

Hogs.

Receipts, 1,889. Market bidding last week's prices; none sold up to noon.

Range of prices: Light to good butchers, \$6.15@6.25; pigs, \$5.90; light yorkers, \$6@6.10; stage one-third off.

All trains very late on account of storms and wrecks on Michigan Central and Wabash roads.

Spicer & R. sold Hammond, S. & Co. 350 av 210 at \$6.25, 355 av 190 at \$6.20.

Haley & M. sold same 480 av 200 at \$6.25, 190 av 180 at \$6.20.

Bishop, B. & H. sold Parker, W. & Co. 1,410 av 210 at \$6.25, 820 av 190 at \$6.20.

Same sold Newton B. Co. 57 av 200 at \$6.25.

Roe Com. Co. sold Sullivan P. Co. 125 av 210 at \$6.25, 230 av 190 at \$6.20, 73 av 180 at \$6.15.

Friday's Market.

January 5, 1912.

Cattle.

Receipts this week, 1,797; last week, 891. Market steady at Thursday's prices. We quote: Best steers and heifers, \$6@6.25; steers and heifers, 1,000 to 1,200, \$5.50@5.75; do, 800 to 1,000, \$4.75@5.50; do, that are fat, 500 to 700, \$4@4.50; choice fat cows, \$4@4.50; good fat cows, \$3.50@3.75; common cows, \$3@3.25; canners, \$2@3; choice heavy bulls, \$4@4.75; fair to good bolognas, bulls, \$3.50@4; stock bulls, \$3@3.25; milkers, large, young, medium age, \$4@5; common milkers, \$2@3.

Veal Calves.

Receipts this week, 1,131; last week, 575. Market 25@50c lower than on Thursday. Best, \$9@9.50; others, \$4@8.50.

Milch cows and springers steady.

Sheep and Lambs.

Receipts this week, 9,984; last week, 5,179. Market about same as on Thursday. Best lambs, \$6.50@6.75; fair lambs, \$5.50@6; light to common lambs, \$3.50@4.50; fair to good sheep, \$3@3.50; culls and common, \$1.80@2.75.

Hogs.

Receipts this week, 10,340; last week, 5,005. Market 5@10c higher than on Thursday. W. L. Baker, of Perrinton, had a choice deck, averaging 260 lbs. that brought \$6.35. Range of prices: Light to good butchers, \$6.15@6.25; pigs, \$5.90; light yorkers, \$6.10@6.20; stage one-third off.

The packers have shown an appreciation of backward springers in the Chicago market recently, as they wanted more cows for killing than were always obtainable, but the country demand has been extremely poor.

M. F. Horine, the statistician authority of the Union Stock Yards and Transit Company of Chicago, has issued a report regarding the great shortage of cattle in feeding districts of the country at the present time, and he says it is greater than many people suppose it to be. The central western markets have come to be the only source of supply for young cattle, the time having gone by when the stock feeders were able to make any considerable purchases from their neighbors. The general disastrous drought experienced throughout the range country in 1910 and the drought of the following year in the corn belt feeding sections made terrible inroads in cattle supplies, especially lowering supplies of cows and heifers, and as a result, the packers have since been large competitors of stock feeders, paying high prices for young cattle. By this means the supplies of female cattle in feeding districts have been materially lowered, bringing about high prices for fat butcher stock.

William Aull, of Minnesota, widely known as a large investor in sheep, now feeding 8,000 sheep and lambs, makes the statement that present feeding operations in this industry at the leading feeding points in that state are less than 40 per cent of the proportions of a year ago. Three principal feeding stations report aggregate holdings of only 35,000 head, while Winona, formerly one of the principal feeding places, is doing nothing in that line. The farmers and others who are doing any feeding have hardly started in to do any marketing as yet, but the general expectation is that holdings will be sent out before shearing time owing to the extremely high prices asked for hay and screenings. Some eight or ten factories, each capable of grinding from 800 to 1,000 tons of screenings to be used in manufacturing stock foods, are running to their full capacity, and this is taking out of the market enormous quantities. Screenings such as cost only \$8 last June now bring from \$13@14, and such feeding at market prices for sheep and lambs is unprofitable. Dairymen are using unprecedentedly large amounts of screenings in place of shorts.

Farmers are using silage for fattening sheep far more generally than heretofore, and its use is growing rapidly in several states. This is true of Minnesota, the two Dakotas, Wisconsin and neighboring states, while a firm at Sycamore, Illinois, uses eight silos for this purpose.

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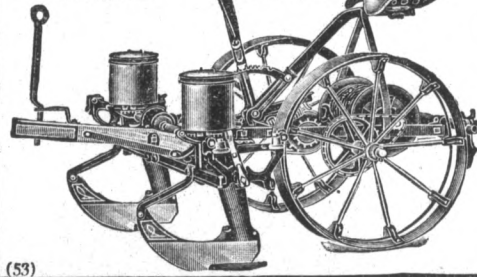
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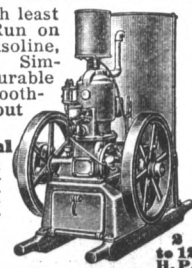
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"Sal-Vet has been worth ten times its cost to me. It relieved my hogs of worms by the hundreds and they have gone through the winter on less feed and look better than I ever had hogs do before. My horses and cattle have done fine, too. I have used many preparations but none so good as Sal-Vet."
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"I have had over 40 years' experience in sheep raising. Every year I suffered great loss of lambs on account of the worms. I used everything usually recommended for such cases, including tobacco and gasoline, but I will say that your 'Sal-Vet' is the only thing I ever used that did the business. I have not lost a single lamb since using 'Sal-Vet' and the cost is nothing compared with the saving it effects."
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If you will cut off the coupon below, fill it out and mail it to me, I'll send you enough Sal-Vet to last every animal on your farm 60 days. You simply pay the small freight charge when it arrives and at the end of the 60 days, if Sal-Vet has not done just what I claimed it would, I'll cancel the charge. You won't owe me a penny. I take all the risk. It costs only 1-12 of a cent per day to feed any hog or sheep Sal-Vet. You don't pay me a single penny down. Just fill out the coupon—tell me how many head of stock you own so I will know how much Sal-Vet to send you. Tear it off and mail it to me personally. Don't put it off another day. Send no Money—Just the coupon.

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