

# MICHIGAN FARMER

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COMPETITION is such today in the dairy business, and in fact, in the feeding of all live stock, that farmers begin to realize that their profits depend largely upon the cost of feeding, and they are becoming more and more interested in the cost of rations and the results which a given ration produces. Our forefathers paid but very little attention to rations or to the foods which compose a ration. In fact, they knew practically nothing about the composition of food. They knew but very little about the physiological function of food ingredients and feeding, then, was purely an art; there was no science about it. But some of them discovered that when certain foods were fed in a certain combination they got better results and more economical results than when they were fed otherwise. For instance, the English and Scotch feeder found out that animals did better when they were fed a succulent food in the ration, and many feeders discovered that when they fed a clover hay instead of timothy hay, in connection with ordinary grains grown on the farm, they got better results than when they fed timothy or corn stover. They did not know the reason for this; they simply discovered the facts.

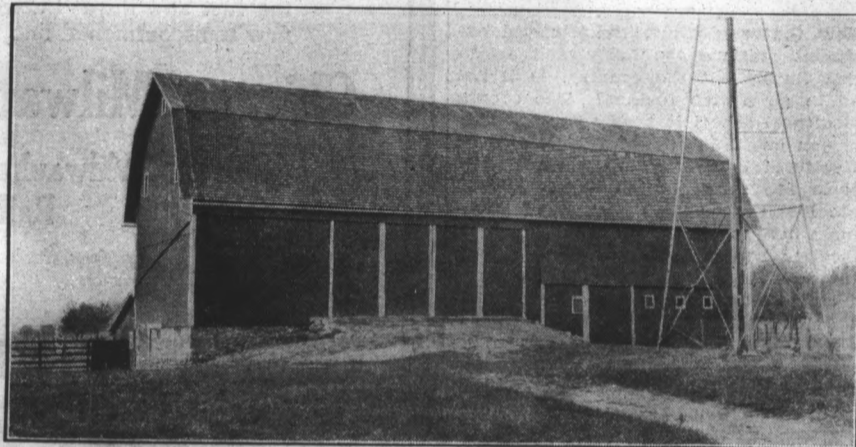
This is on a par with the practical farmer discovering that when he grew clover in the rotation he invariably got better results with the other crops in the rotation than he did when he did not grow clover. Now he did not know the reason, but the scientists took the problem up there and began to study why it was that clover was a benefit to the other crops in the rotation. They finally discovered that clover had a power, through microscopic plants which live upon its roots, to take free nitrogen from the atmosphere which surrounds the roots of plants and convert it into a form of nitrogen which other plants could use, and the other plants in the rotation did not have this power. That is a well understood fact now. The scientist had the same problem to solve in feeding. He knew that the farmer got better results when he fed clover hay with corn than he did when he fed timothy hay with corn, and he began to investigate to find out why this was so, and it was discovered that animals require protein, carbohydrates, and fat for development and growth. Not only that, but that they require the protein, carbohydrates and fat in certain proportions in the ration in order to produce economical results. It was found that you could not use carbohydrates and fat cannot be converted cause the animal would die, even if fed an abundant ration. In other words, carbohydrates and fat cannot be converted into protein or take the place of protein in the animal ration. On the other hand, protein can be used by the animal to take the place of carbohydrates and fat. Protein, or that portion of the food which contains nitrogen, goes to build up the muscles and vital organs of the animal body. Carbohydrates and fat produce heat and energy. Protein is the most expensive part of the food. To have the most economical ration, then, we want just enough protein in the ration to satisfy the wants of the animal, but not an excess. We might better have an excess of carbohydrates and fat, because they are cheaper, but while they do not take the place of protein they do no particular harm if fed in excess, and while protein can be used by the animal to produce heat energy, it is not profitable to do so on account of its price.

What the live stock man figures on today is to have a ration which will contain a sufficient amount of protein to meet the requirements of the animal, but not an excess of it. He wants a ration

## FEEDS and FEEDING.

that contains just as much carbohydrates and fat as possible and still get the desired results. If one feeds a ration that does not contain protein in the proper proportion the animal cannot do its best, either in producing milk or in making growth, unless it consumes more of the carbohydrates and fat than is necessary, because it must have the required amount of protein. This is an unbalanced ration. A balanced ration would be one which

to great advantage, and some would go so far as to say that you could make a balanced ration out of alfalfa hay and corn. But here another problem comes in in the feeding of animals, and that is the bulk of the ration. A cow cannot do well on too bulky a ration. She must have some concentrated food in order to do her best. She can't consume enough of too bulky a ration to get food ingredients enough to produce her maximum



Barn on the Farm of Fred Shepherd, of Eaton County, 30x90 ft.

contains the protein, the carbohydrates, and fat in the proper proportion to meet the requirements of the animal without waste of the food ingredients. Hence, in figuring rations for a dairy cow we figure on the digestible protein in the ration, taking care to not feed this in excess, because we want to produce just as many pounds of milk as possible with a dollar's worth of feed. It would be foolish to feed a dairy cow a ration composed of clover or alfalfa hay for roughage and cottonseed meal and wheat bran for a

yield, and so even with the best of alfalfa hay and corn silage it is profitable to feed a grain ration and furnish a concentrated food so that the cow does not have to eat too much in order to get nutriment enough to do her best.

The art of feeding even with a balanced ration is not obtained by every feeder. To get the very best results one must study the individuality of each animal and feed accordingly. There is also some sentiment in the care of live stock, and animals will do better for one feeder than



Farm Home of Henry Booker, of Osceola County.

grain ration. These are all foods that are rich in protein, and the animal would consume more protein than necessary, and consequently it would be a very expensive ration. We figure on putting corn or corn silage, or corn stover, the corn plant, if you please, as the principal bulky part of the ration. It is cheap. We can grow more tons of it to the acre than any other plant, but it is deficient in protein. It is not profitable and economical to feed the corn plant alone. It contains carbohydrates and fat in excess. We can feed this with clover hay or alfalfa hay

Early this fall two brothers, both young farmers, combined forces and bought a high-grade five-horse engine. A little later, finding it was difficult to get an ensilage cutting outfit to do their work when it should be done, they bought an ensilage cutter with fan blast elevator and drove it with their five-horse engine to fill their silos. They found they could cut and elevate just about as fast as three teams could haul the corn.

Having finished their own cutting, their neighbors, having corn ready to cut, persuaded the boys to help them out, which they did by filling eight or ten silos in the neighborhood, in some cases delivering the silage 35 to 40 feet above the machine. Everybody that saw it was surprised to see what the little outfit would do, and it seems to me it would be a thoroughly practical outfit for every neighborhood, if not for every farmer, to have, for the entire outfit, brand new, cost less than \$250.

I do not see how any farmer can afford to be without an engine, for such work as cutting ensilage, shelling corn, grinding feed and the hundred and one things that an engine can do to save them hard work as well as to save them many hard earned dollars. With a good little engine the farmer can grind his own feed at a cost of about a quarter of a cent per bushel, and do it while he is doing chores, and so have fresh ground feed that is not spoiled by heating as is often the case when done in large lots at the mill. Then it costs you less for grinding, and you do not feel like cussing the miller for not giving you as many pounds of feed as the grain weighed which you paid him for grinding.

The farmer's question today is not, "Can I afford power," but it is, "without power can I compete successfully with those who have power?"

Cass Co.

H. L. CHAPMAN.

### FARM NOTES.

#### Wireworms.

We have a strip of dry land mixed with muck on which the wireworms will not let any crops grow except potatoes, and they are full of the worms. Please tell us in your paper what you would do to or for them. We expect to sow oats and wheat on it next summer. Will it do any good to sow lime or salt on the land before the crops come up? If so how much had we better apply?

Barry Co.

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The larvae of the wireworm lives in the soil for two or three years before its life cycle is completed and it develops into the matured insect or beetle preparatory for the propagation of another generation of these destructive insects. The best remedy is fall plowing, which will leave the larvae more exposed to the action of the elements over winter and result in the destruction of many of them. Some claim to get beneficial results from applying salt, but, in the writer's opinion, the better way is to devote the land to some crop which will be injured to a minimum degree only by the wireworms for two or three years, or until the larvae is exterminated from the soil, and then devote the land to a short rotation of crops, which will prevent the development of another generation of these worms in sufficient numbers to be destructive to growing crops.

Among the crops which are distasteful to wireworms, may be included buckwheat, which they do not appear to like, and which is injured less than most crops, although they work in it to some extent. Rape is also distasteful to them, and this may be sown as a forage crop to be pastured with sheep or hogs if desired. Oats are injured to a very considerable extent, and unless the larvae is pretty well out of the ground, it would

COLON C. LILLIE.

### FARM POWER FOR SILO FILLING.

Having read in your paper of October 21, the article, "Filling Silos," by Mr. W. F. Taylor, I wish to tell something that occurred in this vicinity.



be better to substitute some other crop. The method of handling the field should, however, depend upon its previous treatment, for these worms will not be troublesome if it has been in a cultivated crop for two or three years.

**Artichokes.**

Does it pay to grow artichokes for hogs in Michigan? If the hogs are allowed to partly harvest them in the fall and the ground is well harrowed in the spring, will they make a crop without cultivation the following year? What is about an average yield?

R. W. R.

It is doubtful if artichokes can be profitably grown on a large scale for hog feed in Michigan. In small areas they may be profitably grown as a late forage for hogs. Further south they are used quite extensively for this purpose. At the Arkansas Experiment station and also at the Maryland station they have been found to be very profitable winter feed but at the Indiana station they did not prove profitable.

The crop of tubers is variable, ranging from 275 to 1,000 bushels per acre under favorable conditions; the tubers have about the same feeding value as potatoes. The main requirement for the crop is a dry soil; they will grow on almost any well drained soil and will produce fairly well on sandy or gravelly soil too poor for many other crops. The tubers are planted about three feet apart each way, and as the plant is not very sensitive to frost the crop should be planted as early in the spring as the condition of the soil will permit. Cultivation throughout the season should be about the same as we give potatoes.

The crop matures in about five months, when the hogs may be allowed to partially or completely harvest them, as desired. If just partially harvested, the tubers left in the ground will, as a rule, grow the following spring, but for a good yield it is advisable to replant each spring, or at least as often as once in two years. Experiments in growing this crop in a new locality should preferably be conducted on a small scale rather than on a large area.

**NEGLECTED THINGS.**

We are all such creatures of habit that, before we are aware of it we get into a rut, and for the want of a little thinking or study, we do not realize how we might make our homes more pleasant, and have conveniences that would be more sanitary as well as labor-saving without very much expense. We neglect such things more, through force or habit than anything else. Now that cement is becoming so universal and cheap to use it requires but little time or mechanical skill for a farmer to put in walks, steps, etc., around the dwellings, that will be permanent and much neater than anything made of plank or boards.

As an example, I will give some of my experience along this line. The well was dug close to the stoop on the north side of the kitchen to my house. This well was covered with a double board platform, with a long wooden trough under the pump spout, which emptied into an open drain. The board platform over the well proved a good breeding place for angleworms, which made it necessary to go down into the well several times during the summer to clean them out. A few years ago I put a cement cover over the well six inches thick, and extended the cement for several feet around the well. In the cover is a space for the pump, and a square space large enough for a man to pass through to clean out the well if necessary. This square space (or man-hole) is covered with a tight-fitting piece of plank that is kept painted. The angleworms do not trouble the well now, and when it rains, filthy water does not run in. The stoop floor adjacent to the well, had to be frequently painted, so I finally took it up and put in cement, and at the same time laid a cement walk out toward the closet.

Becoming dissatisfied with the wooden trough (or spout) from the well, and the open drain into which slop water from the house was emptied, I finally dug a drain 150 feet in length to the ditch by the roadside. Into this drain I put four-inch tile. At the head of this drain, (which is about 15 feet from the kitchen door), there is a cement box two feet square and 10 inches deep with cement bottom, so that all slop water poured into this box immediately passes down the drain 150 feet from the house. In place of the wooden trough or spout from the pump is a large galvanized pail to which is fastened three iron legs 12 inches long. Close to the bottom of this pail is a two-

inch galvanized spout long enough to reach the cement box at the opening of the slop drain. There is now no breeding place for flies, nor any foul smell from slop water, which was sometimes the case when thrown into the open drain.

As the drain from the north side of the kitchen works so well, the thought occurred to me, why could not a drain be put in from the south side so as to carry off wash water and other slops, directly from the kitchen without being obliged to carry the same "out of doors." So I recently put in such a drain, 150 feet in length, using four-inch tile. The upper end of this drain runs through the wall down low enough to prevent freezing, and comes out directly under the kitchen floor at one end of the wash sink near the cistern pump. A galvanized iron box 13 inches square and 16 inches deep, with a two-inch pipe in the center long enough to connect with the opening in the upper side of the drain tile beneath the floor, quickly carries off all water. This galvanized iron box has a tight fitting hinged cover, and the box is firmly fastened to the wainscoting of the kitchen wall.

This improvement has been in use only a few days but it is so convenient and satisfactory that we would not want to do without it. The cash outlay for the improvements mentioned above, was less than \$20. So it is not so much the cost that we do not have such conveniences, but simply our habit of neglect which is so easy to get into.

Ottawa Co. JOHN JACKSON.

**TRAVELING FARM EXPERTS.**

Now that agricultural schools and experiment stations are fairly well established throughout the country, is it not time to go a step further? The county agricultural school is nearly the last step that can be made in that direction. Short agricultural courses in the rural district schools are certainly the limit. In districts like the Upper Peninsula of Michigan, where agricultural development is extremely rapid, there are a very large number of people that are farmers and are eally anxious to learn the best methods of doing things. The county is just waking up to the fact that some day its apples will be famous, as are its strawberries. The difficulty is that there is no one to show the farmers how to prune their trees, how to set them out, how to spray them and cultivate them. Rarely a day passes but someone asks me to tell them how to prune, etc. It strikes me very forcibly that an expert should be constantly traveling about telling each and every farmer how to overcome his difficulties; making suggestions as to agricultural methods, crop rotations, rations for cows, sheep or pigs; recommendations as to the best varieties to grow, the cleanliness of stables, the drainage of land, etc. I note with interest that a country wide organization has been formed with the idea of having a man in every county to be paid for by the government, state and county jointly. The idea strikes me as a good one. Let us push it. While it would appear that new districts need such men more than old, yet the older districts need a lot of teaching. Work toward increasing the percentage of pure-bred sires, the coaching of farmers so that they will weigh and test their milk for butter-fat, will keep a mighty good man busy in any county.

In order to continue to feed our rapidly increasing population it is necessary for us to increase our yields per acre one per cent each and every year, ten per cent each decade. How are we going to do this? The personal contact plan is the solution. Any other method is necessarily slower. Some will say that the government issues bulletins on nearly all subjects. While that is true, comparatively few people realize that they can get them, and if they do get them they will not learn as readily from them as they would from a personal visit. This matter is similar to all others; personal contact is what counts. It is an excellent plan to have demonstration farms, but lots of farmers won't go to them nor read their publications, while a call from a man who knows will always bring results.

Ontonagon Co. T. A. GREEN.

Experiments conducted at the Geneva station, New York, show that where cereals or grasses are grown in connection with legumes, an analysis of the cereal or grass plants gives a larger percentage of protein content than of similar plants grown under the same conditions except for the presence of the legume plants. This value of legumes has not been before noted.

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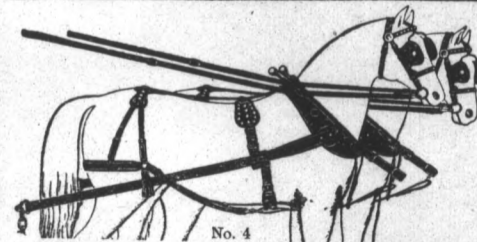
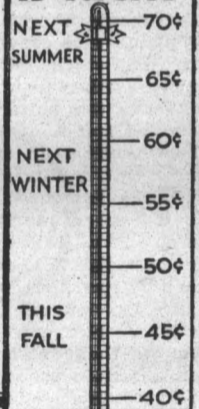
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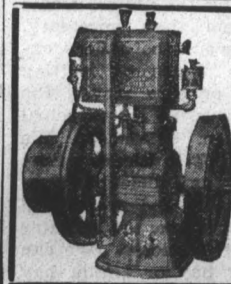


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**LIVE STOCK**

**STRANGLES (DISTEMPER).**

Strangles, or what is commonly called distemper, in horses, is an acute, contagious disease peculiar to the horse and is generally characterized by the formation of an abscess in the space between the angles of the lower jaw. It is most common in young animals, but I have known horses twenty years old to suffer from it; however, this is the exception. Whenever a horse has had a genuine attack of distemper the disease rarely ever attacks him again.

Nearly 200 years ago a man by the name of Gervase Markham, named the disease strangles on account of the urgent symptoms of strangulation manifested. Strange to say, this disease is peculiar to the equine race; other species of animals appear to be immune from its attack. In all cases this ailment is attended with a certain degree of fever. The suppurating tumor does not always form in throat, but occasionally forms in the groin, sometimes behind the shoulder, sometimes in the intestines or mesentery and when the disease takes this irregular or malignant form, it is very troublesome to treat. This form is called "Bastard Strangles" and is much more often fatal than when the infection centers between the angles of jaw or in throat. I have had some very bad cases to treat where the tumor formed on inside of thigh.

Some horses seem to escape the disease altogether. Veterinarians are quite thoroughly agreed that the cause is due to an organism, a streptococcus. It should not be considered as a highly contagious disease, but exposure to contagion seems to be the most common cause of its spread. I have known it to pass through a stable where there were twenty or thirty young horses and scarcely one of them escaped this disease. In other stables where there were a dozen or two of horses, only one or two animals would suffer from it. Some veterinarians claim that strangles has been produced without infection but I am of the opinion that it is possibly not true. It may occur at any season of the year and very often follows the changing of a young horse from one locality to another and right here I may say that a country horse shipped into a city seldom escapes an attack of distemper. Horses stabled in damp, badly ventilated basement barns and poorly fed or overworked and exhausted, appear to fall easy victims to distemper infection. Young horses taken from cold outdoor air and placed in warm barns are very apt to have strangles.

The early symptoms of strangles is very similar to those of catarrh. The acute symptoms of the disease are manifested by a dullness and weakness, the animal perspiring very freely with little exertion, being easily tired or fatigued with generally considerable loss of appetite. One of the first decided symptoms is difficult swallowing and a rise of temperature in all cases and the head is usually kept in a sort of stiff position and when turned moves with some difficulty. The coat is usually starry, bowels costive, excrement covered with mucus and the heart action is usually quickened. In most cases there is an increased flow of saliva from mouth and here is where many people suppose the animal's teeth are hurting cheeks or tongue, or are inclined to believe that some foreign body has become fast in mouth. Similar symptoms are presented in cases of laryngitis or sore throat. In many cases a discharge comes from both nostrils but it is not always present.

Distemper, like all fevers, runs a certain course, lasting never less than ten days, and a recovery usually takes place in twenty-one days. When a chronic roarer takes strangles he usually presents very alarming symptoms on account of the noise he makes breathing. The formation of tumor should be closely watched, for if not opened early enough it may break and empty into windpipe and cause death by suffocation. It is always an encouraging symptom for the abscess to form between angles of lower jaw. When the animal shows abdominal pain, much weakness and emaciation and absence of throat swelling it should be considered indicative of an abscess forming in some other part of the body, the disease is then assuming a malignant or irregular form. In some cases the brain and spinal cord are affected or some of the nerve centers. In cases that assume an irregular type the abscess is most often found in lung, but heart or abdominal viscera

may be involved. In some cases I have seen the whole jaw and head one mass of corruption.

Now, as the disease ordinarily occurs it is by no means a difficult one to treat, of course the animal should have good care, plenty of fresh air furnished, and fed whatever kind of soft feed he craves. It is important to keep up the animal's strength while he suffers from this low type of fever and especially important to give him good care after fever subsides, for their temperature may be sub-normal. Under these conditions tonics and stimulants are demanded and if given never fail to produce good results. To hasten the formation of abscess is always good practice to apply hot water or warm bran or linseed meal or antiphlogistine poultices. Stimulating liniments or mustard and water applied to throat daily will have a good effect in hastening suppuration.

And as I stated before, soon as hair plucks off easily and bunch softens, open it up freely to allow pus to drop out. Then wash out pocket with any good home-healing remedy such as hydrogen peroxide, or one part carbolic acid and 50 parts water, or one part coal-tar disinfectant and 30 parts water twice daily. In opening the abscess it is well to keep in mind that a blood vessel might be wounded; therefore, if it is done with a dull lancet or knife most of this danger will be avoided as the wall of a blood vessel is usually tough and not easily cut. In some cases it becomes necessary to insert a tracheotomy tube into windpipe. This gives relief until throat swelling recedes, then tube can be taken out. In most cases it is good treatment to give half-ounce doses of hyposulphite of soda two or three times a day; also give 20 grains of quinine or one-ounce doses of ground gentian, three times daily. Remember, it is a mistake to try to cut short the attack by giving cathartics. It is also a mistake to put the animal to work too soon.

Now, a word regarding one of the latest and perhaps most effectual remedies for strangles and the preventative of septic infection during this sickness. In my practice and at my hospital I have found anti-streptococcus serum to give good results when given in large enough doses. It not only acts as a remedy, but if given early enough it seems to ward off the attack. I find it is the only reliable remedy for irregular cases of distemper, where the abscess is inclined to form inwardly. Taking for my guide the reports of other reliable veterinarians, and my own personal application of this new serum treatment, I am well pleased with it. Following this treatment the animal does not appear to become so much emaciated and seldom becomes anaemic. This serum is given with a hypodermic syringe and any farmer can apply it. Manufacturers of this anti-streptococcus serum send it to you in glass containers with glass syringe and the proper immunizing dose is 10 C. C.; curative dose 20 C. C., and in conclusion I might say that this serum treatment does not in any way conflict with other remedies or treatment you might be using. In the shipment of all young horses I advise giving them an immunizing dose, for I believe it will prove a profitable investment.

W. C. FAIR, V. S.


**FEEDERS' PROBLEMS.**

**The Feeding Value of Roots.**

What is the feeding value per ton of rutabagas, carrots, mangels and sugar beets? Would there be anything made in buying grasses at \$3 per cwt. with hay worth \$20 per ton and corn meal \$30? What would be a balanced ration for 20 pigs eight weeks old, of skim-milk, bran, corn meal and middlings?

The actual feeding value of roots is not very large, due to their large content of moisture, there being only from nine to 13 per cent of dry matter in the roots mentioned in this inquiry. They have, however, a much greater feeding value than their content of nutrients would indicate where there is no other factor in the ration which will supply a needed succulency to produce the best results in animal digestion.

Of course, the value of roots varies with the kind of stock fed and the amount in which they are fed. At several experiment stations it was found that in pig feeding, where roots and grain were fed for the most economic combination, that 615 pounds of roots would save 100 pounds of grain, which conforms closely with similar experiments in Denmark, where it was found one pound of barley was equal to six or eight pounds of mangels for pig feeding. For sheep, it has been determined that



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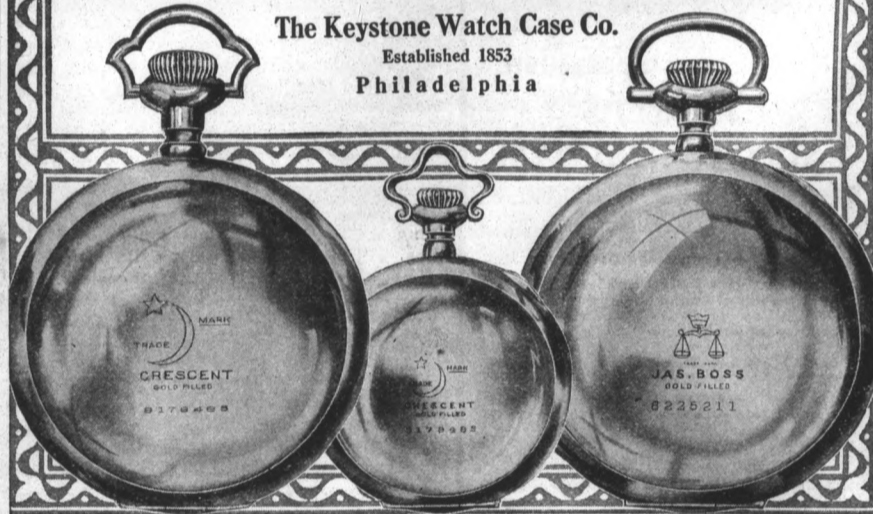
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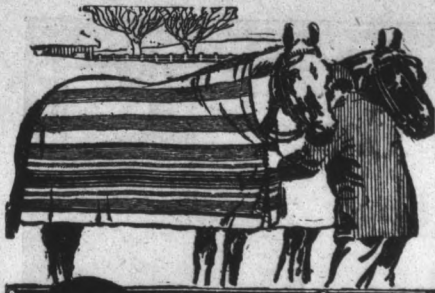
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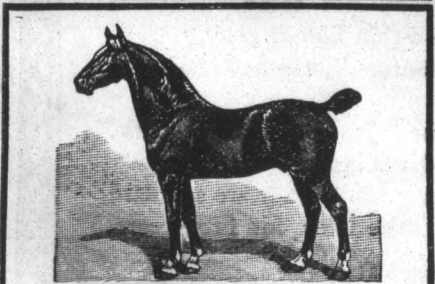


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not more than four pounds of roots can be profitably fed per day, and it is better to not feed even this amount to breeding sheep, as the mineral salts contained in the roots are sometimes found to be deleterious to the animals where fed for considerable lengths of time. In feeding fattening cattle, roots have been very extensively used in the older countries. They form a valuable factor in the ration, but it has been so clearly demonstrated, however, that corn silage can be produced so much more cheaply than roots that this is the more economic source of succulency in the ration. At the Ohio station it was found that an acre of beets yielding 15 1/2 tons and containing 3,000 pounds of dry matter cost more than an acre of corn yielding 57 bushels of corn and containing 6,000 pounds of dry matter. It will be seen that except where it is not practicable to have silage to provide a succulent feed for the ration, it will not be profitable to grow roots for the purpose.

**The Profit in Cattle Feeding.**

It is impossible to give anything like an accurate estimate of the possibilities for making a profit in feeding steers from the data given in this inquiry. A great deal will depend upon the quality of the feeders and the market grade of the animals into which they may be finished. However, \$3 per cwt. does not buy a very good quality of feeding steers, and the finished animal will not sell for top prices at the end of the feeding period. Experiments have determined that the grain required in addition to roughage for 100 pounds of gain in feeding steers, will range from 400 to 1,500 pounds. In the average of available data, the feed required for 100 pounds of gain will not be far from 1,000 pounds of grain besides 500 pounds of coarse fodder. This is for feeding periods of average lengths. Thin cattle, if young, can be fed for a short period at a much less cost of feed per 100 pounds gain, while more matured cattle fed for long periods may require more.

It will be easy to determine from figuring upon this basis, that it will be difficult to make a profit on feeding steers of poor quality for any considerable length of feeding period with hay and grain costing the prices noted. However, if the feeders are bought well within their value and sold on a higher market, as is often possible with just this class of cattle, it may be possible to make a profit in the feeding operations. It must be considered, however, that gain will cost from five to ten cents per pound, according to the age and condition of the cattle and the length of the feeding period, and that the profit must be made in the increased price received for the finished cattle, rather than in a profit on the gain made in the feeding operations.

**Balanced Ration for Young Pigs.**

The feeds given are the best available for making up a suitable ration for growing pigs. Middlings constitute a well balanced feed and may be used in connection with skim-milk and corn meal very profitably for the young pigs. One pound of corn meal should be given with about three pounds of skim-milk, using middlings to make a slop of suitable consistency. As the pigs get a little older the quantity of milk may be reduced or the quantity of the corn fed increased as desired. When fed in the proportions above indicated, a well balanced ration suited to the needs of growing pigs will be supplied. The amount fed should be just a little less than will fully satisfy the pigs' appetite, and must be gauged by the skill of the feeder.

**SELECTING THE STOCK RAM.**

The old saying that "the sire is half the flock," has become somewhat time-worn and it may have lost some of its old time significance. However, it is just as true as ever and practical experience in sheep husbandry tends to the conclusion that this trite saying hardly expresses the real importance or value of the good flock sire.

The selection of a ram to head a flock of good ewes is a task many flock owners may well distrust their ability to wisely perform. Its importance is not easily over estimated. It is a task that should be undertaken intelligently and thoughtfully and great care at all times be exercised. In no part of flock management is it more important to have one's breed type clearly and definitely fixed in mind. Besides the breed type, which should characterize both ram and ewes, and the flock as a whole, there are other very important qualities which should always be present in the flock sire. Very promi-

nent among these is masculinity, which the ram should show in many features. Most observers, perhaps, may notice this quality in inspecting a ram. Very few, however, even among those who have had some experience in mating and breeding sheep, have carefully arranged and systematized their knowledge of those qualities as to their relative importance and value. All knowledge, however, commonly possessed, is much more effectively used if well arranged and classified. It may be said that in all rams the face should be broad and full between the eyes, with a nose somewhat oval and full, but not of great length. The crest should be thick and rising and the neck full and well developed.

If the body is deep down between the fore legs and the ribs back of the fore shoulder well sprung and round, making the girth large and the brisket prominent and wide, we have the best indications of a strong constitution, which is of so great importance. The legs should be straight and strong and short.

It is best that a ram be never excessively conditioned. Some fine rams are brought forward in the show ring so heavy as to be almost useless as breeders. Such fitting is unwise. A ram should carry a reasonable amount of flesh and it should be well distributed, even, and firm, not gathered in masses or rolls on any part of the body.

His condition should never interfere with his activity. In movement he should always be bold, active and free, well deserving the appellation "head of the flock." Physical vigor is absolutely necessary for the best results. This should be accompanied by an erect and dignified carriage. In other words, the ram should show character and impressiveness as an individual.

Due consideration should always be given to the fleece covering the ram. Although not large, the return from the wool of the flock has a considerable influence on the ultimate profits. This may vary somewhat with the different breeds but it is important with all. The chief points are its quantity and quality. The best way to determine the nature of a fleece is to examine it carefully just over the shoulder. Here will be found the finest and best wool on the sheep. The region around the thigh should next be inspected. Here grows the poorest and coarsest part of the fleece. Then the covering of the belly is of importance. Very often the wool here is thin and poor. This denotes a lack of constitution. By giving careful attention to these three parts a fairly good estimate may be made of the quality of the fleece. Then consider the factors that determine quantity and length, density and evenness over all parts. Technically, density means the number of fibers of wool that grow on a given space. This closeness of fiber is important, not only to secure a heavy fleece but also to give greater protection to the body of the sheep. The length of staple is also an important feature from both the commercial point of view and the owner's standpoint.

It usually takes some time and trouble to find and secure a satisfactory breeding ram. Comparatively speaking, really desirable rams are not very common. Only the most particular breeders find them.

When a satisfactory animal is found, we should be slow to part with him. With proper care he is good for years of service and grows better each year. Beyond question the mature sire is the best stock getter. No matter how good an individual the young ram may be there is an element of uncertainty in his value as a sire. It takes time to determine whether an animal is a successful sire or not.

Probably one reason why greater progress is not made in up-grading is due to the too general use of untried sires. It is a mistake to discard a ram simply because there are a number of his get on the farm.

Ingham Co. H. M. YOUNG.

**THE NATIONAL MID-WINTER SHEEP SHOW.**

The National Mid-winter Sheep Show will be held this year at Omaha, Neb., December 13-16, 1911. In conjunction with it will occur the annual convention of the National Wool Growers' Association. The meeting of this association will doubtless be of more than ordinary interest owing to the prospect that congress will probably consider the revision of Schedule K at the next session, following the report of the National Tariff Commission. The show will also give opportunity for the sheep men of the country to study different breeds and types and its central location will, no doubt, promote a large attendance.



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LIVE STOCK NOTES.

Farmers in parts of the country have been highly favored of late with good pastures, and this has led to a desire to have stock to feed, a cheap growth being made with the aid of a little corn or some forage. This has helped to stimulate the demand for cattle and sheep to fatten. Michigan has been a fair buyer of cattle to feed, but the demand from the east and southeast has fallen below the level usual at this season of the year, and the cheap stocker class of cattle, which are usually taken, have become a drug in the market. Quality has been sought by the average buyer in the middle west, and trashy light weight stocker cattle from Wisconsin have moved off slowly at extremely low prices, numerous lots of steers averaging from 500 to 750 lbs. going at \$3@3.25 per 100 lbs. Many farmers always refuse to buy western range cattle for fattening, but men who have made judicious selections of such cattle in past years have made it pay well, and there has been a good demand of late for these cattle.

Well-informed stock feeders are not hurrying their pigs on to new corn, as past experience has demonstrated that time is required for adjusting pigs to a new feed. The sickness known as hog cholera is nothing more than the effects of bad digestion following free indulgence in new corn, and it should be noted by farmers owning hogs that far more sickness prevails among droves of pigs in the corn belt states than for ten years past. While corn will continue the main feed for growing and fattening swine, careful feeders are supplementing it with other feeds, such as alfalfa, clover pasture and field peas, while shorts, tankage and oil meal are recognized as having especial merits. Experience shows that pigs prefer tankage mixed with ground feed and fed immediately after wetting. It has been found that shelled grains not properly ground when fed wet in a trough are often eaten without being properly digested and passed by pigs in an undigested condition. Experienced stockmen have found that either dry or wet grains are better fed on a clean cement floor, where they must be eaten slowly.

A Chicago live stock journal says: "High cost of corn and the shorter crop grown this year has been a factor tending to shorten the demand for feeding cattle, and the small hay crop was another point which the feeder buyers had in mind in making purchases of thin stuff. A big feed bill has been the prospect and when a feeder views his thin steers as probable of costing him a round sum to fatten, he naturally takes a conservative stand in buying and goes slow."

The Chicago market for milkers and springers is still mainly a prime cow deal so far as reliability of demand figures. The country demand fails to take in backward springers, and these cows depend on a packer outlet, selling on the same basis as beef cows. Good to prime forward springers are purchased largely to ship east.

Because of the good pasturage in most sections, farmers are not feeding much hay, and the high prices offered are inducing them to hold much more hay than usual for marketing. Within a short time prime timothy hay has sold at wholesale in the Chicago market for \$23.50 per ton, and other kinds of hay have sold relatively high, with a good demand.

The enormous marketing of little pigs in Chicago has become the subject of much comment, and live stock commission firms are sending out letters to their country patrons urging them not to sacrifice their healthy pigs. A greater mistake than parting with thrifty growing young hogs at this time can hardly be imagined. There is every reason for believing that by maturing their pigs, farmers will make nice profits, despite the high price of corn. Already the future hog supply has been greatly lowered by the sales of mere pigs.

Packers have faced this season the shortest supply of grass cattle from the northwest since the grazing industry in Montana, Wyoming and the Dakotas first assumed liberal proportions. Kansas pastures of late have been the only source of beef supply west of the Missouri river capable of furnishing normal supplies, with a restricted movement from Oklahoma and Texas. In a short time the sources of supply for grass cattle will be shut off, and after that owners of medium-grade cattle will be in a position to obtain better prices.

The outlook for sheep and lamb feeders the coming winter is unusually bright, as they have bought their flocks at very much lower prices than they did last year, and all indications point to greatly reduced feeding operations resulting from lack of feed in some places and discouragement because of poor profits last winter, when the business was greatly overdone. The six leading western markets sent back to the country during the first nine months of this year 1,705,990 feeder sheep and lambs, or 354,326 less than a year ago, and the October shipments promise to show a marked falling off.

James Hogan, the well-known lamb feeder of Michigan, was on the Chicago market recently stocking up for the winter, and in an interview published in the Live Stock Report, said regarding feeding operations in that state: "There are not 50 per cent as many sheep and lambs on feed in southern Michigan, which is the main feeding belt of that state, as one year ago. It is the lightest number in 15 years for this time of the season. I don't know what our feeders will do later on, but there is no doubt that considerably fewer sheep and lambs will be handled this season than in recent years. Causes for this are not hard to find. Big monetary losses were incurred last year, hay is scarce this year, and is costing \$15@18 per ton, it takes 70c to ship in corn, and we can safely figure on it costing 60c later on."

## A Plain Talk on Stock Feeding

Some folks imagine that a few ears of corn and a forkful of hay is all there is in the feeding question, but with the ambitious, thinking farmer, or the up-to-date stockman, it's a vastly different proposition. He looks upon the Steer, Cow or Hog as a machine for the transforming of feed into "Meat and Milk" and should regard himself as a manufacturer rather than a common laborer. No one denies the necessity of proper feed, and neither can anyone overlook the importance of proper digestion. The amount of growth and milk produced will always vary with the digestion. A healthy animal digests but half its feed, an unthrifty, ill-conditioned animal less. Now, if these are facts, why not pay more attention to digestion? Condition your horses, cows, sheep, swine and poultry. It was Dr. Hess' knowledge of wasted nutrition that resolved him to formulate a plan to save a part of this loss. The past 18 years that

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VETERINARY

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Feeding an Unbalanced Ration.—For the past three months my eight-months-old pigs have shown some weakness in their joints, but they have good appetites and do not seem to be sick.

Enlarged Gland.—I have a sow with litter of pigs four weeks old; she has lump on jaw which is gradually growing larger and it is hard.

Mud Fever.—Occult Spavin.—I have a seven-year-old mare that is troubled with mud fever and am inclined to suspect her showing symptoms of spavin lameness, but has no enlargement of hock joint.

Stifle Injury.—Lymphangitis.—I have a colt three months old that dislocated stifle when three weeks old and I am told by two different Vets. that he cannot be helped.

Indigestion.—Worms.—Seven months ago I purchased a four-year-old mare; she was thin when I got her and has remained so ever since.

Laminitis.—(Founder).—I have a four-year-old mare that got loose in stable a short time ago and ate a large quantity of chop.

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Guernsey Bulls.—Young, imported sire, pedigree furnished. Prices right. GLENN CLARKE, Eau Claire, Mich.

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**POULTRY AND BEES**

**PREPARATIONS FOR THE WINTER.**

The above topic is the one upon which The Farmer would focus the attention of all its readers this month. Its consideration at this time is especially timely for those who desire to make the poultry flock pay for the feed and care given it during the cold months. Upon some farms much has already been done in the way of constructing new buildings and repairing old ones or putting them in shape for the winter. In fact, all young laying stock should be in their winter quarters by this time, since it is essential that the pullets, now rapidly approaching maturity, become accustomed to their surroundings before the laying period begins.

Where preparations for winter have not progressed even this far it is advised that the young stock be given immediate attention and that every necessary preparation for cold weather be completed during the present month. In housing stock that has had free range, and has, perhaps, roosted in the open air all summer, do not make the mistake of overcrowding the quarters given them and keeping the building too tightly closed at night. Colds, and possibly roup, are apt to develop from such conditions. See that they have plenty of room on the roosts and an abundance of fresh air. It is impossible to have too much of the latter so long as there are no drafts or dampness. A cold dry house is far more conducive to health than a warm damp one.

The storing of green feed, enough to last the fowls a part of the winter at least, should be attended to now. Cabbage can now be had and should be stored in such manner as to keep as long as possible. The best method, in my opinion, is that of suspending them from the ceiling, preferably in the cellar, where they won't freeze. If not placed so closely together as to prevent a free circulation of air they will keep for quite a while. In feeding, cut the cabbage in two and throw into the pens for the fowls to peck at, or hang up just out of the fowls' reach. The latter is the better method as the fowls will derive some exercise from their efforts in getting the food. Other vegetables that should be stored now are beets, turnips, carrots, potatoes—in fact, any vegetable that the fowls are fond of. Some of these can be fed raw and the others cooked, as preferred. The cooked vegetables, mixed with table scraps and bran, will be relished on cold winter days, and the hens will show their appreciation in an increased number of eggs. Raw potatoes are invaluable, but I find that all chickens will not eat them, but those that seem inclined to like them should be given the small ones that are not of use for cooking purposes. Cut them in two and throw into the pens; the hens will dispose of them.

If straw or other suitable material for litter is unavailable, leaves may be substituted. Gather up all the fallen leaves and place them under cover where they will remain dry and convenient for use when desired. They will not last so long nor provide as good scratching material as straw, as they break up and pack down too readily; they must, therefore, be renewed more often than straw.

If the storing of dirt and dust for winter use has been neglected it should be done now. Road dust for the dust boxes should be stored in some dry place. If black loam can be procured it is a good idea to put away a quantity for use on the floors of the brooders next winter or spring. If placed on the floor of the brooder to the depth of half an inch and covered with chaff it will prove an ideal scratching material for the chicks.

All brooders and brood coops should be thoroughly cleaned and put away for the winter. Do not put them away in a filthy condition. Remove every trace of droppings and scrub the interior thoroughly with a powerful disinfectant. Then take a hand spray and apply a mixture of coal oil and crude carbolic acid, getting this into every crack and crevice. Then the interior should be thoroughly white-washed, after which you may feel that all vermin has been destroyed.

Indiana. O. E. HACHMAN.  
(Preparations for the winter, as the last paragraph of the above article suggests, can not properly be limited to providing for the wants of the present flock. The forehanded farmer who gives his poultry flock the attention it deserves will include in his preparations for winter

the providing of facilities for starting the new crop of fowls, which should be well on its way before the return of warm weather. Hence it is important that pens for the breeding stock, as well as the incubators and brooders, receive attention now while outdoor work is still possible. After cleaning and disinfecting the machines as recommended by this correspondent, set them out on bright warm days until thoroughly dried out. Then store in a dry place and they will be in good condition when wanted.—Ed.)

**ROUP IN CHICKENS AND TURKEYS.**

A Montcalm county subscriber writes that his chickens have large swellings about the eyes, causing them to go blind and finally die, while a St. Clair county reader reports his turkeys similarly affected. In the latter case the swellings are accompanied by discharges from eyes and nostrils. These seem to be pretty well developed cases of roup, a disease which it is difficult to treat successfully. The main thing is to prevent further spread of the disease if possible. To do this remove the fowls that as yet show no symptoms of the trouble to fresh, clean quarters—if practical, to a part of the premises that has not been overrun by the diseased fowls. Give them proper protection from cold and wet and feed them well, as the better their condition the more likely are they to resist the germ should they come in contact with it. Remember that the droppings from the diseased fowls, as well as all discharges from the head are full of roup germs, consequently the sick fowls should be confined to narrow limits, preferably in quarters which will not afterward be used by the poultry, and the old quarters thoroughly cleaned up and disinfected.

It may be possible to save some of the diseased fowls, but if there are many such it is a laborious task to apply most of the treatments recommended for roup. A comparatively simple one, which has proved effective in many cases, is here recommended: Apply pressure to the swellings and to parts about the eyes and nostrils to loosen the discharging matter as much as possible. Then plunge the fowl's head into a 1 to 2 per cent solution of permanganate of potash and hold it beneath the surface for 20 to 30 seconds. Give this treatment twice a day, keep the fowls away from drafts and dampness and give warm nourishing food.

**ESSENTIALS TO SUCCESSFUL WINTERING OF BEES.**

To winter a colony of bees safely the first and main essential is a sufficient number of bees. It matters little how well the other requirements may be fulfilled, a handful of bees, in this latitude, cannot be safely wintered, and in hard winters it requires a very strong colony to safely go through the extremes of cold which are often experienced. The number of bees which form the colony at the beginning of winter often depends upon circumstances entirely independent of the will or management of the apiarist. Probably the only time when the beekeeper can be of help to his bees, in securing a sufficient amount of strength, is after a short crop, when the bees have gathered so small an amount of honey that they have been unable, though probably willing, to rear a sufficient supply of brood. By judicious feeding in time, that is, before the opening of real cold weather, quite an amount of brood rearing may be induced and the strength of the colony materially increased.

Next comes the question of food. If a sufficient number of bees is absolutely necessary to safe wintering, it is equally essential that enough food be had, and in an available position, that is, within reach of the bees. Twenty-five pounds of honey is considered a sufficient amount, in an ordinary winter, for the needs of a colony.

The next question, and which I consider third in importance, is the quality of the honey. Honey gathered in the fore part of the season, thoroughly matured and ripened, makes the very best kind of stores for wintering, while honey gathered late in the season, or at a time when the weather is wet or cool, is not good for wintering. Bees will consume more pounds of the latter, develop dysentery and die, or suffer what some call spring dwindling. If bees are to winter in the best possible condition they must have sealed honey, or something that will take the place of it, immediately above the cluster and in direct contact with it as long as the cold weather lasts.

F. G. H.

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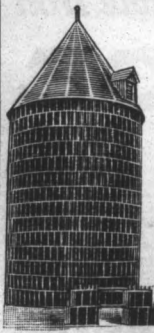
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## THE DAIRY

CONDUCTED BY COLON C. LILLIE.

### PURE-BRED CATTLE AND THEIR ADVANTAGES.

Farmers generally, and many dairymen as well, are slow to appreciate the value of pure-bred cattle. Little, indeed, could be told in a single article, of all that has been done by proper breeding to better the beef and dairy cattle so common among us. Mr. Anderson, of the M. A. C., in his illustrated lecture, "Types and breeds of cattle," impresses this fact strongly upon those who see and hear it. The people on the little island of Jersey prevented importation of cattle long ago that they might keep their breed pure and the wide world profits now by their wisdom. The Holsteins, bred for centuries in Holland and the Netherlands, always the pride of those who cared for them, are today repaying manifold the thought and attention bestowed upon them in the past. The possibilities of either the beef or dairy animal are accumulative. Every great exhibition of fat cattle demonstrates as clearly the value of good breeding as do the great dairy cows whose records astonishes us and challenge our admiration. Care, patience and wisdom will accomplish almost everything desirable in breeding.

Perhaps the greatest advantage of registered cattle is the evidence that certain lines have been followed in breeding. In the main, the objections are that the occasional poor individuals may be propagated and registered and their presence prove disappointing and harmful.

Registration based upon actual performance is of great value, and as this idea gains strength and prevalence, we may look for more rapid progress along dairy lines. Every dairymen should, as soon as possible, become a breeder of pure-bred cattle, if only in a very small way. True, their value is so generally acknowledged and their numbers are so few, that prices are high, but it is possible to get a start, even under these conditions, with the expenditure of but little money and it is surprising how rapidly the progeny of a single cow will multiply. A friend of mine brought a very few Holsteins into our locality some time ago and after dividing his little herd started out with two heifers and one male, which were all fine animals. In a very short time, he decided to move to Ohio. He made a sale at which he disposed of a number of pure-bred Holsteins along with other effects. The cattle sold brought excellent prices and besides, he took with him to Ohio, a herd that was worth much more than the one with which he started. Last week I attended a little Jersey sale on a farm nearby. The owner came from another state but a few years ago, bringing with him a very small registered herd. He has realized a good profit from his dairy every year; he has sold a few males from time to time and this was his second public sale. The rapid increase of his herd, their actual worth as dairy animals and the prices received for those which were sold, all emphasize the value of pure-bred cattle and the wisdom of the man who makes at least a small investment in them.

But the man who invests money in pure-bred animals should give careful attention to the matter of dairy performance. The scarcity of heifers and cows of pure breeding which can be bought at reasonable prices, makes it difficult sometimes for us to get just what we would like. But there are always plenty of males from which to select and with the right kind of a sire, we have great reason to hope for the future of the herd. Personally, I have concluded to use no sire in the future whose dam is not in the "Register of Merit" Class. One of the sires owned now in our breeders' association boasts a mother that made last year 587 pounds of butter and it is possible to secure many males of as good or even better breeding.

The advantages of pure-bred cattle may be increased or diminished by care and feeding. Cattle of excellent breeding are sometimes so poorly cared for that it is practically impossible to determine their actual worth under favorable conditions. The man who puts good money into a pure-bred animal can ill afford to scrimp it in the matter of the ration or to withhold the attention that insures warmth and comfort.

The showing of cattle at the local fair is a great stimulus to better dairy methods and the acquisition of more valuable

animals. It is a means of education also, for, while the man who carries off the premiums has the satisfaction of winning the one who fails learns why and the discovery of weak points in his herd may prove in time of much greater value to him than a moderate premium. We should neglect no proper means that will increase popular interest in the breeding of better cattle. Those of us who do not care for registered cattle may yet use the pure-bred sire in the development of a good grade herd that in time may do almost as well. But we need to wake up. We need the best dairy literature. We should join a breeders' association. We should attend the dairy meeting and the Grange and use all these helps to put us abreast with the foremost thought upon this subject. We cannot know too much about our business but interest, enthusiasm, and the ability to realize our dream by the aid of plenty of hard work; these are worth far more than mere knowledge.

Oceana Co. W. F. TAYLOR.

### WATERING COWS IN THE STABLE.

Years of experience demonstrate the practicability of watering cows in the stable, allowing each cow an individual bucket of her own so that she can drink whenever she feels like it. This should not do away with the practice of turning the cows out in the middle of the day or on pleasant days in the winter time to give them exercise and an airing and give a chance for the stable to air. But where cows are compelled to go out of doors to drink there is always some time during the winter when it is absolutely improper to turn them out of doors, the weather being so exceedingly cold and stormy, and when this time comes many cows do not drink what water they actually need. Consequently, they should have the water readily accessible in the stable. Many a cow has been killed by being turned out in an atmosphere below zero and compelled to drink cold water. When the water is in the stable in individual buckets it is the same temperature as the stable and a proper temperature to be taken into the system. When it is out of doors in a tank, with the weather below zero, it is not of a proper temperature to be taken into the system, and if a cow is compelled to drink at one time all she ought to have for the entire twenty-four hours she will drink too much of this cold water for her own good. Water buckets are liable to get foul. The slobbering from the cow and the chaff and dust that get into them must be taken care of. For this reason it is necessary to occasionally flush them out thoroughly.

### SELECTION OF DAIRY COWS.

Steady and persistent breeding in one line and for a single purpose is the only safe rule for a dairyman to follow. After having raised the standard of a herd by careful breeding comes the final and critical test, to wit, individual selection. It is, after all, capacity of the individual demonstrated by actual test that fixes the standard of the dairy cow. By breeding the average, the general chances may be vastly increased, and from the stock thus produced the cows for dairy work should be selected. As assistants in making selections the scales and the Babcock test are indispensable. They are to the dairyman what the scales are to the grocer and the yardstick to the merchant. They are impartial, they fix the value of the cow as a part of the herd with inflexible accuracy. The cream test is better than none, but it is so variable and uncertain that it is of little value. It is not uncommon to find cows whose cream is twice as rich in butter-fat as that of some others. I have known the difference to be so great that it took 2 1/2 quarts of one cow's cream to furnish the same amount of butter-fat contained in one quart of cream from another.

Canada. W. R. GILBERT.

### IMPORTATION OF DAIRY CATTLE.

During the period from April 1, to June 30, 1911, 909 cattle were imported for breeding purposes, for which the Bureau of Animal Industry issued certificates of pure breeding. Of these 909, 413 were Guernseys, 357 Jerseys, 67 Alderneys, a like number of Ayreshires and six Short, horns. The Department of Agriculture will shortly issue a complete list of the cattle imported during the quarter mentioned. The list will give the names of the animals, the name of the importer, port of entry, date of arrival and registry number.



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**BEST GRAIN TO FEED WITH TIMOTHY HAY AND CORN STOVER.**

Having to buy the most of my grain for my cows, would like to have you give me the best ration. Will have corn stover and timothy hay for roughage and enough corn and oats to grind for probably about one-third of the grain ration. Can buy cottonseed meal for \$30, gluten for about \$26, bran about \$25, oil meal for \$36, and middlings for \$26.50. Which would be the cheapest of these and how much per cow?

H. H. H.  
Since there is no succulent food in the ration mentioned, and timothy hay and corn stover are to be used for roughage, both of which are rather constipating in their nature, I would suggest that dried beet pulp be used as a part of the grain ration, and as you have corn and oats I would feed them as far as they go; then for a food rich in protein to help balance up this ration there is no question but what you can get more digestible protein for the money in cottonseed meal than in any other one of the foods mentioned. Therefore, I would make a grain ration of beet pulp, corn and oats, and cottonseed meal. As you have no succulent food I am strongly of the opinion that it would pay you to moisten the beet pulp from one feed to another to bring it back to something like its former succulency, and feed this separate. That is, don't try to mix the dry beet pulp with the corn and oats and cottonseed meal. I would suggest a ration of 2 lbs. of dried pulp, 2 lbs. of corn and oats, and 1 lb. of cottonseed meal; that is, in that proportion. Then I would feed each cow as many pounds of this grain ration per day as she produces pounds of butter-fat in a week; but as I say, I would not feed the beet pulp mixed dry with the other foods because it won't mix well in the first place, and I think you would get better results, everything considered, if you would moisten the beet pulp and then add the corn and oats and cottonseed meal after the beet pulp has been put into the manger you would get better satisfaction. If you prefer you can feed the corn and oats once a day and cottonseed meal once a day, and the beet pulp twice a day. If the beet pulp is moistened so that it will be fresh but not wet, the other grain will stick to it readily in the manger and the cows will relish the whole better than where the grain is fed dry, and I am of the opinion that the beet pulp will do more good in this way than it will if fed dry. If you prefer you can feed 2 lbs. of gluten feed to 1 lb. of cottonseed meal, but this will cost more and I doubt if you would get much better results.

**CEMENT FLOORS FOR COW STABLE.**

Could you tell me if cement floor is good for cows to stand on all winter, or is it best to put planks over the cement? Some farmers tell me that if my cows stand on cement floor all winter they will get stiff in the spring; so I thought since you had cement floors in your cow barn that you could tell me about this. How many feet do you allow between the manger and the gutter?

A. D.  
I am aware that some dairymen object to cement floors for cow stables because they believe that they are too cold for the cow to lie upon, especially too cold for the udder of the cow. Some go so far as to say that when the udder of the cow is kept in contact with the cement floor for any considerable length of time that it is liable to cause garget or inflammation of the udder. Others also claim that cement floors cause rheumatism and this and that and other claims are made, but I am positive that these ideas are largely exaggerated. I know of many dairymen who have cement floors and have the stables so arranged that it is almost impossible to keep any bedding under them, therefore the cows have to lie down on the cement floor, and the cows have been kept in this way for years and yet they have experienced no difficulty whatever with any of these troubles. Consequently, I am led to believe that there is little or nothing in the idea that cement floors are injurious. From personal experience I cannot say very much upon this point because with my system of keeping cows in the model cow stall the cow does not lie upon the cement floor. The 2x4 which is placed behind the cow to compel her to lie in front of it keeps the bedding from working back into the gutter, and when the cow lies down she always has bedding under her, consequently she lies on a bed rather than on the cement floor. I do not believe that A. D. need have any hesitancy whatever in making a cement floor for his cow stable, and I do not think he needs to go to the expense and trouble of putting board floors on top of the cement. It is perfectly safe, and

I can speak from the experience of thousands of others, to have cows stand on cement floors without any injury to them or to their udders.

Some people will tell you that you can't have horses stand on cement floors, all kinds of injuries result, and yet several year ago I put cement floors in my horse barn, and did not put any boards on top of the cement. The horses have stood on these floors now for several years with no injurious effects whatever, and if I was going to build a hundred horse stables, I would use a cement floor with no boards on top of it. When you put boards on top of a cement floor you are getting a trap for filth. You cannot have a sanitary stable and you cannot keep it clean where lumber is used. No man can afford now days to board floors in any kind of a stable. They should all be made out of cement and it is not necessary to put boards on top of the cement. It is, however, a splendid plan to see that the stock have plenty of bedding, and I do not believe that it is best for them to lie upon a damp, cold floor. In our hog pens and henhouses we keep them covered with straw and chaff and do not clean them out every day. We keep putting in straw and let it accumulate until it gets so deep that it is in the way of the animals, then we clean the material out and put in dry straw again so that the floor is always covered with straw. The same way with our calf beds. In this way we save every bit of the liquid manure by letting the straw absorb it in which shape it is carried to the field without loss.

**FEEDING STUFFS FOR THE DAIRY.**

Dairymen should be widely informed regarding feeding stuffs, since in these days of economy few men go through the year without purchasing supplementary feeds to cheapen the dairy ration and not depreciate the value thereof. The percentage of protein in all feeds usually marks its value and generally constitutes the basis in determining its value by feed inspectors. Among the feeds containing 40 per cent of protein and over are cottonseed meal, meat scraps, bone meal and feeding tankage. Feeds containing from 30 to 40 per cent of protein are linseed meal, and some of the better gluten feeds. Feeds containing between 20 and 30 per cent are some of the lower grades of gluten feed, corn germ meal, corn pressed cottonseed cake, dried distillers' grain, calf meal, etc. Feeds containing from 14 to 20 per cent are wheat bran, wheat middlings, cottonseed meal and hulls (feed meal), buckwheat mixed feeds and many of the better brands of dairy feeds. Those containing eight to 14 per cent of protein are white middlings, corn bran, corn and oat chop, other chop feeds, besides many special brands offered to the trade. Low grade oat feeds, cottonseed hulls, buckwheat hulls, etc., contain less than eight per cent of protein and consequently are not very efficient in producing dairy products.

Probably cottonseed meal is used more than any other one kind of supplementary feed purchased by Michigan dairymen. There are different grades of this meal. According to the interstate cotton crushing association choice cottonseed meal must be finely ground but not necessarily bolted, perfectly sound and somewhat sweet in odor, of a yellow color without excess of lint and must contain at least eight per cent of ammonia, or 49 per cent of combined protein and fat. The second grade which is called prime cottonseed meal is essentially the same as choice cottonseed meal, except that by analysis it must contain at least 7 1/2 per cent of ammonia, or 46 per cent of combined protein and fat. The third class, denominated good cottonseed meal, must be finely ground, not necessarily bolted, have a sweet odor, of a reasonably bright color and by analysis must contain at least seven per cent of ammonia, or 43 per cent of combined protein and fat. Cottonseed meal not coming up to these contract grades may be of good delivery if within one-quarter of one per cent of the ammonia content or one and one-quarter per cent of the combined fat and protein content of the grade sold or of the sale sample. However, in such instances it is the rule of the association that the settlement price shall be reduced according to the content of protein.

Superintendent Bernard H. Heide calls attention to the fact that entries for the International Live Stock Exposition at Chicago close November 1. Arrangements for the show are going forward vigorously, and it promises to excel all its predecessors.

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The Lawrence Publishing Co.,  
Detroit, Mich.

DETROIT, NOV 4, 1911.

CURRENT COMMENT.

With the approach of the institute season, it would not come amiss to review the work which has been done at Farmers' Institutes in our own and neighboring states in recent years, in order that we may arrive at a knowledge of the cost of this work and the extent of the benefits which may naturally be ascribed to it.

A special report of the United States Department of Agriculture giving statistics for the year ending June 30, 1910, for 12 states, including Michigan and those surrounding it, permits of some interesting deductions in this connection. Of these 12 states, Michigan expended the smallest amount of money for institute work during the fiscal year for which the figures are given, or a total of \$8,560. With this money 1,136 institutes were held with an attendance of 149,652, the cost per session being \$7.54 and the per capita cost for that attendance being 5.1 cents, or the lowest of that in any of the states for which statistics are given in the above mentioned report. The figures relating to the attendance do not take into consideration the number present at the round-up institute or on the institute trains, which would have added approximately 15,000 to the number present at Michigan Institutes and reduced the per capita cost accordingly.

With two exceptions, the number of meetings held in Michigan was the largest of any state included in the report, Indiana having held 1,218 and Ohio 1,620. At the 1,620 meetings held in Ohio there were present 421,040 persons; the total expenditure for the meetings was \$22,000, the cost per session \$13.58 and the cost per person 5.2 cents. A comparison of these figures shows that the average attendance at the institutes in Ohio was more than twice that in Michigan, and notwithstanding the fact that nearly three times as much money was expended and the average meetings cost nearly twice as much, the per capita cost for those who attended was only fractionally higher.

No other state closely approached this low per capita cost of institute work that was included in this report, Indiana being the nearest competitor with a per capita cost of 9.3 cents. The highest cost was that of North Dakota at 28 cents per capita, while some of the older states

having a larger number of meetings, such as New York and Minnesota, have a per capita cost of 21 cents and Illinois a per capita cost of 19 cents. These figures show that for the attendance at the institutes, Michigan made a good expenditure of the money appropriated for this purpose. They also show that there is room for betterment of the institute meetings through their more liberal patronage by the farmers of the state. Of course, it must be taken into consideration that many of the Michigan institutes are held in the sparsely settled sections of the lower peninsula as well as in some of the upper peninsula, and that these have naturally reduced the average of attendance and increased the per capita cost of our institute work.

There is no doubt, however, that the results have well paid for the expenditures involved and it is a reasonable assumption that the time has now come when more money should be spent for this work and the character of the institute meetings improved to a degree which will attract larger attendance and be a material aid in the solution of many of the vexed problems of the farmer, including the marketing problem as well as the problem of production or the social problems of rural communities.

On another page of this "First Aid" to issue appears an article Agriculture. from the pen of one of Michigan's progressive agriculturists who thinks favorably of the scheme of having a traveling farm expert detailed in each county, to be paid jointly by the national, state and county governments, to help the individual farmer solve the difficult problems with which he is confronted. It would undoubtedly be helpful in many ways, yet it is probably many years from realization, and with that fact in view, every farmer should resolve to secure "first aid" in the solution of his problems from every possible available source at the present time. He may do this from the agricultural papers, the farmers' institutes, the experiment station bulletins and the various farmers' organizations with which he may become affiliated. We believe that the agricultural papers may be made more helpful by very many farmers than they are at the present time. While a constantly increasing number are seeking information through this medium each year, yet there is room for much more valuable work along this line, and it is with that fact in mind that the Michigan Farmer has established the new department of practical science, through which the elucidation of scientific problems will be undertaken as has the explanation of practical problems through the other departments of the paper in the past.

This is a progressive age and the progressive farmer must keep well in the front rank in all that relates to the science of agriculture, as well as to the details of practical agricultural practices in the section where he may be located. But it is not alone "first aid" that is needed, but a follow-up system by which the farmer who is started along the right line of scientific investigation and practical application of the fundamental principles of agriculture, may keep apace with the modern demands for success upon the farm.

In the discussions which have recently occurred in the columns of the Michigan Farmer regarding the amount of work which a man should accomplish at different tasks on the farm, the fact has been quite clearly brought out that the character of the horses used by the man accomplishing that work will be a material influence upon the amount of work which he should accomplish. Clearly, then, as a means of conserving the farm labor in getting the most for our money in work accomplished, we should have good horses of the right type in order that the farm labor may be utilized to the best advantage.

The cost of horse labor upon the farm has been made the subject of exhaustive study at the Minnesota Experiment Station and carefully kept records and accounts of farm horses have been published in Bulletin No. 117 of that station, showing that the average cost of horse labor on the farm is about 8 1/2 cents per hour. This means that the actual cost on the farm for a 10-hour day is 85 cents per horse or \$1.70 for a team. There is no disputing the fact that it costs little more to maintain good horses of the right type for the accomplishment of a maximum amount of work upon the farm than for the maintenance of those not so well suited to the purpose, and when we

take into consideration the fact that the cost of a man to drive the team is at least equal to the cost of the team itself, there is a double loss from the inefficiency of the teams maintained upon the farm, where they are not well suited to do the work in hand.

Thus, the extra money required in the investment of a good team as compared with inferior horses will yield a very high rate of interest in the resulting conservation of labor upon the farm, and as labor is the largest factor in the cost of production, this is one means which should be taken to reduce the cost of production on every Michigan farm. Fortunately, the farmers of Michigan are breeding a better class of horses for farm work than was the case in former years, and notwithstanding the relatively high price of horseflesh at the present time, the average quality of Michigan farm horses is better than ever before. Still there is plenty of room for improvement in this respect and it should be the aim of every farmer to approach the ideal in the type of horses maintained upon the farm as a means of conserving the farm labor and thus cheapening the cost of production to a maximum degree.

HAPPENINGS OF THE WEEK.

National.

Two men were killed Sunday when a freight train went through a trestle over Caesar Creek, six miles south of Xenia, Ohio.

An open gas jet resulted in the asphyxiation of four persons at Bridgeport, Conn.

A railway wreck one mile west of Bellevue, Texas, resulted in the death of one man and the injury of a score of passengers.

One man was killed and several others severely injured by the collision of a passenger and freight train near Randolph, Minn., Sunday.

Capt. Larsen succeeded in making his second successful trip down the Niagara River through the whirlpool rapids in his motor boat, "The Niagara," which is 15 feet long and equipped with a 10 horsepower engine. Mr. Larsen made the six mile trip through the turbulent waters in 25 minutes.

Earthquakes in southwestern Alaska revealed rich veins of gold, and as a result considerable excitement exists at Valdez, Cordova and other southern Alaska towns. It is reported that the quartz assays from \$15,000 to \$24,000 per ton.

Joseph Pulitzer, the noted blind editor of the New York World, died at Charleston, S. C., Sunday afternoon. He was 64 years old and had been blind for 22 years. He was born in Hungary and 47 years ago arrived in New York with only a 20-franc piece. His estate is now estimated at \$200,000.

The largest cave-in in the history of mining in the state of California occurred the past few days at the App mine, one of the old time gold producers, in the town of Quartz. Already the cave has left a hole 200 feet by 300 feet and 150 feet deep. The disturbance continues down to the tenth level of the mine. Preliminary rumblings gave warning to the miners and all escaped.

The tariff board provided for by the federal congress has its report on the woolen industry practically completed and will be ready to submit same at the opening of the coming session of congress. It is generally conceded that the tariffs in Schedule K are the most complicated in the whole tariff list and the presentation by the board of this report will doubtless start a struggle between the protectionists and the free traders.

The greatest assemblage of American battleships is being completed at New York to be reviewed by President Taft on the return from his western trip. One hundred battleships, cruisers, torpedo boats and other war craft will be in line. Three new battleships are now in column, the battleship Maine, the cruiser North Carolina and the dreadnaught Utah. The new battleship Florida will join the fleet this week.

The national republican convention has issued a call which provides for 1,064 delegates, unless Arizona and New Mexico become states before the convention, when 1,072 delegates will be provided for. Michigan is allowed 30 of these.

President Taft is well on his way home from his extensive trip through the west. Sunday was spent in Chicago where he made addresses before religious organizations.

Federal statistics indicate that Detroit surpasses Pittsburg as a manufacturing center. The number of employees has increased 69 per cent during the past five years in Detroit, while in Pittsburg in the same period the number has decreased six per cent. That is, Detroit now has 81,011 wage earners employed in her industries while Pittsburg has 67,474.

The congressional house committee on appropriations will make a trip to Panama to investigate the progress being made on the canal and on their return trip will inspect the wreck of the old battleship Maine in Havana harbor, inasmuch as an additional appropriation of \$250,000 has been asked for to complete the work and raise the wrecked craft. There are seventeen members of this committee.

Foreign.

The situation in China appears to be more critical and the ability of the government to cope with the rebels is now seriously questioned. The spirit of revo-

lution is crystallized, not only in the southern provinces, but is being shown in the central and northern portions of the Empire as well. The latest reports indicate that Pekin itself is in much danger and that the Manchus, who constitute the ruling class, are fearful lest a general attack be made on them and so are going about robed as the ordinary Chinese. Reports have not indicated any severe fighting in the past few days, but troops are being shifted by both parties and additional precautions taken to give each army advantages should a conflict take place. Many of the imperial forces are becoming disloyal and going over to the rebels and a wider demand for the establishment of a constitutional government is evidenced. It is reported that the Emperor has been spirited away from Pekin and that Prince Ching, who was too old to flee has killed himself. The American and other legations are guarded with strong guards; foreigners are taking refuge among the several legations.

An attack was made by Turkish troops on Homs, a city but a short distance from Tripoli last week. The attack was unsuccessful; however, the Turks being repressed with severe losses. The point was within reach of the war ships in the harbor, which aided the Italians materially.

The campaign by the ex-shah of Persia to regain political control of that country is meeting with some success. His troops, enforced by Russian troops and the use of Russian gunboats have recently defeated the forces of the Persian government at Bendergez.

News coming by way of Constantinople reports that 5,000 Italians were killed in the campaign about Tripoli and that 7,000 were taken prisoners by the Turks. This information has been corroborated by information from other sources; however, it may be that the original news was dictated by Turkish interests. Nevertheless, the reports suggest that the Italian government may have been successful in suppressing news of defeat, which news would make it more difficult for securing home support as well as favor from other countries.

A late report affirms that the Emperor of China has taken oath that he will agree to yield to the demands of the national assembly and empower them to frame a constitution for the regulation of the political affairs of the Empire. It seems that the rebels are disregarding the overture and demand that the present dynasty must go.

CROP AND MARKET NOTES.

Northern Isabella and Southern Clare Co.'s, Oct. 26.—Snow is falling today. Beet harvest in full blast; some of beets 18 inches under water; will not yield over 75 per cent of a crop; 8c per lb. for sugar and \$5 per ton for beets—something wrong. Newly sown wheat looks poor. Potatoes turning out poorly and rotting in low ground. No frost to speak of up-to-date and pastures are pretty good. Not much fall plowing done yet—too dry at first and too wet at present. Roads are almost impassable. Beans yield from six to 17 bushels per acre; some of them almost worthless, owing to continued wet weather. Auction sales quite numerous, and a lot of changes in real estate.

Washtenaw Co., Oct. 23.—The continued wet promises to be but little less disastrous to farmers than the prolonged drouth. The bean crop was harvested under difficulties and many suffered a 25 per cent depreciation in the crop before it was secured. There is much complaint of potatoes rotting, and corn has sustained considerable damage, the fodder especially having lost at least 25 per cent of its feeding value. Hay selling readily in barn at \$16, and bringing \$19 @20 loose on wagon in market. Very little corn husked—both field and fodder being too wet for machine work. Large quantities of apples have been picked; in the sprayed orchards they are an immense crop. Large shipments of live stock have been made recently, many farmers finding themselves short of both hay and grain. Live hogs are selling around \$6, while eggs and butter promise to bring remunerative prices this winter.

S. W. St. Clair Co., Oct. 29.—Weather during the past two weeks has been quite favorable for the prosecution of farm work and the time has been utilized by every farmer who has crops to harvest. Harvesting of the sugar beet crop has progressed steadily, though the saturated condition of the soil has made the task more arduous, both in the pulling of the beets and the hauling. From 1 1/2 to 3 tons are taken at a load. The soft condition of fields necessitates a doubling of teams there, and a considerable number are using three-horse teams for the road. The harvesting of the beet crop is done mostly by imported labor; in fact, the growing and harvesting of this crop would be out of the question without this foreign help. Under present conditions it is next to impossible to secure help to harvest the regular crops, such as beans, corn and the like, and wages of farm laborers are in an inflated state, ranging from \$2 to \$3 per day. But little wheat sown. The pear crop was a maximum one but the apple crop was exceedingly light.

Ohio.  
Hardin Co., Oct. 24.—Continued wet weather has put a stop to wheat sowing through this section of the country and is spoiling some of the corn crop. It has not been dry enough to haul out corn for several weeks past. In southern part of county clover seed is turning out well for the amount of straw. Not a great amount of corn husked yet; some reports of moulding in the crib. Chickens selling at 8c live weight; baled hay, \$16 per ton; oats, 40c per bu; wheat, 89c; hogs, a little better than 6c per lb.



# Magazine Section

LITERATURE  
POETRY  
HISTORY and  
INFORMATION

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

The FARM BOY  
and GIRL  
SCIENTIFIC and  
MECHANICAL

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

## EXPLORING THE NAKIMU CAVES.

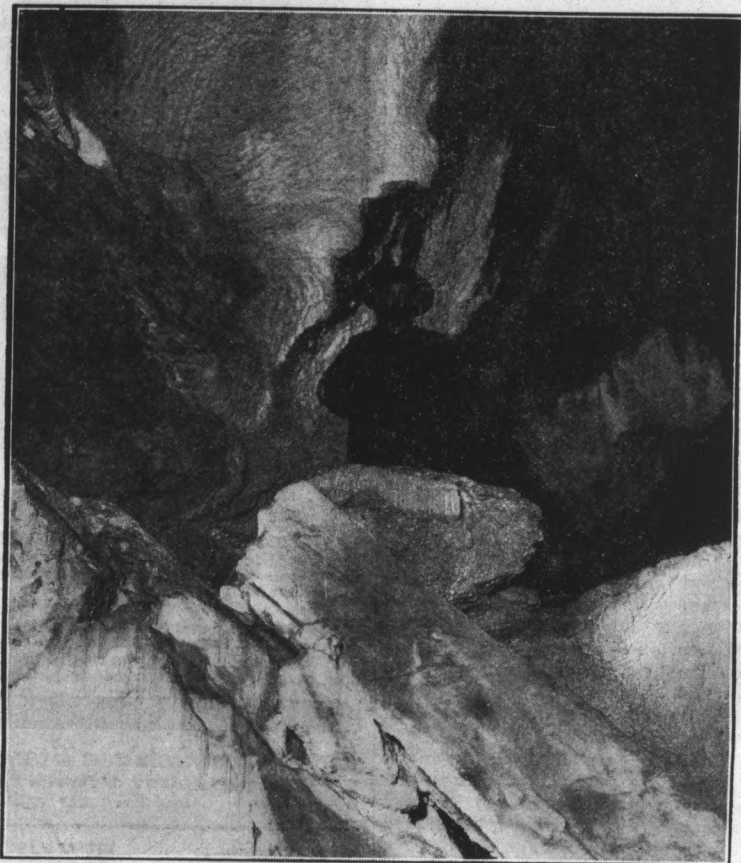
(Concluded from last Magazine Section.)

ABOUT the middle of the Flume, on the east side and thirty feet above it, is the entrance to the Mill Bridge series of caves, known as "Entrance No. 1." It is a mere cleft in the rock strata, and is hardly wide enough for the passage of a man's body. The length of this passageway was determined to be nearly or quite 400 feet, and the height varies from ten to twenty-five feet, while the width is from three to fifteen feet. At one place the passageway twists in a loop where the potholes are of such curiously spiral form that the name "Corkscrew" was given it. Across this bend, about twelve feet above the main floor, a gallery extends for 120 feet.

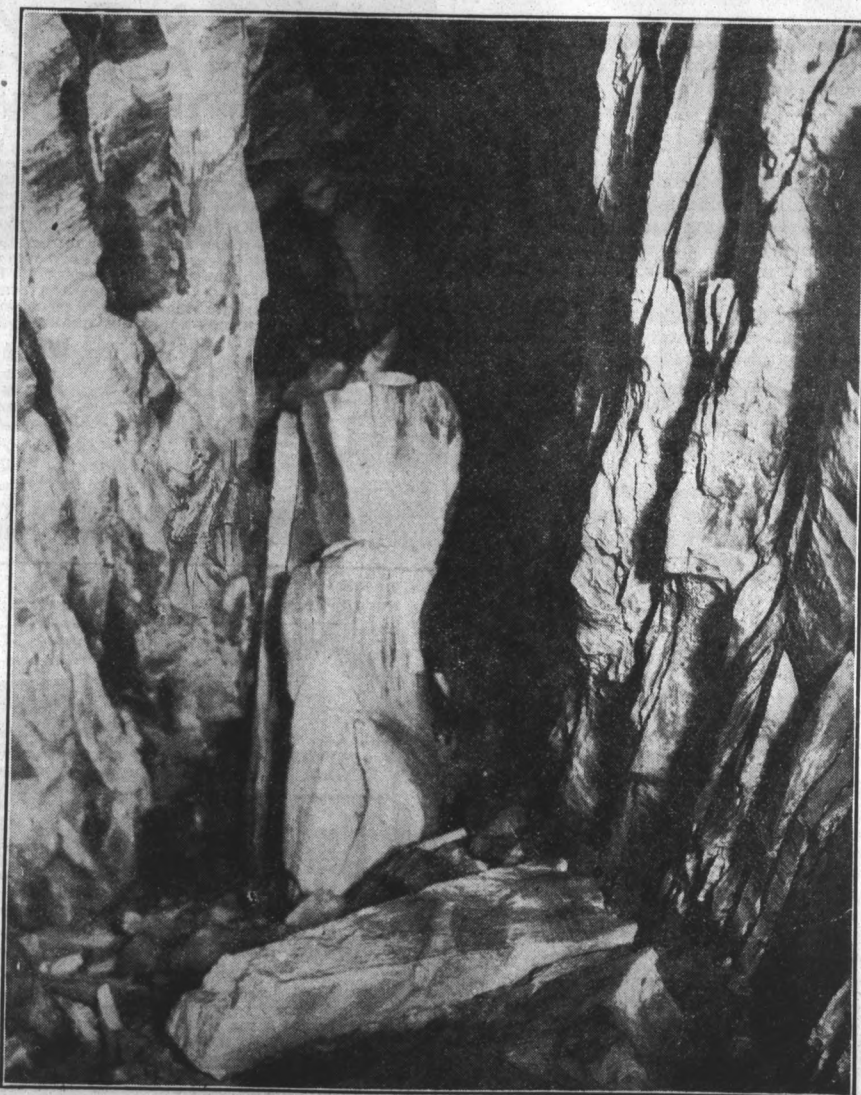
A little farther on the party came to an irregular shaped chamber about sixty by seventy feet having a maximum height of twenty feet, which was named the "Auditorium." Cougar creek, in its flow beneath Mill bridge, passes through this chamber, and as it falls seventy-five feet in a distance of 200 feet from its entrance, the space is filled with its thundering roar, and by the faint daylight entering through its passageway the surroundings look dim and mysterious. The frosts of winter have penetrated this spot and huge stalactites and stalagmites of ice form columnar groups beside the dashing waters and for some distance beyond. The slow process of disintegration has created much havoc in the Auditorium and the walls no longer show the marks of water erosion, while the floor is heaped with rock debris fallen from the ceiling. The adjoining passageways, however, are still intact, showing the power of water erosion in the series of potholes connecting one with another by short narrow passages. The bottom of each succeeding pothole, receding from the entrance, is on a lower level, sometimes as much as ten or fifteen feet, and many hold water in the hollows to the depth of four or five feet. With the aid of a bridge carpenter rough ladders were constructed and placed from floor to floor, and in one place the space was so wide and the water so deep as to necessitate a floating bridge.

Cougar creek, having followed its twisting underground course under Mill bridge, finds an exit at the bottom of a narrow crack or "canyon," and flows through this for nearly 250 feet to an abrupt wall of the ridge, where it again seeks its subterranean bed far below the surface. The canyon is eighty-five feet deep, and its sides, almost perpendicular, are composed of badly shattered limestone, affording no easy descent to its bottom. To descend the rock-cut walls with absolutely no foothold, and rendered more dangerous by the winter's ice and snow, was a ticklish job and was only undertaken after Deutschman had made the slide down a knotted rope, hand under hand. The party finally reached the canyon floor in safety.

The break in the north end of the canyon, entrance No. 2, is a dome-shaped opening into which the stream tumbles with wild fury over a confusion of huge fragments of rock littering its bed. The entrance is fully thirty feet wide and about the same height, and the leaping plunging water, as seen from below within the cave, causes a dissemination of spray, so that the opening to the outer world appeared through a luminous mist. This main cave comprises the largest of all the underground openings thus far discovered, and very naturally so because of the additional waters entering it. The average height of the main channelway, measured on the dip of the strata, is about 100 feet, while the width, measured perpendicularly to the bedded faces, ranges from eight to twenty feet. The channelway is not of uniform width, as might be supposed, but varies with the conditions of flow of the water at the time of its formation. With all the water flowing



The Slanting Way—Rock Debris Littering the Passage.



Cleft in Rock Strata Giving Entrance to Mill Bridge Series of Caves.

through it on a steep grade it would be narrow, and with only a portion of it, the other portion running around some other way, it would also be narrow. It would be the widest where all the water passed through it and on a moderate grade.

It was the conclusion of the engineers that during its early history, it appeared much like the passageway in entrance number 1. But as the channelway grew deeper and wider, through centuries of erosion, many large masses of rock from the hanging wall were loosened and fell into the channelway, thus forming obstructions around which the water cut its way, and at the same time wore away some or all of them. As a result many enlarged chambers were discovered here and there, and still others were seen that had been formed by potholes, like rounded shafts down which the water poured, keeping boulders at their bottoms ceaselessly grinding them deeper and deeper. It was only a matter of time when, particularly at the confluence of streams, great masses of overhanging rock were unfooted and dropped in the great channelway and potholes. For these reasons the main caves have been named "The Ruined Aqueduct." In one place an enormous rock, resting in a nearly horizontal position and having an upper surface of about 1,200 square feet, nearly filled a large chamber which was named "The Ball-room."

At the northwest corner of the Ball-room a narrow passage leads to further wonders of nature in the subterranean depths. A sharp turn to the left brought the explorers to the present channel of Cougar creek, whose waters were there augmented by "Bear Falls," almost directly above and fully 400 feet high. Continuing to the northward they came to a sudden turn to the right, beyond which were seen the most ragged walls that had yet been found in the caves. The jagged points and grotesque shapes at once inspired caution, and the place was named "The Terror." The peculiar roughness of its walls and ceiling is accentuated by thin knife-like blades of the unchanged limestone extending from one to two inches beyond the general surface of the marble holding them. Farther south the passage leads to a much lower level, where "The Old Mill" ground for many centuries before it fell into ruin and disuse. It tells a long story in history from its grinding to the present day erosion, probably more than 40,000 years. As it was getting late in the day, the party retraced their way through the canyon entrance, and by the use of the knotted rope climbed to the floor of the valley and proceeded to camp for the night.

The next morning the explorers found it necessary to break a path through the deep snow to Entrance No. 3. There by crawling through a very narrow passage on hands and knees, and then descending a steep narrow water groove for about fifty feet, the brink of a large cavern was reached that was estimated to be 256 feet deep, but its length and breadth were not determinable, owing to their great extent and to the insufficiency of light at hand. It was very aptly named "The Pit," and the explorers noticed that several openings led off from it to the east. The plunge and roar of a great waterfall somewhere down in the depths of this cavern reverberated in every corner and nook of the cave and produced, in the listener, sensations so weird and magical as to be unpleasantly startling. The rocks here are of a dark blue-grey color and have bands of white marble inserted in them, which have been so crumpled by pressure as to give the bands a zig-zag appearance.

The easterly passage from the Pit joins the main channelway which continues southeasterly for about one thousand feet, broken at intervals by side entries, some



of which are full of wonders of nature's handiwork. About 200 feet from the Pit a passage to the left leads to the brink of a precipice which was named "The Turbine." Across the chasm, at whose bottom flows the main stream, a number of waterspouts gush out of the rocks far below with great force and a noise resembling that produced by water falling into the penstocks of a turbine. Nearly opposite, the floor and walls were found to be covered with an incrustation of carbonate of lime varying in thickness from two to six inches. It is of a light creamy color, shading off in some places to a delicate salmon. The formation has a florescent appearance and resembles cauliflower heads set closely together. This particular spot was named the "Art Gallery." A dividing passage led to "The Dome," so named because of its perfect formation and great height. Farther on "The White Grotto" was reached, which proved a delight to the explorers on account of the curious and peculiar formation of its walls, all a dazzling whiteness. From this place a low narrow passage continues to "The Bridal Chamber," the lime decorations of which are of the most delicate tracery. Here the caves end in a deep chasm, inaccessible by any means at hand, and the party reluctantly returned through other parallel passages. In the afternoon they broke camp and returned to the Glacier House that night.

The chasm at the end of the caves con-

tains a frightful waterfall, believed to be the main stream of Cougar creek, and as it is only 240 feet from the Wind Crack, referred to as being seen on the way up the valley, and is but 54 feet above it, it is safe to assume that there is a connection between. The wind issuing from the crack is probably caused by a water blast in the chasm, due in some way to the falls of the creek above.

It is the opinion of the engineers that these caves have been formed entirely by water erosion. The stream which did it, Cougar creek, is entirely made up of glacier and snow water and, above the caves, is free from any lime salts. Its capacity, therefore, to dissolve limestone when brought in contact with it, is at its maximum. The fine grains of sharp sand, loosened from the lime rock and caught in the swift current of the small stream that at first found its way through a shrinkage crack of some particular bed of limestone, have undoubtedly given the water an uncommon erosive power, which, through the countless ages of the caves' history, has enabled that mountain torrent to carve out a mammoth channel in solid marble.

No evidence whatever was discovered that any portion of the caves had ever been used as a habitation by any human beings of a pre-historic race, or of tribes of Indians in later days; nor were any traces found of wild animals, such as bears or wolves, having made their home within the recesses and vaulted chambers.

### SUE'S DEFENSE—BY DELLA H. BATHER.

"Just think of it, Sue, you've taught only a month, and you've got fifty dollars to show for it.

Johnny Carson was ready to show homage to such wealth.

"Gee!" he exclaimed, "I spent all the morning fixin' up to come to town after you. I washed this buggy in four different waters."

"It's against father's principles to drive around a mud-puddle, isn't it Johnny?"

"Yes; he goes through 'em pell-mell. He don't have the washin' of the buggy to do. I had to take ma's scrubbin' brush to old Bob. I hate white horses."

"Black ones don't show the soil quite as much, that's a fact. What in the world have you been doing to the old fellow's tail?"

"Oh, I started to get the pesky burrs out, and he wouldn't stand for it. He raised his foot as if he was goin' to kick me."

"You must have hurt him pretty badly, Johnny, for I never heard of Bob's doing such a thing before."

"I s'pose I did, but let the old fool keep out of the burrs. I was makin' a pretty good job of it with ma's shears, when pa stopped me. He said he'd bet on it that money hadn't turned your head a particle."

"Father knows his old chum too well for that; and besides, Johnny, I haven't got fifty dollars. In the city, you pay for the pleasure of eating and sleeping. The first two or three days I actually thought I'd learned to live without eating. Were you ever homesick?"

"Was I? Do you remember that time I went out to Uncle Ben's? Why, I felt all the time I was there as if someone had knocked me down and was everlastingly kickin' me in the stomach."

"That quite expresses my feelings," Sue said, laughing. "But I'm quite at home in the boarding house now. There are some lovely people in the house. There are a great many teachers, and the sweetest old lady who calls everybody 'dear,' even the dignified old lawyer whom all of us stand in awe of. He doesn't talk very often, but when he does everybody listens. Then there's a young doctor who talks all the time."

"Do you have to eat with a fork, and use a napkin all the time?"

"Mercy, yes! And I suppose I'm the only person there who ever ate off from a red tablecloth."

"Whew! They must be a swell lot. But I'd a heap rather eat ma's cookin' on a red tablecloth in the kitchen."

"So had I," Sue said with emphasis. When they reached home supper was just ready.

"Little Motherkins"—Sue was a head taller than her mother—"how do you always know the exact minute we will arrive, and just what we've been crazy for for a week?"

"I hain't known you twenty-two years for nothing, Sue."

"But I'm just finding out what a treasure I have for a mother."

It was a happy little reunion that night. Bright-eyed Future waved her rosy-tipped wand, and the kitchen fire became a great shining coal stove; the mortgage was paid; a new house stood in front of the old one; Sue was principal of one of the city schools, and Johnny was nearly through college.

At midnight the good-nights were said. Sue's caresses for mother and Johnny were unusually prolonged, but her head rested longest on her father's shoulder, as if the old husking wampus was the softest pillow in the world.

When she reached her room she found it flooded with moonlight.

"God's light," she whispered, "how you put to shame electric lights. How soft you are, and how you soothe me. So few of them have a dear country home in which to find real peace and rest."

It was the close of "blue Monday," and Sue was tired to death. She had ridden in from the country, and was tired to start the day with. Then the children had acted as if possessed. She was sure it was not her fault, for she had made a tremendous effort to keep good-natured.

As soon as the last child had departed, she hurried to her room and found relief in tears. Why was she here, anyway? Why hadn't she been content to stay always in the home nest? Why had she been so crazy for an education which, when secured, only brings dissatisfaction?

"Miss Carson is an all-fired pretty girl, eh, Watson?"

Sue salt bolt upright at the mention of her name. The speaker was the doctor, so-called, who hoped to place an M. D. after his name in a couple of years.

"Rather pretty, yes," the lawyer admitted, "but she's too passive."

The doctor laughed.

"She's that all right, but you're the last fellow in the world I'd expect to take exceptions to that. I'd an idea that the girl for you would be a regular stiff."

"On the contrary," answered the lawyer, "the more sparkling and vivacious the better. Beauty is a secondary matter with me."

"That's where we differ. Good looks for mine."

"And you'll furnish the wit, doctor? There's where we differ again."

"Come now, Watson, no sarcasm. I'm interested in the girl. I understand that her father is a professor in some eastern college, which, I presume accounts for her dignity. I'm hanging around to ask her to go to the play tonight. She's so wrapped up in those younkners that she never gets home until dinner time."

"Not a bad fault in any profession. Good luck to you, doctor," and Watson was soon lost in his newspaper.

The voices ceased, and Sue's little room witnessed another outburst, not tears this time, but what she considered righteous indignation.

"So I'm passive," she whispered vehemently; "how I despise that term. In other words I'm a dolt, a goose, that oc-

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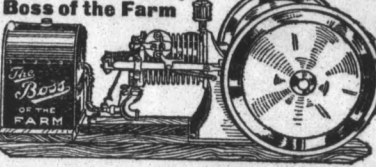
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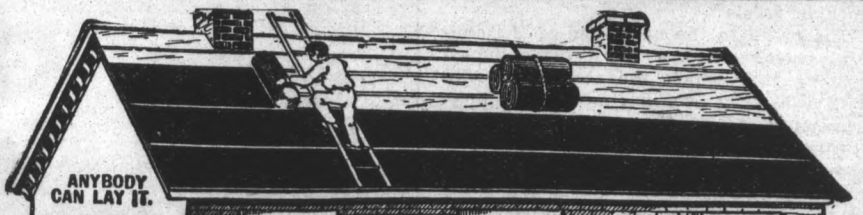
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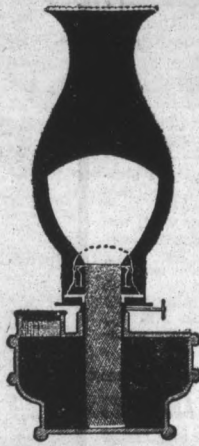
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asionally says 'quack! quack!' and eats. Well, what do I care what he says; he's nothing to me, and evidently I'm nothing to him."

She paced up and down her room, then paused before her mirror.

"They said I was pretty. That's one point in one's favor, but to be told you don't know anything in the same breath takes all the pleasure out of the compliment."

From her window she could see the sun sinking, a glorious setting in red and gold. Her mind flew back to the old days. She had seen just such sunsets as she stood at the farmyard gate with her father while he waited for Johnny to come with the cows.

"And you're a professor in some eastern college, daddy. Well, let them think so. They never had a man among them who knew half so much of Nature's book."

Her little clock warned her that dinner had already begun.

"Never mind," she assured herself, "this is a good way to begin acting the role of professor's daughter. I'll be stylishly late. Then I'll burst in and beam on everybody. I'll sparkle if it kills me. Only, I wish I hadn't heard them tonight. When the doctor asked me to go to the play I would have said truthfully, 'No, thank you. I rode in from the country,

"Don't you ever think it!" she burst out. "You doctors are suffering from dislocation of a joke. My father knows what's going on as well as you do, and he's a hayseed; and so am I, through and through. Those country people, hayseeds, if you please, are well informed. They know how to take a joke, and turn one, too. All the time you were boosting that hayseed, he was chuckling to himself. Just about now, he's telling his family about it, and they're roaring over it."

She raised her glass to her lips. "I drink to hayseeds in general," she said, "and especially to the one so splendidly elevated this afternoon by the medical profession. Good-night, doctor. Good-night, all."

That night the lawyer, apparently absorbed in Blackstone, suddenly closed the book with a bang.

"By George!" he said, "women are conundrums, anyway. She'd make a clever lawyer herself. One of these days I shall be needing an assistant."

PAPER LOG CABINS.

Very pretty log cabins, either for toys or souvenirs, can be made by the younger readers as follows: An exactly square piece of stiff writing paper, either colored or white, is folded into a number of small triangles and squares, as shown

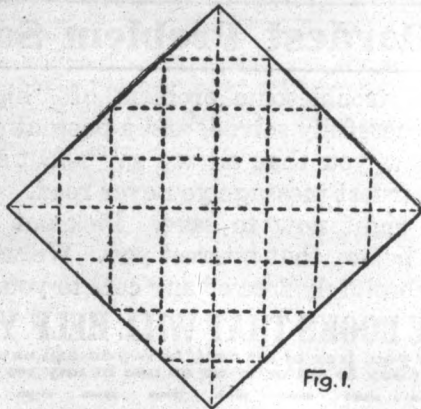


Fig. 1.

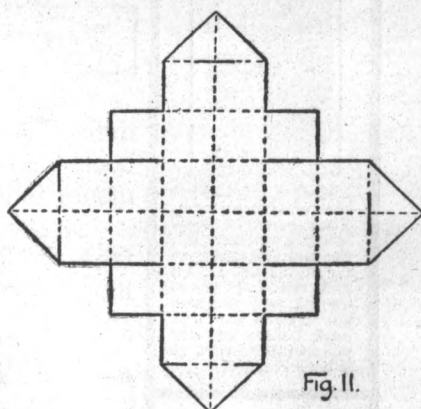


Fig. 2.

this morning, have taught all day, and must rest tonight.' I'd have gone on in the old way, happily ignorant of what anybody was thinking or saying about me. I know I shall be perfectly miserable every minute at the play, but I'll go. Exit passive Sue Carson. Enter, Miss Susan Carson, the sparkling vivacious daughter of the eastern professor."

The doctor pointed to a vacant chair beside him, which Sue took with smiling acquiescence. She laughed merrily at his jokes. She addressed lively remarks to the lawyer, and noted the look of pleasure on that gentleman's face. Her cheeks were red, her eyes bright. Her whole being was full of life and exuberance, which she imparted to everyone present.

The sweet, white-haired woman said:

by the dotted lines in Fig. 1. The two long diagonal creases are made by folding each corner to the one opposite.

The paper is then spread out, and each corner folded to the center of the sheet. The creases should be made very distinct by pressing the finger nail along them. As the paper looks now, there is a square and two diagonal creases. The next step is to fold each corner to the near side of the square, and then to the far side, making a number of creases as shown in dotted lines, Fig. 1.

The small triangles are now cut out, the slits and wings made in opposite corners, one edge of the four squares cut as shown in Fig. 2, and the door and window shown in Fig 3 must be cut with a sharp penknife.

Fig. 3 shows how the box is put to-

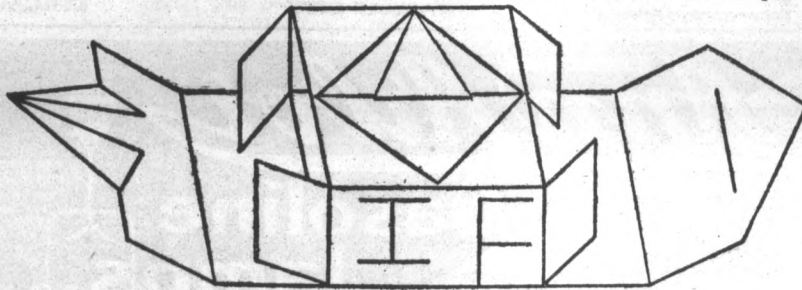


Fig. 3.

"My dear, your outing did you a world of good. We will let you go again, for you bring life to our old dry bones."

For the first time in her life, Sue Carson knew the feeling of perfect self-satisfaction.

Dinner was over, but the doctor announced that he had one more story to tell, and they lingered.

"There was an old farmer standing on the corner this afternoon, a typical hayseed, overalls tucked in his cowhide boots, hands tucked in his pockets, mouth open, taking in, incidentally, the sights, and, accidentally, carbonic acid gas.

"Have you seen the President yet?" we asked him.

"He allowed he hadn't; didn't even know he was in town.

"Well, you are behind the times," we told him: "wouldn't you like to see him?"

"He allowed he would.

"We took him to the fire escape of the Hamilton building, boosted him to the first landing, and left him patiently awaiting the coming of the chief executive. For all I know, he's there yet." Everybody laughed but Sue.



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The three go at will—by boat or by rail—And their fare is but one round cent.

Their first trip abroad was to Grandfather's house, a distance of thirty-odd miles; and when they reached there—by mail—you may guess they were met with welcome and smiles. They've traveled to Utah, New York and Maine, and once to Chicago they went; but miles do not count; wherever they go the fare is the same—just one cent.

And age doesn't count on these swift, lengthy rides, for Richard will shortly be ten, while Carolyn's three, and Tom, you may guess, will never see thirty again. So, children, my dears, if you wish to ride, mount post cards; you'll never repent; you may travel throughout the U. S. A. for the modest sum of one cent.

THE TIME OF DAY.

"What time is it?" How many of us do not hear this question asked daily and in the answer given how many times do we hear an expression of doubt as to the exactness of the reply? Yet we all know it is a great convenience to have an accurate knowledge of the correct time. It is just as easy to carry the correct time as to be doubtful on this proposition, or to be obliged to reckon upon the error of the watch which we carry. It is simply a matter of having a reliable guaranteed make of watch, which is no longer expensive, owing to the economy and precision of modern methods of manufacture.

In purchasing a watch it is far better to buy one bearing a well-known trademark and backed up by responsible manufacturers, than one of the nondescript character upon which the local dealer can make a larger profit. The same is true in buying the case in which the watch is carried. There are several well advertised makes of watch cases which are guaranteed for a stated period of service by reliable manufacturers, and which will be replaced with new ones in case they do not give the guaranteed service.

In purchasing a timepiece which is to be one's constant companion for years, it pays to take these factors into consideration and buy a good article, which, as above noted, can be secured at a reasonable price.

Wayne Co. C. T. H. B.

Agnes, aged six, and her sister, two years older, were contending as to which of their grandpas was the taller. Finally Agnes exclaimed:

"Well, you may think as you please, but I know that my grandpa is tallest because he has grown clear through his hair, and yours hasn't!"

"What is the meaning of the word 'procrastinate?'"

Pupil—"To put off."

Teacher—"Right. Illustrate it in a sentence."

Pupil—"I tried to steal a ride on a street car yesterday, but I was procrastinated."

BE THANK-FULL

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6 Vehicles 18 Men's Fur Coats 30 Women's Fashion Book
7 Furniture 19 Sewing Machines 31 Rain Coats, Rubber Coats, etc.
8 Incubators 20 Gasoline Engines 32 Tombstones and Monuments
9 Wall Paper 21 Cream Separators 33 Men's Clothing
10 Typewriters 22 Building Material 34 Women's Furs
11 Grocery List 23 Stoves and Ranges 35 Dry Goods
12 Feed Cookers 24 Underwear Samples 36 Muslin Underwear
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# Woman and Her Needs

## At Home and Elsewhere

### Should Children Be Taught Politeness?

It is with a great deal of trepidation that I approach the subject of table manners, having in mind the storm aroused by a similar discussion in this department a few months back. But even at the risk of exciting some displeasure I want to write a few words regarding the behavior of children at the table.

Indeed, from my recent observations, and the stories told me by some of my friends who have dined in homes where two or three children rule, I have begun to wonder if even the most refined parents take the trouble to teach their offspring the cardinal principles of table manners.

At a recent christening dinner two young cousins of the infant were guests. These children were eight and ten years old, an age when, in my day, as all old ladies say, children were supposed to have learned polite behavior. But these lads kept the room in an uproar and spoiled the dinner for everyone. Every time a new dish was brought in they would pound on the table with fist or knife handle and yell in chorus.

"Serve us first, serve us first. If you don't there won't be any left for us."

Then, when served, they would fall upon their food with both hands, shovel it into their mouths with fingers, knife or spoon, which ever was handiest, and smack and suck with the gusto of young pigs. And the mother sat by and smiled fondly at the liveliness of her darlings. There were those present who were impolite enough to mutter under their breath the things they would like to do, but the ones most vitally concerned in the boys seemed to think their behavior was perfectly right and natural.

This case is extreme, I hope and believe. Yet I have seen so many things recently in the homes of really refined people that I wonder if I am a crank when I insist that my boys of three and five shall keep their fingers out of their food and shall not smack or chew with their lips open? I remember a home where the five-year-old was the apple of her fond parents' eyes. They had but one child and plenty of time to wait upon her at the table, yet either from carelessness or indolence her meat was never cut up for her. No matter what the kind of meat, roast, steak, bacon or chicken bone the little lady took it up in her fingers and bit off what she desired. Instead of being furnished with a crust to push her food upon her spoon or fork, she took her dimpled fingers. The result was sticky, greasy fingers which she sucked or wiped on the table linen, as she chose.

One night there were several guests for dinner and little Susie calmly picked up her meat as usual, much to the embarrassment of father and mother. "You had better have your meat cut when there is company," whispered the father, audibly enough for several to hear. I could not but think how much better had he taken the pains to cut it every day and teach his small daughter that everyday manners and company manners should be one and the same.

The smacking of young children may be natural, but is it necessary! I have been at children's parties where children of five smacked until I was crazy. All the time my own two boys sat bursting with the desire to call the young offenders to time and were only restrained by the stern looks of father or mother. The parents have told me I was too strict, that these habits would drop as the children grew older, but will they? And if they will drop off of themselves is it really necessary to have your meals spoiled for eight or ten years by little habits which a bit of extra time and firmness might correct, while you wait for the child to grow old enough to observe others and drop the habits from shame?

Personally, I do not believe those habits will drop off of themselves, especially from boys. Girls are naturally imitative

and as they go out in society and watch others they naturally pick up the habits of refined people. But boys and men are so intent on other things that the little niceties of life escape them. I have in mind one prominent professional man whose name appears almost weekly in the newspaper columns. He goes everywhere in good society, but he has not yet picked up the refined table manners which his mother neglected to teach him. It never occurs to him to close his lips while he is eating, and he talks and laughs with his mouth so full you marvel at his ability to perform the feat and not choke to death in the act.

Another man whose name I never learned used to spoil three lunches a week for me in the days when I took my noon lunches in restaurants. He always frequented the cafe where I ate and about three times a week the head waitress put him at my table. Although I never could finish my meal I derived a morbid pleasure from watching him and tracing out the resemblance between him and the porkers in the country barnyards. The only point of difference seemed to be that he kept his feet out of the serving dish.

I always think of that man when my friends tell me that children will outgrow bad table manners, and wonder if his mother brought him up with the same idea. Maybe they will outgrow them, maybe they will. I will not say until these children are grown and I see into what they develop. But in the meantime I shall keep on insisting that mine acquire good habits from the start. We do not think if we let a child grow up lazy, untruthful, dishonest and disobedient that he will drop those habits through shame and develop into an upright citizen. Why should we expect other bad habits to drop off? I should like to hear from mothers of young children, and from those whose brood has grown. Am I right or wrong?

DEBORAH.

### THE NEW HATS AND SUITS.

There is such a change in the shape of hats this season that even we who hated the "butterbowl" and "peachbasket" varieties find it hard to just get used to the new chapeaux, vastly more becoming though they are. There are still a few that fit down tightly over the head, but they do not shade the face as did those of detested memory, and the most popular model actually has a rolled up brim.

Very popular, especially with young girls and young women is the soft felt turban with rolling brim. And it owes its popularity to its adaptability. It may be worn with the brim caught up at the back, front or side, trimmed with bows and ends of velvet, wings, breasts or plumes, or not trimmed at all. It comes in all colors, though blue and brown are most popular.

For everyday hard wear the fuzzy black ones trimmed only with a cord or absolutely untrimmed are good. Then you can get them in velvet or corduroy with a high crown which may be dented in. For more dressy wear there are smooth finished felts with the under side of the brim faced in a contrasting color. Black faced with blue, lavender, red or green are shown, and the colors faced with black.

Plush and velvet are good for dressy hats, and beaver is still much worn, though it is not considered the leader as for a couple of seasons back. The beavers are broad brimmed and low crowned, or have a high, rather peaked crown and a narrow, rolling brim. They are trimmed with feather bands, small wreaths of made flowers, a cluster of small tips or one huge willow plume. Or you can wear your beaver untrimmed, if that suits your purse better, and still be in style.

The plush and velvet hats are for the most part high crowned, dress affairs. White crowns with black brims are good, this combination of black and white holding over from spring.

For the general utility suit the rough homespun goods are the first choice. The jackets come to the hips, with a slightly raised waist line, wide revers and diagonal closings. The skirts are pleated and have the loose front and back panels.

Brown, gray and blue are leaders in color. Homespun, double-faced, long coats are quite popular, the outside a plain color and the inside a plaid. These have big collars, deep cuffs, wide revers and pocket laps of the inside color. The sleeves are in one with the coat.

Trains are again seen on the party gowns. The really fashionable dame has her gown short in front and slashed to show the ankle. Velvet and heavy brocade are chosen for these gowns.

Buttons are much used as a trimming, both on waist and skirt. A popular skirt is slashed on the side to show a panel of contrasting color. The upper part of the skirt is buttoned over down to the knee, then falls free to show the inset panel. The buttons and buttonholes are continued to the bottom of the overskirt.

### RECIPES.

#### Beef Loaf.

Two or three pounds of beef and a little piece of pork, chopped fine; two cups of crackers, four eggs, two table-spoons of sweet milk. Season to taste with salt, pepper and onion. Mix, roll into a loaf and bake.—Mrs. L. L. G.

#### White Taffy.

Two cupfuls granulated sugar, one-half cupful of water, one-half cupful vinegar, butter the size of an egg. Put over fire and stir until it boils, then cook without stirring until it will spin a thread when dropped from spoon. Be careful not to overcook. Add a teaspoonful of vanilla extract and pour into buttered molds until cool enough to pull.—L. M.

#### Sea Foam.

Three cupfuls sugar, two-thirds cupful syrup, one-half cupful water. Cook until it will spin a thread when dropped into cold water. Beat the whites of two eggs to a stiff froth and add the syrup, pouring it in very slowly and beating all the while. Stir in a cupful of chopped nut meats and pour into buttered tins to cool.—L. M.

We do not pay for recipes. Every subscriber is privileged to ask for any desired recipe, and it is hoped she will send her own favorites for the benefit of others.

#### Fruit Cookies.

One cup of butter and two cups of sugar, creamed together; two eggs, well beaten, half a nutmeg, one-third teaspoonful each of cloves and cinnamon, one cup of raisins, chopped, half cup sweet milk, two teaspoons of soda, five cups of flour. Do not be alarmed because no baking powder is used for none is needed. These should be handled as little as possible and they will be delicious. I would like other recipes for good cookies, steamed pudding and home-made candies.—Mrs. L. L. G.

#### Veal Cutlets.

Dip in egg and milk and roll in bread crumbs and put on to fry before anything else is started. After partly browning, pull to back of range where they will cook slowly as the bread crumbs burn easily. Use a broad knife to lift to chop plate.

#### Tomato Puree.

Equal parts tomato, milk, and water, a pint of each will make enough for six persons. Tomatoes should be warmed and put through a sieve and cooked with one-half teaspoon of soda. Milk should be heated separately and both put together just before serving. Season with salt, pepper, a pinch of nutmeg and cloves, and butter. When tomatoes are canned the juice can be strained and canned also and be ready for soup in ten minutes. If crackers are not on hand, toasted bread is still better.

#### Potato Soup.

Mashed potato, milk, celery, either fresh or the seed, a bit of onion and slightly thickened with corn starch, is a soup quickly prepared. Set the milk to heat; put the seasoning in a little water to

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"At first he used Postum only for breakfast, but as he liked the taste of it, and it somehow seemed to do him good, he added it to his evening meal. Then, as he grew better, he began to drink it for his noon meal, and now he will drink nothing else at table.

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steep and when the potatoes are ready to mash for the table, drain them into the soup pan and add the other ingredients, boil and thicken and it is ready.

**Tried Cake Recipes.**

For these cake recipes, a pan eleven inches square and one and a half inches deep, is used. Use a wire egg beater for the yolks and the dover beater for the whites—it saves time. Grease the cake pan and soften the butter, measure the flour into the sifter, set over the greased cake pan; have baking powder handy. Beat yolks of egg in bottom of mixing dish, adding a little of the milk or water while beating; add sugar and beat smooth; add butter, beat smooth; add milk and part of flour, beat again, and last, add the flour and baking powder, put into pan as quickly as possible and into oven.

**Sponge Cake.**

Three eggs, whites and yolks beaten separately, one cup of flour, one cup of sugar, granulated, three tablespoons of water, teaspoon baking powder. Do not grease pan but cut out slices as you want them.

**One-Egg Cake.**

One egg, one cup sugar, one tablespoon butter, one-half cup of milk, one and one-half cups of flour, one teaspoon of baking powder, flavor with lemon. Oven must not be too hot.

**Molasses Cake.**

One egg, one-half cup each of butter, sour milk, molasses, and sugar, one teaspoon of soda, two and one-half cups of flour; ginger, if liked.

**Graham Gems.**

Two cups of graham flour, one cup of sweet milk, one-half cup of sugar, one egg, two teaspoons of baking powder, a little salt and a tablespoonful of shortening.

**Muffins.**

Add one egg and use white flour instead of graham. This recipe makes delicious muffins.

**Brown Bread.**

One cup each of molasses, sour milk, hot water and raisins; four cups of graham flour, two teaspoons soda in the molasses and sour milk; one teaspoon baking powder in flour. One teaspoon salt. Divide between five, pound baking powder boxes well greased and steam for three hours.

**Molasses Pudding.**

Three cups of flour, one cup each of molasses, hot water and butter, one teaspoon of soda. Steam three hours; serve with sauce of butter and sugar worked to a cream and thinned with a little hot water. Raisins can be added to pudding.

**Canned Corn.**

To thirteen cups of corn, add a scant cup of salt and one of sugar. Boil hard for at least 20 minutes, stirring to keep from burning. Put in glass cans and seal up like fruit is canned. Be sure that it boils and boils.

**TAKING THE GOOD THINGS AS THEY COME.**

BY PEARLE WHITE M'COWAN.

THAT a large per cent of the farmers and farmers' wives of this country are deliberately casting aside some of the most potent means of advancement and improvement, both in material and idealistic lines, are unpleasant truths that have been recently and most forcefully brought home to me by observation and certain inexplicable facts.

A County Farmers' Institute was held in our town some time ago. It was a season when there was not much doing on the farm. Nothing, in fact, except chores that were absolutely necessary to have done upon a certain day. Yet, I think I can safely say that there were not more than a hundred persons in attendance at any one session of that institute, and that number included a large per cent of the village people who were not farmers at all, but merely interested listeners. For instance, at the woman's congress, while a large majority had at some times or other lived upon farms, there were out of a total attendance of 74, only about 30 who were at present rural residents.

And yet this is essentially a farming country, one of our oldest and most wealthy farm sections. In a distance of five miles, I rapidly calculated as I glanced over the audience, there was in attendance, representatives from only four families out of a total of at least 16 farm homes. And not one of those homes was situated more than three and one-half miles from the place of meeting.

Had every young wife, and especially every young mother, heard the addresses they would have gone out with a higher conception of motherhood and its possi-

bilities, and a firm determination to live up to their ideals and enthruse those little ones whom the great God had entrusted to their care, with nobler, stronger purposes and ideals.

So much for some of the things the farmers who did not attend this particular institute missed. But the idea is this, are there not other things as great or greater, that are being missed right along? For instance, what about our Farmers' Clubs and Grange meetings, our mothers' clubs and reading circles? Are they as largely attended as they should be?

Almost every community has one or more of these organizations or some other equally as worthy, and yet I'll guarantee that not one-third the people, as a rule, attend these meetings at all regularly, much less take any active part toward making them a success.

"They are dry and uninteresting," I hear someone say. Well, then, take a hand yourself and help to put new life into them, or at least try to enthruse some others who have a talent for bringing about pleasant and instructive things, with an active interest in their upbuilding. You surely will agree that there are immeasurable possibilities of helpfulness to one another, and of social uplift, in any one of these organizations if it is rightly conducted and carried on.

"Too tired to go," somebody else answers. Well, very likely you wouldn't rest if you stayed at home. There'd be numberless little inconsequential details that would demand your attention—and get it. But even if you would give up and go to bed, there are other ways of resting beside that, and the chances are that if you'd fix yourself up a bit, and go out and attend some good meeting or entertainment, you'd go home refreshed and invigorated, besides having a host of pleasant memories to carry with you through tomorrow's work.

"Haven't time," growls another. Well, a man died last summer, a farmer, and he left property worth \$40,000. Rich, you say? Yes, if mere dollars and cents is the standard, but poor, immeasurably poor, in the things that make life worth the struggle. He didn't have time either—and he has left a legacy of greed and parsimony that his children will never outgrow. Ask them why they don't attend such things and they will tell you, as their father did before them, "We don't have time. Some time, when we get a little better fixed, financially, we're going to get out to such meetings." But they won't. That Almighty Dollar looms so large before them that unless something gives their ideas and ideals a shaking up, they never will have time.

A young wife made the assertion, a little shamefacedly, that they didn't attend church because there were "always so many little odd jobs to do on Sunday," but, she continued, "it's coming on winter now, and there won't be so many and we're going to go then, because we do enjoy it, and besides, we'd ought to go." But winter has come and gone and the church services have not been graced by their presence—and they won't be. They haven't time. A young man and woman just starting out, with all their years of home-keeping and parenthood before them—and they haven't time for anything but that everlasting dollar.

Such people remind me of the story of an old farmer, who admitted an early ambition to become rich, which his wife had always met with the assertion that all she wanted was "just to be comfortable." "But," he said, in telling the story, "I succeeded in saving a few thousands and counted myself rich, and for years I'd have been willing to take life's enjoyments as they come, but not so my wife. She doesn't have time. She hasn't got comfortable yet."

Yes, if one wishes to make life worth while, if he intends to get some enjoyment out of it, he must take the good things as they come along. Show me a man, if you can, who has lost money because he took the time to attend a church or club meeting. The chances are that he has more than made up any possible chance of financial loss, through the new ideas and mental equipment that has come to him there, to say nothing of the broader outlook and the helpful spirit of brotherhood that is thereby engendered.

To cook a ham so as to retain all its flavor encase the ham with a paste of flour and water, completely covering it so that the steam cannot escape. Bake in a hot oven, allowing a quarter of an hour for each pound. When cooked remove the paste and the rind with it. I find a ham cooked this way delicious.—M. A. F.



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**Gifts For The Shut-In.**

BY HILDA RICHMOND.

Where there is an invalid in the neighborhood, many ladies have adopted the pleasing custom of always taking a little gift every time they drop in to call, and thus brighten the life of the one shut in from the busy world and its doings. Of course, these little gifts are exceedingly simple and inexpensive, and they range from things to eat and wear, to things to read and things to make, with some things that are just pretty to look at. It takes some planning and a little money to provide these little things, but they give such pleasure and brighten the dull days so much that no happy housekeeper begrudges the time and money when she sees the results in the sick room.

Of course, reading matter is always welcomed unless the invalid is in a darkened room or the eyes will not permit this pastime. If the magazine is too heavy for the tired hands the advertising pages are stripped off, or the story or poem is pasted to a piece of heavy paper making it light and easy to hold. Patches for quilts are treasures to elderly ladies, and it is well to look over the piece-bag carefully to get out every patch that can be spared. New designs for quilts cut from magazines, new lace patterns, new designs for fancy work and new ideas in aprons are all welcomed by the dear invalids who can sew and use their hands. All these things cost nothing and yet make acceptable gifts.

A blossoming plant, a rosy apple, a glass of jelly, a little dessert, a new kind of pickle, a particularly fine bit of game or meat or anything from the household supplies will cost the farmer's wife nothing, as those things are counted on the farm. The things that are bought, such as oranges, figs, nuts and eatables, are not expensive. It seldom pays to buy little ornaments or vases to catch dust in the sick room, but handy contrivances to hold scissors, knitting, sewing materials and such things are always welcome. The clever woman can make them herself, or she can buy them in the stores. A dainty handkerchief, a soft dressing jacket, toilet articles, an apron, a book, a picture, a reading glass or a cushion in the more expensive things makes a pretty gift, and may cost as much as the donor pleases.

If every lady in the neighborhood calls on the shut in five or six times a year it is easy to see how the life can be brightened and interest in the outside world kept up. Then, too, it helps the ones who must care for the shut in to be able to leave the invalid in the care of kind friends to enjoy a brief outing. No matter how much the amateur nurse loves the patient, a little breath of outside air is very agreeable, and the best gift a kindly neighbor can bring is her helpful presence and entertainment to furnish amusement for the patient and rest for the family. Thus gifts and kindly attentions together help to get the whole household through the hard times that come to all invalids and their friends, and so make the world a better place in which to live.

**HOW TO REJUVENATE PALMS AND FERNS.**

To keep palms and ferns healthy, they should never be put out of doors and when the leaves of the palm and the fronds of the fern become withered and dried up, it is due to one of two things—sickness or old age. When the leaves begin to get yellowish and prematurely brown, it may be due to excess or lack of water or to certain changes of temperature. Avoid over-watering by providing good drainage in the shape of broken crocks or some pebbles covered with moss, excelsior or rough sod with the grassy side down, in the bottom of the pots when the plants are repotted. The drainage system of palms and ferns should be examined at least once a year whether the plants require repotting or not. Wet or cold feet are injurious to all cultivated plants. Ferns with all their fronds dried up and withered may be recuperated by shaking off the old wet, soggy soil and repotting them with broken or pulverized common flower pots mixed with rather coarse sand and a little soil. The pots should be clean and the plants placed in a warm corner or a window of the room. In this condition, they will be more likely to suffer from lack of water than from excess of it and the possibility of this can be avoided by setting them in a saucer, keeping the bottom of it covered with water.

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# PRACTICAL SCIENCE.

## THE ANALYSIS OF THE SOIL.

BY FLOYD W. ROBISON.

A few years ago when commercial fertilizers began to assume a considerable degree of importance much attention was given to the chemical analysis of the soil. It was expected that a considerable amount of information could be gained by a more or less detailed analysis of each particular type of soil. Along with the efforts of the various state experiment stations in this matter, the United States Department of Agriculture likewise took up the theme and much time and energy was spent in attempting to interpret from the results of the chemical analyses of the soils the degree of fertility of those soils. Likewise it was hoped that this same chemical analysis would indicate the class of crops which could be grown most advantageously on those soils. This analysis did not take into consideration at first hand one of the most important points, namely, the difference between the total amount of plant food in the soil and the amount which might be available to the growing crop. It may be easily understood that an analysis of the rock would indicate an amount of the various so-called plant food constituents, as great, if not greater, than existed in the soil derived from that rock. We know, however, that it would be folly to attempt to grow a crop under the original conditions, i. e., from the rock alone. We may realize, therefore, that there is something to consider in a soil other than the gross amounts of Phosphorus, Potassium, Calcium, etc. We recognize that much of this plant food must be in a more or less available condition, by which term we mean a condition such that plants may extract it from the soil so that it may take part in the various administrative functions incident to the growth of the plant. An analysis of the total soil ingredients therefore does not convey an accurate idea of the value of that soil to plants.

The chemist next turned his attention to a method of estimating the amount of plant food material which was available and so he had attempted to devise means in the laboratory, solutions of different strength and different kinds which would imitate, as near as may be, the actual conditions prevailing in the soil. This was without doubt in the right direction, and much additional information has been gained by these analyses. So much importance has been placed on this last kind of analysis that it is common now for farmers in speaking of the fertility of their soil, or the adaptability of this or that fertilizer to the needs of that soil, to speak of the available plant food rather than the total amount of plant food. But then, even the results obtained are but indicators and do not give the values desired nor the information wanted concerning a particular soil. The great value of this work has been the stimulating of the scientific study of the soil proper and men of exceeding great ability have devoted their time and energies to this work. The more modern investigator has made study of the physics of the soil and an attempt has been made to follow as closely as may be the exact operations of the plant itself upon the soil in order that that process may be duplicated in the laboratory previous to the trial with crops. This has resulted in a careful study of the capillary water of the soil, it being realized that this capillary water of the soil is in reality the nutrient medium for the plant, upon the concentration of the salts, or mineral elements in the soil water, the plant depends for its growing stimulus. Whence comes this mineral matter which we find upon analysis in the soil water? Manifestly this mineral matter is drawn from the particles of soil themselves by the solvent action of water, assisted perhaps by a slight concentration of organic acids and the like. Manifestly, if the plant depends upon the soil water for its nourishment and the soil water derives its administrative forces from the soil itself, then the question of prime importance is, what are the conditions in a soil which encourage the solution in the soil water of the optimum quantity of the mineral salts. Obviously, a chemical analysis has not been sufficient to answer this question. Likewise an additional determination of the so-called available plant food constituents, while adding data of great value, has in addition not been able to properly answer the question. Turning

to the physics of the soil we find there that the information which it may yield is closely linked with the factors which are revealed by both chemical analyses heretofore referred to. In interpreting the physical condition of the soil we have been led to make a mechanical analysis of the soil. By this analysis we have learned the amount of organic matter which that soil contains; we have learned also, the fineness of division of the soil particles, and we have ascertained the various amounts of clay and sand and their intermediate products which are constituent parts of that soil. It will be evident to our readers that it matters little how completely equipped any particular soil is so far as potassium, phosphorus, calcium, etc., are concerned, unless that soil is in a state of division of such fineness that the water of the soil may extract therefrom the balance most favorable for plant growth, that soil will not be an exceedingly fertile one. Just so surely we know that no matter how fine the state of division, no matter how perfect physically the soil may appear to be, that unless the ingredients are there, which, taken up by the soil water can be turned into a perfect nutrient medium, the results as shown by plant growth are no more encouraging than in the first instance.

There was a time when the chemist was supposed to be the sole source of information regarding the question of soil fertility. Then it was discovered that full reliance could not be placed on the chemical analysis alone. As soon as the factor of soil physics began to show its influence, then the soil physicist was supposed to be the source of general information regarding the soil. Then it was seen that physical condition alone did not entirely cover the situation. A further study of these conditions led to the investigation of the influence of living matter in the soil. It was observed that not only did earth worms and the like have a tremendous influence on the activity of the soil and its behavior toward plant growth from promoting a desirable physical condition in the soil, but that living organisms, bacteria, were largely influential in promoting a healthy, vigorous plant growth. So we have turned to the bacteriologist to answer our question regarding soil fertility. We find, however, that the bacteriologist is likewise limited as to the amount of information which he may give regarding a particular soil. We do find, however, that the greatest information which we may obtain regarding any particular soil will take into consideration the total plant food in that soil as determined by the chemical analysis; it will likewise take into consideration the amount of available plant food as determined by our most modern chemical methods; it will again take into consideration the physics of that soil as determined by an analysis of the soil water and by a mechanical analysis of that soil.

We may gain from such data as this a more or less correct opinion of a soil in question. We will be aided, however, very materially in our knowledge of this soil by a study of its condition with reference to the minute organisms, or bacteria, which may or may not be active in that soil. It matters not, we see, where the information comes from, whether it comes from the chemist, from the physicist, or the bacteriologist, the true soil investigator utilizes as much from each particular source as his judgment indicates is of value in making a diagnosis or interpretation of that soil. It must be observed that this indicates a more or less complicated condition and, indeed, there is probably no more complicated problem or no more intricate question to ask than the question of the fertility and possibilities of any particular soil.

One thing the chemist has learned, and that is that the obtaining of a sample is perhaps the most vital point involved in the whole analysis. So, with the making of an analysis or attempting the diagnosis of any particular soil, the method of taking a sample of that soil and the data which should be transmitted at the time the sample is taken is of the utmost importance to the one making the examination. In the soil there are two natural divisions which call for study. We speak of, first, the soil, and, secondly, the sub-soil. By "soil" we usually mean the first six inches of the ground proper, and by "sub-soil" we usually refer to the second six inches. There is a natural division

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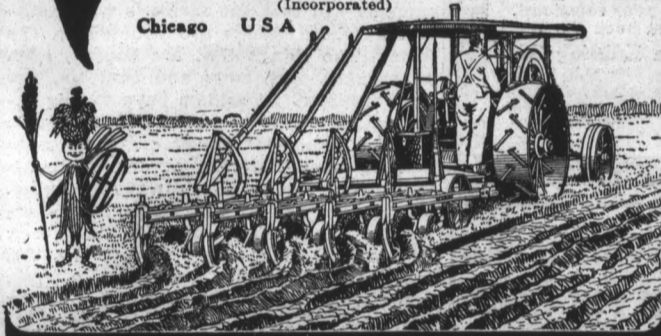
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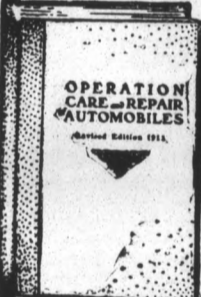
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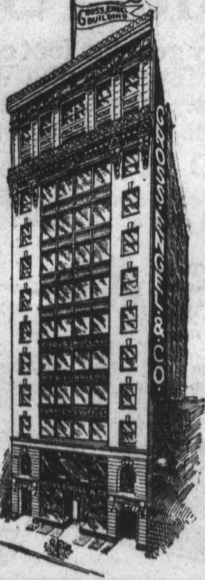
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of the soil into layers which nearly every farmer who has been at all observing has noticed in his work. The plow usually strikes the top of the sub-soil and it will be observed that there is usually a striking difference in appearance between the upper six inches, or the soil, and the lower six inches, or the sub-soil. More organic matter is usually found in the soil than in the sub-soil. The physical condition so far as penetrability to roots is concerned, is usually much more favorable in the soil than in the sub-soil. The activity of bacteria and other living organisms is more pronounced in the soil than in the sub-soil. It will be understood that the sub-soil more nearly resembles the rock which was the source of all soil than does the soil itself, except perhaps in those sections where, through glacial activity the whole soil has been transported from another section. Even there, however, we may still see that the sub-soil shows more clearly its rocky origin than does the soil proper. In taking a sample of the soil, therefore, care should be taken that a section of the first six inches of the soil should be kept by itself and the six inches immediately under the soil should also be kept by itself, and marked "sub-soil." The general surroundings of the soil should be observed at the same time. Is there a hardpan near the surface? The presence of a hardpan near the surface of the soil may entirely alter the character of the soil, or particularly the behavior of that soil to plant growth. We have seen soils containing hard-pan in which the hard-pan was as near the surface as the sub-soil and which was practically entirely incapable of penetration by the roots of plants. This indicates to us that a hard-pan of this description would entirely nullify the effect of an otherwise valuable sub-soil upon plant growth. The presence of hard-pan and its nearness to the surface should be noted at the time the sample is taken and possibly a sample of the hard-pan should be taken at the same time. We should also note at the time of taking samples whether the soil is high or low. Can it be drained, and is it drained? These same answers will give the clue to the condition of aeration and the possibilities of the entrance of air to that soil. It will be remembered that, as stated before, the great bulk of the constituents of plants are taken from the air and therefore it is desirable, in fact necessary, that there be a free interchange of air between the atmosphere and the soil for the growth of plants. It is as important that the soil be properly ventilated as it is that the house or the barn be properly ventilated.

Since the chemist has found that from his own diagnosis he has been unable to predict the possibilities of a soil as far as plant growth is concerned, he has become discouraged and gone to the other extreme, claiming that a chemical analysis furnishes no reliable data regarding the soil. The physicist has been disappointed in the results obtained by the physical analysis of the soil. The bacteriologist has been chagrined to find that upon the results of his own laboratory investigations he could not accurately predict the behavior of the soil for crops. Each one in his own particular field has been led to proclaim that the analysis of the soil from his standpoint has been of little value. It is amusing, were it not so serious, to note these conditions, for each has in his turn contributed data which is of great value in soil interpretation and, in fact, with the accumulation of information which each has contributed, the analysis of the soil has been fruitful indeed and has yielded invaluable results.

A chemical analysis of any particular soil, together with a mechanical examination of that soil forms the groundwork for a very intelligent understanding of the soil and if, with this data, information as to drainage, slope, etc., is to be had, it is by no means impossible to predict the behavior of that soil to plant growth with a fair degree of accuracy.

**LABORATORY REPORT.**

**Why Jelly Jells.**

What is it that causes fruit juices to jelly? Mrs. W. P.

The jelly-forming constituent of fruit juices is a substance called pectin. This pectin is a product quite similar in its composition to starch. Pectin bears no relation whatever to gelatin, which is obtained from animal bodies. The action of the natural fruit acids on the pectin in the presence of sugar is responsible for the jelling phenomenon.

The department of Household Science

of the University of Illinois has published a bulletin on the principles of jelly-making that should prove of value in many homes. The principal points brought out in the bulletin are given in the summary as follows:

1. Fruit juice to be used for jelly-making must contain pectin. It must also be acidic.
2. Juices which are to be used for jelly-making should be cooked out of the fruit.
3. The most common cause of failure in jelly-making is an over-production of sugar to juice, i. e., to the pectin in the juice.
4. A short, quick test in jelly-making is preferable to a test which involves a waste of time.
5. There need be no "second" quality of jelly. All may be of first quality if the juice is properly extracted and handled.
6. Experiments so far indicate that the mean-boiling process in jelly-making is preferable to the long-boiling or to the short-boiling process.
7. Any given juice, when once the boiling is begun, should be transformed into jelly as rapidly as possible.
8. The time necessary for the boiling of a quantity of jelly apparently varies with several factors: The proportion of sugar to juice, the proportion of pectin in the juice and possibly, too, with the acidity of the juice.
9. The hot jellies should be poured at once into hot sterilized glasses, and after having "set" should be carefully sealed.
10. Jellies from but slightly acid fruits may be made by adding a vegetable acid to the juice, but this process is not recommended except in the case of sweet apple or quince juices.
11. Cherry and strawberry jellies are possibilities if the hot mass is boiled somewhat beyond the first jelly test observed.
12. The white inner skins of oranges and of lemons are prolific sources of pectin. Hence genuine jellies of these fruits may be made. The pectin from these skins may also be used for strengthening other fruit juices.
13. Apple juice may be made a basis for other fruit jellies.
14. Blueberries are recommended as an excellent fruit for jelly-making.
15. Beet sugar and cane sugar may be used interchangeably in jelly-making.
16. Pectin is probably akin to starch in its chemical nature. It has no relationship to gelatin.
17. Good jellies cannot be made from all juices by rule of thumb. Jelly-making as practiced in the home is an art. It consists in so controlling conditions by means of sugar (and acid) and by boiling as to cause the pectin to "set" in a continuous mass throughout the volume allotted to it.

**EXTRA COST OF CLEAN MILK.**

G. M. Whitaker, of the Bureau of Animal Industry, has found that to increase the score of a dairy from 42 to approximately 70 points, there may be in 15-cow dairies an added expense of five cents per cow per day for labor, plus, in extreme cases, 5½ cents for new or additional equipment; and if five cents more is added to remunerate the proprietor for his extra care and vigilance, there will be an extreme increase of 15½ cents per cow per day. The product of a cow ranges from 4,000 to 10,000 pounds of milk a year, or from five to 12 quarts a day. The added expense of labor would, therefore, he states, amount to about half a cent to one cent a quart, and in the rare instances where great additional expense is required for repairs, new construction and new equipment this might raise the increase one to two cents a quart more. But this added expense of improved methods and equipment would no doubt be partly offset by increased production and increased economy of feed, so that the net extra expense of producing clean milk would probably be somewhat less than this. A reasonably clean milk is worth two cents more than common slovenly milk. G. E. M.

**MEETING OF THE MICHIGAN HORTICULTURAL SOCIETY.**

Ludington is the place selected for the forty-first annual meeting of the Michigan State Horticultural Society. The sessions will be held December 5-6-7. Secretary Charles E. Bassett is arranging a very practical and timely program, the numbers of which will be given by successful growers and marketers of fruit. An attractive display of the products of Michigan's orchards will be shown the patrons and visitors at this session.



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# HORTICULTURE

## HARVESTING THE APPLE CROP.

The above topic has been occupying our attention for the last month, so closely, in fact, that we have hardly time to write about it, or anything else. We will have about 1,500 barrels of winter apples, and perhaps 2,000 in all, including the fall apples. These are scattered in small orchards for the most part from three to five miles from home, and with the weather we have been having it has been a difficult proposition to get them. It is impracticable to pack in the orchard under such circumstances so we have put them in barrels as picked, and hauled to the packing house where they are run over a sorting table, graded and packed.

Through the mid-season the crew has consisted of eight pickers, two teamsters, three sorters, one to face and tail off barrels and empty baskets, and one to press and nail the heads into the barrels. When the picking was fairly good we would put up about 100 barrels per day. Most of the barrels were nailed up in advance, the balance being nailed by the teamsters or packers whenever occasion offered. In order to get the crop off as quickly as possible the pickers have started for the orchards at 6:30 and taken but a half hour nooning, which gave them about 10 hours in the orchard. A bad wind near the beginning of the season caused many drops, the best of which have been picked up before picking the trees, and run into three grades, those which showed practically no bruise, those with a slight bruise, and ciders. In the largest orchard the trees were fairly low and many of them had been mulched with straw and the grass had grown up through this, so many of the drops were in good condition. This would not have been true with a cultivated orchard with the abundant rains we have had. By taking the varieties which drop earliest, such as Pewaukee, Fallwater, Snow, Greening, Baldwin, and the first picking of Spy, and leaving to the last the Ben Davis, Stark, winter Pippin and Russet, we have been able to prevent serious dropping, although the fruit is farther along than usual this season. One thing has been in our favor; there has been no hard frosts to loosen the fruit.

In general the fruit is better colored this season than usual. I have never known a season when Spies were so well matured and colored. Even those having little red, have the yellow color which denotes quality and maturity. The Greenings also have a yellow tinge denoting early ripening, and even the Stark have taken on more color than is usual in a Baldwin. This can probably be ascribed to the earliness of the season, rather than to the ingredients in the soil, as the better color seems nearly universal.

Many lessons in spraying can be learned from a careful observation of the crop. We used lime-sulphur entirely as a fungicide this season, and have no criticisms to make. Tender varieties, like the Greening and Ben Davis, were not russeted at all, which was never true of these varieties when Bordeaux was used. The scab was also fully controlled. Our success with the worms was more variable. We did not give the August spray this season, partly because of scarcity of time and condition of the orchards, and partly because we know of a few growers who get excellent results without it. The results were variable. In the largest orchard, which contained about 1,000 barrels, and most of the trees were loaded, there were practically no worms. One of the orchards which was sprayed but once (from both directions), after blossoming had only a small percentage of worms and few scale, another had too many worms and too much scale. The other orchards, which were sprayed twice, (both directions each time), after blossoming were variable, some varieties being nearly free from worms, while some contained more than there should be. In general, there were more worms where there were fewer apples. Whether the omission of the August spray was the cause of more wormy apples than usual in some of these orchards, I do not know, but infer that this may be the cause; however, in the larger orchard, at least, the August spray would have done little good as there were not enough worms to make it pay. These things should be tried out more carefully with trees of the same variety in the same orchard bearing about the same amount of fruit. Give them all the same spraying with the exception of the last,

omitting this on part of them. At picking time the fruit should be examined and the wormy apples counted. This is work for the experiment stations, and I should like to see it tried out in several orchards. If the later sprays are necessary we do not care to omit them, but if they are not they would better be omitted, as they leave the fruit dirty from the spray material. It is generally conceded that the later sprays are necessary to insure clean fruit, but I know of no conclusive experiments which have demonstrated this to be a fact. Our fruit this season has certainly presented questions in spraying which we are unable to answer.

As for the San Jose scale it is pretty well controlled in orchards which have been sprayed more than one season, but there was considerable of it in an orchard which was badly infested and sprayed for the first time this season. The wind was against us on this orchard, however, and we could not do a thorough job. What the fruit would have been without spraying can be inferred from some sides of trees which we were unable to reach. There was no fruit here worth picking, nothing but cider apples.

The marketing problem presents some peculiar phases this season. Either the buyers are trying to get hold of all the fruit possible at a comparatively low rate from an understood agreement to this effect, hoping to boost prices after the bulk of the crop is in their hands, or else the crop reports of the fruit papers and the government reports are at fault. The demand is tame as compared with last season, more so than the difference in the crop would warrant. There are many phases of the problem which may affect the market, however, for instance, the abundance of other fruit and fall apples and good foreign crops. Possibly the buyers are partly right in their estimate of the crop, but I look for a gradual rise of prices after the bulk of the crop has changed hands and the poorer grades of apples are off the market. We are disposing of our No. 2 fruit as picked through a commission firm, and storing most of the No. 1 in cellar storage beneath the packing house. If we get what we consider a fair price we will let it go any time, but if not will hold until early winter. Have sold one car of No. 1 mixed varieties to an organization of farmers at \$3.00 per barrel on track here, and have made a good many small sales at \$3.00 and \$3.50, a few fancy at \$5.00. At present we feel inclined to hold for \$3.00 for No. 1 fruit of good varieties in carload lots. This is better than can be realized through a commission firm at present, but I look for prices at the market centers to pick up after the heavy picking and shipping season is over. However, I would not care to play the speculator by holding too long. In general, it is better for the grower to sell when offered a good price than to hold for a better one, but I do not like to be obliged to sell at a price which seems too low.

Calhoun Co. S. B. HARTMAN.

### PROTECTING FRUIT TREES AGAINST RABBITS AND MICE.

Replying to a query by T. E. Moon, who asks about protecting fruit trees from the attacks of mice and rabbits, would state that wrapping the trees with wood veneer protectors is a good method of preserving the trunks against damage from these animals. The veneer will usually curl close to the tree when dry, but as they are soaked by rains they have a tendency to straighten out, hence it is policy to tie a string or small wire about the veneer, drawing it quite closely to the trunk of the tree. It is well to mound earth about the trunk before applying the protector. Fine wire screening can also be fastened about the trunks of the trees with good results.

The best method to get rid of mice and rabbits is to destroy the places where they live, such as brush heaps, straw piles, old rail fences and the like. If the orchard has a mulch about the trees, it is well to pull it away from the trunks and pack it down so that the mice will not nest in it. A boy with a gun will do much toward reducing the damage done by rabbits. Professor Maynard recommends the use of Portland cement, mixed as thick as paint, to which is added a little Paris green. This is painted on the trunks of the trees. Whitewash, to which has been added soapuds and tobacco decoction, makes a good wash for this purpose. Other remedies have been suggested, but we think from these the correspondent and others will find means of successfully protecting their trees.

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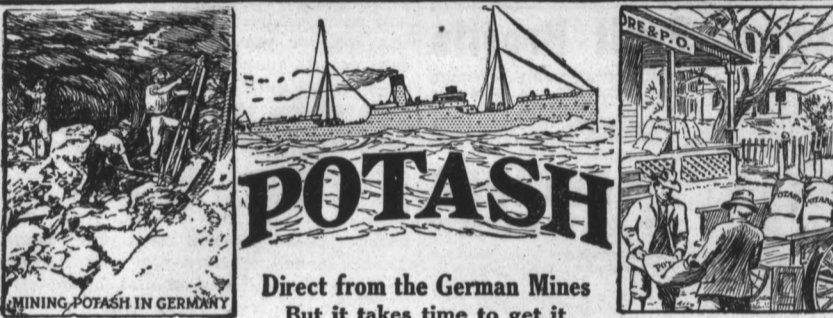
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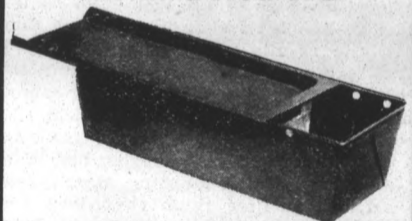
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Every grower freely claims that his successes were due almost entirely to the **Regulated Fire** feature which permitted him to secure two, three or even four times as much fire at the time of most severe frost, the most critical hour of the night. Many also tell us of having lost their crops by the use of small pots that could not be regulated to give greater fire to meet the critical hour. Forever the question of the vast supremacy of the large **Reservoir Heater** with the **Regulated Fire** has been established. We have abundance of proof that the only **Orchard Heater** equipment on the market today that affords the grower absolute protection against the most severe weather conditions and wind is the

### Hamilton Reservoir Heater

either in three or six gallon sizes.

It is the most **effective**, most **economical** and the **simplest** in construction and operation.

Our new literature is now ready, containing much of interest to you and expert advice on these points, which is free. We welcome your inquiries. Better write today. Don't wait two or three months.

Good Agents Wanted Everywhere.

**HAMILTON ORCHARD HEATER CO.,**  
GRAND JUNCTION, COLO.

**APPLE TREES**—ALL KINDS Trees and Plants. Prices reasonable. Salesmen wanted. **MITCHELL'S NURSERY**, Beverly, O.

**PEACH TREES**, 2c. up. Splendid trees for sale to planters at wholesale prices. No agents. Save 50%. Cat. free. **TENNESSEE NURSERY CO.**, Cleveland, Tennessee.

**Time to Plant** will soon be here. We sell direct to planter at lowest prices for the best stock. Apple and Cherry Trees 8c. Peach 4c and up. Send for Catalogue, its valuable to you. **ERNST NURSERIES**, Box 2, Moscow, O.

## MIDDLEDITCH Kerosene ENGINES

Operate perfectly on common coal oil, gasoline, distillate, alcohol or any similar liquid fuel. Our catalog explains why this is safest, simplest, most economical and practical power.

**Genuine Free Trial**  
If it doesn't satisfy you in every way the trial costs nothing. Don't invest in any engine until you get our proposition. Write for it now.

THE MIDDLEDITCH ENGINE CO.  
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**THE FALCON** 11-IN-1  
Built expressly for the housewife. The tool for every purpose around the home. Low price makes it sell like wild-fire. Any agent should sell a dozen with about three hours' work a day, making a good, steady income. If you mean business, write for terms and free sample.

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## Grind Your "BULL DOG" Feed on the "TEN DAYS FREE"

You can grind 80 bu. grain to table meal with one gal. of gasoline. 1 set of rollers will grind 5000 bu. of cob and corn. "Bull Dog" grinding rollers are only three inches in diameter which accounts for light running. Get our FREE Catalogue and Samples. Address **LETZ MFG COMPANY,** 133E. Road, Crown Point, Ind.

## THE LARGEST AND BEST LINE OF WELL DRILLING MACHINERY

in America. We have been making it for over 20 years. Do not buy until you see our new Illustrated Catalogue No. 14. Send for it now. It's FREE.

**Austin Manufacturing Co., Chicago**

**Clover Seed Wanted** direct from the farm. Send sample, state quantity and we will offer. We pay freight. **A. H. HOFFMAN**, Bamford, Pa.



## FARMERS' CLUBS

### OFFICERS OF THE STATE ASSOCIATION OF FARMERS' CLUBS.

President—B. A. Holden, Wixom.  
 Vice-Pres.—J. D. Leland, Corunna.  
 Secretary—Mrs. C. P. Johnson, Metamora.  
 Treasurer—Mrs. Lewis Sackett, Eckford.  
 Directors—A. R. Palmer, Jackson, Wm. H. Marks, Fair Haven; C. L. Wright, Caro; E. W. Woodruff, Blanchard; C. P. Johnson, Metamora; Patrick Harker, Munith.  
 Address all communications relative to the organization of new Clubs to Mrs. C. P. Johnson, Metamora, Mich.

#### Associational Motto.—

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

#### Associational Sentiment.—

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

### PROGRAM FOR NINETEENTH ANNUAL MEETING.

Tuesday, December 5, 1911.

10:30 A. M.

Payment of dues.  
 Presenting credentials.  
 Appointment of committees.  
 Presentation of resolutions.

1:30 P. M.

Music, furnished by School for the Blind.  
 Invocation, Rev. O. J. Price.  
 Report of associational secretary, Mrs. C. P. Johnson, Hadley and Elba Farmers' Club.  
 Music, Ethel Markham, W. Marshall Farmers' Club.  
 Teaching conservation of soil in the primary schools, Mrs. Edna H. Ives, Ingham Farmers' Club.  
 Good Roads, Hon. Townsend H. Ely, State Highway Commissioner.  
 Music, Ethel Markham.  
 "Defects in Our Educational System and the Remedy," E. M. Moore, Wixom Farmers' Club.

7:00 P. M.

Music, furnished by School for the Blind.  
 Address of Welcome, Hon. Chase S. Osborn, Governor of Michigan.  
 Response, A. B. Cook, Maple River Farmers' Club.  
 Music.  
 Recitation, Alta Sackett, Eckford Farmers' Club.  
 Address, B. H. Rawl, Chief of Dairy Division, Washington, D. C.  
 Music, Mrs. Garry Sanders, Ingham Farmers' Club.  
 President's address, B. A. Holden, Wixom Farmers' Club.

Wednesday, December 6.

8:00 A. M.

Conference of Local Workers, directed by Hon. D. M. Morrison, Washington Center Farmers' Club.

10:00 A. M.

Reports of committees.  
 Miscellaneous business.

11:00 A. M.

Election of officers.

1:00 P. M.

Music, Margaret Wright, Washington and Almer Farmers' Club.  
 Invocation, Rev. J. T. LeGear.  
 Report of committee on state affairs.  
 Music, Mrs. Garry Sanders, Ingham Farmers' Club.  
 "Making the Most of One's Self," Mrs. Nettie Thomas, Marshall Farmers' Club.  
 "Relation of the Farmers' Club to the Public School," H. Eugene Bradley, Eckford Farmers' Club.  
 Music, Miss Wright.  
 Recitation, A. L. Bucknell, Milford Farmers' Club.  
 "Forward," Mrs. Ellen Purdy, Indianfields Farmers' Club.  
 Symposium, "How can the farmer get more than 35 per cent of the cost to the consumer?" Hon. C. B. Cook, Owosso; James N. McBride, Burton Farmers' Club; Hon. I. R. Waterbury, Editor Michigan Farmer.

7:00 P. M.

Music, furnished by Industrial School.  
 Treasurer's report, Mrs. L. D. Sackett, Eckford Farmers' Club.  
 Music.  
 Recitation, Maud Slocum, Corunna.  
 "Our Girls at M. A. C.," Miss Maud Gilchrist, Dean of the Woman's Building.  
 Music, Miss Wright, Ellington and Almer Farmers' Club.  
 Address, "The School Book Problem," Hon. H. E. Straight, Coldwater.

#### CLUB DISCUSSIONS.

**Prisons and Taxpayers.**—The October meeting of the Ingham County Farmers' Club, held at the Fuller farm with Mr. and Mrs. Frank Seely, was a veritable home-coming. Members and friends more than a hundred strong gathered round the festive board and the present owners are keeping up the reputation of the place as the center of culture and hospitality. Miss Mary Hawley furnished music during the dinner hour and President Ives called the meeting to order and was very glad to introduce as speaker one of our own number in years gone by and one who had spent his boyhood days upon the home farm. Otis Fuller, warden of the Ionia Reformatory, who addressed the Club on the subject, "Prisons and Taxpayers," Mr. Fuller gave an interesting paper dealing with facts and figures and looking at things in a business way that was much

appreciated. The secretary expected to have the paper to get the statistics that there might be no mistake, when later in the discussion it was requested to be printed in full. Many questions were asked, all of which Mr. Fuller answered fully. As regards convict labor on the highways he did not think it practical only so far that they could be gotten back at night. He had graveled the road from Ionia to the Reformatory and after getting inside the city limits was ordered to stop by the council, but he told them it would not cost them a cent and that if they wanted him to stop to serve an injunction. He wanted good roads to haul the heavy freight; he thought road work would be practical for the inmates of the jail, in nearby territory. About the "trusties," the length of time sentenced had nothing to do with it, or the length of time already there, it depended entirely upon the person and full 25 per cent violated the parole.

**Oppose Special Session.**—H. M. Young offered the following resolutions which were unanimously adopted:

Whereas, The special session of the legislature called by Governor Warner was costly and resulted in no legislation of benefit to the people, and considered no questions which could not have profitably waited until the regular session, and

Whereas, The special session of congress called by President Taft to force upon the country tariff discriminations of the most extravagant kind against farmers, paper manufacturers and lumbermen bore no fruit except costly and prolonged disturbance to business, and

Whereas, Every alleged taxation reform scheme since Gov. Pingree first launched his tax commission to increase property valuations has resulted in increased rates upon increased values, instead of lower rates as promised, and has increased taxes more than twice as fast as property values have increased;

Resolved, That the Ingham County Farmers' Club favors fewer sessions of congress and the legislature rather than more frequent ones, and hereby records its vigorous and earnest protest against the proposed special session next winter to tinker the tax laws, and discuss political questions like the initiative, referendum and recall, believing that these questions can safely await the next regular session.

Resolved, That the Ingham County Farmers' Club believes that the producers of the country have certain rights which the "ultimate consumers" in the cities may find ultimate profit in respecting, and it would accord to the industries of the cities, whether private or corporate, the same decent and generous treatment it demands for agriculture.

Resolved, That copies of these resolutions be forwarded to Governor Osborn and the press.

The next meeting will be held at Pleasant Hill farm with Mr. and Mrs. J. S. Coy and will be Woman's Day, with the annual chicken-pie dinner. The committee in charge has a good program prepared so do not fail to hear it.—Mrs. Tanswell, Cor. Sec.

## GRANGE

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

### THE LARGER MEANING OF THE GRANGE.

When the State Grange meets next month there will have been added sixty organized and re-organized Granges since the State Grange meeting of 1910, and thousands of patrons to the membership. This is a great gain, but not the greatest gain that the year measures. The Grange can now claim a greater accomplishment than increase in members. A larger meaning has come, and is coming, into the Grange and in this is found its greatest gain. It is a prophecy of a still larger influence, a greater usefulness.

In education, agriculture, home-making, government, social uplift, sanitary environments, conservation of all that makes for good citizenship, the year has marked a decided advance; this is the Grange's greatest meaning.

In one county I traveled twenty miles throughout which distance a noxious weed could not be seen on the roadside, a result accomplished by the co-operation of the Granges of that county. In another county the Granges set aside a day, naming it "Home Betterment Day." The added beauty and sanitary surroundings brought about were simply marvelous. One county has organized a domestic science experiment running through six months, each Grange reporting its accomplishments to the county Grange, and great good has resulted. In one county, blessed with an up-to-date, enthusiastic, energetic county school commissioner who is a member of the Grange, an "Author and Ideal Day" was designated. On this day each Grange made a report to the county Grange of the accomplishments in this field, and the larger meaning of life coming to the members of the Granges in this county can only be measured by time. Commissioner Faunce, of Wexford county, has organized a boys' corn

growing contest and the corn will be exhibited at the farmers' institute and Grange rally the coming winter. Commissioner Faunce is a good patron.

The Granges in one county have studied and discussed the parcels post idea, the initiative, referendum and recall, and are posted upon these questions. Several subordinate Granges have inaugurated annual reunions and home-comings and great good has resulted. These glimpses indicate the lines along which the progressive Granges and patrons are moving and, with a great increase in the number of Granges and membership, the future is most promising.

D. E. McCURE.

### WESTERN POMONA'S GOOD MEETING.

An enjoyable meeting of Western Pomona was held at Hudsonville, Saturday, October 14, with a good attendance and much interest shown. The hall was tastefully decorated with autumn leaves and flowers and breathed an air of cosiness and hospitality.

Although this was but a one-day meeting the business of the day was not neglected. Delegates were elected to attend State Grange and a member of the executive committee was elected for the term of three years. Reports of Granges were given and a committee appointed to arrange the places of meeting for the coming year. The proposition to hold a corn show in connection with the January meeting at Coopersville was considered and accepted. A fifth degree session was held and four candidates received the degree of Pomona.

The afternoon program was opened with a song. Roll call was responded to by telling some practical ways in which we can express our patriotism. Some of those mentioned were: Doing our very best in whatever station in life we may be placed; attending Grange meetings; doing all in our power to establish a safe and sane method of celebrating the Fourth of July; passing on good things we have learned that others may benefit by them; upholding the government when we believe it is in the right, and doing our part to correct whatever we believe is wrong; taking enough interest in the election of good men to public office to attend the caucus and help nominate them; obeying the laws and teaching our children obedience and respect for law; doing honest road work; giving our support to the public school teacher.

The following topic was taken up for discussion: "What do you consider the best fodder for late summer and fall feeding?" The majority favored sowed corn (Evergreen sweet corn best) although oats and peas were favored by some. The sisters told about some of the household improvements seen at the fairs or already in use in their own homes. Bread mixers, vacuum cleaners, gasoline flat-irons and patent fruit jars were among the things discussed. The brothers told of recent improvements in farm implements exhibited at the fairs, gasoline engines, power cream separators, and cart harrows being mentioned. Music and recitations added to the pleasure of the session.

Mr. Horace Barnaby, of Grand Rapids, delivered the address of the evening on "Civil Service Reform." He is opposed to measures which seek to establish boards and endow them with extensive power in appointing men to government positions, but favors the plan of having applicants pass an examination, after which they are in line for appointment by the heads of departments. An excellent program of music and recitations was rendered, the numbers by the orchestra being especially good.—Myrtle B. Brown, Secretary.

**Full Parcels Post Demanded.**—Mecosta Pomona patrons, at the county convention held Oct. 12, went on record as being opposed to a limited parcels post such as has been proposed by the Postmaster General. The full parcels post was demanded. In its recommendations to the delegates who will represent this county at State Grange, the patrons voiced their disapproval of the action of congress and of the President on the reciprocity pact; favored uniform text books for public schools, printed under contract at uniform cost; favored representation in the National Grange based on Grange membership, and urged State and National Granges to co-operate in establishing a Grange relief fund for sufferers from fire and flood or other great calamity, to be maintained by an assessment of one to five cents per member to be paid direct to sufferers through the national committee and to have one assessment in readiness at all times in the hands of the national treasurer. Nine of the county's subordinates were represented at this meeting. Mr. and Mrs. Harry Hill, of Chippewa, Grange, and Mr. and Mrs. Charles Kieffer, of Aetna Grange, were chosen subordinate delegates to State Grange, and Mr. and Mrs. Francis Manahan and Mr. and Mrs. Willis Bumford were chosen as alternates. Barney Mosher, of Fern Grange, and Miss Minnie Anderson were elected to represent Mecosta County Pomona.

#### COMING EVENTS.

National Grange, forty-fifth annual session, opens at Columbus, Ohio, Wednesday, Nov. 15.

Michigan State Grange, Thirty-ninth annual session, at Kalamazoo, Dec. 11-15.

#### Pomona Meetings.

Gratiot Co., with Sumner Grange, Saturday, Nov. 4. Hon. Geo. B. Horton, state speaker.

## Try This Famous Pinex "Pint of Cough Syrup"

A Family Supply for 50c, Saving \$2. The Surest, Quickest Remedy You Ever Used or Money Refunded.

A cough remedy that saves you \$2, and is guaranteed to give quicker, better results than anything else, is surely worth trying. And one trial will show you why Pinex is used in more homes in the U. S. and Canada than any other cough remedy. You will be pleasantly surprised by the way it takes right hold of a cough, giving almost instant relief. It will usually stop the most obstinate, deep-seated cough in 24 hours, and is unequalled for prompt results in whooping cough.

A 50-cent bottle of Pinex, when mixed with home-made sugar syrup, makes a full pint of the best cough remedy ever used. Easily prepared in five minutes—directions in package.

The taste is pleasant—children take it willingly. Stimulates the appetite and is slightly laxative—both excellent features. Splendid for croup, hoarseness, asthma, bronchitis and other throat troubles, and a highly successful remedy for incipient lung troubles.

Pinex is a special and highly concentrated compound of Norway White Pine extract, rich in guaiacol 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.



**PEERLESS SELF-RAISING GATES**  
 The gate should be the strongest part of an enclosure, as animals stand and crowd there. If you erect a **PEERLESS SELF-RAISING GATE** you needn't worry about their getting through until you open it.  
 These big, extra heavy frames, with the famous Peerless all No. 9 wire filling, crossbars 6 inches apart, will stand the hardest usage. It is all galvanized—every part—making it rust proof. It looks fine and will stay that way longer than any other make, as the Peerless Gate is the only one that is galvanized. Swings up free and clear from the ground; it never drags. It always works.—Ask your dealer about Peerless Gates. If he don't know, ask us.  
**Peerless Wire Fence Co.** 213 Mich. St. ADRIAN, MICH.

**P. & B. Fence Anchors**  
 Keep hogs from going under wire fence. Hold fence down in crossing depressions. Protect stock from lightning by forming ground connection. Hold in any soil. By their use you can set your  
**Posts 35-40 Ft. Apart**  
 Saving half the expense and labor of posts. Simple, cheap, easy to use. No digging. Special driving tool free with orders for 100.  
 Ask your dealer or write us today for a copy of our illustrated Booklet FREE.  
 Agents are making \$5.00 a day and up. Good territory open. Send 6c stamps for sample and terms.  
**AGENTS**  
**J. M. PEEL & BRO., Box 302 Marysville, Ohio**

**KITSELMAN FENCE**  
 Sold direct to you at factory prices on 30 days trial. Save the dealers profit. Farm, Hog and Poultry Fence at from  
**1 1/2 CENTS A ROD UP.**  
 All wires are heavily galvanized. 80 rod spool of Ideal galvanized Barbed Wire \$1.40. Write to-day for large free Catalog showing 100 different styles and heights of fencing.  
**Box 278 KITSELMAN BROS. MUNCIE, IND.**

**STRONGEST FENCE MADE**  
 26-inch Hog Fence.....15c.  
 47-inch Farm Fence.....23 1/2c.  
 60-inch Poultry Fence.....30c.  
 80-rod spool Barb Wire, \$1.40  
 Many styles and heights. Our large Free Catalog contains fence information you should have.  
**COILED SPRING FENCE CO. Box 21 Winchester, Ind.**



**Low Prices for this Handsome Fence**  
 100 other styles. Many cheaper than wood—all better. For Lawns, Churches, Parks, etc. Write for pattern book and special offer.  
**THE WARD FENCE CO., Box 943, DECATUR, IND.**

**BROWN FENCE**  
 MOST durable fence made. Heaviest wires. Double galvanized. Stock strong. Chicken tight. 13 to 35c per rod. Sample free. We pay freight.  
**The Brown Fence & Wire Co. Dept. 49 Cleveland, O.**



MARKETS

DETROIT WHOLESALE MARKETS.

November 1, 1911. Grains and Seeds.

Wheat.—There has been a declining wheat market since last Thursday. The cash dealers have withdrawn their support, inasmuch as present needs have been fairly well provided for. This is largely responsible for the decline, although it is reported that the action of the federal government toward the steel trust and a threat to probe alleged manipulation of grain markets are also ascribed as reasons for lower prices. Then again, the recent upturn in prices encouraged farmers to sell their holdings which piled up supplies at primary elevators and enabled the bears to make a strong talking point for their side. Australia has had a little relief from her long drouth by copious rains. The condition in Argentine continued promising. The Liverpool markets have been slightly favorable to the bulls this week. A large portion of the crop of the Canadian northwest will be condemned as unfit for making flour, frost having caught the crop before properly matured. There is a good demand for flour and the mills are grinding to their fullest capacity. One year ago the price for No. 2 red wheat was 92 3/4 c per bu. Quotations for the week are as follows:

Table with 5 columns: Day, No. 2, No. 1, Dec., May. Rows for Thursday, Friday, Saturday, Monday, Tuesday, Wednesday.

Corn.—In spite of the decline in wheat quotations, corn has advanced and its new position seems firm. While deliveries of new corn in the southern part of the corn belt are increasing and better weather conditions prevail for husking the crop, the damage that has been sustained is permanent and will run throughout the season. There appears to be no hope of assistance from abroad as the corn crop there has suffered as in America. There is no activity in the local market. One year ago No. 3 corn was quoted at 52 1/2 c per bu. Quotations for the week are as follows:

Table with 5 columns: Day, No. 3, No. 3, Yellow, No. 3, Corn. Rows for Thursday, Friday, Saturday, Monday, Tuesday, Wednesday.

Oats.—This grain has declined with wheat and the trade has been slow. Some of the large holders are disposing of a portion of their stocks. Markets closed with a weak tone and at a loss of 3/4 c. A year ago standard oats were selling at 34 1/2 c per bu. Quotations for the week are as follows:

Table with 5 columns: Day, Standard, No. 3, White. Rows for Thursday, Friday, Saturday, Monday, Tuesday, Wednesday.

Beans.—Cash beans are quoted 5c higher than a week ago. There is some selling on the market here at the quotation given. Reports show that the early estimates of the damage done to the crop were conservative and that the deterioration due to heavy and continuous rains during the harvesting period is general in Michigan, as well as in other states where beans are grown extensively. Buyers are a little cautious about taking offerings because of the poor condition they find many consignments in. It would seem that farmers should take especial care in providing a place that will enable the beans to dry out after they have been threshed. Following are the quotations for the week:

Table with 5 columns: Day, Oct., Dec. Rows for Thursday, Friday, Saturday, Monday, Tuesday, Wednesday.

Clover Seed.—The offerings of seed are smaller than usual. Prices show a little advance over those of last week; the trade is steady and probably will remain so. Alsike is unchanged from a week ago. Quotations are as follows:

Table with 5 columns: Day, Oct., Alsike. Rows for Thursday, Friday, Saturday, Monday, Tuesday, Wednesday.

Timothy Seed.—While no sales are reported, prime spot timothy seed is nominally quoted at \$7.20 per bu., which is the price of a week ago.

Rye.—This grain has declined another cent. Cash No. 2 now being quoted at 99c per bu. There is no dealing.

Flour, Feed, Potatoes, Etc.

Flour.—There is a brisk demand for flour, with prices unchanged.

Table with 2 columns: Type, Price. Rows for Straight, Patent Michigan, Ordinary Patent.

Feed.—All grades steady with last week. Carlot prices on track are: Bran, \$27 per ton; coarse middlings, \$29; fine middlings, \$32; cracked corn, \$30; coarse corn meal, \$30; corn and oat chop, \$28 per ton.

Hay and Straw.—Straw higher. Hay remains steady. Quotations are: No. 1 timothy, \$20@20.50; No. 2 timothy, \$18.50@19; clover, mixed, \$17@19; rye straw,

\$9.50@10; wheat and oat straw, \$8.50@9 per ton.

Potatoes.—While potatoes are being offered in good supply prices have not only been maintained but have actually advanced under a good steady demand from consumers. Many of the tubers are grading poorly. Car lots on track are quoted at 63@68c per bushel.

Provisions.—Family pork, \$19@19.50; mess pork, \$16; medium clear, \$15@17; hams, 14c; bacon, 12 1/2@14c; pure lard in tierces, 9 1/2c; kettle rendered lard, 10 1/2c per lb.

Dairy and Poultry Products.

Butter.—All grades of butter are higher, creamery showing the greatest advance. Demand is strong and the new position is firm. The advance has been general over the country. Quotations are: Extra creamery, 31c; firsts, do., 30c; dairy, 21c; packing stock, 20c per lb.

Eggs.—Although local prices have advanced a half cent during the week, they did not show the gain made in outside markets. Demand is active and supplies are moderate. Fresh receipts, case count, cases included, are now quoted at 24 1/2 c per dozen.

Poultry.—Attention is largely confined to chickens, of which there is a liberal supply. The demand has improved and for the first time in weeks prices ruled from steady to higher. Prices are: Live—Hens, 10c; turkeys, 14@15c; geese, 8@9c; ducks, 12@13c; young ducks, 14c; spring chickens, 11 1/2c; No. 2 chickens, 9c per lb.

Cheese.—Michigan, old, 16@16 1/2c; Michigan, late, 15 1/2@16c; York state, new, 16@16 1/2c; Swiss, domestic block, 19@21c; cream brick, 15@16c; limburger, 12@13c.

Veal.—Market lower for best. Fancy, 10@11c; choice, 8@9c per lb.

Fruits and Vegetables.

Cabbage.—Steady. Selling at \$1.50@1.75 per bbl, for home-grown.

Onions.—Steady; 80@90c per bu.

Pears.—75c@1 per bu for average offerings.

Apples.—There is a fair demand for this fruit. Good fruit is being held back by growers until the inferior grades are disposed of. Average offerings are going at 50@75c per bu; Snows are selling at \$2.50@3 per bbl.

Grapes.—Niagara 4-lb. basket, 15c; Concord, 4-lb. basket, 14c.

OTHER MARKETS.

Grand Rapids. According to Grand Rapids dealers, potatoes are higher in Michigan than in outside markets, the price at the present time ranging from 45@55c. There is quite a lively movement, and has been since the season opened. Many reports are made of large and hollow potatoes, but few, if any, cases of rot have been reported. Fresh eggs are very scarce and are quoted nominally at 26c, jobbers to country shippers. Live fowls and spring chickens are worth 8 1/2c; ducks, 10c, and turkeys 14c. Turkeys will not be fat this year, on account of mild weather, and reports indicate a larger supply than usual for Thanksgiving, with prices 6@8c lower. Hay is worth \$18.

New York.

Butter.—All grades are higher with other markets. Creamery specials are quoted at 33@33 1/2c per lb; extras, 32@32 1/2c; firsts, 29@30 1/2c; seconds, 26@28c; thirds, 24@25c.

Eggs.—All grades show a general advance of 2@3c. Fresh gathered extras, 33@34c; extra, firsts, 29@31c; seconds, 22@25c; western gathered whites, 28@38c per dozen.

Poultry.—Live—Steady; western chickens, 11 1/2@12 1/2c; fowls, 11@13c turkeys, 16c. Dressed, quiet. Turkeys, 10@20c; fowls, 7@15 1/2c; western chickens, 7@16c per lb.

Chicago.

Wheat.—No. 2 red, 98 1/2c@99c; Dec., 96 1/2c; May, \$1.02 per bu.

Corn.—No. 2, 73 1/2@74 1/2c; Dec., 68c; May, 64 1/2c per bu.

Oats.—No. 2 white, 47@47 1/2c; Dec., 46 1/2c; May, 48 1/2c.

Barley.—Mating grades, \$1.00@1.25 per bu; feeding, 75@95c.

Butter.—This market showed great strength at the week's opening and prices were moved up a cent in anticipation of an advance at Elgin. Later, top grade creamery made a further gain of 1/2 c. Market steady at the higher range. Creameries, 24 1/2@31c; dairies, 22@28c per lb.

Eggs.—Offerings continue light and all grades are higher, the better qualities showing a 2c gain. Quotations: Prime firsts, 24c; firsts, 22c; at mark, cases included, 16@19c per dozen.

Potatoes.—Lessened receipts and continued active demand have brought an advance of 5c. Michigan stock is now quoted at 68@70c per bu; Wisconsin, 65@68c; Minnesota, 68@70c.

Beans.—Steady without price change. Choice hand-picked pea beans quoted at \$2.43@2.48 per bu; prime, \$2.32@2.34; red kidneys, \$2.75@3.25 per bu.

Hay and Straw.—Hay is steady and unchanged. Wheat straw \$1 higher. Quotations: Choice timothy, \$22@23 per ton; do., No. 1 \$20@21; do., No. 2 and No. 1 mixed, \$19@20; do., No. 3 and No. 2 mixed, \$14@18; clover, \$15@17; do., No. 2 and no grade, \$8@13; rye straw, \$10@11; oat straw, \$9@9.50 per ton; wheat straw, \$7@8 per ton.

Boston.

Wool.—There has been general selling in the wool market this past week, the activity extending to practically all grades. Choice offerings have been marked up while ordinary grades are selling with former weeks. Michigan wools have been particularly popular the past seven days and a good percentage of her stocks have been transferred. Following are the leading domestic quotations for fleeces: Ohio and Pennsyl-

vania fleeces—Delaine, washed, 30@31c; XX, 28c; fine unmerchanted, 22@23c; 1/2-blood combed, 25@26c; 3/4-blood combed, 25@25 1/2c; 1/4-blood combed, 24@24 1/2c; delaine, unwashed, 25c; fine unwashed, 21c. Michigan, Wisconsin and New York fleeces—Fine unwashed, 19@20c; delaine, unwashed, 23@24c; 1/2-blood unwashed, 24 1/2@25c. Kentucky, Indiana and Missouri—3/4-blood, 24c; 1/4-blood, 23@23 1/2c.

Elgin.

Butter.—Market firm at 31c per lb., which is a 1 1/2c advance over last week's quotation. Output for the week, 674,200 lbs., as compared with 687,300 lbs. for the previous week.

THE LIVE STOCK MARKETS.

Buffalo.

October 30, 1911.

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

Receipts of stock here today as follows: Cattle, 250 cars; hogs, 130 double decks; sheep and lambs, 110 double decks; calves, 1,400 head.

With 250 loads of cattle on our market today, we are compelled to report the worst market that we have had here in three months. Cattle of all grades selling from 15@25c lower, and in a good many instances 40c lower. With 250 cars on the market today, it is a positive fact there wasn't a single load of prime cattle here, and with orders here for several loads of good weighty cattle, weighing 1,300 to 1,450 lbs., it was impossible for buyers to fill their orders as there were none of that kind here.

We quote: Best 1,400 to 1,600-lb. steers \$7.60@7.75; good prime 1,300 to 1,400-lb. do., \$7@7.25; do. 1,200 to 1,300-lb. do. \$6.25@7; best 1,100 to 1,200-lb. shipping steers \$5.50@6; medium light butcher steers, 1,000 to 1,100, \$5@5.50; light butcher steers, \$4.50@5; best fat cows, \$4.25@4.75; fair to good do., \$3.25@4; common to medium do., \$2.25@2.75; trimmers, \$1.50@2; best fat heifers, \$5@5.65; good do., \$4.25@4.85; fair to good do., \$3.75@4.25; stock heifers, \$3.25@3.50; best feeding steers, dehorned, \$4.50@5; common do., \$3.75@4; stockers, all grades, \$3.75@4; prime export bulls, \$5@5.25; best butcher bulls, \$4.25@4.75; bologna bulls, \$3.25@3.75; stock bulls, \$3@3.75; best milkers and springers, \$5@6; common to good do., \$2.5@3.5.

The trade in the hog department ruled fairly active today, with the bulk of the best quality mixed packers' grades and medium weights selling at \$6.60@6.65, and the best quality strong weight yorkers generally at \$6.50, with quite a number on down to as low as \$6.10. The choice quality heavier weights are scarce, and are bringing a premium over the mixed and medium weights. This kind quotable today from \$6.65@6.75. Best quality and weight pigs sold generally at \$5.90, with a few of the stronger weights up to 6c per lb., and the light weight pigs ranging from \$4.50@5.50 per 100 lbs. The best quality rough sows sold generally at \$5.90, with a few selected up to 6c, and some of the commoner kind as low as 5 1/2c. Stags ranged from \$4.50@5.25. The supply is well cleaned up, with the market closing steady.

The sheep and lamb market was active today; most of the choice lambs sold at \$5.75@5.80; wethers at \$3.50@3.65. Everything about sold. Look for a little improvement the last of the week.

We quote: Best spring lambs, \$5.75@5.80; cull to common do., \$4.50@5; wethers, \$3.50@3.65; bucks, \$2.50@2.75; yearlings, \$3.75@4; handy ewes, \$3@3.25; heavy do., \$3@3.15; cull sheep, \$1.50@2; old wethers, \$2.60@2.65; heavy calves, \$4@5.

Chicago.

October 30, 1911.

Received today Cattle. Hogs. Sheep. Same day last year. 23,000 30,000 50,000. Received last week. 34,707 26,547 45,654. Same week last year. 85,739 144,528 209,798. After last week's unusual slump in cattle prices, brought about by glutted markets, owners were not eager to ship in stock until time could be had for a recovery in values, and the run today is quite moderate, including 5,000 from western ranges. These cattle, as well as the great bulk of the fed stock from farming sections, moved off briskly at advances of around 10@15c, and quite a number of sales looked as much as 20@25c higher. A new high record was made early by the sale of a consignment of fancy Missouri-fed Angus steers that averaged 1,730 lbs., at \$9. Hogs opened firm to a shade higher, sales ranging at \$5.80@6.65, one sale occurring at the top figure. After the shippers had filled their wants, however, the market ruled dull and lower. Pigs sold at \$4@5.60, according to weight and grading, extremely light weights going lowest, and a few 46-lb. pigs sold at \$3.50. Stags sold at \$6.40@6.75 and boars at \$2.75@3.25, all stags selling subject to 80 lbs. dockage per head. Hogs marketed last week averaged 214 lbs., compared with 222 lbs. a week earlier; 201 lbs. three week earlier; 244 lbs. one year ago; 228 lbs. two years ago and 207 lbs. three years ago. Sheep and lambs were in less urgent demand than usual and lacked firmness, feeders and choice mutton flocks excepted. A week ago hogs sold at \$5.85@6.72 1/2.

Horses have been in extremely poor demand recently, and until the market shows improvement in animation and firmness country shippers should operate cautiously, restricting their shipments to horses that are really desirable in quality. Buyers are in small attendance daily, and buying orders in the hands of commission firms at the stock yards have fallen off a good deal. Only good horses

are wanted, and poor grades are losing money for sellers. Drafters are salable on a basis of \$175@325 per head, few selling higher than \$250, and wagon horses are selling at \$160@200. Very little demand for drivers exists, prices ruling at \$160@275. F.

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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.

November 2, 1911.

Cattle.

Receipts, 1,291. Market active at last week's prices on all grades.

We quote: Best steers and heifers, \$5.50@5.75; steers and heifers, 1,000 to 1,200, \$4.75@5.25; do., 800 to 1,000, \$4@4.75; grass steers and heifers that are fat, 800 to 1,000, \$4@4.75; do., 500 to 700, \$4@4.50; choice fat cows, \$4@4.25; good fat cows, \$3.50@3.75; common cows, \$2.50@3; canners, \$1.75@2.25; choice heavy bulls, \$4@4.25; fair to good bolognas, bulls, \$3.50@3.75; stock bulls, \$2.50@3; choice feeding steers, 800 to 1,000, \$4.50@4.75; fair feeding steers, 800 to 1,000, \$3.75@4.25; choice stockers, 500 to 700, \$3.50@3.75; fair stockers, 500 to 700, \$3@3.35; stock heifers, \$3@3.50; milkers, large, young, medium age, \$40@60; common milkers, \$25@35.

Bishop, B. & H. sold Bresnahan 7 canners av \$36 at \$2; to Alexander 15 feeders av 704 at \$3.25, 1 do weighing 800 at \$3.25, 4 stockers av 680 at \$3.75, 4 do av 570 at \$3.50; to Hammond, S. & Co. 12 butchers av 832 at \$3, 6 do av 633 at \$3, 8 do av 715 at \$4, 4 canners av \$25 at \$2.65, 1 do weighing 780 at \$1.50, 10 do av \$27 at \$2.50; to Mich. B. Co. 15 butchers av 978 at \$3.50, 5 do av 706 at \$3.50, 2 cows av 1,000 at \$3.20, 4 butchers av 745 at \$4; to Rattkowsky 6 do av 816 at \$3, 1 cow weighing 1,080 at \$4, 1 steer weighing 1,080 at \$4.50, 1 cow weighing 900 at \$4, 2 do av 805 at \$3; to Hammond, S. & Co. 3 heifers av 733 at \$4, 4 cows av 1,100 at \$3.50, 1 bull weighing 720 at \$3.25; to Parker, W. & Co. 2 cows av 1,020 at \$2.50, 6 do av 750 at \$2.50, 2 do av 995 at \$2.50, 18 butchers av 620 at \$3.25; to Newton B. Co. 16 do av 722 at \$4; to Hammond, S. & Co. 10 steers av 722 at \$3.65, 9 cows av 448 at \$2.75, 1 bull weighing 1,450 at \$4.25; to Sullivan P. Co. 29 steers av 974 at \$5.75; to Hartung 12 feeders av 824 at \$4.50; to Thompson Bros. 2 cows av 984 at \$3.75, 2 heifers av 865 at \$4.60, 1 bull weighing 1,040 at \$3.75; to Rattkowsky 4 cows av 970 at \$3.25.

Haley & M. sold Mich. B. Co. 1 bull weighing 1,130 at \$4; to Hammond, S. & Co. 2 cows av 1,035 at \$3.50, 2 do av 865 at \$2.50, 4 canners av 855 at \$2.25, 6 butchers av 575 at \$3.75; to Sullivan P. Co. 12 do av 854 at \$4.50, 2 steers av 875 at \$4, 2 cows av 1,015 at \$3.25, 4 canners av 862 at \$2.25, 1 do weighing 620 at \$1.50; to Bresnahan 20 stockers av 595 at \$3.20; to Schlischer 5 butchers av 546 at \$3.25, 7 do av 580 at \$3.25, 1 cow weighing 800 at \$3.25; to Rattkowsky 5 butchers av 582 at \$3.25; to Goose 7 do av 300 at \$3.15; to Regan 12 do av 533 at \$3.25, 1 heifer weighing 650 at \$3; to Newton B. Co. 12 heifers av 717 at \$3.90, to Rale 3 bulls av 666 at \$3.00, 1 do weighing 960 at \$3.60, 2 do av 620 at \$3.

Spicer & R. sold Sullivan P. Co. 1 bull weighing 970 at \$4, 2 cows av 1,020 at \$2.75, 1 canner weighing 1,200 at \$2.50, 26 steers av 1,002 at \$5.50, 1 do weighing 930 at \$5, 3 do av 770 at \$4.75, 3 butchers av 960 at \$4.25, 1 bull weighing 1,730 at \$4, 2 do av 1,150 at \$3.75, 4 do av 767 at \$3, 1 do weighing 1,730 at \$4.25, 4 butchers av 890 at \$4.25, 1 bull weighing 1,150 at \$4, 2 canners av 910 at \$2.25, 1 do weighing 980 at \$2.25, 4 do av 920 at \$2.40, 3 bulls av 633 at \$2.90, 1 heifer weighing 750 at \$4.50; to Bresnahan 3 canners av 880 at \$2; to Breitenbeck 33 butchers av 716 at \$4; to Goose 5 do av 366 at \$3, 10 do av 617 at \$3.50; to Sullivan P. Co. 1 bull weighing 1,370 at \$4, 2 canners av 750 at \$2, 1 do weighing 790 at \$1.50, 3 bulls av 510 at \$3; to Kamman B. Co. 30 butchers av 881 at \$4.40; to Parker, W. & Co. 11 do av 945 at \$4.90; to Kamman 7 do av 571 at \$3.25, 8 do av 720 at \$3.25, 2 do av 695 at \$3.50, 30 do av 890 at \$4.40; to Schumaker 14 feeders av 700 at \$3.90, 2 stockers av 600 at \$3.50, 7 do av 605 at \$3.90.

Roe Com. Co. sold Mich. B. Co. 20 steers and heifers av 869 at \$4.35, 5 cows av 902 at \$3.70; to Newton B. Co. 10 butchers av 690 at \$4; to Hammond, S. & Co. 9 do av 683 at \$4, 9 do av 913 at \$3.25, 2 do av 480 at \$3, 1 bull weighing 1,100 at \$4, 7 cows av 1,010 at \$3.25, 2 do av 900 at \$3.25, 4 do av 1,060 at \$2.75, 7 do av 780 at \$2.25, 1 bull weighing 1,080 at \$3.75; to Parker, W. & Co. 7 butchers av 521 at \$3.25; to Newton B. Co. 9 do av 777 at \$4.25, 4 do av 712 at \$3.50; to Strong 22 feeders av 784 at \$3.75; to Parker, W. & Co. 15 butchers av 855 at \$3.20, 21 do av 870 at \$4.50; to Hammond, S. & Co. 9 do av 915 at \$4.50, 1 cow weighing 1,180 at \$4.

Receipts, 583. Market steady with Wednesday, 25c higher than last Thursday for good stuff; common dull. Best, \$8@8.75; others, \$3.50@7.50; milch cows and springers steady.

Bishop, B. & H. sold Parker, W. & Co. 8 av 120 at \$3.50, 1 weighing 160 at \$5, 8 av 145 at \$3.50, 1 weighing 240 at \$5, 2 av 120 at \$8, 2 av 160 at \$8.60, 11 av 270 at \$4, 3 av 180 at \$3.75, 4 av 135 at \$8.75; to Mich. B. Co. 7 av 140 at \$8.50, 15 av 156 at \$8.50, 13 av 140 at \$8, 13 av 150 at \$8.25; to Kull 1 weighing 130 at \$8, 4 av 125 at \$8.50, 9 av 160 at \$8.50, 1 weighing 130 at \$8; to Goose 2 av 215 at \$4.50; to Friedman 2 av 135 at \$8.50. Lewis sold Newton B. Co. 3 av 140 at \$7.50.

Haley & M. sold Rattkowsky 2 av 185 at 6, 1 weighing 280 at 4; to Goose 3 av 150 at \$7.

Roe Com. Co. sold Newton B. Co. 1 weighing 200 at \$7, 4 av 155 at \$6, 1 weighing 140 at \$8.50.

Kendall sold Burnstine 10 av 130 at \$7.50.

Bohm sold same 2 av 125 at \$8.

Spicer & R. sold Goose 3 av 230 at \$6.50, 2 av 275 at \$3.25; to Newton B. Co. 2 av 115 at \$6.50, 6 av 155 at \$8.25; to Rattkowsky 11 av 120 at \$6.50; to Mich. B. Co. 6 av 150 at \$8.25; to Friedman 3 av 150 at \$8.30; to Goose 3 av 145 at \$8. Downing sold Sullivan P. Co. 4 av 155 at \$8.

Sheep and Lambs.

Receipts, 5,669. Market steady at last week's opening; quality common. Best lambs, \$5.35@5.40; fair lambs, \$5@5.25; light to common lambs, \$3.75@4.75; fair to good sheep, \$2.75@3.50; culls and common, \$1.50@2.50.

Bishop, B. & H. sold Breitenbeck 37 lambs av 70 at \$4.75, 13 do av 65 at \$4, 11 do av 45 at \$3, 5 do av 70 at \$5, 6 sheep av 100 at \$2; to Hammond, S. & Co. 48 lambs av 73 at \$5.25, 60 do av 70 at \$5.25, 5 sheep av 95 at \$2, 31 do av 115 at \$3, 10 do av 92 at \$2, 58 do av 115 at \$3, 10 do av 110 at \$2.75; to Harland 28 lambs av 70 at \$5.25, 40 do av 80 at \$3.35; to Sullivan P. Co. 72 do av 50 at \$4.25, 50 do av 73 at \$5.40, 29 do av 50 at \$4, 23 sheep av 70 at \$3.50; to Thompson Bros. 8 do av 130 at \$3, 22 lambs av 45 at \$3.50, 69 lambs av 50 at \$4; to Nagle P. Co. 91 do av 73 at \$5.10, 78 do av 80 at \$5.25, 52 do av 65 at \$5.15, 21 do av 55 at \$4, 31 sheep av 95 at \$2.75, 107 lambs av 75 at \$5.25, 43 do av 75 at \$5.35, 124 do av 70 at \$5.10, 28 sheep av 115 at \$3, 5 do av 85 at \$1.50, 8 lambs av 57 at \$4, 54 sheep av 122 at \$3; to Mich. B. Co. 23 do av 110 at \$3, 23 do av 125 at \$2.75, 28 do av 100 at \$3.25; to Parker, W. & Co. 50 lambs av 52 at \$4, 12 do av 53 at \$4.50, 10 sheep av 89 at \$2, 27 do av 90 at \$3, 18 lambs av 68 at \$5; to Barlage 15 lambs av 53 at \$4, 37 do av 75 at \$5.28; to Mich. B. Co. 55 do av 50 at \$4, 28 do av 53 at \$4, 34 do av 60 at \$5.40.

Spicer & R. sold Kull 13 lambs av 70 at \$4.75, 14 do av 80 at \$4; to Mich. B. Co. 187 do av 69 at \$5.30, 20 do av 52 at \$4, 4 sheep av 105 at \$2.50, 34 wo av 110 at \$3, 34 lambs av 65 at \$5.25, 16 sheep av 65 at \$2.85; to Eschrich 20 do av 70 at \$2.60, 25 do av 70 at \$2.60. Downing sold Newton B. Co. 29 lambs av 60 at \$4.50.

Lewis sold same 21 do av 73 at \$5, 13 sheep av 95 at \$2.

Sandell & T. sold same 8 sheep av 107 at \$2, 29 do av 70 at \$3, 192 lambs av 70 at \$5.

Roe Com. Co. sold Newton B. Co. 19 lambs av 74 at \$5.

Hogs.

Receipts, 7,742. Market 5c higher than Wednesday; steady to 5c lower than last Thursday; none sold up to noon.

Range of prices: Light to good butchers, \$6.20@6.30; pigs, \$5.25@5.40; light yorkers, \$6.20@6.30; stags, one-third off.

Roe Com. Co. sold Sullivan P. Co. 340 av 200 at \$6.30, 320 av 190 at \$6.25.

Spicer & R. sold Hammond, S. & Co. 720 av 200 at \$6.25.

Haley & M. sold same 520 av 180 at \$6.25, 460 av 200 at \$6.30.

Bishop, B. & H. sold Parker, W. & Co. 1,560 av 200 at \$6.30, 2,715 av 170 at \$6.25, 730 av 160 at \$6.20, 25 av 135 at \$5.90.

Friday's Market.

October 27, 1911.

Cattle.

Receipts this week, 1,879; last week, 1,193. Market 25c lower than the opening Thursday.

We quote: Best steers and heifers, \$5.25; steers and heifers, 1,000 to 1,200, \$4.50@5; do., 800 to 1,000, \$4@4.40; grass steers and heifers that are fat, 800 to 1,000, \$4@4.40; do., 500 to 700, \$4@4.25; choice fat cows, \$3.75@4; good fat cows, \$3.25@3.75; common cows, \$2.50@2.75; canners, \$1.50@2.25; choice heavy bulls, \$3.50; stock bulls, \$2.50@3; choice feeding steers, 800 to 1,000, \$4.50@4.75; fair feeding steers, 800 to 1,000, \$3.75@4; choice stockers, 500 to 700, \$3.50@3.75; fair stockers, 500 to 700, \$3@3.25; stock heifers, \$3@3.50; milkers, large, young, medium age, \$40@60; common milkers, \$25@35.

Veal Calves.

Receipts this week, 929; last week, 799. Market dull at Thursday's prices. Best, \$8@9; others, \$3.50@7.50. Milch cows and springers steady.

Sheep and Lambs.

Receipts this week, 8,885; last week, 4,960. Market 25c lower than on Thursday. Best lambs, \$5@5.10; fair to good lambs, \$4.50@4.80; light to common lambs, \$3.50@4; fair to good sheep, \$2.75@3; culls and common, \$1@2.50.

Receipts this week, 13,060; last week, 9,469. Market steady at Thursday's prices.

Range of prices: Light to good butchers, \$6.20@6.30; pigs, \$5@5.40; light yorkers, \$6.20@6.30; stags one-third off.



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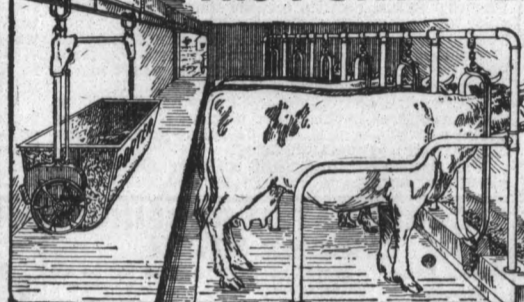
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Pair horses, sheep, poultry, wagons and machinery, all included; you can move right in and make money this winter from your cows and be ready for spring's work; 70 acres in machine-worked fields; brook-watered pastures for 30 cows; good fences; abundance of fruit; estimated to cut 1,300 cords wood, 60,000 ft. timber; 10-room painted house, big barn, stable, shed and poultry house; the sacrifice price is only \$4800, part cash; buy an Eastern farm before the big advance; all details and traveling instructions page 119, "Strout's Mammoth Farm Catalogue No. 34," copy free. E. A. STROUT, Station 101, Union Bank Bldg., Pittsburg, Pa.

FARM BOOK FREE

Just issued by Vermont's Publicity Bureau. Homeseekers' Guide to

Vermont Farms

a book of general information about the State's Agricultural resources. Also contains large list of desirable farms for sale.

Send for it today. It is Free.

GUY W. BAILEY, Sec'y of State

Publicity Department Essex Junction, Vermont

FOR INFORMATION AS TO LANDS IN

The Nation's Garden Spot— THAT GREAT FRUIT AND TRUCK GROWING SECTION— along the

Atlantic Coast Line RAILROAD

in Virginia, North and South Carolina, Georgia, Alabama and Florida, write to WILBUR McCOY, A. & I. Agt. for Florida, Jacksonville, Fla. E. N. CLARK, A. & I. Agt. for Virginia and the Carolinas, Wilmington, N. C.

Brooksville, Florida, Board of Trade \$ 600.00 Growing Oranges to 1000.00 Grape Fruit & Truck

PER ACRE. Our farmers also raise 80 bu. of corn to the acre. Only a small amount of Florida soil is rich, high, black hammock land, such as surrounds our city. We, the Brooksville Board of Trade, have no land to sell, but want to interest ambitious men with from \$500 to \$1,000 capital to help develop tremendous agricultural and industrial advantages of Brooksville and Hernando County. Although farm and fruit land has been steadily going up in price, some good land can still be bought far below its real value.

FREE

Send for Free Book It tells you about the different kinds of Florida soil, and why the best Oranges, Grape Fruit, Vegetables and biggest Corn crops (80 bu. to the acre) are grown here. 300 feet above the sea—no swamps or marshes. Ideal climate—schools, churches, good roads, all modern conveniences. If you are not afraid of work, and have at least \$500 to \$1000 capital, come to Brooksville. We need you and will help you by giving the benefit of our advice and experience. Write today. Board of Trade, Box 407, Brooksville, Fla.



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We will Pay you Highest Market Prices, give you liberal assortment and prompt payments. Our fifty-eight years of successful business is a guaranty of satisfaction. We refer you to any mercantile house in America. You will be money in pocket if you ship all your Furs to us. Ask any of our customers. We will send you free of charge our Fur List with prices on all grades of Furs. We want you to have it.

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# BUILDING MATERIAL PRICES ABSOLUTELY SMASHED!!

NOW IS THE TIME TO BUILD OR IMPROVE

**\$527** Our price for the material to build this house.



**HOUSE DESIGN No. 111**  
Here is a neat, cozy, little cottage that can be built at the minimum of cost under our guaranteed building proposition. Size, 23 ft. 6 in. wide by 33 ft. Five rooms and bath. All the comforts desired by home-loving people. Extra large porch. Convenient interior. For the price it is impossible elsewhere to secure a home with so many excellent features.

**\$660** Our price for the material to build this house.



**HOUSE DESIGN No. 149**  
The Mansard roof construction of this design enables the owner to utilize all space to the best advantage and get the very most to be had for the money. Size, 21 ft. wide and 28 ft. deep; six rooms, bath and basement. This design offers more convenience than many larger and higher priced houses. Is constructed of the very best materials at a magnificent saving.

**\$698** Our price for the material to build this house.



**HOUSE DESIGN No. 6**  
This is our leader. Size, 23 ft. by 33 ft. 6 in.; 7 rooms and bath. There has never been a design offered that can be built in so economical a manner with less material to produce satisfactory results and a general effect of elegance than this house. Has satisfactorily been built more than 400 times during the last two years. A beautiful home at a splendid money-saving price.

**\$877** Our price for the material to build this house.



**HOUSE DESIGN No. 130**  
Size, 25 ft. 10 in. x 29 ft. 6 in.; eight rooms and bath, pantry, vestibule and large hall. A square, solid, substantial construction. All space is advantageously utilized. The Colonial windows and porch columns are distinctive features. For convenience and artistic arrangement, general elegance of appearance, and low price, this house is unequalled.

## CHICAGO HOUSE WRECKING COMPANY THE GREAT PRICE WRECKER.

We buy supplies at Sheriffs', Receivers', and Factory Sales, besides owning outright saw mills and lumber yards. Usually when you buy your building material elsewhere for the complete buildings shown in this advertisement, it costs you from 50 to 60% more. By our "direct to you" methods we eliminate several middlemen's profits. Every stick of lumber and every bit of building material offered in this advertisement is guaranteed brand new and first class; as good as you can purchase from anyone anywhere. You run no risk in dealing with us. Our capital stock and surplus is over \$1,500,000.00. Our 18

years of honest dealing guarantees absolute satisfaction. Any material not up to our representation may be returned at our freight expense both ways and money refunded in full.

Our wonderful fall building offer sets a new pace in the building world. Never before have such remarkably low prices been published.

Our stock includes practically every manufactured article. Besides building material we have a complete stock of Dry Goods, Clothing, Boots and Shoes, Furniture, Household Goods, Groceries—in fact everything needed in the home, on the field or in the workshop.

### CORRUGATED ROOFING Per Square \$1.25

**Roofing Prices Smashed.** Metal roofing is superior to all other coverings. A fact proven absolutely and conclusively of 100 years' actual experience. We carry a complete stock of all styles.

Here is a roofing offer that has never before been equalled. We have 5,000 squares of Corrugated Iron Roofing sheets all 22x24x1/4 in. corrugation. Strictly new first-class that we offer at \$1.25 per square Free on Board Cars at Chicago. At this price we do not pay the freight, but if you will write us for our Great Roofing Offer, we will make you Freight Prepaid Prices lower than ever offered in the history of roofing material.

Our stock includes painted and galvanized. We can furnish it in flat, corrugated, standing seam, "V" crimped, brick siding, beaded ceiling and in ornamental fancy ceiling. In fact we can furnish your every want in the covering line.

A hammer is the only tool needed in putting on all grades but the standing seam. We give you free with every order for 3 squares or more a handsome serviceable crucible steel hammer that ordinarily retails from 75c to \$1.00. Write today for our Great Complete Roofing Catalog, and our latest Roofing quotations.

### "PREMIER" HOUSE PAINT Per Gallon \$1.08

Mr. V. Michaelson, Supt. of our Great Paint Dept. is probably the best known paint man in the world. His picture has appeared on millions of gallons of cans. He is our guarantee of quality. Our Ready Mixed "Premier" Brand of Paints are made under a special formula and will give the best service and satisfaction. Our prices range from \$1.08 to \$1.21, depending upon quantity.

Our "Premier" Barn Paint is an ideal protection for barns, roofs, fences, outhouses and all general purposes. This is a paint in which Mr. Michaelson has put all his personality. Comes in green, maroon, yellow, lead, red and slate. 82c

In 1 gallon cans, per gallon.....72c  
In 25 gallon cans, (3/4 barrel), per gallon.....72c  
Write to-day for our Great Color Card and prices.

### \$37.50 BUYS COMPLETE BATHROOM OUTFIT

Here is an outfit that is good enough for any home. It is strictly a No. 1 and first-class in every particular. The bath tub and lavatory are white porcelain enameled over iron. The closet is a syphon acting low down outfit.

It is our lot No. 5-AD-33. Our handsome Plumbing Catalog lists many other outfits ranging in prices from \$26.30 to \$92.50.

We will furnish all the Plumbing material needed for any of the houses shown in this advertisement, including one of the bathroom outfits described above, besides a one piece roll rim white enameled kitchen sink, with white enameled drain board, a 30 gallon range boiler and all the necessary pipe and fittings, and all material of every kind to complete the entire plumbing system, including all fixtures, furnished with iron pipe connections for the sum of.....\$83.95

### CEMENT COATED WIRE NAILS Per Keg. \$1.92

A patent process coats these nails with a cement preparation that lasts forever. Drives easily but are hard to pull out. Once use them and you will have no others, as for every purpose they are far superior to the common kind. Full kegs—not sold by pound weight. Sizes 20D to 60D weight. Price per keg.....\$1.92  
Other sizes equally as cheap.

### MONEY SAVING HARDWARE OPPORTUNITIES

Complete, wrought steel, copper finish front door set. Artistic, attractive design. Size, 4 1/2 x 3 1/2; Mortise lock complete. Price, per set. \$1.40  
Complete wrought steel, antique copper finish plated front mortise lock 3 1/2 x 3 1/2. One key and one pair of knobs; two escutcheons with screws. Per set.....48c

### READY ROOFING, PER SQUARE 85c

Our Rawhide Roofing is the highest grade roofing at the lowest price ever offered. It has a foundation of tough fibre texture so substantially prepared that it is well-nigh indestructible. Every foot carries our iron-clad guarantee to be absolutely right.

This is our price for Ajax Brand of Ready Roofing. It is put up 108 square feet to the roll. Price includes large headed nails and cement sufficient to lay.

Price for 1-ply.....85c  
These prices include freight to Illinois, Indiana, Iowa, Wisconsin, Ohio and Michigan. Write for delivered prices to other states. Samples furnished free.

### GALVANIZED WIRE, \$1.35 PER 100 LBS.

It is suitable for fencing, stays, grape vines or any purpose where ordinary wire is used. This Galvanized Wire which we offer at this Great Bargain Wrecking Price is brand new, smooth stock. In manufacturing, wire mills accumulate mill ends—irregular lengths ranging from 50 to 250 ft., which are bundled together in coils of 100 lbs. The wire itself is exactly the same as that which is wound on spools, the only difference being that the lengths are not continuous. Such wire is known as Galvanized Wire Shorts.

Handy to have about the farm for many purposes. Extensively used by fruit growers, fence builders and all kinds of repairs. It is new, smooth, clean wire. You save money in buying from us.

\$1.35 is our price for 6 gauge. Other gauges as follows:  
No. 8.....\$1.40 No. 12.....\$1.65  
No. 9.....1.50 No. 14.....1.75  
No. 11.....1.60 Prices are per 100 lbs.

Write for our Free Wire Catalog, which includes prices on Samson's Woven Wire Fencing the best all around farm and field fence. Also quotes low prices on Barbed Wire and everything in the wire and fencing line.

### HEATING PLANTS

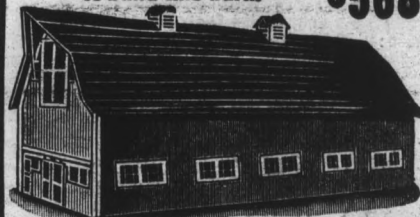
We will save you 30 to 50% on a modern steam, hot water or hot air heating system. A modern heating system is now within the reach of all. We have hot water heating plants for modern homes all the way from \$200 up.

By following our simple plans and instructions, you can install your own material, thus cutting out the expense of plumbers and steamfitters. This together with the great saving we afford you on the material itself insures a saving of 30 to 50%.

### IRON PIPE AND FITTINGS

Rejuvenated Pipe, in random lengths, complete with couplings, suitable for gas, oil, water and conveyance of all liquids. Sizes 1/2 inch to 12 inch. 1 inch, per foot, .30 1 1/4 inch, per foot, .40  
Send us specifications and we will quote for your exact requirements. Also a complete stock of Valves and Fittings. Sent Free.

Our price for the material to build this barn. **\$568**



**OUR JOIST FRAME BARN No. 221**  
Size, 36 ft. by 48 ft. Height to top of roof, 38 ft. 6 in. The most practical and serviceable barn ever designed. No heavy timber in the entire structure. Self-supporting roof. No joists in hay-loft. This design represents strength, rigidity, economy of construction, and is absolutely dependable and substantial. Write us for more complete information.

Our price for the material to build this barn. **\$608**



**OUR "STAR" BARN DESIGN No. 270**  
Size, 53 ft. wide by 80 ft. long, 24 ft. to comb. An ideal barn for farmers raising stock on a moderate scale; balloon type. The hay-mow extends to the ground floor and above the grain rooms on each end of the barn. Cattle stalls on one side of the hay-mow; horse stalls on the other. Excellently ventilated in every part. A practical barn well built of guaranteed first-class material, and will give excellent, all around satisfaction.

Our price for the material to build this barn. **\$616**



**BARN DESIGN No. 250**  
Size, 30 ft. wide and 60 ft. long, 18 ft. to top of the plate. A barn arranged exclusively for horses. Has 12 single stalls, 5 ft. each, and 6 double stalls, 10 ft. each. Ten foot driveway. Can also be used as a horse and a cattle barn and will accommodate 12 horses and 18 head of cattle. A building of brand new high grade materials, dependable construction, sanitary and generally convenient throughout.

Our price for the material to build this barn. **\$937**



**ROUND BARN DESIGN No. 206**  
Size, 20 ft. in diameter and 16 ft. high to plate. Has 14 sides, each side 14 ft. A 16 ft. silo in the middle, same being 36 ft. high and will hold 160 tons of silage. Hay capacity, 65 tons. Will accommodate 100 head of cattle. The many and excellent features offered by this construction, the high grade materials furnished by us, and our extremely low price makes this a barn bargain worthy of thorough investigation.

### FILL OUT THIS COUPON No. 28

Chicago House Wrecking Co., Chicago. I saw your ad in the Michigan Farmer. I am interested in.....

Place an X in square opposite book you want sent free.

Plan Book	<input type="checkbox"/>	Paint Book	<input type="checkbox"/>
Roofing Book	<input type="checkbox"/>	Wire List	<input type="checkbox"/>
Plumbing Book	<input type="checkbox"/>	Iron Pipe	<input type="checkbox"/>
Heating Book	<input type="checkbox"/>	Acety. Lightg.	<input type="checkbox"/>

Name.....  
Town..... County.....  
State..... R. F. D..... P. O. Box.....

### ANY OF THESE PRICE WRECKING BOOKS SENT ABSOLUTELY FREE!

<p><b>PLAN BOOK</b> Upwards of 100 medium price houses, barns and other designs shown. Each design represents beauty, utility, substantial construction and the lowest possible price.</p> <p>This Valuable Book Free.</p>	<p><b>ROOFING BOOK</b> This book explains all about metal roofing and all other styles. Tells how to apply same in the most economical and satisfactory manner. Quotes lowest prices on highest class material.</p> <p>Sent Free.</p>	<p><b>PLUMBING BOOK</b> A complete education in plumbing so you can equip any building of any style or size and save yourself at least 50% by taking advantage of the bargains offered.</p> <p>Sent Absolutely Free on Request.</p>	<p><b>HEATING BOOK</b> Hot water, steam, and hot air heating fully described. Tells how to economically and successfully install any heating plant. Prices quoted mean a saving of one-third. Satisfaction guaranteed.</p> <p>This Book Free.</p>	<p><b>PAINT BOOK</b> A book showing actual colors, 40 shades to select from. Informs you fully regarding application to get lasting results. Every quotation a saving of from 30% to 50%. Tells all about painting and painters' supplies.</p> <p>Free Paint Book.</p>
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CHICAGO HOUSE WRECKING CO., 35th and Iron Sts., CHICAGO