

Mr. Gilmore



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Harvest Scenes In Western Michigan



A Busy Day at "Cherry Crott Farm," Owned by J. G. Mills, Grand Traverse Co.



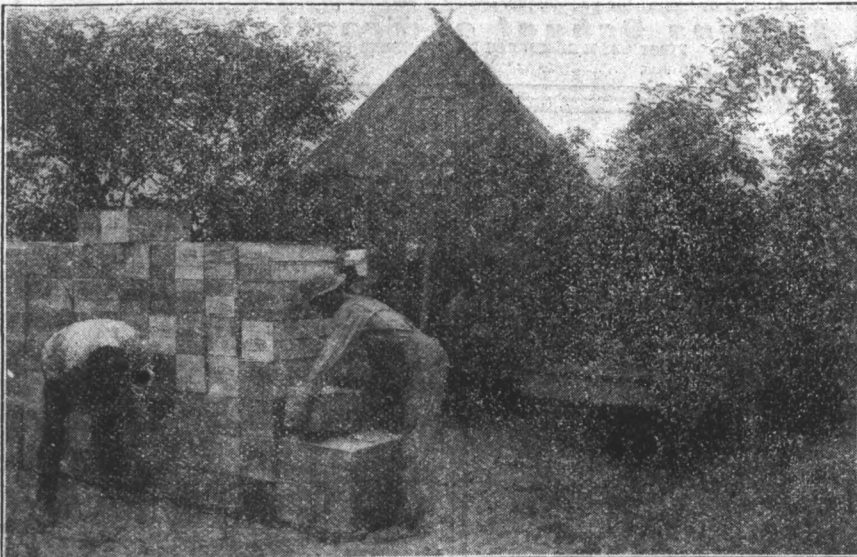
One Crop of Cherries from the Tree in the Foreground Brought M. J. Gilmore \$32.



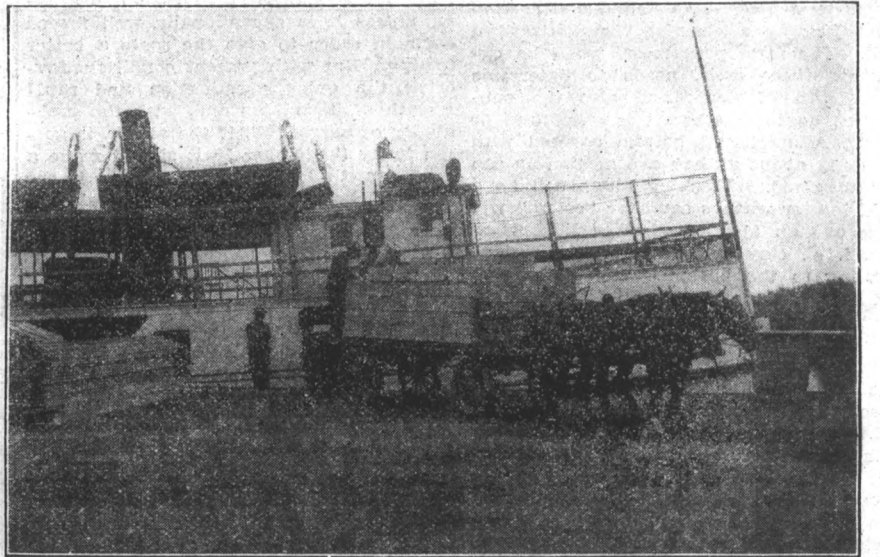
Typical Western Michigan Duchess Apple Tree, Orchard of Frank Smith.



Packing Fruit in Orchard of Frank Edgecomb, Grand Traverse County.



Packing Cherries for Shipment on the B. J. Morgan Estate, Leelanau County.



Much Western Michigan Fruit is Shipped to Destination by Boat.

"Where Fruit With Flavor Grows."

Swamp Land.

This term is so variable in meaning that one is not safe in predicating a certain statement about swamp land for someone will give contradictory evidence at once, for he and you are referring to different lands entirely.

In Huron county is a swamp with about 18 inches of muck underlaid with marl and a wonderfully productive soil. The lime carbonate seems to be a congenial habitat for the nitrifying bacteria. Here the sugar beet acreage is large and very productive. It is no uncommon thing to raise \$100 per acre of this crop on these swamp lands.

In Bay county is swamp land that the Scotchman described to me as "uncanny." By driving a pipe down gas comes out that flickers and burns. Here is the home of the Will-o'-the-Wisp. Some reddish soil is found in these swamps, presumably iron oxides. Their character from a productive standpoint, has scarcely been determined, although apparently promising.

Clare county has some very productive swamp land and produces great crops of timothy hay. Here is found more of the marl deposit which to the swamp land buyer is always to be regarded as a favorable sign. Marl usually contains some shells, but the bulk of the lime carbonate is probably derived from the decomposition of plants carrying lime, like the lime in ashes. As the plant decomposes the organic matter becomes muck and the lime sinks to the bottom, or if in open water may drift to a deposit along the bank. From whatever source the lime may have come it is evidence that there was lime so essential to grow plants, and in the "ashes to ashes" of decay the lime is again at the service of plant life.

The man who cares to investigate swamp lands, by digging holes from two to five feet deep with a post-hole digger is agreeably surprised to find marl, which he never suspected existed. The outer edges of swamps are the more probable locations. White specks in ant hills on swamp lands are from the marl below.

As a rule, the swamp lands adjoining river sources are more promising, as the silt deposited from floods has mingled with the decaying organic matter to mutual advantage. This is the case with much of the Saginaw river swamp land.

There is a prevailing opinion that drained swamp land is the very best of soil. "If we only had drainage," then ideal land. This is not necessarily true and many have found their time lost on crops on mucky soil. Wheat and oats are weak strawed, rust, and do not fill. Corn is yellow and small and the occasional ear has scattering grains. This is true even when the soil is well drained. The land is deficient in available nitrogen, also phosphorus and potassium. Bacterial life is not at work on even the unavailable material to any great extent. Clean muck is antiseptic, like charcoal which it really is. Stable manure on muck would appear like "carrying coals to Newcastle," but the infection of bacteria is very marked in soil improvement. Swamp land is one place where caustic lime can be used to advantage as there is an excess of organic matter and acid for the alkali to neutralize.

Considering the advanced price of products it is possible to "build up" swamp land just as a chemist "synthesizes" a soil. The farm prospector, when he examines these soils, needs to determine the depth of muck and also the substrata, as to whether it is quicksand or clay. A quicksand bottom covered with muck is about as bad a condition as can be imagined. Washing muck soil as a gold hunter washes sand for "colors" will give one an idea of whether it contains silt, i. e., clay and sand, by the residue settling to the bottom.

There are some rather interesting experiments in the conversion of peat into alcohol by treatment of the material with sulphuric acid under pressure to convert the cellulose, i. e., wood fibre, into glucose, then ferment the glucose and distill. In this manner 215 lbs. of peat containing 14 per cent water will produce one gallon of absolute alcohol. At the present time such means of manufacture are more interesting in showing the materials swamps are made of than of commercial use. The mechanism and conditions surrounding making alcohol in this way will lead no one to go to "moon-shining" in our big swamps for, while a two-ton load of peat might make a barrel of "rectified" or diluted alcohol,

whiskey, the proposition would not work out in practice.

Another way of noting the unpromising character of peat is that the peat briquettes contain 45 per cent of fixed carbon, 3.30 per cent of ash, and 27 per cent of volatile matter. The average Michigan coal contains 45 per cent carbon, 2 per cent ash and 49 per cent volatile matter or gas. The unaccounted percentages in each case is moisture. The man who admires the fine dark peat as good soil for crops ought to value coal in the same way, for the analysis, except for moisture and gas, is quite similar. A good variety of sawdust will carry about 5.2 per cent carbon, and 49 per cent volatile matter. It is these analyses of peat and muck, the more decayed form, which may lead one to value the swamps less highly than the real estate man who has swamp land "which, when drained will make the best farms in the world." That most real estate men are not chemists nor students of soils is an observation that can safely be made.

It is to be regretted that there is not, especially in Michigan, more experimental work done on swamp land crops adapted to certain of the most unpromising types. Cranberries and huckleberries, celery, peppermint, etc., are swamp land crops somewhat out of the usual schedule of farm crops. Certain types of swamp lands are very productive in sugar beet growing when in the beginning with this crop they were a disappointment, because of what is termed "rawness" of the soil. The term "raw soil" covers many conditions but with this crop it refers more especially to the unavailability of the mineral elements, which at first appears in large tops, small ture before reaction. Well, of course, I feel better now than I did before, and bottoms and sprangly roots, together with a low sugar test. If the land is of the worst type this will continue; if simply "raw" the crop will ultimately reach a nominal or a great degree of productivity. The point of importance is not to assume a failure if the first crop is below normal.

Shiawassee Co. JAS. N. McBRIDE.

FARM NOTES.

Fall Seeding of Alfalfa.

I am thinking of sowing a small piece of alfalfa between now and September 10. Land was prepared with manure and a good second growth of sod. Do you think it advisable?

Ingham Co. M. E. P.

Late fall seeding of alfalfa has not been practiced to a sufficient extent in Michigan to determine its practicability. In some experiments conducted several years ago at the Michigan station, in which alfalfa was sown during every month of the year when it was practicable, it was found that no fixed rule could be laid down for seeding alfalfa in any particular season, some seasons the late seedings making as good a stand as the earlier ones. In the states to the south of us, fall seeding has been quite generally successful where proper preparation has been made for it.

The present season would seem to be more favorable for late seedings of alfalfa than any which has occurred in recent years, and, in the writer's opinion, early September seeding would be well worth a trial this year. No pains, however, should be spared in making the seed bed as firm and fine as possible. Recently plowed ground is not a suitable place for sowing a small seed like alfalfa, unless it is exceptionally well firmed down in order to give the roots a better footing. But with present conditions favoring the quick germination and rapid growth of the plants and, with the probability of a late fall, if the alfalfa is gotten in by September 10 it should make a good growth before winter. Then if the field can be given a light top-dressing of stable manure to protect the alfalfa and hold the snow there would, in the writer's opinion, be an excellent chance of getting a successful stand.

If the experiment is tried we should be glad to get a report on same next year, since there is very little available data regarding the success of late fall seeding of alfalfa in Michigan.

Alfalfa and Tile Drains.

Please tell me whether alfalfa roots will fill up a drain tile.

G. W. M.

Washtenaw Co. If tile drains are properly laid so there will be no sags in which water stands for a considerable length of time, the alfalfa roots will not seriously bother them. Where tile drains are working properly they will contain no water at periods of the year when there is not plenty of moisture in the ground for alfalfa roots.

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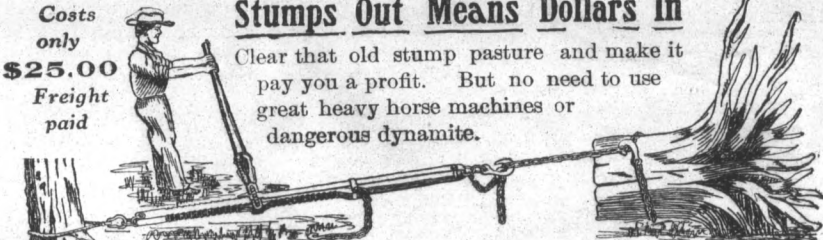
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A DANGEROUS NEW WEED.

THIS summer the Botany Department of the Agricultural College has received specimens of a weed new to Michigan which, if allowed to become thoroughly established, will add another very troublesome weed to our already too long list of weeds. The weed in question is *Hieracium aurantiacum*, Orange Hawkweed, known by several other names such as devil's paint brush, devil's weed, etc. For the past fifteen or twenty years, it has been a very serious pest in the east, especially in Vermont and New York and, likewise, in parts of Canada. The plant is apparent-



Single Plants of Orange Hawkweed.

ly well established in this state along the west shore of Lake Huron from Alpena to Cheboygan. I have also received specimens of it from Manistee county, and from a few miles north of Alma. I have reports that show that it has been present in the Lake Huron region for the past four or five years. The College Herbarium possesses one specimen collected on Mackinac Island eleven years ago. The plant belongs to the same family as the dandelion and, like it, is somewhat milky. It does not resemble the dandelion, however, in general appearance. It forms tufts and mats on the ground, spreading both by underground and above-ground runners as well as by the very numerous small winged seeds which, like those of the Canada thistle, may be carried long distances by the wind. The leaves are four to six inches long and are round on the end and have no indentations as do those of the dandelion. They are very strikingly soft and hairy with long, rather dark hairs. The flower stalks, which are eight to ten, or even more, inches high, are rather hairy and are leafless or have only one or two very inconspicuous leaves on them. At the top of the stalk are five or six closely crowded small heads about one-quarter of an inch in diameter, of deep orange flowers. Each head, when fully open, may be as much as one-half of an inch to nearly an inch in diameter. Within a day or two after the head closes, it opens up again to set free fifty to one hundred minute black seeds with a crown of delicate long white bristles. In fact, except for the color, the seeds of this plant resemble very much, very diminutive editions of seeds of Canada thistle. This weed, when once it gets into a meadow or lawn, is hard to exterminate for its underground shoots, as well as its runners above the ground, enable it to spread rapidly. Furthermore, the fact that it does not have any upright stem and that the leaves are low down, makes it impossible to dispose of it by mowing. If given a fair chance, the weed will frequently take possession of the whole field, crowding out all the other plants there and will do the same thing for a lawn. Of course, where a field is in constant cultivation, the weed will not be particularly troublesome but

it is very difficult to exterminate this weed even from cultivated fields since the cultivator simply drags the underground parts around and distributes the plant more widely than it was before. If the field is cultivated and hoed for more than one year, the weed will be gotten rid of but one season's cultivation, unless frequent and thorough, will usually serve but to spread it the more. Fortunately, Professor L. R. Jones, while Botanist of Vermont Experiment Station was able to demonstrate that the following method would destroy it in pastures and lawns without injury to the grass, namely, an application of salt, broadcasted at the rate of $1\frac{1}{2}$ tons per acre. It is very greatly to be hoped that readers of the Michigan Farmer in all parts of the state will be on the lookout for this plant and will make a special effort, if the weed is found, to see that it is destroyed at once. Township officers intrusted with the carrying out of the weed law, should be especially on the lookout for this pest along the road sides and in abandoned fields. Particular pains must be taken not to allow the weed to get into clover fields as it has been shown that it can be introduced into a new region in contaminated clover seed. In fact, in the investigations by the botanical department of several hundred samples of seed, this weed was found in three or four samples of red clover.

The illustrations from photographs made for me by Prof. G. H. Coons, will show the appearance of a single plant as well as of the cluster of plants and of a few of the seeds, the latter being magnified about twelve times.

I will be glad to receive for identification any specimens suspected of being this plant. Furthermore, all notes as to its distribution, how long it has been there, etc., will be gladly received.

Agri. College. ERNEST A. BESSEY.

IS MARL BENEFICIAL TO OUR SANDY LOAM SOILS.

Can you tell me whether marl has beneficial effect on Michigan sandy loam soils?

Kalamazoo Co.

D. B. W.

Marl is one of the best forms of lime to apply to the land either for the purpose of correcting acidity or for improving its mechanical condition. There is no better form. But marl differs very much in composition. One bed of marl is worth much more than another; that is, one bed of marl will be almost pure carbonate of lime while another bed of marl contains a large amount of clay and sand and perhaps a small amount of the carbonate of lime, and it is the carbonate of lime which produces the beneficial effects upon the soil.

When vegetable matter decomposes in the soil organic acids are generated. Now unless carbonate of lime is present in the soil to neutralize these acids after a number of years the soil becomes acid in reaction and many plants will not thrive, especially the legumes, and we want the legumes to thrive more especially because they are soil improvers. Some soils are especially rich in carbonate of lime, others contain a much smaller amount and after years of cropping they become acid and we must apply lime in order to get the proper growth of legumes. Now on such soil it pays to apply carbonate of lime. As a matter of fact, it is the one limiting factor in production. You can't grow good clover on soil that is acid in reaction. But if the marl is a poor marl, if it only contains five or 10 per cent of carbonate of lime

it might not be worth hauling, while on the other hand, beds of marl are known to contain as high as 90 per cent of the carbonate of calcium, as pure as good limestone. This, of course, must be ascertained before we can determine the value of the marl. But if marl contains as high a per cent of carbonate of calcium as limestone then it is more effective than limestone because it is much finer.

All over Michigan are marl beds. The only question about using them for agricultural purposes is the cost of getting the marl. It is generally a very bad place to get marl out of. It is in a bed under some swamp or lake and it is almost impossible to get it without high-priced equipment. Then, after you get it it contains such a large per cent of moisture that you can't ship. Where one has a marl bed on his farm and can get it without too much expense this certainly would be a safe proposition to draw it and spread it on the land. In England they used to use marl at the rate of 10 to 12 tons per acre with very marked beneficial effects upon certain soils.

Some marl beds are being worked. The marl is dried and sold the same as crushed ground limestone or the same as pulverized burned lime for agricultural purposes. Whether it would pay or not depends upon the cost of getting the lime in condition to sell. You can purchase a good quality of finely ground limestone for about \$2 per ton f. o. b. the quarry. Now the question is whether you can get the marl and dry it and get it in condition to sell, put it aboard the cars for \$2 per ton. If you can't why you can't compete with ground limestone. I know of a marl bed that at one time the owners attempted to work and sell it commercially, but they found out that in getting this marl out and artificially drying it, getting it in shape to sell that they could not afford to sell it for less than between \$5 and \$6 per ton. In other words, they had about that much labor tied up in it when it was ready to sell with a very moderate amount of profit, and consequently they had to give it up because they could not compete. But where a man, as I said before, has a marl bed upon his farm he can haul it and haul it at odd times when the farm work is not pressing, and it might be the means of wonderfully improving the crop producing power of his land. Under such circumstances it might pay to throw the marl out on top of the ground during the fall and winter and let it lay one year and dry out and then haul it onto the land. That will save hauling so much moisture.

COLON C. LILLIE.

THE REASON OUR BOYS DO NOT STAY ON THE FARM.

Farmers, have you done anything for your boy that would cause him to want to stay with you on the farm? If not, why not? You know that when he leaves you must hire a stranger to fill his place, giving him at least \$30 a month, besides destroying the privacy of your home with this stranger, who may be congenial to have about, but in nine cases out of ten is not, and perhaps is not a character with whom you would care to have your children come in contact at all.

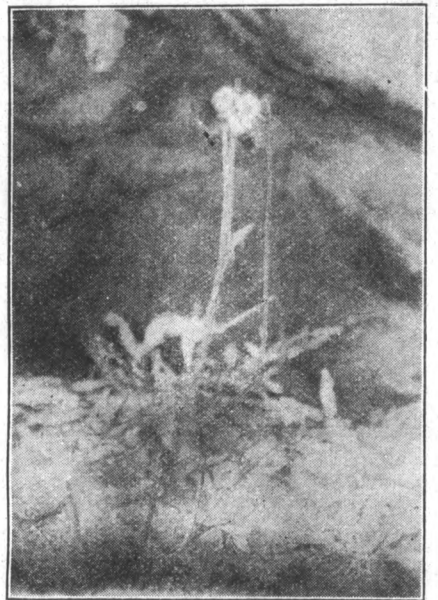
As to your boy, he is probably not making anywhere near these same wages in the city, nor is he at all probable to be elevated by any examples of friends and companions he may have there. Of course, there are exceptions and some young men have succeeded from the start, being seemingly adapted to the

city or the work they choose, but these cases are few and far between.

Farmers, the fault lies with yourselves, to a certain extent at least, and for these reasons:

There comes a time in a boy's life, usually between the ages of fifteen and eighteen, when he begins losing his interest in games and such pleasures, which have been, and always will be, the chief interest of any boy, and gradually he becomes more thoughtful. In truth, although it may be not noticeable to his own parents, he is beginning to plan his life's campaign in a business way; he begins to long for something of his own, something that may in the future help him to realize these particular ideas which he is now forming in his mind, and here is where the farmer fails in his duty to the boys.

Of course, we think perhaps that his time, until he is of age, belongs to us, which it in a way does, but this should not necessarily hinder us from gradually helping him in his desires at this time, which can be done in this way: Give him something of his own, something which he should understand belongs absolutely to himself and for which he is entirely responsible. Of course, I have reference to drawing his interest to the



A Group of Orange Hawkweed Plants.

farm and farming, and remember this is his to do whatever he pleases, with perhaps your advice given much as it should be to a friend, for if kept under any restraint he will probably lose interest in it.

Perhaps, you will say, but he may make an awful mistake and lose this crop or animal which you have given him from the farm. But do you not know that failures have made thousands of men successful who perhaps would not have accomplished anything otherwise? Experience you know, is the best teacher, and something we all must have before becoming competent at anything.

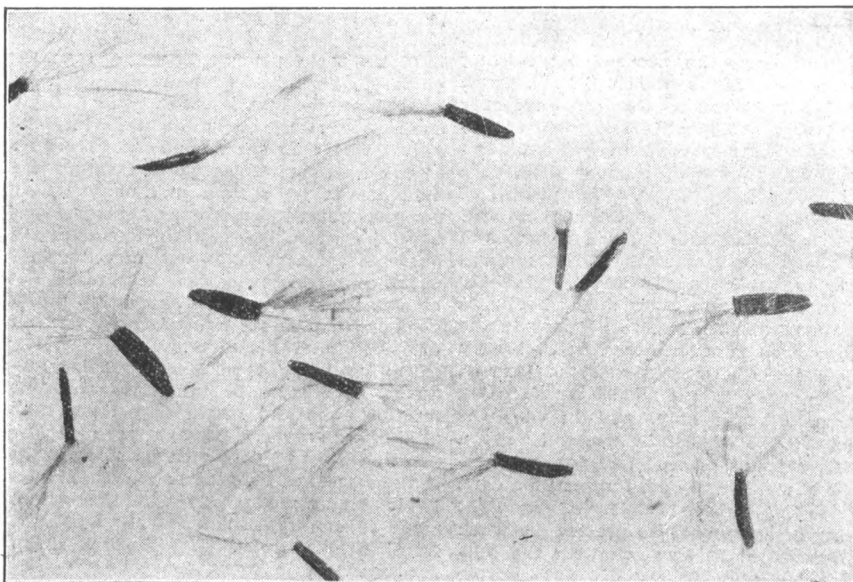
For example, you give the boy a horse, perfectly sound and, due to his own carelessness, he has a number of diseases common with horses. Tell him the causes and your own remedies for disease and let him doctor the horse himself. It will be much better if he has to purchase the medicine himself and if he doesn't remember the remedies and remove the causes and gradually become a good hand with horses, he will never amount to anything as a farmer, and might as well try the city as anything.

Or perhaps you give him a small field of his own to work each year. Then, if he doesn't become familiar with caring for the crops, the cost and prices of the grains, amount sown per acre and the results of the weather, things which every young farmer should know—and besides he will realize the expenses and drawbacks with which you have had to contend—then does not become interested in farming he might as well look for something for which he is better adapted.

Many a young man has worked at home until 25 years of age, simply getting all the money he wished to spend and when circumstances left the farm in his hands, hardly knew how much seed to sow per acre, although he had sown like crops many times himself. He had simply left the planning end of the work to someone else and naturally lost interest and missed the enjoyment one gets out of his work, the progress and results of which, depend upon himself.

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R. D. SMITH.



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N. B.—Calendar on application.

B. A. A. ORANGE, V. S., M. Sc., Principal.

LIVE STOCK

FEEDERS' PROBLEMS.

Feeding Clover and Alfalfa Hay to Swine.

The value of alfalfa hay as a winter feed for hogs has been better demonstrated and more fully illustrated in the western states than has been the case in Michigan. In fact, upon most Michigan farms there is no attempt made to include a forage of this kind in the winter ration of hogs, a fact which is to be deplored since it has a most beneficial effect upon the health of the hogs, and at the same times saves not a little grain in producing a given amount of gain. In an interesting report from the Wyoming station on the value of alfalfa hay for pigs, some space is given to the discussion of the best methods of feeding the same. The method of feeding which was found to be designed to best prevent losses was by the use of a box about six feet long, 20 inches wide and 20 inches deep, the box being protected with a cover and having three round openings 10 inches in diameter in the front side with a space of about ten inches between the openings. The accompanying cut plainly shows the construction of the feed box, which is built of inch lumber. When filled, the cover is closed and the pigs can only gain access to the hay through the openings in the front of the box, and so cannot trample it under foot and waste it.

Another advantage in the use of a box of this kind is the prevention of the loss of the alfalfa leaves, which drop from the stalks very readily when the hay is handled. A disadvantage of this kind of feeding box was found in that the openings must be made of suitable size for either light or heavy pigs. If too small, the large hogs cannot get at the hay, while if too large the smaller ones can waste the hay through the openings. However, in general, this box was found of advantage in regions where rain or snow is of frequent occurrence as it keeps the alfalfa dry, in addition to lessening the waste of the hay.

Where a large number of hogs are to be fed, a rack similar to that sometimes used in feeding sheep has given good satisfaction. This type of rack is the kind having a solid box bottom with slats arranged in V shape above to hold the hay. In this type of rack, the base or trough should rest upon the ground and be 12 to 18 inches wide, in order that the leaves which drop from the hay when pulled out will fall into the trough and be eaten by the hogs.

Where alfalfa hay is available, it would be found most satisfactory and economical to provide some sort of box or rack for feeding it regularly. Where alfalfa is not available, clover hay will afford an excellent substitute and will be found a means of cheapening the ration for the hogs, and at the same time keeping them in a thrifty condition, which should not be neglected upon any farm where even a few hogs are maintained during the winter season.

Grasses to Sow for Permanent Pasture.

What kind of grass seed would be the best to sow in with wheat or rye seeded down this fall? I would like to use it for pasture for a number of years. The ground where I want to sow it is sandy loam.

Bay Co. C. W. K.
It is a rather difficult proposition to seed a permanent pasture in fall-sown grain, unless the grain be sown thinly and rather early, and get as good a stand as could be secured by seeding alone without any grain crop. Prof. Thos. Shaw, in his work on Grasses, advocates for average soils in this section of the country a mixture containing the following: Four pounds of timothy seed, four pounds of orchard grass, three pounds of redtop, four pounds of Russian brome, three pounds of medium red clover, and two pounds of mammoth clover, making a mixture of 20 pounds in all. Probably the Russian brome grass might better be omitted if this land is to be used in the regular crop rotation when it is broken up, as it is a very persistent grower. This mixture is intended for seeding without a grain crop, and in case the land is to be seeded in wheat or rye a smaller amount of seed had perhaps better be sown. If the seeding can be done early in September, probably a very light seeding of rye would be preferable, when the clovers might be sown with the other grasses, and if they did not survive the winter more clover seed could be drilled in in the spring.

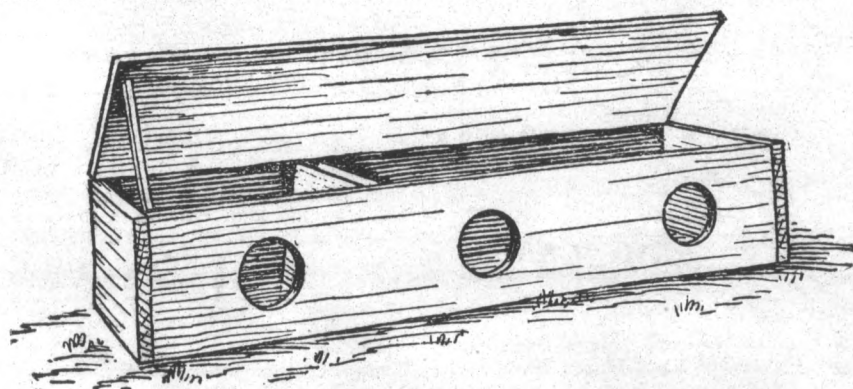
A permanent pasture should not be grazed closely the first season for best results, as it will take some time to get a close, thick turf established over the entire surface of the field. In fact, close grazing is not good economy at any time since the future productiveness of the grass is injured thereby.

Sweet Clover as a Forage Plant.

I would like to ask your opinion of sweet clover. I have about four acres, which consists of three side hills, all sloping to one center. It is very handy to barn for pasture. Was in rye this year, but it is hard on a team to work it. Now some tell me, if we get the sweet clover we can't get rid of it. Would it be good for hog pasture?

Kalamazoo Co. SUBSCRIBER.
Sweet clover is undoubtedly of some value as a forage plant but it is not anywhere near as valuable as other legumes which can be grown as readily. Stock do not relish it as well as alfalfa, for instance, and it is not anywhere near as valuable a feed. In fact, it has no proper place in Michigan agriculture, as there is little doubt that alfalfa can be grown wherever sweet clover will thrive, since the bacteria which is essential to the success of the alfalfa finds a host plant in sweet clover, thus making it certain that wherever sweet clover can be grown alfalfa can as readily be made to succeed. While sweet clover is quite generally regarded as a weed it is not as difficult to eradicate as many believe. Being a biennial it will not live more than two years if it is not allowed to reseed, so if kept mown down it will soon disappear without cultivation. The same fact would make it necessary to permit it to seed every second year in order to retain a permanent stand.

It would be much better to prepare this soil well and seed it to alfalfa, using lime if necessary and inoculating with the bacteria peculiar to the plant.



A Box for Feeding Alfalfa or Clover Hay to Hogs Without Waste.

In fact, unless this bacteria is present in the soil you would probably find it difficult to get a good stand of sweet clover as well as of alfalfa. Once seeded to alfalfa this rough piece of ground used as a hog pasture will probably be the most profitable portion of the farm. It should not, however, be closely pastured, especially until well established.

AUTUMN FLOCK MANAGEMENT.

At this season flock owners should devote particular attention to selecting breeding ewes for next year and getting them in a strong and vigorous condition for mating. It is not best to make a hasty selection as soon as the lambs are weaned for some of the best ewes are so reduced in flesh condition that they deceive one as being culls. All of the unproductive ewes that produce lambs that never do well should be weeded out. It is advisable to eliminate all of the unprofitable sheep from the flock and if necessary buy a few choice individuals to take their place. There are many points to be taken into consideration in selecting breeding ewes and no flock owner can afford to ignore their importance. The only permanent improvement of the flock must come about through the influence of both sires and dams. The common belief that the ram exerts more influence upon the resulting progeny is likely to cause one to overlook the importance of selecting his best ewes for breeding and rely upon the ram to make good his defects as a breeder as well as the defects of his ewes.

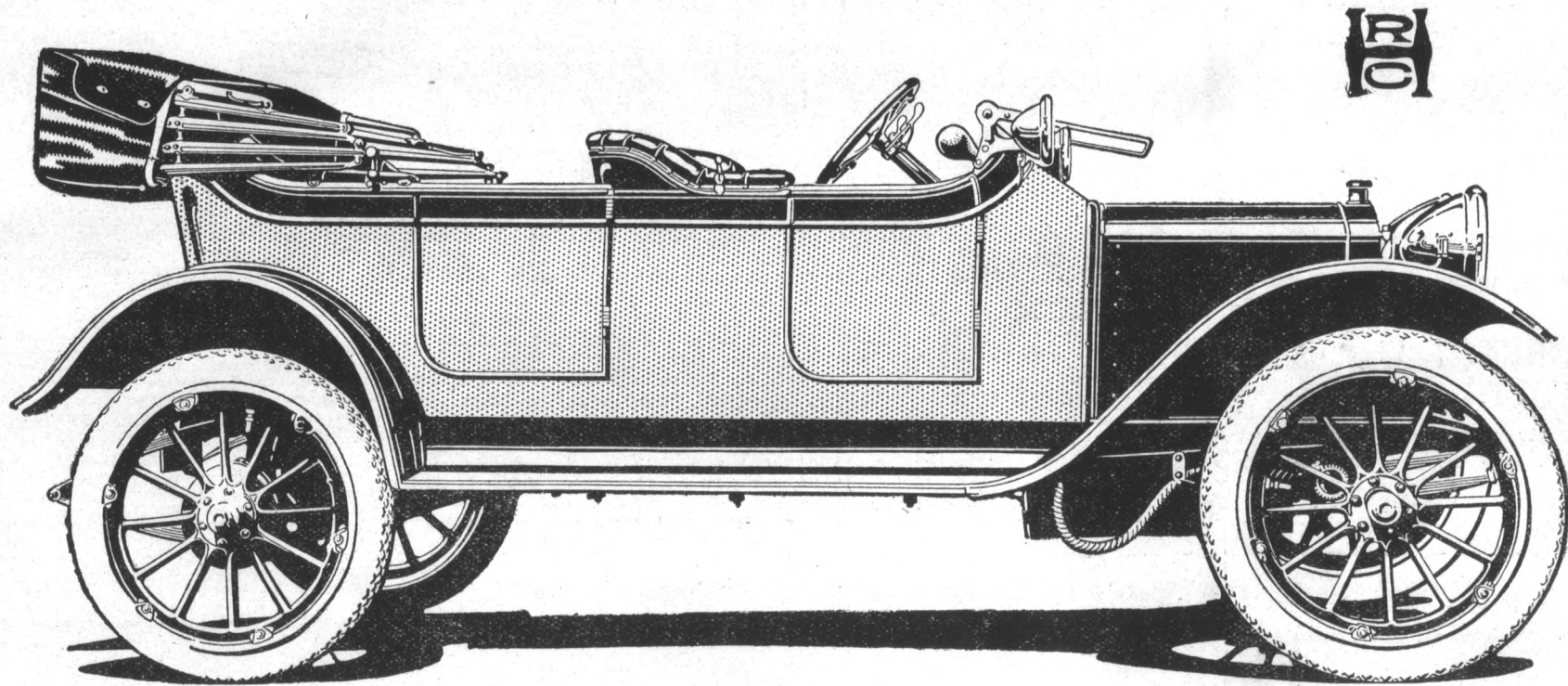
Uniformity of type is of first importance. Care must be taken to weed out inferior ewes and retain only those that are of one type. Always save a few yearling ewes of your own breeding, even if they are not so good as you could buy. It is making your flock uniform and more of one type than buying odd ones from various flocks. If pure-bred sheep are kept it is a great deal easier to select uniform breeding ewes than where cross-breeding is practiced. In connection with selecting uniform ewes one should aim to establish a type that conforms to the purpose for which they are kept. If to produce fine mutton, select the meat-making type. Ewes of the low-down, blocky type mature early and make the best mutton. Successful breeding depends upon the gradual fixation of type and characteristics that add to the commercial value of the animals.

Every ewe that shows signs of a faulty constitution should be disposed of, no matter how good she may be otherwise. Ewes that have the ability to transmit physical force and energy to their young are the kind everyone wants. A faulty constitution is generally indicated by a loose, thin fleece, narrow chest and dull, lifeless actions. Examine those points carefully and if the animal fails to meet these requirements dispose of her. Ewes that are in any way diseased, no matter how good a fleece and lamb they may produce, should be immediately disposed of. There is always plenty of trouble with disease without inviting more through careless selection.

Ewes that do not have the ability to properly nourish their lambs are poor property. Of course, improper feeding may derange the ewe's digestive system and decrease her supply of milk throughout the entire season, however in most cases the quality of the lamb at weaning time is a safe guide to follow in determining the value of the ewe. In some cases ewes may go wrong through the cause of poor management on the part of the owner. All of these things must be carefully considered before a promising ewe is discarded from the flock. By keeping a record of each ewe's performance during the year and making a few short notes of the conditions responsible for her failure to become pregnant or having lost her lamb, one will often find

that such ewes are well worth another trial. As soon as the lambs are weaned and the ewe's milk flow has been diminished special attention should be devoted to getting her in good condition for mating. The ewe's condition at mating time has a most important bearing on the quality of the lamb crop as well as on the number of ewes to become pregnant. The inexperienced flock owner is not likely to realize the severe drains the ewes have been subjected to during the suckling period and neglects to provide means to repair this loss of condition before they are again mated. Unless one gives his ewes proper attention after weaning the lambs he may well expect to impair their usefulness and physical vitality.

At no time of the year is there so much danger of disease getting a foothold as between the time of weaning and mating. Animals that are run down physically when pastures are declining and the weather is damp and changeable are more susceptible to disease than those in a strong, healthy condition, especially ailments that impair their breeding qualities. For that reason it pays to give thought and attention to the health and comfort of the flock at this period. Many flock owners suffer heavy annual losses through the failure of the ewes to become pregnant at mating time. Some times it is a number of weeks before the ram succeeds in mating with more than a few ewes. In such cases many rams are disposed of and others purchased when the whole failure can be traced directly to the run-down physical condition of the ewes. It is very seldom that the failure rests with the ram. The ewes are generally at fault. Ewes with a reasonable amount of flesh that has been put on slowly while they have had access to plenty of pasture and forage are best fitted for mating and are most sure to become pregnant at first mating. Too much importance cannot be placed on having a plentiful supply of suitable forage crops to reinforce the failing pastures during the fall months. At this

R-C-H**"Twenty-Five"
"The Car Complete"****\$9000**
F. O. B. Detroit

The R-C-H is the First Completely Equipped Car Ever Sold at a Popular Price

THE CAR

Wheelbase—110 inches.

Motor—Long-stroke; 4 cylinders cast en bloc; 3½ inch bore, 5-inch stroke. Two-bearing crank shaft. Timing gears and valves enclosed. Three-point suspension.

Steering—Left Side. Irreversible worm gear, 16-inch steering wheel. Throttle control on steering column.

Control—Center Lever operated through H-plate integral with universal joint housing just below. Hand-lever emergency brake at driver's right. Foot accelerator in connection with hand throttle.

Springs—Front, semi-elliptic; rear, full elliptic and mounted on swivel seats.

Frame—Pressed steel channel.

Axles—Front, I-beam, drop-forged; rear, semi-floating type.

Transmission—3 speeds forward and reverse; sliding gear, selective type.

Construction—Drop-forgings wherever practicable; chrome nickel steel used throughout all shafts and gears in the transmission and rear axle; high carbon manganese steel in all parts requiring special stiffness.

Body—Full 5-passenger English type; extra wide seats.

THE EQUIPMENT

Non-skid tires—32x3½
12-inch Hall Bullet electric head lights with double parabolic lens.
6-inch Hall Bullet electric side lights with parabolic lens.
Exide 100 Ampere Hour Battery.
Bosch Magneto.
Warner Auto-Meter.
Demountable rims
Extra rim and holders.
Tally-ho horn.
Jiffy curtains—up or down instantaneously.
Top and Top cover.
Windshield.
Rear view mirror.
Tool-kit, Jack, Tire Repair Kit, Pump.
Robe Rail.

JUST think for a minute what that means to you. There are a number of equipment items that are absolutely necessary if you're going to get any real enjoyment out of your car. Yet on the average car you've got to buy most of them yourself, and pay extra for them. That means from two hundred to four hundred dollars added to the price of the car. You shouldn't have to pay that extra money for necessary equipment. And on the R-C-H you don't have to pay it. For the R-C-H comes to you fully equipped with everything you need—and everything of the very best quality. For instance, you don't get the old style, hard to handle curtains. The R-C-H is equipped with the famous Jiffy Curtains, which can be put up or down in a minute without leaving the seat.

You don't get a make-shift, unreliable speed indicator. You get the Warner Auto-Meter, the best known speed indicator on the market today.

And you get such other things as non-skid tires all 'round, a complete set of electric lights with battery, demountable and quick detachable rims—just read the list of equipment for yourself.

When you're thinking of buying a car, figure out what these things would cost you. You'll be surprised what a difference they make in the actual price you pay for a car. And don't forget that aside from equipment the R-C-H is easily the best value ever offered at near the price. The powerful long-stroke motor is exceptionally economical of gasoline and oil. There is a big, roomy body that will seat five passengers comfortably and without crowding. And you'll be proud of its snappy, graceful appearance.

There's a special spring suspension that insures easy-riding. There are a dozen other features that make the R-C-H the strongest, most durable and most satisfactory popular-priced car you've ever seen. No matter what car you're considering, see the R-C-H.

Descriptive catalog and name of nearest dealer free on request.

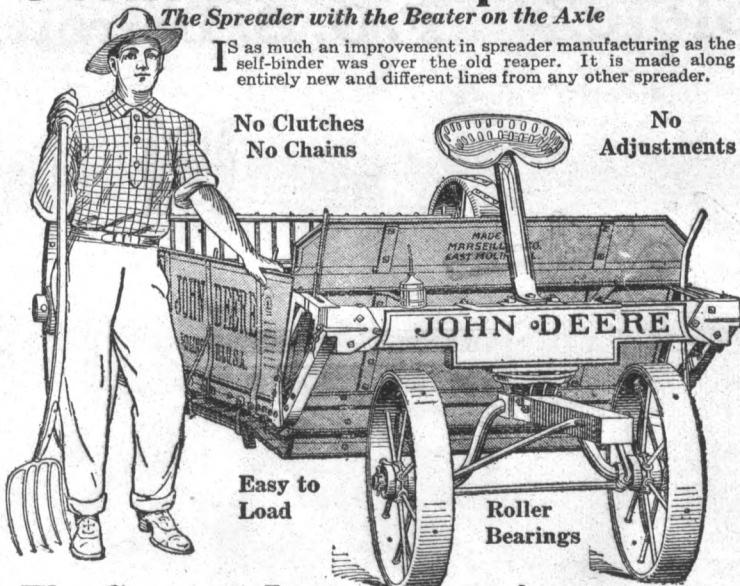
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Simplest and Strongest John Deere Spreader

The Spreader with the Beater on the Axle

IS as much an improvement in spreader manufacturing as the self-binder was over the old reaper. It is made along entirely new and different lines from any other spreader.



The Greatest Improvement in Spreaders Since Their Invention

IMAGINE a manure spreader without any of the chains; with all the clutches and adjustments removed; one that has no extra shaft for the beater, no stub axle or counter shafts; one on which the parts that drive the beater all surround the main axle and are within a distance of twelve inches from it; and one that, besides being of much lighter draft than any other you have ever seen, is so low down that it is only necessary to lift the manure as high as your hips when loading. Imagine all that and you will have some sort of an idea of what this new John Deere Spreader—The Spreader with the Beater on the Axle—is like.

It is absolutely the simplest and strongest manure spreader ever invented. It has from one hundred and fifty to two hundred less parts than the simplest spreader heretofore made.

Easy to load. It is always ready for business. It cannot get out of order. There are no adjustments to be made.

The Beater on the Axle

It is a fact that most of the trouble experienced with the ordinary manure spreader has been with the parts that make up the beater driving mechanism.

On the John Deere Spreader all the shafts and chains necessary to the old style of mounting the beater have been done away with.

All of the driving parts are mounted on the main axle within the beater.

The strains and stresses of spreading are borne by the main axle—the strongest part of the spreader—and are not transmitted to the side of the box or frame of the spreader.

Power to drive the beater is taken from the rear axle and operates through a planetary transmission (similar to that used on automobiles) mounted on the rear axle.

Light Draft

There are at least two main reasons why the John Deere Spreader is the lightest draft spreader made.

You can readily see how decreasing the number of working parts on a manure spreader will reduce the draft correspondingly. That is one very essential reason for the light draft of the John Deere Spreader.

Four sets of roller bearings constitute

the other reason. There are two in the front wheels and two between the main axle and beater. They reduce the draft materially.

When the John Deere Spreader is out of gear it is simply a wagon.

Easy to Load

It is easy to lift manure the first three feet when loading a spreader. The real hard work is from this height to the top of the ordinary spreader.

It is only necessary to lift each forkful these first three feet when loading a John Deere Spreader. The hard work is done away with.

Besides, it is possible to see inside the spreader at all times. Every forkful is placed exactly where it is needed, insuring an even load.

No Adjustments

On the John Deere Spreader no adjustments are necessary. On the simplest spreader heretofore made, there are from ten to twenty adjustments that have to be properly made before spreader can be used. Any one of these adjustments, if not made exactly right, will either put the machine out of business or increase the draft, which necessarily means undue wear.

Positive Non-Racing Apron

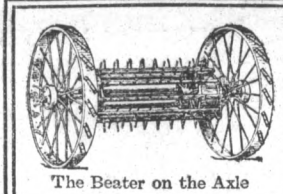
Even spreading is necessary for an even seed-bed and an even seed-bed is necessary to insure an even stand of the crop.

The apron on a John Deere Spreader cannot race when spreading up hill or over exceedingly rough ground. It is positively controlled by a simple and effective locking device within the ratchet feed apron drive. This insures even spreading under all conditions. A feature that is not used on any other spreader.

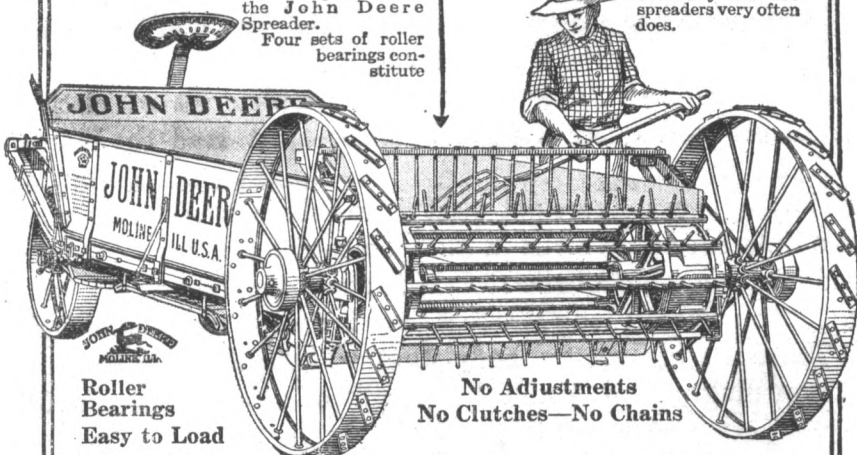
Steel Bridge-Like Frame

Like the modern steel railway bridge, the frame on John Deere Spreaders is made of high-carbon steel—the strongest known mechanical construction.

The John Deere Spreader frame will not become loose and out of alignment, as the frame on ordinary manure spreaders very often does.



The Beater on the Axle



Valuable Spreader Book—Free This new, special spreader book contains valuable information concerning the reasons for using manure on the land, how it should be applied, how to store it and the benefits of using it in various ways. In addition there is a detailed description of the John Deere Spreader, with illustrations in color of this new spreader working in the field.

To get this book free, post paid, ask us for it as Package No. Y 5

John Deere Plow Company, Moline, Ill.

season the supply of pasture grass is becoming short and low in nutritive value. Some kind of supplemental forage is better than concentrated grain feeds; however, a light grain ration is indispensable in bringing the ewes to the best possible condition for mating. For a grain ration there is nothing better than oats and peas mixed with bran and corn. Such a ration is easy to make up at this time of the year on the average farm. If no suitable forage is available, clover or alfalfa hay will make a good substitute. In fact, many flock owners begin feeding small quantities of dry fodder early in the season to counteract the dangerous influences of too much frosted grass and forage upon the ewe's system. It also makes the change from grass and forage to fodder and grain more gradual when the ewes are put in their winter quarters.

Rye is one of the best forage crops for late fall grazing within reach of many flock owners. The great advantage of rye as a forage crop for sheep is the fact that it affords succulent feed during the late fall months after other forage crops have stopped growing and again in the early spring before other forage is ready for use. Sheep are very fond of rye and if possible to use it all for pasture they will utilize it very profitably. Rape is without doubt the best kind of forage for sheep during the fall months. Rape thrives on all good soil. It can be sown with grain crops and after they are harvested it will come on and furnish a large amount of good grazing for the sheep during the fall. By supplying plenty of forage for the ewes from the time their milk flow is checked after weaning the lambs until they are ready to be mated it is possible to affect quite a saving in grain feed and have the ewes in ideal condition to produce strong and vigorous lambs. It is generally conceded that if the ewes are in good flesh condition, and tending to take on more flesh that a larger proportion of them will get with lamb at the first mating. The flock owner who gives his breeding ewes good care for a few weeks before mating and plans to get them in their winter quarters in a healthy flesh-gaining condition has a reasonable assurance of success with his flock the next spring.

New York.

W. MILTON KELLY.

BIG TEAMS FOR FARM WORK.

For the economical performance of work either speed or power is essential. An increasing demand for more power from farm teams has come with the advance in the types of farm machinery. In farm work speed is not essential since most of the work must be performed at a walk.

As power is more economically applied in large units than small ones, size is an important asset in teams for handling heavy machinery and heavy loads. The farmer who has big farm teams has the assurance that every operation in the field can have all the power necessary to secure a satisfactory completion of the work, while every loaded wagon started for market will promptly reach its destination. Wagons and trucks can be loaded to suitable needs of the farm business and heavy teams will furnish power necessary to handle them. Large horses are naturally good pullers. A well-broken pair of them will combine sufficient of their efforts to move a loaded wagon that seems literally to have grown fast to earth. Balty horses are not common among heavy-weights because they have the patience to tug steadily at a load that can only be moved by inches, and also there is little danger of overloading them.

In the field the big team makes haste by the width of the swath it cuts. The farmer who has graded up his small horses to heavier weights finds now that in many jobs, two do the work formerly done by three, three do the work of four, while four make a showing in the field that exceeds his wildest dreams. A gang-plow with two 14-in. bottoms will overturn near five acres of ground in a day. A 16 or 14 disc with plenty of power will move an immense amount of dirt. On a smoothing harrow five or six feet to the horse catches a wide strip at each stroke across the field with a four-horse team.

Along with their efficiency in the field big farm teams have done much to convert farmers to the doctrine that horse power is cheaper than man power. A farm hand is valuable largely for his brains, as many a man who has hired an ignorant, awkward city-bred fellow has learned at great expense. Plenty of horse power to take the driver along on riding machinery conserves his strength and energies, and keeps his head clearer for

the things that need his attention. A tired man is not so alert and quick to notice little repairs needed about a machine, or ailments of his horses and is not so lavish with his energies in caring for his team at the stable as one who has ridden in the field and is on the lookout for things that need his attention instead of dully wishing to escape every unnecessary exertion. Men that are kept continually tired and worn can not be expected to keep alive to the care of their horses and machinery and be enthusiastic about the work. Big teams furnish brawn to save men's energies for the duties that require care and skill.

Ingham Co.

H. M. YOUNG.

LIVE STOCK NOTES.

"Michigan will be a big buyer of feeding lambs this fall unless prices, influenced by broad demands and short supply, are unreasonably high," said D. D. Gage, a big feeder of that state, who was at Chicago recently in search of supplies. "Michigan never had such crops of rough feed as this year or better prospects for a bumper corn crop. Our corn is a little late, but looking fine. The hay crop is immense and small grain crops good. With such a wealth of feed at their disposal and stocker and feeding cattle selling so high, our feeders will naturally be more clamorous than ever for feeding ovine stock."

I. S. Haner, the experienced stockman and a member of the Illinois state board of live stock commissioners, has issued a bulletin advising farmers to lose no time in raising good beef cattle. He calls attention to the startling fact that the live stock holdings in northern Illinois shrank eight per cent in the years 1905 to 1910, while in central Illinois, the region which the world recognizes as the heart of the corn belt, there was a decrease of 32 per cent during the same period, southern Illinois showing a decrease of 21 per cent. He says a way to gain Illinois' former prestige as a live stock country is for farmers to raise more calves and feed a greater percentage of their corn on the farms. Mr. Haner, who knows these things from his personal experience declares that the farmer who raises live stock in conjunction with grain will be found to have the largest bank balance of any man in the community. He says: "I believe that every farmer in Illinois can raise a few good cattle on the feed he allows to go to waste. By utilizing the silo in beef production the farmer will get the full benefit of his corn crop. He will receive the full feeding value of the stalks, and the farmer who feeds silage will never suffer a loss from cornstalk disease. About 40 per cent of the nourishment of the corn plant is left in the field where corn is husked from standing stalks and wasted. Even when cut, shocked and kept under the most favorable conditions, the fodder will lose about ten per cent of its feeding value, while under the ordinary farm conditions 25 per cent or more is lost."

Hogs have been dying in no small numbers in Mercer county, Ill., according to R. J. Henry, a stock shipper of that section. He said cholera has caused big losses to many stock raisers. He reported choice cattle very scarce.

Milkers and springers have been selling in the Chicago market as much as \$10@20 per head higher than a year ago, with not enough choice cows offered to meet the strong demand. The demand from eastern buyers has been strong of late, and near-by dairy sections, with more grass in pasture than usual at this time of year, have been competing for the best cows. Sales have been made at \$50@110 per head for medium to fancy cows, with not many offered prime enough to bring \$100.

The decline in the beef-growing industry may be partly inferred from the fact that shipments of stockers and feeders from the five principal western markets this year have been much smaller than five years ago. Western and eastern feeding is expected to fall 40 per cent under last year.

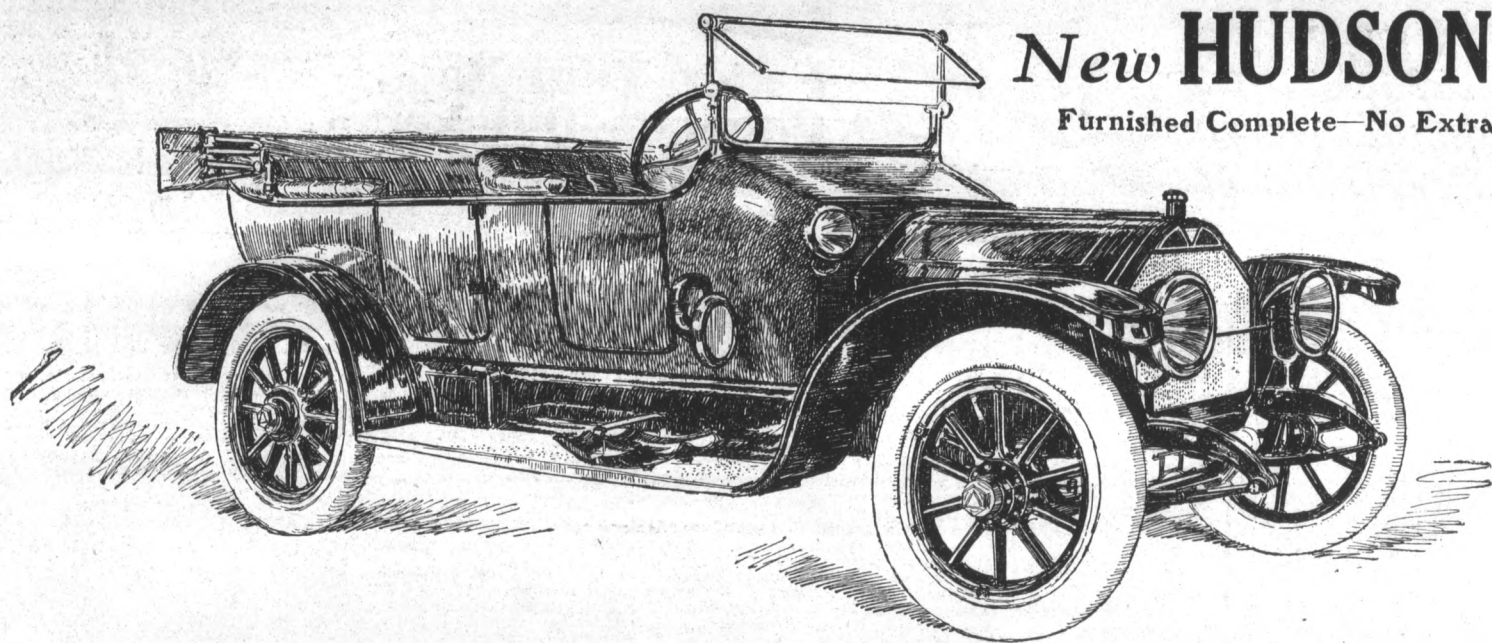
The extraordinary boom in prices for well finished cattle at the Chicago stock yards should influence every owner of feeding steers and heifers to make them as choice as possible, for the country is seriously short of beef cattle, and extremely high prices are assured for a long time to come. Beef steers of heavy weight and well finished at \$10.10@10.25 per 100 lbs. and fat range steers at \$8@8.50 are top-notch prices, being record-breakers, and even the medium grades of cattle are bringing prices that in other years would have looked high for fancy lots. It is a time when farmers should retain every well-bred calf to mature into fat beef cattle, and as many stockers and feeders as can be taken care of should be placed in feed lots. Looking backward, it is seen that one year ago beef steers sold on the Chicago market for \$4.85@7.65 per 100 lbs. and two years ago at \$4.60@8.50. Good stockers and feeders may look high to prospective buyers, but they are not dear as compared with the ruling prices for finished cattle. There are first-rate opportunities for making money by marketing prime little yearling steers and heifers, as well as by producing prime heavy beefs, and those who buy thin cows and heifers and finish them in good shape will undoubtedly come out well ahead, as was the case the past season. Only a small percentage of the population of the United States are able to pay the prices now demanded in the retail meat markets for the best cuts of beef roasts and steaks, and there is a large call for cheaper and lighter cuts.

Everybody is invited to share in the big offer on page 202. Don't miss it.

Government Farmers Wanted—\$60 monthly. Examination Oct. 16. Many needed. Write OZMENT, I.F., St. Louis, Mo.

WANTED Men and women to earn \$6 to \$15 per day. Send stamp for particulars. M. S. I. A., Indianapolis, Indiana

4 BUGGY WHEELS STEEL TUBES \$8.25 With Rubber Tires, \$18.45. Your Wheels Re-rubbered, \$10.30. I make wheels 3/4 to 4 in. tread. Tops, \$3.50. Shafts, \$2.10. Repair Wheels, \$5.00. Axles \$2.00. Wagon Umbrella Iron. Buy direct. Ask for Catalog 28. SPLIT HICKORY WHEEL CO., 528 E. St., Cincinnati, Ohio.



New HUDSON "37"

Furnished Complete—No Extras to Buy.

—The Composite Masterpiece of 48 Leading Engineers

Men who have had a hand in building more than 200,000 automobiles of 97 well-known makes, offer now the car which all joined in building—the HUDSON "37."

It represents the best that each man knows. It is the composite of all these experts and expresses the development possible when the best engineering brains combine.

The Greatest Engineer of All—Their Chief

At the head of these experts is Howard E. Coffin, the foremost automobile engineer of America, recognized here and abroad as the most startlingly original designer the industry has produced.

His genius is an inspiration to his associates. From him they have gained in ability. On account of them he has become a broader and more versatile builder.

What one man lacked in experience, some one of his associates was able to supply. The problems one was unable to solve, others soon found the answer for.

That accounts for the completeness of this car. That accounts for the fact that you will find on it the very things that you have wished to find on an automobile. That explains why this car will do the things which other four-cylinder automobiles have failed to accomplish.

Imagine what strides, what advancement, men of such experience are bound to offer in the car which all have joined in perfecting.

It is all in the one car. It expresses as nearly the limit of four-cylinder construction as has been reached.

Hadn't You Better Wait?

Even if you are impatient to have a new car now, don't you think it better to see the *New HUDSON "37"* before you buy?

No other car you can get this year, regardless of price, has all the features that are offered in the "37."

Consider for a moment the rapid advancement that has been made in motor car building. It is almost as startling as are the changes in fashion. Think how strange are the open cars of two years ago. What proportion of their original cost do you think such cars now bring? It is not due to wear that their value has declined so much. No, it is the advance that has been made in automobile building since the open cars were put on the market.

With that thought in mind you must recognize the importance of choosing wisely now. Automobiles as now built should be of service for many years and you don't want to feel that you will have to buy

a new car in two, three or four years because the one you have just purchased will at that time be out of date.

Your Safety in This Choice

No one is likely to soon have many new ideas to offer that these 48 engineers have not already anticipated.

They all combine in saying that the *New HUDSON "37"* represents the best that there is in four-cylinder construction.

They proved every move they have made through 20,000 miles of gruelling country, mountainous, mud and snow driving.

The most abusive treatment one of the most skilled drivers could give in the thousands of miles he drove the car, without developing a single weakness, or discovering a single detail in which improvement could be made either in design, construction, simplicity, easy riding qualities, responsiveness, safety or power, is a guarantee that you will find it expresses your ideal of what a four-cylinder car should be.

Electric Self-Cranking—Electrically Lighted

Comfort, Beauty, Luxury

Every detail of comfort, beauty and luxury is included. You will find no other automobile to excel the "37" in these particulars.

It is electric-lighted throughout. The successful Delco patented self-cranking system, at the touch of a button within reach of your finger, and the pressure of a pedal, turns over the motor, for 30 minutes if necessary. Oil and gasoline gauges are on the dash.

There is not a single action in the operation of the car which cannot be done from the driver's seat.

Actual brake tests show 43 horsepower. Its rear axle is full floating. The rain vision windshield, the speedometer-clock, demountable rims, 12-inch Turkish upholstering and every conceivable detail of refinement, make it the most complete four-cylinder automobile on the market.

Models and Prices. Five-passenger Touring Torpedo or Two-Passenger Roadster—\$1875, f. o. b. Detroit. Canadian price, duty paid, \$2425, f. o. b. Detroit. **One price to all—everywhere.**

Go to see about this remarkable automobile today at the nearest HUDSON dealer. Write us for complete details, photographs, etc.

HUDSON MOTOR CAR COMPANY

7450 Jefferson Avenue, Detroit, Mich.

VETERINARY

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

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

Ruptured Crop.—Recently while preparing a chicken for a roast, I found quite a number of kernels of corn and wheat (some had sprouted), imbedded in the skin of the fowl on the breast, lower part of body and thighs. The fowl was healthy and in laying condition. It is mere curiosity that prompts me to write, wondering how grain got there and what the final effect of such a case might be. L. V. S., Butman, Mich.—A rupture of crop took place, allowing grain to drop underneath skin, then heat and moisture forced it to sprout. Such occurrences are not common, and seldom affect the health of fowls.

Garget.—Our cow seems to have udder trouble, first on one side then on other. Have applied salt and vinegar, given big doses of epsom salts and saltpetre, but she does not seem to improve much. Would heavy feeding cause it? G. S. S., Paw Paw, Mich.—Feeding much grain has a tendency to cause garget. Apply hot raw linseed oil and give 2 drs. of potassium iodide at a dose three times a day. Continue giving saltpetre in her feed. Does she not bruise her bag?

Colic—Stocking—Scars.—I have a ten-year-old mare that has had frequent attacks of colic; she also has some stocking of hind legs; there are also several scars on leg, perhaps the result of barb wire wounds. Her blood is doubtless out of condition. E. L. Jones, Mich.—Give your mare 1 oz. ground ginger at a dose in feed night and morning and feed her carefully; also give her a dessertspoonful of Donovan's solution at a dose in feed three times a day. Also apply one part oxide of zinc and six parts vaseline to sores on legs twice a day.

Sore Eyes.—Have a colt three months old that has seemingly had a weak eye for the past two months; at no time has the eye ball been affected, but tears drop from eye. I have applied boracic acid solution and this seems to help it, but as soon as the treatment is discontinued the trouble recurs. O. L. F., Barto, Mich.—Dissolve 40 grs. borate of soda and 50 grs. boracic acid in 4 ozs. water and apply to eye twice a day.

Poor Quality of Hoof.—Have been a reader of the Michigan Farmer several years and have derived benefit from its veterinary column. I have a mare weighing about 1,500 lbs., which has rather poor feet. Her hoofs are altogether too brittle and the shoe remains on but a short time. The wall of foot seems to decay and I would like to know what to put on to toughen her hoofs. I blistered her coronets last winter which made her less sore. W. F. C., Saranac, Mich.—Apply lanolin to hoofs twice a day and stand her in wet clay one or two hours daily. Blisters applied to coronet stimulate a more healthy growth of horn.

Cow Fails to Come in Heat.—My cow came fresh April 1, 1912, since then she has not been in heat. What can I give her that will bring about the desired result? J. R. A., West Branch, Mich.—Give her 1 dr. ground nux vomica and 2 drs. powdered capsicum at a dose in feed twice a day.

Scouring.—I have a six-year-old cow due to calf October 8, and she has scouring for several weeks, making her quite thin. Do you believe she has tuberculosis, and if so what will it cost to have her tested? J. C., Coleman, Mich.—Veterinarians usually charge \$2 or more to test a cow for tuberculosis, but, of course, if there is only one of them at a place, he might have to charge considerably more; or it might be advisable for you to take your cow to his place, and have the work done. This would give a better opportunity to tell what ailed the cow. Her bowel trouble does not especially indicate tuberculosis.

Light Milker—Acute Indigestion.—Can you tell me how to bring my cow back to her normal flow of milk, and also a prescription to make her thrive. This cow has almost ceased to give milk; she is on fairly good pasture. A. F. C., Charlot, Mich.—Give your cow 1 lb. of epsom salts in three pints of tepid water as a drench, one dose only. Also give a tablespoonful of powdered nitrate potash and 1 oz. ground gentian at a dose in feed twice a day. Her food supply should be changed. Drugs will not help a case of this kind. Give her 1 oz. of ground gentian, ½ oz. powdered cinchona bark and 1 dr. ground nux vomica at a dose as a tonic in her feed twice a day.

Feeder cattle and the light stock steers have had severe decline in value within the past ten days, recent sales of good quality fleshy feeding steers at \$6.75@7 being on a basis 50c lower than such grades sold two weeks ago and the medium to good 700 to 800-lb. steers are also that much lower. Decline has come as a result of a little increase in the movement from the west, and particularly into the Kansas City and Omaha markets. Some sharply lower selling there influenced a break at Chicago and the past week has been the best one in a long time as judged from the viewpoint of those who have grass and nothing to eat it. Previous to the break prices were as high as ever known.



Fatten Your Hogs Cheaper—Quicker

The quickly fattened hog is the only real mortgage lifter. Every 24 hours you cut off marketing day means money saved. But don't let the amount of food given your hogs persuade you that they gain in weight proportionately—nothing counts except the food that is digested. But, ordinarily, the hog wastes a part of its ration through non-digestion. Nearly 20 years ago Dr. Hess (M.D., D.V.S.) introduced

DR. HESS STOCK TONIC

A preparation composed of bitter tonics which act directly on the animal's digestive organs, materially lessen the amount of food wasted and convert more of the ration into flesh, muscle and milk. There is nothing secret about the contents of Dr. Hess Stock Tonic—the ingredients are boldly printed on every package and are printed in the panel on the left hand side of this advertisement with the remarks of the U. S. Dispensatory and other eminent medical authorities showing the highly stimulating tonic and laxative properties of the ingredients used in the preparation of Dr. Hess Stock Tonic. To put up and properly compound this scientific preparation your druggist would charge you many times the price of Dr. Hess Stock Tonic. Give as directed this tonic in every hog's feed daily and you'll fatten them cheaper and quicker.

Our proposition. You get of your dealer a 25 lb. pail of Dr. Hess Stock Tonic at \$1.00, or 100 lbs. at \$5.00 (smaller quantities at a slight advance) except in Canada and extreme West and South. Use it all winter and spring. If it doesn't pay you and pay you well, get your money back. Every pound sold on this guarantee. If your dealer can't supply you, we will.

FREE. Dr. Hess (M.D., D.V.S.) will at any time prescribe for your ailing animals free of charge if you will send him full details. Mention this paper and send 2c stamp. 96-page Veterinary Book also free.

DR. HESS & CLARK, Ashland, Ohio



DR. HESS POULTRY PAN-A-CEA. A poultry tonic to make hens lay more eggs, toning up the dormant egg organs, keeping roosters vigorous and making little chicks grow quicker and stronger. Also cures Gapes, Cholera and Roup. Contains iron to build up and nitrates to expel the waste from the system. Cost hardly worth considering—a penny's worth feeds thirty fowls per day. Sold on the same money-back guarantee as Dr. Hess Stock Food. 1½ lbs. 25c (mail or express 40c); 5 lbs. 60c; 12 lbs. \$1.25; 25 lb. pail \$2.50 (except in Canada and extreme West). If your dealer cannot supply you, we will. Send 2c for Dr. Hess 48-page Poultry Book, Free.

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SAVE-THE-HORSE SPAVIN REMEDY

(Trade Mark Registered.)



Put Horse to Work and Cure Him
16 YEARS A SUCCESS.

WE originated the Plan of Treating Horses by Mail—Under Signed Contract to Return Money if Remedy Fails. OUR CHARGES ARE MODERATE. But first write describing your case, and we will send you BOOK—Sample Contract, and Advice—ALL FREE to (Horse Owners and Managers). Write—as there is nothing so costly as delay. TROY CHEMICAL CO., 20 Commercial Ave., Binghamton, N.Y. Druggists Everywhere sell Save-The-Horse with contract, or sent by us Express Prepaid.

MINERAL HEAVE REMEDY

In Use Over 50 Years

CURES HEAVES

NEGLECT Will Ruin Your Horse

Send today for only PERMANENT CURE

\$3 Package will cure any case or money refunded
\$1 Package cures ordinary cases. Postpaid on receipt of price. Agents Wanted Write for descriptive booklet

Mineral Heave Remedy Co., 463 Fourth Ave., Pittsburg, Pa.

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Do you want a good position where you can earn from \$1,000 to \$5,000 a year and expenses? There are hundreds of such positions now open. No former experience as a Salesman required to get one of them. If you want to enter the world's best paying profession our Free Employment Bureau will assist you to secure a position where you can earn good wages while you are learning Practical Salesmanship. Write today for full particulars; list of good openings and testimonials from hundreds of our students. For whom we have recently secured good positions paying from \$100.00 to \$500.00 a month and expenses. Address nearest office, Dept. 208 National Salesmen's Training Association Chicago New York Kansas City Seattle New Orleans Toronto

FOR SALE, CHEAP.

IMPORTED PERCHERON STALLION, a ton horse. Sound. A Colt getter or will trade for good auto. J. C. BUTLER, Portland, Michigan. Bell phone.

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bred for utility as well as show quality. Stable includes several international winners. Three 2-year-old stallion colts of quality for sale. Come, or write B. F. ANDERSON, R. No. 3, Adrian, Mich.

For Sale—Horses, cattle, sheep, swine, poultry and dogs, nearly all breeds. Sires exchanged. South West Michigan Pedigreed Stock Ass'n., David Woodman, Sec'y., Paw Paw, Mich.

BREEDERS' DIRECTORY.

SHEEP.

Hampshires—Who wants 18 good ewes and 100 lambs, and a good 300-lb. imported ram for \$25. Also have 7 good ram lambs for sale. All registered. E. A. Hardy, Rochester Mich.

For Sale, Oxford Down rams, yearlings, different ages. S. E. GILLET, Ravenna, Ohio.

Reg. Ramboulllets—120 ewes, 35 rams all in perfect health. Come and see me or write for circular of breeding—none better. 2½ miles E. Morrice, on G. T. R. R. and M. U. R. J. Q. A. COOK.

Oxford Down Sheep—Good Yearling Field Rams and ewes of all ages for sale. I. B. WATERBURY, Highland, Michigan.

3 SHROPSHIRE RAMS

* 1 yearling, \$15; 1 2-year-old, \$20; 1 4-year-old (our herd ram) \$15. Will deliver Nov. 10th. LONG BEACH FARM, Augusta, Michigan.

SHROPSHIRE YEARLING—and 2-year old rams of the best wool and mutton type. Geo. P. Andrews, Dansville, Ingham Co., Mich.

Ingleside Shropshires.—Imported and home bred. All ages for sale. A fine lot of ram lambs for this year's trade. See them at the fairs. HERBERT E. POWELL, Ionia, Mich.

HOGS.

Durocs and Victorias—Young sows due Mar. & April. Bred to fit prize and champion boar. Priced to move them. M. T. Story, Lowell, Mich.

BERKSHIRES for sale—March farrowed boars and gilts, sired by Handsome Prince 3d, out Weyeneth Lady Francis. A. A. PATULLO, Decker, Mich.

Quick Maturing Berkshires—Best breeding; best type. Satisfaction guaranteed or money refunded. C. S. BARTLETT, Pontiac, Mich.

BERKSHIRES—Choice individuals, either sex, from the Champion Herd of the Thumb of Mich. ELMHURST STOCK FARM, Almont, Mich.

BERKSHIRES—Weaned pigs either sex \$15 two for \$25; bred gilts \$8; bred sows \$50, registered and transferred. Excellent breeding. Choice individuals. C. C. COREY, New Haven, Michigan.

Improved Chesters—Spring pigs, either choice young boar and a few sows bred for early fall farrow. W. O. WILSON, Okemos, Mich. Both phones.

Reg. Chester Whites—Both sexes and bred gilts, also serviceable registered Holstein bulls. Bargains. RAY PARHAM, Bronson, Mich.

O. I. C. Extra choice bred gilts, service boars and spring pigs, not akin from State Fair winners. Avondale Stock Farm, Wayne, Mich.

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

O. I. C's—I have some very fine and growthy last fall pigs, either sex, males ready for service now, pairs not akin. OTTO B. SCHULZE, Nashville, Mich., half mile west of depot.

O. I. C's of superior quality. If choice young gilts and 11 top young boars. Pairs not akin. FRED NICKEL, Monroe, Michigan.

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

O. I. C's with size & quality, the kind I can positively guarantee to give satisfaction or will refund money. Newman's Stock Farm, R. No. 1, Marlette, Mich.

O. I. C. SWINE Write me for Pigs, pairs and trios, not akin. Have a number of service males of good type. Write me describing of your wants. A. J. GORDEN, R. No. 2, Dor, Mich.

O. I. C.—Orders Booked For Spring Pigs. C. J. THOMPSON, Rockford, Michigan.

O. I. C. Hogs of all ages, bred sows and gilts, service males and May and June farrowed pigs. Rolling V. I. I. Stock Farm, Cass City, Mich.

O. I. C's of March and April farrow, shipped on approval or c. o. d. OTIS GREENMAN, R. 4, Bellevue, Eaton Co., Mich.

DUROC JERSEY SWINE—Thirty spring pigs, brood sows, breeding the best, prices right. Come and see them. ORLO L. DOBSON, Quincy, Mich.

DUROC JERSEYS—One service boar; two bred gilts; spring pigs (either sex). Choice breeding. Prices reasonable. Write or come and see. R. G. VIVIAN, R. No. 4, Monroe, Mich.

DUROC JERSEY SWINE—THE BIG KIND. Write your wants. F. A. LAMB & SON, Cassopolis, Mich.

DUROC JERSEYS—Some good choice hogs and pigs for sale, also Shropshire rams. M. A. BRAY, Okemos, (Ingham Co.) Mich.

DUROC JERSEYS, HERD IMMUNE TO CHOLERA. CAREY U. EDMONDS, Hastings, Michigan.

Duroc Jersey SWINE. Spring and summer pigs for sale both sexes. I pay express 25 years experience. J. H. BANGHART, Lansing, Mich.

DUROC JERSEYS—30 Fall and Winter Boars, ready for service. Prices right for 10 days. Write or come and see J. C. BARNEY, Coldwater, Mich.

POLAND-CHINA SWINE

Bred for September. R. W. MILLS, Saline, Mich.

Big Smooth Poland China Hogs from large sires, either sexes, at reasonable prices. ALLEN BROS., Paw Paw, Mich.

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

POLAND CHINAS—Big type spring pigs, other sex, also Shorthorn Bull calves and Oxford bucks. Prices right. ROBERT NEVE, Pierson, Mich.

POLAND CHINAS—Gilts and yearling sows bred for first of Sept. farrow, a few big types. E. D. BISHOP, Route 33, Lake Odessa, Mich.

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

POLAND CHINAS—Home of Michigan's Grand Champion Boar, Sires, Gilts, and Boars. Priced to sell. E. J. MATHEWSON, Nottawa, Mich.

LARGE TYPE P. C.—Largest in Mich. Come and see greatest herd of big, prolific P. C. in state. Sows avg. 10 pigs to litter. Free livery, expenses paid if not satisfied, order early and get choice. Prices reasonable, quality considered. W. E. LIVINGSTON, Parma, Mich.

POLAND CHINAS—Young sows bred for April farrow. Extra good fall pigs, either sex. L. W. BARNES & SON, Byron, Shiawassee Co., Mich.

Big Type P. C. Sows bred to Big Bone Junior. A. A. WOOD & SON, Saline, Michigan.

TWO YOUNG TAMWORTH BOARS FOR SALE T. F. MARSTON, Bay City, Michigan.

Mulefoot Hogs—30 SOWS and GILTS bred. Also pigs not akin. Boars all ages. G. C. KREGLOW, Ada, Ohio.

For Sale, Yorkshire Gilts—Bred to farrow of August. Also pigs, both sexes. WATERMAN & WATERMAN, Meadow Land Farm, Ann Arbor, Mich.

CHOLERA PROOF HOGS.

I have more than 5700 swine on my farm and am selling grade Yorkshire, Tamworth, Poland China and Duroc brood sows, boars and show in any quantity at best Buffalo market price for fat yorkers on day of sale. Sows to farrow soon included. These hogs are not fat, are cholera proof and prolific breeders. Pigs that are 6 to 10 weeks old at \$3 to \$4.

ALVAN BROWN'S PIG FARM, Grand Rapids, Mich.

Large Yorkshires—Stock of all ages. Will exhibit at West Michigan State Fair, see them. W. C. COOK, R. 42, Ada, Mich.

Lillie Farmstead YORKSHIRES.

A few choice Gilts bred for September farrow, good ones. Spring pigs, either sex, pairs and trios not akin. Satisfaction guaranteed. COLON C. LILLIE, Coopersville, Mich.

ALWAYS mention the MICHIGAN FARMER when you are writing to advertisers.

THE DAIRY

CONDUCTED BY COLON C. LILLIE.

POWDERED MILK.

Some time ago a subscriber asked through these columns some information in regard to powdered milk. The writer is fortunately located only two miles from one of the most up-to-date and largest powdered milk factories in the country. A photograph, showing a bird's-eye view of the factory is shown herewith. This factory was built at an expense of nearly \$100,000 and is strictly modern in every feature and "spick and span" methods of sanitation are observed from the taking in of the fresh milk until its exit as a finished floured product.

Space forbids an extended account of all the methods employed here in the

five head of cows. He wanted them free from tuberculosis. I told him they had never been tested but that he could test them if he wanted to and if they had tuberculosis they wouldn't cost him a cent. I never heard from him afterwards.

Dr. L. H. Schuh, a prominent veterinarian has been telling me that I ought to have my herd tested. Tuberculosis has been found in many herds around Grand Rapids. One dairy herd in the north end of the city was entirely wiped out by this dread disease. I told Dr. Schuh that I had no tuberculosis but, of course, he knew that I didn't know. A year ago we had a cow die from some digestive trouble. I had Dr. Schuh come down and hold a post mortem examination and he looked carefully and could find no evidence whatever of tuberculosis. He asked me why I felt so sure I didn't have tuberculosis and I told him because tuberculosis was a barn disease, because the people who had tuberculosis

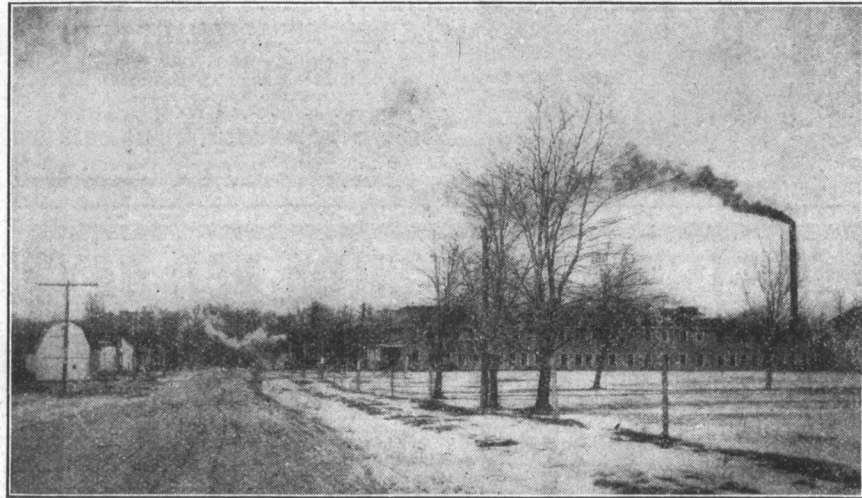
put on another bucket of coal when needed, there would be less consumption or tuberculosis in a few years than there is now. It is because people are careless about the air they breathe. With the human being it is a house disease and with the bovine race it is a barn disease.

Well, recently I understand that several important herds have been tested for tuberculosis and got many reactions. One pure-bred herd near the city of Grand Rapids had several reactions, and I finally could not resist Dr. Schuh's appeal to have my herd tested, and so he came down and we worked at it two days carefully, took four temperatures before injecting the tuberculin, then injected the tuberculin, and took five temperatures afterwards varying two hours in time. In not one instance did we get a reaction. In not one instance was the maximum temperature after injection a half a degree above the maximum temperature before injection. Of course, I feel better now than I did before, and yet, as I say, I was confident that I didn't have any tuberculosis before, but now I am sure of it.

Of course, I do not purchase many outside animals. The most of my herd is of my own breeding. Only occasionally I buy a new herd bull. This, of course, does not expose the herd to outside influence and undoubtedly has shielded it in a large measure from this disease, but as I say, I believe that the reason for the absence entirely of tuberculosis is largely because the cows have been kept in a properly lighted and ventilated stable, and if this is so a few dollars invested in ventilation and window glass in the stable is an investment in the right direction.

AN IMPROVEMENT IN THE HITCH OF THE MODEL COW STALL.

On page 118 of the August 17 issue of the Michigan Farmer I noticed a discussion of "The Model Cow Stall," in which you spoke of the difficulty of getting some cows to step forward and lay down on the bed of straw. I put in four stalls from one of your descriptions of the stall about three years ago and had this same trouble. Then it occurred to me that the fault was in hitching the cow in properly, so I used what is known to some as the old Dutch hitch. This is a pole with a ring on it, the pole slanting back towards the cow at the top. I put this pole from the front side of the grain manger to about six inches back of top side of hay rack along side of left partition. Then I use an ordinary cow hitch chain, leaving about 12 or 14 inches of chain between ring on pole and cow's



General View of Powdered Milk Factory at Elsie, Mich.

manipulation of the milk through its various stages to its powdered state, but I will make brief mention of some of the chief operations.

All milk used is strictly fresh and only of a uniform test, that is, a test of a certain per cent butter-fat, which is varied to suit the demands of the particular trade catered to. Powdered milk is principally used by confectioners and bakers, but enters also into culinary purposes of any household in cooking, baking, etc.

The milk is, after minor operations, sprayed uniformly over superheated steam drums or cylinders made to revolve slowly; a series of flat knives or scrapers are so arranged near these cylinders at the bottom that by the time the now cooked or dried milk reaches this part of its journey it is scraped or pared off in the form of narrow and very thin, transparent ribbons. Other machines conveyors, etc., carry and dry these to a state of perfect crispness, without burning or scorching them in the least. These ribbons of milk are not ground, as many suppose, into flour but are rendered into a powdered state by what is known as attrition. It is then packed ready for market in various sized packages and drums. One hundred pounds of milk, varying somewhat, of course, make something like 11 pounds of the finished product. Clean, high-testing milk is the main requisite, required of patrons by the managers and, strictly speaking, herds producing a low-testing milk are not eagerly sought.

Cheese, butter and caseine are also products of this factory and form a large part of the money making part. The by-product, caseine, is a hard, tough substance of some elasticity and after subsequent treatments is employed in the manufacture of buttons, handles, toilet articles, etc.

Gratiot Co.

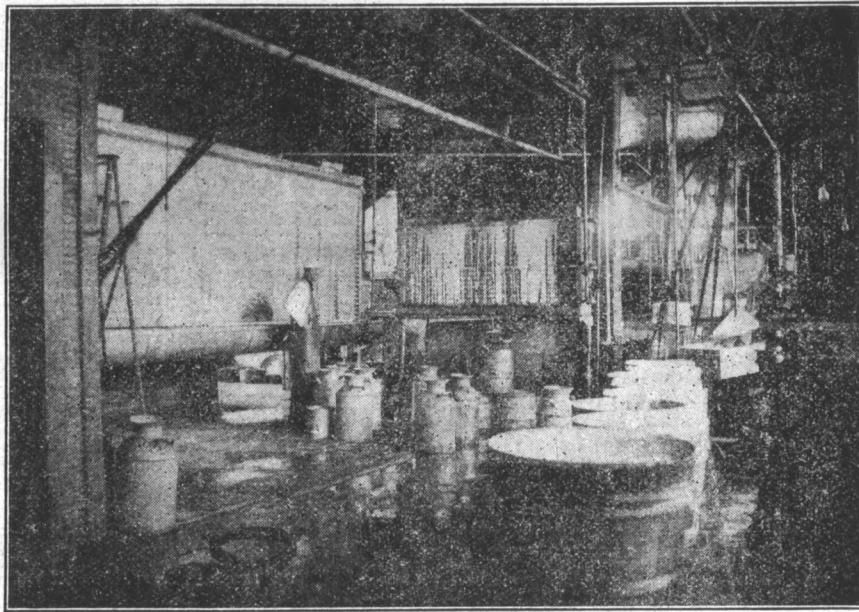
G. A. RANDALL.

VENTILATION AND TUBERCULOSIS.

I have never had my herd of cows tested for tuberculosis or given the tubercular test until recently. It was as much neglect on my part as anything, and yet I never felt that there was any danger. I have always believed my herd was free from tuberculosis. I will admit that you can't tell by the external looks of a cow. There is no known way of determining, but I felt all the while that the cows were perfectly healthy so far tuberculosis was concerned. When I sold animals I guaranteed them free of tuberculosis. One time a man from Illinois came over here and purchased four or

didn't give their stables proper ventilation. The cows that breathe pure air all the while would not have tuberculosis, even if they did have they would recover from it if they were kept in a properly lighted and properly ventilated barn.

I remember hearing a lecture by the veterinarian of the Illinois Experiment Station, delivered at an Illinois State Dairymen's Association at one time in which he told about their experimenting with tuberculosis at the college. Cows



Interior View of Butter-Working Department.

that had tuberculosis were put into a well ventilated and well lighted stable, together with cows that did not have tuberculosis. At the end of a year the cows had recovered and they did not communicate the disease to the well cows. On the other hand, cows that were free from tuberculosis were put in a poorly lighted, poorly ventilated stable, together with cows that had tuberculosis and at the end of a year they all had tuberculosis. It is said that cows taken from the Island of Jersey, where tuberculosis is unknown, up into Denmark and Northern Germany or into Scandinavia, a cold climate, and put into barns, in a few years have tuberculosis. It is a barn disease.

I don't think there is any use in human beings having tuberculosis if they would only ventilate their houses. If they would smash out some of the glass in the sleeping rooms and not put them in again, and then to supply more heat

neck. The cow can not possibly lay too far back and still she is allowed the freedom of her head to reach all parts of stall to lick herself and lay with her head around to either side, as you so often see them lay in pasture and so seldom in a stall.

Montcalm Co. S. J. H. If this manner of hitching the cow will prevent the cow from lying too far back, keep her on the bed, it certainly is a great improvement where cows do not seem to know enough to step forward when they lie down. As I have said before, most all of our cows do know enough for this, and it is natural for a cow when she goes to lie down to step ahead, but some of them don't seem to know enough to do this and they continually lie back. It not only makes it very inconvenient for them because they have to lie over the edge of the 2x4 but it also gets them soiled with the droppings. For my part I am very much obliged to S. J. H. for this idea and I shall try it out at once as we have one

TOWER'S FISH BRAND POMMEL SLICKER

Keeps both rider and saddle perfectly dry. Made for rough wear and long service in the wettest weather.

SATISFACTION GUARANTEED.



LOOK FOR THIS MARK OF EXCELLENCE

\$3.50 EVERYWHERE.

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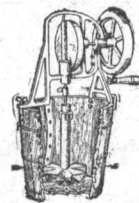
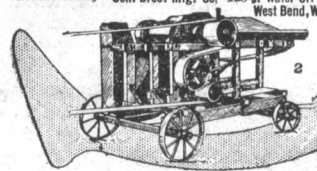
312

"The Best is The Cheapest"

Don't forget that. It's the cutter that is honest-built from truck to stacker that you'll buy some day. In simplicity, durability, enormous capacity, economical power, absolute safety and fine, uniform silage, the Silberzahn gives the very fullest satisfaction.

Light Running
SILBERZAHN
Ensilage Cutter

Buy it now. Sidetrack all possible chance of disappointment. Rigidly guaranteed. Send for New Catalog, prices and name of your dealer today. Gehl Bros. Mfg. Co. 123 S. Water St. West Bend, Wis.



More Butter in Less Time

than by any other churn or method. The Norcross Improved Butter Separator makes butter out of Sweet or Sour cream by air in from 3 to 10 minutes. Will pay for itself in butter gain over the old method in few weeks. Absolutely Guaranteed. Sanitary marvel—wonder of the age. Four sizes, 1 to 15 gallons. Send for catalog.

Agents Wanted Liberal terms to responsible men and women in open territory. High-grade proposition. Sells at sight.

We will ship the "Norcross" direct on receipt of price, with the guarantee that money will be refunded if not as represented. Put it to your own test with your own cream. Isn't that fair?

AMERICAN CHURN CO., Dept. 11
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Test this Hay Press FREE 10 days

Spencer's Steel Alligator

with 60-inch feed hole can bale 2½ tons an hour or it is yours free.

Would such a baler interest you?

Write today for FREE Catalog.

J. A. SPENCER, Dwight, Ill.
121 William Street



When building your silo build one for good

THE IMPERISHABLE SILO

Patent Vitrified Clay Blocks

Decay-proof, storm-proof, expense-proof

Write for free catalogue today.

NATIONAL FIRE PROOFING COMPANY
Agricultural Dept. A. Pittsburgh, Pa.

SCAT GET OUT

OR GET OUR OFFER.

OUR ENSILAGE CUTTER with traveling table and enclosed steel carrier, the best thing you ever saw, with engine to drive it, for less than \$200 and it CUTS 5 TO 7 TONS PER HOUR. Also smaller ones. Our engines give highest possible economy. Our prices are right on Power Pumps, Spray Pumps, Feed Grinders, Emery Grinders, Forges, Wood Saws, etc. You cannot afford to miss our offer.

CHAPMAN ECONOMIZER ENGINE WORKS,
MARCELLUS, MICH.

STRONGEST FENCE MADE

FROM FACTORY DIRECT TO FARM

26-inch Hog Fence,15c.
47-inch Farm Fence,23½c.
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.

CEDAR FENCE POSTS.

GEORGE M. CHANDLER, Onaway, Michigan.

or two cows now that in spite of the fact that we have a large stone which we put behind them to force them to lie up in the stall will work this stone back and back in the filth.

BREEDING, FEEDING AND WEEDING.

BREEDING, feeding and weeding are three cardinal factors in the development of a profitable dairy business. Of first importance is the breeding of the cow. Large milk yields cannot be produced by an unbalanced cow. Good feeding cannot offset the handicap of inferior breeding. Years ago there was much discussion over the relative importance of breeding and feeding. Experience soon proved, however, that both factors were equally important. The best-informed dairymen now contend that all the large factors must be considered if the best returns are to be obtained. They name the breeding of the cow, first, then feeding, and last weeding. Get a good cow. That is sound advice. Feed her right. Build up her system by feeding her all the grasses, clover, alfalfa, oat and pea hay and corn silage she will eat. Some additional grain or by-product feeds may be used to enable her to keep up a maximum milk flow. Buy a pair of scales and a Babcock milk tester and find out how much milk and butter she is producing and how much it costs a gallon or pound to produce it. It is an investment that will pay as surely as day follows night. Put money and thought into the dairy business and it will pay it back many fold.

How are we to breed up our dairy herds so as to improve their productive qualities? It is my judgment that one of the greatest mistakes that dairy farmers make is in relying so much upon their individual cows for the improvement of dairy qualities when he should rely almost wholly upon the sire, because he imparts his qualities, whatever they may be, good or bad, to every calf which is born into the herd every year. How to secure a suitable sire is the dairyman's most perplexing problem. Unfortunately we have but few breeders who are breeding the right kind of dairy sires. It is true that many men are mating animals of the same breed, but this kind of breeding does not produce the kind of sires needed to carry out the successful dairy farmer's ideas of improvement. It is the breeding bull that comes from a line of advanced registry ancestry that is needed to bring about the desired results in breeding.

Other factors besides milk and butter production must be taken into account. The ability of the cow to take and handle home-grown foods, as well as her years of usefulness, the length of time she can produce milk and butter. These must come about by breeding. While the average dairy farmer does not have time to study all of the problems of breeding, he ought at least, to have respect enough for his work so that when he goes into pure-bred herds he will be able to select a suitable animal to place at the head of his herd, and not be afraid, as the majority of dairy farmers are, of paying a price that will give him the results of which he will feel proud, in the animals he will raise from that representative of his herd. I want to say that my experience in breeding cattle has convinced me that too much stress cannot be placed upon securing and maintaining the desirable qualities which, we as dairymen, desire to have perpetuated in our herds, constitution, capacity, longevity and production.

Good cows are born and good cows made. However, there are more poor cows made out of good cows born, by improper feeding than in any one way. Many cows are condemned as unprofitable when the fault is with their owners who do not give them proper feed and care. In the feeding of dairy cattle, we who are in it for the dollars and cents, must recognize two distinct propositions that we must ever hold before us if we succeed in the business. One is feeding for production; and the other is feeding for economy.

Experience shows us that we can feed a much wider ration than we thought it was possible to do years ago, and this greatly helps the average farmer, for it gives him an opportunity to make a wider use of his homegrown forage and fodder crops, while if he were bound to the original narrow ration he would be obliged to buy more or less expensive grain foods.

Another factor of profitable feeding is that of understanding the individuality of our cows, whether we have five cows or fifty, it is important that we know what

each cow is doing and what she can be made to do. The only way to find out these things is to introduce a system of business principles in our dairy work. Know what we feed her, how much it costs and how much she produces. The dairy farmer who knows all these things is always master of the situation. It means that he can make his cows produce the most milk and butter at the least expense. Feeding requires individual study and attention coupled with a thorough knowledge of each cow's wants. We must use common sense and never subject her to any sudden change that will throw her system out of balance, for it is too delicately adjusted to conform to sudden changes. When we change from silage to dry feed we must be a little careful and when we change from dry feed to silage we must be a little careful, not to throw the cow out of condition. We must study the feeding question each day, for there is no part of our work of so much vital importance as the question of judicious feeding. To sum it up in a few words, raise everything possible on the farm for the cows, store it in the most palatable condition possible, and when feeding are made. However, there are more poor homegrown foods purchase only what is necessary to furnish the cow with the amount of protein she shows that she requires by the scales and her flesh condition.

Weighing and testing are the searchlights of the dairy business. They have done more than anything else to set dairymen to doing their own thinking about putting their dairies on a money-making basis. It shows that we have cows that are paying good profits and that we have cows that we had better weed out and dispose of. It proves that our farm crops will pay more if fed to good cows than they will bring in the market, thereby removing the fertility of the land and reducing our income.

We are in the dairy business to make a living and some money. It is the net profits we are after, and we want cows that will give the most net profit, not necessarily a large yield, but a profitable one. In some of the dairy localities in the east the cows have been fed so long upon heavy rations of grain foods that they have lost their capacity to profitably consume home-grown forage and fodders and turn them into dairy products. Some dairy farmers in these sections where roughage is scarce feed as high as four to six pounds a day of digestible protein. Hay and roughage is scarce and they feed these concentrates in their effort to make heavy milk yields. There is danger of farmers in other sections drifting in this direction if they do not consider the problem of cheaper production. We must have cows with the dairy capacity to profitably utilize our home-grown feeds with a minimum of grain if we succeed in developing a profitable business. Finding such cows is more a matter of individuality than of breeding, and the only way to find them is to find out how much milk they give in a year and how much feed they require to produce it. We must know what they do with their food. Whether they make milk, beef or allow a large part of its value to go through them into the manure heap.

The time has come when a man who wants good cows must breed and raise them. If we depend upon buying new cows to replace the ones we discard we will never succeed in getting any farther ahead. In order to raise good cows we must adopt a system of breeding, feeding and weeding and stick to it until we succeed in accomplishing the desired purpose. The breed, the family and the sire form the trinity of successful breeding everywhere. Systematic breeding, liberal feeding and piling cross upon cross of pure blood will insure success. New York. W. MILTON.

AN OBJECTION TO THE MODEL STALL.

I wish to offer a word of caution to those contemplating putting in the model cow stall. The slatted rack is not a suitable place to feed long cornstalks. The cows will pull a large proportion of them through between the slats and they get under the cow's feet and eventually in the manure. Some of us like to feed straw at noon, and after the cows have picked out what they want throw the rest under their feet for bedding. If you feed in the racks of the model stall, you will have to take the straw out into the alley and carry it around into the stable. Livingston Co. H. M. WELLS.

A great offer to all is on page 202. Don't fail to read it.



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Choice bull calves from 7 to 10 mos. old, of fashionable breeding and from dams with official milk and butter records for sale at reasonable prices. Also a few choice females. McPHERSON FARMS CO., Howell, Michigan.

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MILK SHOULD RETAIL AT TEN CENTS.

Your answer to B. M.'s query concerning the retailing of milk at seven cents a quart interested me. The tone of your article would hardly inspire confidence in such a project. You have stated the case fairly, but your conclusion is not justified by your discussion. Your better judgment seems to dictate at least eight cents per quart but several years' experience in the retail trade leads me to say, that you are still two cents below the correct mark for the retail price of clean commercial milk.

To one fully appreciating what the production of clean milk means, a careful reading of your reply would lead us to infer that no individual should think of entering the market milk business with any idea of obtaining a reasonable profit for less than ten cents a quart. Of course, much depends upon the quality of milk produced, but we assume a milk testing from $4\frac{1}{2}$ to 5 per cent butter-fat.

In the first place, A. M. can't buy a ration that will produce a maximum flow of milk from any herd of cows. A dairyman, if he makes a profit, must be a dairymen farmer. We don't care what he gets for his milk.

We believe three elements are essential to the success of any dairy—the dairyman, the herd, and the farm. The farm must be capable of producing at least seven or eight tons of good corn silage and about four tons of alfalfa hay per cow each year. This, the most economical ration to be obtained for the production of milk, you can't buy at any price in any market—hence the necessity of a good farm back of the dairy.

A herd to be profitable, must average 6,000 lbs. of $4\frac{1}{2}$ per cent milk per year; the average herd will do but little better than two-thirds of this. To obtain a profitable herd means several years of careful breeding, or the investment of a large sum of money in cows that will produce a profit. The dairyman must be a scientific farmer, an artist at the care and feeding of a dairy herd and a high-class business man, to deal with the public in disposing of his product at a price to give him a living profit—all of which ability will sell on the market at \$3,000 a year and expenses in most any other line directed.

My advice to B. M. would be, if he can make \$1.50 a day and board—have his Sundays and holidays to get acquainted with his family, he better keep out of the retail milk business at seven cents a quart. The only way to make anything selling milk at seven cents a quart is to find some farmers who don't know what it costs to produce milk, (and their number is legion), and pay them 12 or 15 cents a gallon for their milk delivered in 10 gallon lots. You are correct, Mr. Editor, that the farmer should bottle the milk on the farm but when the farmer bottles the milk on the farm and ships to the retailers in the city, good clean commercial milk will retail at 10 and 12 cents a quart, according to the butter-fat contained. Cities will never secure a pure milk supply and farmers will never secure a reasonable price for their milk until municipalities compel all milk to be bottled by the producer.

Kent Co.

RETAILER.

TREAT COWS KINDLY.

One of the influences which contributes greatly to the comfort of the cow and to the success of the dairyman is the treatment which the cow receives at the hands of her owner or the person who cares for her. There are many instances where the best of dairy cows were used, and where good methods of feeding were practiced, and still results fell far short of what might reasonably have been expected, simply because the cows did not receive that kindly treatment which is so essential in their management.

The dairyman who has learned to handle his cows so that they are fond of him, and are pleased to have him come around, has learned one of the most valuable lessons that it is possible for him to learn. The most successful dairymen are intimately acquainted with every cow in their herd. The same affection which prompts the mother cow to do all she can for her calf will prompt her to do all she can for her owner when he treats her with due respect. Scientific investigations have proven the truth of this statement.

Each cow in the herd should have a name which should always be spoken when she is approached. The kindly word spoken to a cow, supplemented by kindly treatment in general, will often

accomplish wonderful results. Careful experiments have demonstrated that a very common cow will produce quite satisfactory results when cared for properly.

Indiana.

L. C. DAVIS.

MILK PRESERVATION.

Methods of Keeping Milk Sweet.

It is not uncommon to find as many as five million bacteria in every cubic centimetre (five drops) of milk, and when this is contrasted with the fact that milk as contained in the udder of the cow is, to all intents and purposes, sterile, the enormous amount of contamination which takes place after the milk has been drawn from the cow presents a grave problem to all concerned in milk production; and in view of the admitted danger which is incurred, more particularly by the infantile population of the country, by the use of such milk as a food, the solution of this problem should receive immediate and unremitting attention.

Refrigeration.

Milk, being such a splendid food for human beings, must naturally afford a similar amount of nourishment to bacteria, which multiply more rapidly at a warm temperature than when the milk is cold. It therefore follows that a temperature maintained at freezing point will arrest the action of the germs present in the milk; and it being sometimes difficult to produce this effect by the agency of atmospheric temperature, the use of coolers or refrigerators is generally resorted to. Contamination may, however, easily arise owing to the larger surface exposed to the atmosphere in its passage over the cooler, and if kept or used in dirty or dusty places, they may prove a serious source of admitting bacteria to the milk. Much of this contamination might be avoided if coolers were kept and used in a thoroughly clean place or dairy, and were also provided with covers or simply protected with sterile cheesecloth when not in use.

Sterilization.

Sterilization is now quite extensively practiced in order to destroy the injurious germs which may be contained in milk. As an infant food, sterilized milk is undoubtedly the purest and safest, although the peculiar "cooked" flavor which it gathers during the process of sterilization is somewhat detrimental to its popularity as a universal food. The process of sterilization may be outlined as follows: The vessel containing the milk, which may be the bottle from which it is to be used, is placed inside a larger iron vessel filled with water, the interior vessel being raised about half an inch above the bottom of the other, and the water reaching as high as the milk in the bottle. Steam is then turned into the water, which is allowed to boil under pressure until a temperature of 155 degs. F. is reached. After a lapse of 20 minutes, during which time the apparatus should be kept tightly covered, the bottles should be removed, and after ascertaining that they are perfectly air-tight, should be stoppered, subsequently being kept in a cool place until ready for use.

A simple form of apparatus for sterilizing milk can be manufactured in the following manner: A tin pail is fitted with a removable false bottom punctured with several holes, and fitted with legs about half an inch in length to allow of circulation of water. Bottles containing the milk are set on this false bottom, and the pail is filled with water to the level of the milk in the bottles. The vessel and contents are protected by a cover in which a hole may be punched; a perforated cork is inserted in this hole, through which may pass an ordinary chemical thermometer, the bulb of which descends into the water. By means of this contrivance the temperature of the water in the vessel can be carefully regulated without removing the cover. Although not, of course, adaptable to sterilization on an extensive scale, this simple and easily contrived apparatus will prove very serviceable where it is desired to prepare a few bottles of sterilized milk.

Canada.

W. R. GILBERT.

After five years' test the Storrs, (Connecticut), Station has found that at four cents a quart, it is impossible to produce milk at a profit, even with a good herd, but at five cents a quart there will be a profit.

The best method is to have salt before the cows constantly. So arranged they can have the mineral when they want it, and by having it as desired the cows do not take an excessive amount as they are apt to do when intermittently supplied.

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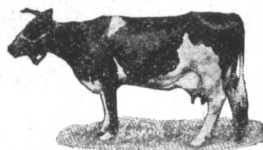
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WE GUARANTEE to stop THE MICHIGAN FARMER immediately upon expiration of time subscribed for, and we will pay all expenses for defending any suit, brought against any subscriber to The Michigan Farmer by the publisher of any farm paper, which has been sent after the time ordered has expired, providing due notice is sent to us, before suit is started. Avoid further trouble by refusing to subscribe for any farm paper which does not print, in each issue, a definite guarantee to stop on expiration of subscription. The Lawrence Publishing Co., Detroit, Mich.

DETROIT, SEPT. 7, 1912.

CURRENT COMMENT.

Frequent comment Agricultural Credit has been made in and the Banks. these columns regarding the need of a better system of agricultural credit in the United States. Repeated reference has also been made to the systems of agricultural credit which have been developed in European countries in recent years and to the benefits which have accrued to European agriculture, and indirectly, to the increased prosperity of the countries in which they exist through the operation of these credit systems. Due to the publicity which has been given to this European movement in this country, a rather general interest has been awakened regarding it and, as a result of the initiative taken by the Southern Commercial Congress last winter, a movement is now on foot to send a delegation of representative Americans consisting of two men from each state, who are interested in and familiar with our agriculture, to study these European systems of agricultural credit and recommend some plan for the establishment of a similar system in this country which will be adapted to our needs and conditions. The present plan is for this committee to start on its tour of investigation in June, 1913, provided the support a sufficient number of states can be enlisted to make such a committee representative of the entire country.

This movement promises much in the way of stimulating the future development of our agriculture, since its consummation would aid in the financing of agricultural expansion on more favorable terms than has heretofore been possible. At present the farmer who finds himself in need of added capital with which to develop the possibilities of his farm must seek a loan in the restricted money market of his home community on such conditions and at such an interest rate as to often prove a handicap if, indeed, he is able to negotiate the loan at all. Under the European systems, the people with small savings to invest can purchase the absolutely safe securities based upon the real estate mortgages secured through the credit banks which are a part of the system, thus making the system a double benefit, to say nothing of its safety in a time of financial stringency or its benefit to general business through adding to the elasticity of the currency through the use of this class of securities as a negotiable circulating medium.

Unfortunately, however, up to the present time, there has been no general appreciation on the part of the bankers of the country of the fact that the upbuilding of a system of this kind in the United States might help to solve the currency problems which have been made

the subject of frequent discussion and much agitation of the subject of banking and currency reform. It is encouraging, however, that there have been notable exceptions to this general rule. Ex-Gov. Herrick, of Ohio, while president of the Ohio Bankers' Association, was one of the first to direct general public attention to the desirability of emulating Europe's example in this direction and to the beneficial results which would accrue to the banks, as well as to the public therefrom. He urged the association to look into the matter with a view of promoting enabling legislation in the state of Ohio which would aid in the general establishment of such a system in that state, but apparently without result. It appears probable, however, that this proposition will soon invite closer study in banking circles. One prominent trust company in Illinois has taken a prominent part in developing a plan based on principles similar to those upon which the European systems are founded with the result that an "Illinois Mortgage Bank" has been founded for the purpose of making long time loans on farm property, when surrounded by proper safeguards to insure the stability of the security. It is also stated upon good authority that a number of bankers who have spent some time in Europe studying these credit systems within the past year, will be present at the bankers' convention to be held in Detroit next week and that this subject will receive attention from that body.

It is a matter for congratulation that the banking interests of the country are gradually awakening to the fact that a better system of agricultural credit in this country would be helpful in solving the banking and currency problems as well as the economic problem of agricultural betterment. The bankers should be the allies, instead of the opponents of the farmers of the United States in developing a system of agricultural credit commensurate with our needs.

With the opening of the school year the ever vexing school problem has occupied the attention of parents who are anxious that the primary training of their children should be the best which it is possible to give them. The problem has been solved with a varying degree of satisfaction. Observation on this proposition shows that an increasing number of parents are yearly sending their children to high school. Probably the law which makes it mandatory upon districts maintaining an eight grade school to pay tuition of children at a near-by high school has promoted this tendency to a considerable extent. Yet there is doubtless a growing appreciation on the part of rural parents of the value of the high school training and a growing tendency to go to no small inconvenience and expense to send their children to a high school, even though it may necessitate their driving several miles throughout the school year to secure this advantage.

When everything is considered, however, this is not a great expense, and is one which the parents of children should all be willing to incur in order that their children may have the undoubted advantage of a high school training. This training is the more important just at the age when the pupil completes his eighth grade work, since at that time neither boy or girl is properly equipped to decide on their future career. But if they can have the advantage of a high school training, even though they do not attend long enough to complete the course, they will be far better equipped to decide this important question wisely than would be the case if their primary education is stopped after they have completed the course of study offered in the ordinary district school.

Then the broadening of their associations will have a beneficial effect upon the children, and for many reasons it is desirable to give them the advantage of this additional training wherever it can be done. And it is much preferable to keep them at home, even though they may have to drive some considerable distance to the high school each day during the years devoted to this additional training. The cost, also, is within the resources of the average farmer and should not stand in the way of affording this additional advantage to the children.

But this does not constitute the whole of the school problem for the parents of children in many sections. A letter recently received from a lady residing in one of the prosperous agricultural counties of the state is typical of many which

are received upon this subject during the year. In this letter the lady in question states that the schoolhouse in the district in which she resides is a little, old building, inadequate to the needs of the district, which was last year condemned, necessitating minor repairs upon it. After these were made it was found that the schoolhouse was too small and it was decided to build an addition and employ another teacher, but after the bids were in the opposition called a meeting and rescinded the vote for the improvements. The apparent trouble in this case was that many of the people living in the district, although having large farms with a high valuation per acre, were unwilling to pay the additional taxes required to provide a suitable building and conduct a school adequate to the needs of the district. This lady, like many others who are confronted with similar problems, asks what can be done.

Unfortunately, little can be done under such circumstances other than to promote a more general sentiment for the betterment of school conditions within the district by a continued agitation of the subject. It is, unfortunately, a fact that many people who are not school patrons seem unwilling to contribute toward the support of adequate schools, but we believe that the proportion of this class of people is growing less each year and that the tendency above noted to give the children of today better educational advantages through sending them to high school will be reflected by a broader view of the men of the succeeding generation upon this question, and that this is turn will finally bring about the adequate solution of this problem of the schools.

In the meantime there is great opportunity for the unselfish and philanthropic citizen to do a vast amount of good through the agitation of this question in his community, to the end that the most generous support of the public may be freely extended toward the betterment of the primary schools which are the foundation of our great educational system.

Advertising and the Farmer.

The value of advertising is not so well appreciated by the average farmer as it should be, either from the standpoint of the advertiser or that of the reader of the publication in which the advertising appears. Let us for a moment consider this proposition from the standpoint of the advertiser. Anyone who will devote a little serious thought to the proposition will at once concede that many a successful business has been built up and maintained by judicious advertising, including special branches of agriculture as well as of manufacture and trade. Also many a man has missed success because he failed to see the opportunity for the expansion of his business by letting other people know what he had to sell, which is the aim of all advertising.

But to insure that advertising will be successful it is essential that the goods offered will appeal to prospective purchasers and that the opportunity to purchase them at the price for which they are offered will prove a benefit to the readers of the advertising matter. If this last essential were not a factor in the deal, no permanent advertising campaign, such as are now maintained, would be possible. But that the advertising does appeal to a large class of readers, who consider themselves benefited by the opportunities offered for the purchase of goods, is attested by the fact that the same advertisers appeal to the same public year after year. An example of this kind of advertising may be cited in a recent contract made by Montgomery Ward & Co. for 18,816 lines of advertising space in the Michigan Farmer for the coming year. This is but one of scores of examples which might be cited, but is mentioned because it is in the same class as the advertising done by farmers, i. e., for a mail order business.

There are a few readers who apparently object to a large volume of advertising in any publication which they read, notwithstanding the fact that they may not only secure a material benefit through the opportunities offered in those advertisements for the purchase of goods, as well as the fact that the advertising patronage enables the publisher to publish a first-class journal at a minimum subscription price. But we believe that this class of readers is a small and rapidly decreasing minority of the reading public. Every reader should improve the opportunities afforded by the advertising columns of the publications which he

reads, either as a means of giving publicity as to what he may have to sell or as a means of securing the information which will make him a discriminating and economic buyer of the goods which he needs, or, better yet, by both.

The management of the State Fair has announced a Valuable Demonstration at the State Fair.

practical demonstration of more than ordinary value to the farmers of the state as a feature of this year's fair which will be held at Detroit from Sept. 16 to 21, inclusive. This new feature is a field demonstration of farm tractors, in which it is announced that not less than a dozen and probably a score of firms interested in the manufacture of farm tractors will contest. This demonstration is to be held on the William H. Ries farm which adjoins the fair ground, to which visitors will be issued checks entitling them to return to the grounds after the demonstration is over. Here the various kinds, sizes and models of farm tractors will be engaged in the work of plowing a field, fitting it for seeding and sowing the grain, so that tractors suited to both the large and the small farm can be seen in actual operation, as well as the various implements used with them in connection with the work.

This is a most commendable policy, which the management states will be made an annual feature of the State Fair. There is no better place than a big agricultural fair for the farmers of the state to keep in touch with the improvements which are being made in farm machinery and implements from year to year. The opportunities afforded for comparison are excellent in a show of this kind, but the educational value of an actual demonstration of new inventions of this kind in actual competition with each other is of the highest value, and is a feature of the fair in itself well worth while for every farmer in the state to patronize, to say nothing of the other educational opportunities which the show will afford.

SOIL SPECIALIST AT THE BIG FAIRS.

To meet the demand of the farmers who want to know something of the chemical composition of their soils, the Soils Department of the Michigan Agricultural College, in connection with the exhibit made by that institution at the West Michigan State Fair at Grand Rapids, and the Michigan State Fair at Detroit, will have a soil specialist who will examine and test by brief methods any sample of soil given him for examination.

The time and materials required to make a complete chemical analysis of a soil renders it impossible to do the work away from a well equipped chemical laboratory. But it has been found in the soil investigations carried on by the Chemical Department of the College that similar types of soils collected from different localities of Michigan do not vary greatly in their chemical composition. In the exhibit at the fairs will be a number of carefully analyzed and typical samples of Michigan soils. These will be used by the specialist as standards with which to compare the soils submitted by the farmers visiting either fair. Besides this tests will be made to determine acidity or non-acidity, capacity for water, limestone, etc.

Mich. Ag. Col. C. H. SPURWAY.

HAPPENINGS OF THE WEEK.

National.

While the crew of the steamer Nan-tucket at Baltimore, were attempting to put out a fire that had started in the hold, the vessel turned turtle and sank into the harbor. The firemen and crew barely escaped with their lives.

The city of Cleveland expects to turn over to her educational institutions a two thousand acre tract of land to be used for agricultural experimental work.

What is believed to be the first municipal owned theatre in the United States is planned for San Francisco, where \$650,000 is to be spent in the building.

Western Pennsylvania, Eastern Ohio and a large part of the Panhandle district of West Virginia suffered severely from heavy rainfalls last Sunday and Monday. By Tuesday the list of dead was known to be 36, and the probability is that many other fatalities will become known as the extent of the storm is better understood. It is estimated that Washington county alone will suffer a property damage that will exceed \$2,000,000. Crops suffered severely. Thousands of sheep and cattle were drowned while grazing in the fields. The Monongahela and Allegheny rivers are near the flood stage, while the Ohio is overflowing its banks at many points west of Pittsburgh. (Continued on page 193).

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

THEY are really farmers, these two famous men, although better known, no doubt, as naturalists and writers. John Burroughs in the east and John Muir in the west probably are the two most noted nature writers of the day. Both have won their fame by long years of hard and conscientious work. Mr. Burroughs has been the more prolific writer, but Mr. Muir has traveled over a good part of the globe. Only recently he returned from a trip to South America, where he went to seek a certain very rare tree. It is safe to say that this man knows more about the trees of the world than any other man living. He has studied them in many climes and is a remarkably accurate observer.

Mr. Muir loves trees and has stood staunchly for the preservation of the western forests. "Any fool can destroy trees," he once declared. "They cannot run away if they would. If they could, no doubt they would still be hunted down as long as fun or a dollar could be gotten out of their bark hides, branching horns or magnificent backbones. Few that fell trees plant them; nor would any planting avail much toward setting back anything like the noble primeval forests. During a man's life, only saplings can be grown in the place of the old trees—tens of centuries old—that have been destroyed. It took more than three thousand years to make some of the trees of the western woods—trees that are still standing in perfect strength and beauty, waving and singing in the mighty forests of the Sierras. Through all the wonderful, eventful centuries since Christ's time—and long before that—God has cared for these trees, saved them from drought, avalanches and a thousand straining, leveling tempests and floods; but he cannot save them from fools—only Uncle Sam can do that."

Mr. Muir has ranged the western mountains for half a century. He knows them as few other men in the world know them. He has tramped through Alaska at the risk of his life with a dog for a companion, a dog which he has immortalized in one of his delightful little books. He has had a national park named after him and has been the friend of great men from Emerson, whom he once visited in the east, to Roosevelt, whose guide he has been over western trails. It was Roosevelt who said that "That man Muir can outwalk a mule."

One might call this gentle traveler and nature lover the biographer of Yellowstone Park. His books on the wonders of the west are the most complete, accurate and entertaining that have ever been written to describe that interesting section made beautiful by mountains and canyons. He writes about what he actually has seen, for he has visited mountains and canyons alike at all seasons. He seems not to know what fear is. He has met a grizzly bear face to face and had the bear turn and walk away. He carries no weapons and has never found them necessary.

Yet he is a practical man—a successful farmer. Some forty miles east of San Francisco is the Alhambra valley, in the middle of which, half buried in trees and shrubbery, stands the Muir homestead, an unpretentious but commodious and comfortable farm house. Near by is an ancient adobe house which once was the home of Governor Martinez, whose name was given to the city a few miles away.

BURROUGHS and MUIR—FARMERS

By E. J. Farrington.

Stretching away in all directions are the fertile fields and the well-kept orchards. There are fruit trees everywhere. Mr. Muir loves them and his

ranch has long been a model one for fruit growers. For years the Muir pears and grapes have been early arrivals in the eastern markets, commanding gener-

ous prices. It is true that Mr. Muir no longer looks after this work personally, for he is now between seventy and eighty years of age, but he has not lost his interest in the products of his fine farm and delights in walking among the heavily loaded trees.

Occasionally he makes a trip to San Francisco, but never lingers long in the towns. He has little liking for city life with its roar and discords; he says he gets lost too easily to spend his time in the city.

John Burroughs, too, is a practical farmer and a farmer's son. To be sure, he started out in life to be a journalist. Afterwards he entered the treasury department at Washington and presently became a bank examiner. All the while, though, the open country was calling to him, and after a time he answered the call by buying a farm near Esopus, N. Y. He had read Emerson and Thoreau at night while counting cash and balancing books in the day time, and was filled with the love of nature. He had even ventured to write essays for the Atlantic Monthly, of Boston, and had developed an aptitude for this sort of writing that had won for him a wide circle of readers. By the time he was ready to quit the city he was already well known as a writer.

When he bought his farm, he decided to take up fruit growing and has made a success of grape culture. Although he, too, is well along in years, he does not hesitate to take a scythe at mowing time, and it is easy to see that he knows how to handle it.

His writing has not been neglected all these years, and he has erected a cabin to work in which is known far and wide as Slabsides. There he has entertained visitors from many walks of life, farmers, poets and men who are both. He is an entertaining, genial host and ever has a welcome for those who follow the well worn path to his door. He seems to merit the term sometimes applied, "The Sage of Slabsides."

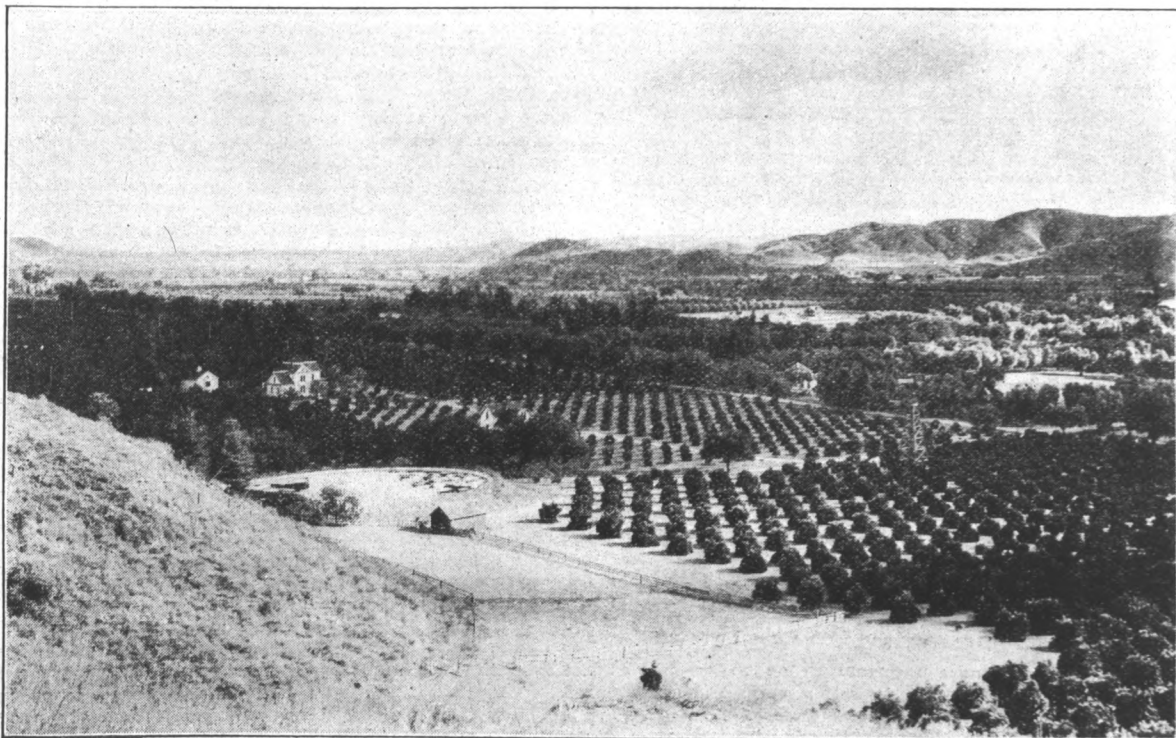
Mr. Burroughs has a keen love of birds and has done not a little to aid in protecting them. He believes that the farmers suffer great loss through the needless slaughter of birds and that there would be fewer insect pests if greater care were taken to prevent the destruction of our feathered allies which prey upon them. For some reason, this seems to be a difficult lesson for the average farmer to learn, a fact which Mr. Burroughs greatly regrets.

When two men like John Burroughs and John Muir get together, the occasion is a notable one. It is quite natural that these two men should be warm friends and when, a few years ago the naturalist-farmer of the east journeyed out to California to pay a visit to the naturalist-farmer of the west, it is safe to say that both men enjoyed themselves hugely. They have much in common. Both are broad-minded, gentle-hearted and sincere. They are rare conversationalists when in good company and have a keen interest in the saving of trees and birds from the hand of the mercenary spoiler.

Mr. George R. King, a well-known photographer and traveler, and a friend of both men, happened along at the time of their meeting and was permitted to make the striking and unusual photograph which accompanies this article.



Two Great Naturalists—John Muir and John Burroughs.



Overlooking the Estate of Mr. Muir. Here is Proof that he is a Farmer.

THE MOTTLED SNAKE

By J. de Q. Donehoo.

I thought it the ugliest as well as most life-like looking thing I had ever seen; but I now confess that I did utterly wrong to purchase it for the purpose of frightening Jimmy Doyle, my roommate, therewith. However, he had fairly laid himself open to some retaliation of this kind, I argued; and he was horribly afraid of snakes. Had he not played several practical jokes on me and acted mighty cocky about them? Anyhow, I bought the thing from that old curio dealer on Royal street, whose place of business we passed each morning.

The more carefully I afterwards examined my purchase the better satisfied I felt with it. It was an imitation ophidian of a peculiar kind, a creature carved out of soft wood, dark green in color, and curiously mottled with dark red spots. Plainly, it was no mere toy, no article of bric-a-brac, or theatrical property, that might have been manufactured wholesale and sold in quantities. It was certainly an unique production—a piece of work carefully finished by someone who had an object in what he did. The thing looked as if it might be a number of years old, though it was in the best possible state of preservation.

I soon had a chance to get my find into action. Jimmy Doyle and I, along with two other fellows, a few weeks later went out camping and fishing just across Lake Pontchartrain from the city. We occupied a large tent, with cots inside protected by mosquito bars, things indispensable for comfort, and even for the safe guarding of health, in this region. Just as soon, then, as I felt sure that my chum was enjoying the slumbers of the righteous, I lifted up his bar, put the mottled snake on his chest, with its head about six inches from his face, and pinching him to arouse him, awaited results.

They came promptly. As Jimmy's eyes opened, by the aid of the light of the silvery moon, which streamed in from the side of the tent, its flap being up, he saw that devilish-looking thing lying there upon his breast, apparently poised to strike its fangs into his face. He gave a wild yell, seized the snake, and flung it with all his might, hitting the mess-table we had erected outside, where I could hear it crack as it went to pieces. Then my chum sprang from his bed, trembling, apparently, almost gibbering in the vehemence of his terror.

I started to laugh; but at once my heart smote me, and I felt that I had done a very foolish and inconsiderate thing in being the cause of harrying poor Jimmy's nerves this way, even if I did have some similar scores to settle with him. It might have thrown the fellow into a spasm, or driven him quite mad, I reflected. Fortunately, however, he soon seemed to calm down all right, under the soothing influence of the other two boys and their congratulations over the courage he had displayed in so bravely tackling and disposing of such a monster as he described that serpent to have been.

Meanwhile, however, I had made a dash for the wrecked remains of my poor mottled snake and was able to secure and hide them before the other members of our party investigated. I reported that the thing had gotten clear away, which seemed to be agreeable to Jimmy, as well as to myself, since that youth, now finding, apparently, that there was no check upon his description of the size and formidable nature of the monster he had encountered, immediately launched out into fiction, and dilated as well as Falstaff himself could have done upon these matters.

The reptile was, according to my chum, an elaps—a coral snake—Louisiana's deadliest serpent. It was at least six feet long and was marked in a manner unparalleled, even in the case of that brilliantly colored ophidian. It was drawing back to strike—he could plainly feel its fetid breath upon his face, when, with a despairing access of courage he had put forth all the energy at his command into one supreme effort and dashed it from him, by a miracle of good fortune escaping death in doing so. Oh, Jimmy did full justice to the qualities of that creature, and I felt quite proud of it, and of him as an originator of fiction.

The point is not, however, how my chum snatched victory from defeat, and made the incident I had carefully arranged for his discomfiture the means of placing laurels upon his brow. The surprising thing is what I found when I came to examine the bruised and mang-

led remains of my late pet the next morning.

Unobserved, I pulled these out from the mass of cypress boughs under which I had hidden them, and immediately I perceived that a part of the mottled snake, otherwise made of solid wood, was hollow. A cavity some three inches long had existed near the middle of the object, and in that a piece of paper remained still rolled up. This I eagerly drew out and found that upon it, in wretched handwriting, evidently that of a decidedly illiterate person, the following was scrawled:

"Start back of the snake's head and count the number of spots in every bunch on the snake. The bunches go round and round the snake clear to his tail, the way the hands do on a watch. You must write down in a row the numbers of the bunches, and if you can read what they mean, the stuff's yours, for I'm the last one of the gang left, and I don't reckon I'll ever get out of here alive."—Jim Bivens.

The directions were badly expressed, and I have somewhat revised the spelling used, for the reader's convenience; but the meaning was clear enough. Carefully I sought for every particle that belonged to the smashed-up snake, and pieced the thing together. Then, beginning just back of the head, I counted, as directed, the spots in each group, making a record in proper order on a bit of paper. I found—something I had never before noticed, often as I had looked at and even carefully examined the object—that the groups were arranged in the form of a spiral that wound round and round the serpent, from its head to its tail, in the direction in which the hands of a watch move. And this is the collection of numbers which my record of these markings gave me:

20, 8, 5, 19, 23, 1, 7, 20, 8, 1, 20, 2, 9, 12, 12, 16, 5, 20, 5, 1, 14, 4, 9, 7, 15, 20, 6, 18, 15, 13, 15, 12, 4, 13, 1, 14, 12, 1, 6, 1, 18, 7, 5, 1, 14, 4, 7, 15, 20, 19, 5, 14, 20, 21, 16, 6, 15, 18, 9, 19, 16, 12, 1, 14, 20, 5, 4, 9, 14, 20, 8, 5, 4, 5, 3, 15, 21, 18, 20, 20, 15, 13, 2, 9, 14, 15, 4, 4, 6, 5, 12, 12, 15, 23, 19, 3, 5, 13, 5, 20, 5, 18, 25.

Here, I at once decided, is, unless the whole thing is a hoax, which does not appear at all likely, a cryptogram concocted by a man of little education and probably the crudest sort of ideas about how to make such a thing. It should not be difficult to unravel. The note concealed in the mottled snake would make it appear that the author was imprisoned presumably in the penitentiary. Seeing that there was little chance of his surviving his term, and that all his confederates were dead, he decided to make, as he thought, a very clever and original record of the place where his ill-gotten treasure was hoarded, and thus to bequeathe the latter, long years after, to whoever was able to read his riddle. But how, I wondered could a man who was in the penitentiary do this?

A moment's inspection of the above figures enabled me to guess what they signified. It was so plainly evident that the numbers from 1 to 26 had been used to represent in order the letters of the alphabet, that I at once read off the message, finding that it gave this result:

The swag that Bill, Pete and I got from Old Man Lafarge, and got sent up for, is planted in the Decourt tomb, in Odd Fellows' Cemetery.

It may be imagined that I at once decided to investigate this matter thoroughly, as soon as I got back to New Orleans. I well remembered having often seen the Odd Fellows' Cemetery in that city, and although I had never heard of a criminal by the name of Jim Bivens, or of the robbery of an individual known as Old Man Lafarge, yet I had no doubt that I could readily trace the thing up and find out whether or not these persons had really existed.

In a couple more days we did return to the city, I bearing with me the carefully concealed remains of my highly-prized mottled snake, even as Jimmy Doyle brought back with him memories, now apparently exceedingly gratifying, of the hypothetical elaps he had so heroically grappled with and utterly confounded. I went at once to the old curio dealer from whom I had purchased the object; but he either would not or could not give me any more information as to whence it came, than to recall a vague impression that he had bought it from a man who said he lived in the Florida Parishes—that section of Louisiana in which Baton

Rouge, with the penitentiary, is located. I also went out to the Odd Fellows' Cemetery and after some search found the Decourt tomb. But I did not think it advisable to undertake such a difficult enterprise as the investigation of its contents, without first getting confirmation of the tale told by the alleged Jim Bivens. I therefore determined to go to the state capital and find out what I could there discover.

Gaining access to the records of the Louisiana Penitentiary, I soon ascertained that such a prisoner as Jim Bivens had indeed been there incarcerated a little more than a quarter of a century previously. He had been sent up for ten years in 1884, together with two other criminals, William Henderson, and Pierre (or Pete) Gonsoulin, for burglarizing the residence of a certain Etienne Lafarge, in New Orleans. Strangely enough, all three had died before the expiration of their terms. Bivens longest survived, living until 1891. But I could find no one at the prison who distinctly remembered him, or could give any additional information about him.

When I returned to New Orleans I looked up the files of the local papers and learned all that was at the time known about the crime these men had committed. Etienne Lafarge was an old Frenchman who lived a solitary life in two squalid rooms on the third floor of one of those ancient Spanish houses on Chartres street, not far from the French market. He had no relatives, or even friends, was very secretive in his habits and was reputed to be a miser who had large sums of money concealed about his person, and probably hidden in his wretched apartments or other places.

It was this report, doubtless, that led to the commission of the crime. Anyhow, the old man was one morning found gagged and pinioned in his room, and almost in a dying condition in consequence of the barbarities that had been inflicted upon him. Three masked men had forcibly entered his apartments, and proceeded to subject him to frightful tortures in order to force him to confess where his treasures were hidden. They finally decamped, carrying with them what they found. Lafarge wavered in the accounts he from time to time gave the authorities as to the extent of his losses. Sometimes he would bitterly lament that the villains had stolen from him more than a hundred thousand dollars, the fruits of a life-time of toil and self-denial; the next moment, relapsing into his habitual attitude in regard to such matters, he would protest that they got nothing, since he was only a poor old beggar whom in their malice they had fearfully maltreated.

The general opinion seemed to have been that the old man had indeed had large sums concealed—even more than the hundred thousand of which he sometimes spoke—and that the ruffians had gotten away with it. But although they were soon afterwards captured, through a train of circumstances that need not be here detailed, yet none of Lafarge's reputed wealth was found in their possession or recovered later. Their victim died in the Charity Hospital a few weeks after the commission of the crime.

It may be imagined that after I had learned all this I was impatient to take a look into that tomb in the Odd Fellows' Cemetery. I almost decided to make a clean breast of the mottled snake business to Jimmy Doyle and take him in as a partner in my coming adventure; but when the time came, I found I had not the courage to do this. I was afraid my confession of the trick I had played him, especially after the way he had manufactured fiction about the appearance of that snake, would permanently rupture our friendship, so I finally decided to go it alone. I foresaw, however, that it might be a little hard to conceal from him what was going on. I had, I thought, satisfactorily explained my trip to Baton Rouge, and I did not think he could have noted my investigations in New Orleans; but for all that, I knew that I was nervous and excited, so that I would have to be very careful if I expected to avoid arousing his suspicions.

On that very night, I decided, I would break open the Decourt tomb and recover Old Man Lafarge's treasure. Was it not mine I argued, by every law of discovery and succession. Its former owner was dead and had left no heirs. It was mine—mine because I alone had had the good fortune to discover the secret of the mottled snake and read its concealed riddle. I was all a-tingle with excitement. I felt as if the miser's wealth was already in my possession. I had formed a hundred plans about the projects I

should carry out—the good I should do, of course—when, after the lapse of a few short hours, I handled that long-hidden board.

I pass over the many preparations I made—the tools I got ready, the precautions I took. I told Jimmy at noon that day that I had to take another trip to Baton Rouge, and should not be back until the following day. Was it only my excited imagination that made me fancy that a strange and knowing look flashed over his face when I mentioned this journey? Could it be possible that he suspected that I had an important secret I was keeping from him—was about to embark upon the quest of a fortune?

The hour of midnight had just struck when I, well disguised, stepped off a street car upon the lonely grass-grown and unpaved street that passes by the Odd Fellows' Cemetery. I carried a very large telescope traveling case, which contained the various tools I had prepared with which to carry through the night's work. All was silent as the car receded into the distance, save for the croaking of the frogs along the near-by canal. A horror of darkness fell upon me as, in every direction, I saw the faint glimmer of ghostly-looking tombs. I was in the very center of the New Orleans greater city of the dead—the cemetery region, a metropolis whose inhabitants probably far surpass in numbers those that dwell in the abodes of the living.

Was I afraid? Well, I am not yet going to confess that I was; and really, I am not superstitious. I had never known what it was to have the feeling that there is more danger of encountering ghosts and other uncanny objects in graveyards than in other places. But somehow, my nerves were frightfully frazzled that night, and I will admit that already would I cheerfully have given 50 per cent of old Lafarge's prospective treasure, if I were only safely through with this adventure.

I didn't weaken, however, I'm proud to say. Over the wall I went, and then through the wilderness of tombs, of sunken graves, of rank vegetation—cape jasmine, crepe myrtle, box, magnolia fuscata, sweet olive, palms—dragging the heavy telescope, to the well-marked location of the Decourt family vault. I was horribly afraid by this time, I frankly avow it. A screech-owl suddenly uttered his mournful, discordant cries from a point near-by; and I thought, for a moment, that I would go mad with terror, so startled I was.

I trembled so, now, that I could scarcely get my dark-lantern lighted; but when at last by its aid, chisel in hand, I started to attack the door of the tomb, I saw that it was even less firmly secured than my previous investigations had led me to believe. With but a touch, it fell inward, and—merciful God—a gigantic ghoully figure robed all in white sprang out upon me and gripped its long, strong fingers about my neck, smothering the cry of fright to which I instantly strove to give utterance.

That I did not instantly expire will always to me remain a mystery. Possibly I did, for the fractional part of a second, swoon—I don't know. But if I did, I was quickly recalled to consciousness by a voice that said:

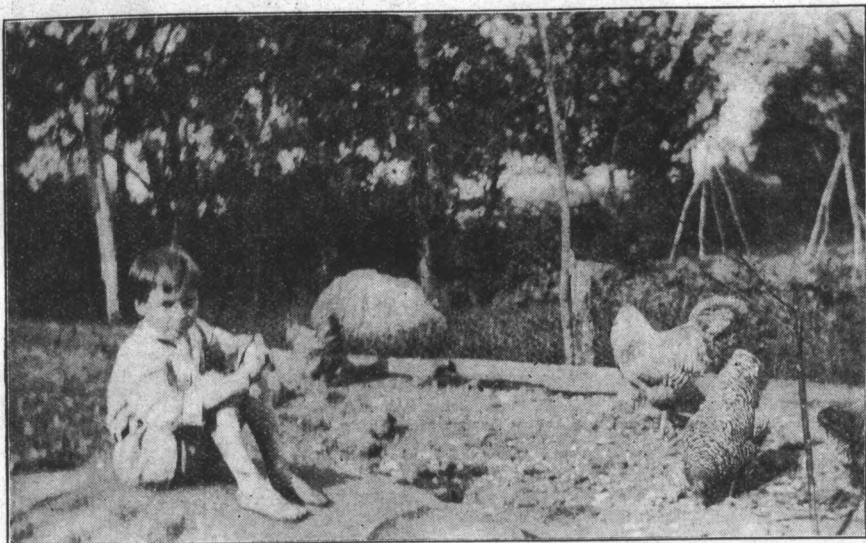
"This evens things up, Mack, about several matters. Shake, old man, and let's call it square. How about the mottled snake? Great idea, wasn't it?"

I looked, and the ghoul, rapidly discarding his white habiliments, was offering to shake hands with me, disclosing the execrable, mischievous, laughing, triumphant features of Jimmy Doyle.

Well, all was soon explained, and the worst of it was that I couldn't kick. It was a case of the hunter snared in his own trap and the engineer hoist by his own petard. Jimmy it was—Jimmy, that incorrigible practical joker—who had carved and embellished the mottled snake, cunningly entwining with it the story of Jim Bivens and Lafarge, which he had dug out of old newspapers, also the mention of the Decourt tomb, which he knew to have been empty for many years. He had, for my discomfiture, deposited this object with the curio dealer, with whom both of us were well acquainted, wisely foreseeing that the old gentleman would easily be able to sell it to me for the purpose of frightening him, gloating, as I did, over his horror of the whole serpent tribe. My chum was further aware of the fact that I had it along with me on that fishing trip, and was prepared for my attempt to scare him into spasms with it. Yes; all this did Jimmy know. He laid for me. And I have to admit that just at present he is several lengths ahead.

OTHER FRIENDS.

BY ALICE ANNETTE LARKIN.



Some boys will have a lot of friends,
Like Billy Jones or Ted;
They'll go together in a crowd
With Tom and Dick and Ned.
But sometimes when you're all alone,
And feeling kind of blue,
It's good to have such friends as mine;
You'll find they're always true.

Today the boys have all gone off
A-fishing in the brook;
They passed here just an hour ago
With fishing pole and hook.
But I just had some work to do,
'Cause mother thought it best
That I should clean the henhouse out,
And make a better nest.

I thought at first 'twas pretty hard,
On boys as small as I,
To have to wait on these old hens;
But mother said "Why, why!
If all your flock should go on strike,
And never lay an egg,
Just tell me, son, what would you do?
I guess you'd have to beg."

So here I've sat and thought it out,
And I've made up my mind
That boys are not the only friends
That you can ever find.
There're hens and roosters by the score,
I like them every one;
And when I have to work for them,
I just can play it's fun.

HUNTING FOR DOUGHNUT HOLES.

BY DORA AYDELOTTE.

"Boy Wanted." Just an ordinary sign, set in the window of Baum's Bakery, but one glimpse of it was enough to make a small boy with a big basket on his arm, halt and do some rapid thinking.

It didn't take him long, either, to decide that he would "be the boy."

He wiped his round, perspiring face with a handkerchief that had been clean an hour earlier, and presented himself at the counter.

"Don't you need a boy?" he inquired of the man behind it—a big man, who evidently had quit growing tall a long time ago, but kept on growing wide.

"Yes, we ain't got one already. He must work all day long here. What your name, hey?"

"Ensign—Ralph Ensign," trying to make his voice sound grown up. "I'm just thirteen, but I'm big for my age, and awful strong."

Mr. Baum smiled. "You need to be. Well, so you get to work today. You start in now, hey?"

"Just 's soon as I can run home with this basket. It's got veg'tables in it, out of our garden."

With a pile of unfinished sewing beside her, Mrs. Ensign was stitching away until her machine hummed like a great bee.

When her son made his headlong entrance into the room, she was bewildered by the information which he tried to pour out in the limited space of a few moments. From his rapid-fire speech, however, she gleaned two facts—that he hadn't sold many vegetables, but that she needn't worry, because he was going to work in a bakery, and have a real, sure-nough job.

"Hain't you better wash your hands and face before you go?"

"O, no, mother; you made me wash good this morning; and I've got to hurry back to my job."

He squirmed away from her tender kiss, waved his hat in farewell, and immediately became the center of a dust-cloud that traveled up the road at a lively rate.

The bakery kitchen seemed to him a wonderful place. Eyes and mouth wide open, he stared about, at the deep kneading-troughs, the huge ovens, the flour-powdered workmen in their white uniforms.

Arrayed in a white cap that kept slipping over his eyes, and an apron of such length that he continually stumbled over it, Ralph was sent trotting to and fro, carrying trays piled high with cakes, rolls and bread.

He had just about decided that working in a bakery was too hard on a boy's legs, when the noon hour struck, and the bakers hurried out to dinner. One young man remained. "We'll have our snack

"Oh, 'most any bakery ought to have some. Be sure you don't come back empty-handed."

As the boy scurried out, men looked at one another and grinned. The head baker, floury hands clasping his fat sides, quivered with enjoyment of this little joke, played upon each "green" helper with unvarying success.

"Got any doughnut-holes?" inquired Ralph, marching importantly into the first bakery he came to.

The clerk seemed to suffer from a violent cough. He pressed one hand against his mouth, sputtering and choking in a manner quite alarming.

"We're clear out of 'em," he finally contrived to say. "Better try Devlins', just up the street a way."

At Devlins', a pretty young lady, wearing a blue dress that seemed to match the color in her gentle eyes, smiled and sweetly told the boy that they had none, and that she was afraid he would not find any in town.

"It's a shame," she announced, as the screen door slammed upon a disappointed customer, "but I hadn't the heart to tell him it was all a joke."

The proprietor glanced up from his account books with a smile.

"Oh, getting fooled doesn't hurt a boy any. They've been coming here to ask for meat-screws and doughnut-holes, ever since I've been in business."

"I wonder," mused Ralph, as he trudged along, "why folks act like they'd never heard of such a thing. Guess I'll have to keep on trying, though."

At the next place, a smiling, gray-haired woman leaned over the counter and hailed him as "son."

"So it's doughnut-holes you're after; well, give me your sack, and I'll see what I can do."

"And where is it you're workin'?" this good lady wanted to know, returning with the sack half-filled with jingly somethings.

"At Baum's Bakery. This is my first day."

"Aren't you rather little to be working there?"

Ralph flushed hotly at the insinuation. "I'm older 'n I look. Mother says I'm the man of the house, too, since—since father's gone."

"Bless your heart!" exclaimed the bakery lady, "o course you are. When you get back to Baum's, tell 'em Mrs. Malory said not to send you after any more such stuff."

With a heavy parcel and a lightened heart, Ralph started out. A glance at the clock in the jeweller's window warned him that it was late.

He scooted across the street, ran through an alleyway, and was just about to repeat the "scooting" process, when a warning "hoot" from a motorcycle horn made him swerve aside.

As he stepped back, something—it seemed like a giant's heavy arm—struck him, knocking him down.

Silence and darkness lasted for a little while.

When he struggled back toward consciousness, a group of scared-looking men and boys were crowding close about him. His head was propped against somebody's arm. A fat policeman was writing in a note book.

"Only stunned," Ralph heard a big voice say. "Thank God he isn't hurt. This is the first accident I've ever had. Yes, officer, I'll take him home in my car. Son—say, sonny, can't you tell us your name, and where you live?"

"Ensign's my name," came weakly from the boy's lips. "We—we live at the corner of Hubbard street and Second."

"Say," groping about him with one hand, "where's my doughnut holes?"

"Your—what?" Dr. Marsh asked in astonishment.

"Doughnut holes," patiently. "The baker sent me out for 'em."

"Oh." The doctor smiled. He had heard of that particular hoax. Several lookers-on laughed aloud. One big fellow put a grimy parcel into Ralph's hand. "Git doughnuts nex' time," he solemnly advised.

Being his mother, Mrs. Ensign wept bitterly when she saw a stranger come up the path with her boy in his arms, but she soon was reassured by the good doctor, and by the invalid himself, who exclaimed, "A car bumped into me and didn't hurt me a bit."

Neighbors came in, bringing consolation, advice and good things to eat. They all told him what a lucky boy he was. He begun to think so, himself, when the doctor, before leaving, pressed a ten-dollar gold piece into Ralph's hand.

"For better luck," he said, and hurried out without waiting for a word of thanks.

With the golden coin clutched tightly in his fist, Ralph drifted off to sleep. Suddenly he waked. A glow of lamplight filled the room. His mother was standing by the bed. Her face looked as though she had been crying again, yet she was smiling, too.

"What do you think," she told him; "Mr. Baum has been here. He fairly cried, poor old man, he was so worried about you. And part of the time he forgot and talked in German, but he managed to tell me that he didn't know about the baker sending you out, until just awhile ago."

"And he says that you can ride on the wagon, and help him wait on people, and he will give you six dollars a week. It's so good to know that you're not hurt, and that people are so good to us."

She leaned over to give him a kiss, and this time he did not squirm away.

New Arithmetic.

The Teacher—How many eggs are there in a dozen?

The Pupil—Five fresh ones, five doubtful ones and two bad ones.



John Burroughs at Work. See First Magazine Page.

KEEP YOUR EYES OPEN.

BY FRANK H. SWEET.

One of the most important elements of success in life, and even of happiness, is a trained habit of observation. The inestimable value of man's perceptive faculties, and the necessity of training them, are evident from the single fact that it is by means of them, and of them only, that our soul comes into contact with the wonders of the universe. The difference between man and man consists, in a large degree, in the greater or less intelligence and exactness of their observation. To behold is not to observe, and the power of noting accurately, comparing and combining is to be obtained only by incessant effort. There is a saying that the non-observant man goes through the forest and sees no firewood.

A few men out of a thousand are born with what the Bible calls the hearing ear and the seeing eye; but the great mass, who, as Horace says, are a "mere number, and born to consume the fruits of the earth," pass their lives in listless inattention and indifference to what is going on around them, content to satisfy the mere cravings of nature, while those who are destined "to honor and immortality" have a lynx-eyed vigilance that lets nothing escape their attention.

Of course, strictly speaking, it is not the eye and ear that need be trained, but the faculties that use them; and in these can anything be more wonderful than the difference in men? Where the thoughtless, untrained man sees nothing worth treasuring and studying, the observant man penetrates to the very core of the phenomena presented to him, and the result is sometimes a wonderful discovery or invention. The greatest discoveries have usually been the result of thoughtful brooding over observed facts. The swinging of a lamp in the cathedral at Pisa, in Italy, suggested the pendulum to Galileo. A verger, who had replenished with oil the lamp which swung from the ceiling, left it swinging to and fro—noting which oscillation attentively, Galileo, a youth of but eighteen, conceived the idea of applying it to the measurement of time. Fifty years of study and toil had yet to be passed before he completed the pendulum, the value of which can scarcely be overestimated. Why was not this discovery of the "isochronism" of the pendulum—or, the equality of its oscillations in point of time—been made before? Thousands of men, in every century, must have seen the phenomenon, or a similar one; but not one had viewed it with the philosophic and protracted attention of this thoughtful young man. On not one had flashed the idea of using the fact for a long-needed and invaluable invention.

Mechanics in workshops have often made invaluable discoveries by simply observing and reflecting on what was going on under their eyes. To this was due the first suggestion of the telescope. Small spheres of crystal or glass had been used by the ancient engravers of gems to aid their sight; and from these the transition to convex lenses was made at Florence, in 1285. One day, a person who chanced to be looking through two of these lenses in the shop of a spectacle-maker found a building to which he had directed his eye brought within a short distance of the spot where he stood. Galileo, then residing at Venice, heard of this phenomenon, and at once set to work to ascertain its cause, the result of which was the invention of the telescope, several of which he very soon presented to the senate of Venice. Gradually improving and perfecting this instrument, he at length turned it to the far-off heavens, when, to his unutterable astonishment, he saw, what no mortal had seen before, the surface of the moon ridged by high mountains and furrowed by deep valleys; Venus, Jupiter and four satellites; the Milky Way, and finally the whole heavens scwn over with an infinite multitude of men who had seen it before naked eye. A few days—days of what intoxicating delight—were spent by the noble Italian in rapidly reviewing the marvels revealed to him, and thenceforth he abandoned all other pursuits to study the heavens for the remainder of his days.

The uplifting of a kettle-lid by steam, which had attracted no special attention, and suggested no invention, to the multitude of men who had seen it before it was observed by the Marquis of Worcester in the Tower of London, led him to the first steam engine. Oersted needed but to see the needle tremble by electricity to think his way to the whole theory of the telegraph. What, apparently, could be more trivial and unsuggest-

ive as an object of observation than a spider's web? Yet the invention of the suspensory bridge by Sir Samuel Brown sprang from the sight of such a web hanging across his path as he walked, one morning, with his mind haunted with the problem of bridging the Tweed. Similarly, such trifles as the brilliantly-colored soap bubbles blown from a tobacco pipe suggested to Dr. Thomas Young his beautiful theory of "interferences," and led to his discovery of the diffraction of light. A basket left on the ground, and overgrown by acanthus, suggested to an observant man the Corinthian capital; and the twitchings of a frog's leg revealed to another the wonders of Galvanism, so named from him.

Thus have inventions, with an influence upon civilization greater than can be estimated, sprung from thoughtful observations of commonplace objects.

CARE OF GOLDFISH.

BY H. LEIGH HUNT.

Everyone loves to see these dainty little pets moving about in a globe of water or coming to the surface to partake of some tid-bit offered by the hand that cares for them. They show a degree of intelligence scarcely credited by those who have never observed them carefully. It does not take them long to learn who feeds them and to come at some signal, a whistle or a peculiar tone of voice, and they will dart about in play as if as anxious to "show off" as children before company. A strange hand or voice sends them to the bottom in quick time to lie as quiet as possible until the stranger departs.

In eastern climates where the winters are long and cold it is best to purchase the fish after cold weather comes. Those shipped in warm weather are much more likely to die than those shipped after it is cooler. Why this is so I cannot say unless the journey in warm weather weakens them or they are immature when shipped, but I have proved by sad experience that they are not nearly so hardy. If they are purchased near at hand they will need only every-day care at this time but if shipped from a distance they should be placed for an hour in salt water, one teaspoonful to one quart of water, then in fresh water and set in a dark cool place for 24 hours to rest and recuperate before being fed. They should then be fed the prepared fish food, a rice wafer, in quantity according to directions on the package. Never feed enough at a time so that they will leave a quantity unconsumed, as it fouls the water.

Many goldfish die from nervous exhaustion. They are so attractive that everyone wants to see them play and they are kept in a strong light and constantly in motion. In their native places fish seek dark secluded spots and for the most part lie quiet. This should be the rule with goldfish, to keep them in a dark cool place the greater part of the time. Never place the globe in strong sunlight. If very strong it will kill them and at the best they will soon show their distress by coming to the surface gasping for breath.

The fish themselves will tell how often to change the water by becoming uneasy and swimming near the surface. It is better to keep them cool and quiet enough so that the water will not need changing oftener than once in a week or ten days.

Goldfish will bear cold much better than they will heat. A friend had a pair in a small globe. As her living-room was very warm it was her custom to place the globe in the open pantry window at times. One day she forgot them and they stayed there over night. Next morning there was a thick ice over the top of the globe and she felt sure her fish were dead. Not at all. When the ice was removed they were found to be lively as ever, even more so than usual.

Many fish are killed by being fed indiscriminately. It is very common to offer them bits of meat, bread, green, etc., and they will usually eat them greedily, but they are much healthier to have nothing but the rice food with a bit of fresh beef once a week.

If a fish is ailing place it in a salt water bath for an hour. Once in two weeks it is well to give them a salt water bath when they are well. It strengthens them and is very reviving when they seem sluggish and dull. A fish floating half on its side will, after being in salt water for a few moments often become lively and bright.

Fish thrive better in a large globe with water plants growing in it and the water will remain oxygenated much longer. The

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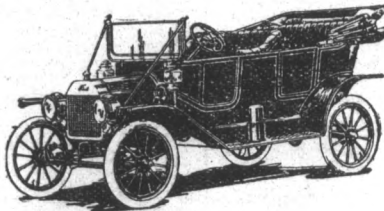
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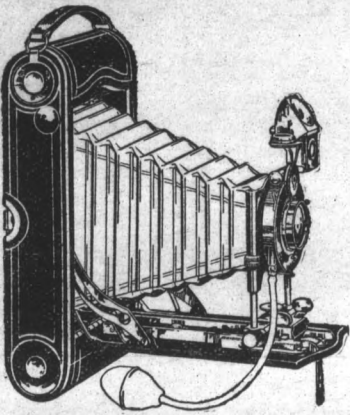
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small globes must be changed often or become impure.

Pussy has been known to dip her velvet paw in the globe and remove its occupants. It is safest to place them where pussy will not be likely to molest them.

Never catch them with the hands. Use a ladle if necessary to remove them. It is impossible to hold the squirming things in the bare hand without injuring them by too much pressure. The ladle does not harm them and they will not be entirely out of the water.

PLAY AT YOUR OWN GAME

BY ORIN E. CROOKER.

Any man, save a jack-at-all-trades, makes a serious mistake when he tries to play any game in life with which he is not perfectly familiar. And yet it is just because so many attempt to do this very thing that the get-rich-quick concerns rake in their golden harvest and the supply of "suckers" seems to know no end.

Farmers probably contribute a large share of this aforesaid harvest. Many a man has been known to toil year after year upon the farm only to invest his hard-earned savings in some wild-cat mining stock or oil well proposition in a distant part of the country. It looked good—on paper. Probably if he could have first seen the particular hole in the ground in which he was induced to invest his hard-earned savings he would not have been so anxious to part with them. But distance lends enchantment quite as truly as it happens that a fool and his money are soon parted. The well-printed prospectuses are alluring; the promise of large returns is always conspicuous; usually the location of the new bonanza is so remote as to make it quite cut of the question for the intending purchaser to see for himself what the proposition really amounts to. These and similar ear-marks are always present to indicate the general riskiness of the proposed investment.

A really good and safe investment does not need in these days of five per cent money to be extensively advertised. There is always an abundance of capital waiting for investments that are really gilt edge. This is the reason that issues of desirable securities in these days find ready sale at such low rates of interest.

A large concern was recently incorporated. For years it had been doing a steady business, and a certain person who had a little money to invest knew to an absolute certainty that the profits averaged around \$90,000 a year. The capital stock was put at \$150,000 which made it appear pretty much of a gilt-edge proposition. Knowing all of the parties in the concern he had absolute confidence in their integrity and thus made application to one of them for a little of the stock—only to find that none of it would be sold. The truth of the matter was that there was no inclination to let such a good stock get on the market. Each promoter took all he could get.

Most stock propositions that are advertised are put before the public in the hope of getting the dear public's money with which to promote them. A gullible public is usually ready to advance the cash, and the result is that the risk, as a rule, falls upon others than those who do the promoting. There are exceptions to this, of course, but one may be pretty certain that if the prospects were as alluring and the profits as sure as the glowing advertisements state, no money would need to be spent for advertising it broadcast throughout the country.

Mr. Farmer, stick to your own game. The wiles of the promoter of oil wells and mining stock will prove to be too many for you if you try to play a game with which you are unfamiliar. When you get to the point where it seems as though you had a dead sure proposition offered you go to your bank and ask the president what he would give you for the stock in question if you had it to sell. The test of a stock is not what you or others think it is worth but what you can get for it from someone if you want to sell. If your banker says he would buy it from you at a reasonable figure you can be pretty sure that it is a safe proposition. Otherwise you had better put your money in a savings bank. The chances are it would even be safer wrapped in a stocking and hid in the mattress—even were the house afire. You might put the fire out; but the chances are 1,000 to one that if you put it in a hole in the ground that you have never seen, you won't ever see the money or the hole either.



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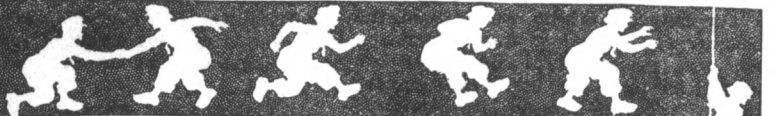
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Woman and Her Needs

At Home and Elsewhere

Shall The Housewife Become a Chemist?

By George Ethelbert Walsh.

Up in Westfield, Massachusetts, they are turning out future housewives who will be their own chemists, and they will be the pioneers of that great body of careful housekeepers who will rely upon their own knowledge, and not upon the words of the dealers or the fancy labels of the manufacturers, as to whether or not they are eating clean, pure, wholesome food. In the Michigan Agricultural College and the State Normal College, as well as several other state schools the same work is being carried on. Household chemistry is being taught to girl students—not the chemistry which will fit them for a life-work of probing into the mysteries of nature to unlock some undiscovered secrets, but simple, household chemistry that will teach them how to distinguish between good and bad food, between adulterated and pure articles of human consumption.

We have housekeeping schools throughout the land where the poor are taught to sweep, clean and cook; private schools where the daughters of the wealthy are inducted into the mysteries of the chafing-dish and the use of the alcohol stove; college extension courses where anybody can learn to cut up a piece of meat and turn it into a dozen different dishes of appetizing flavor; institutions and lectures for instructing the ignorant, careless and indifferent girls of our land in the art of making housework easy and simple. But how many of these enter into the chemistry of cooking?

Yet the kitchen, according to all experts, is the greatest chemical factory of the day. Cooking is the chemical preparation of food, and the stomach is the great chemical factory which further converts these articles into other forms. The average kitchen contains all the necessary articles for nourishing the human body. It also contains all the ingredients necessary to poison and kill everyone who eats of the concoctions. It all depends upon the mixing of the ingredients as to whether they shall poison or nourish us. We all know that certain dishes disagree with us, and when the food in this form enters our stomach a slow poison is generated. The housewife who uses careful formulas—recipes, she calls them, knows from experience that her cooking will not injure anyone. But suppose she varies them, introduces an ounce of ginger instead of a small pinch, or a cupful of baking powder instead of a teaspoonful, what would be the result?

Now if strange and unknown foreign articles are introduced into our food without our knowledge who can foretell the consequences? Some of the adulterants, dyes, and preservatives we know are deadly poisons when used in sufficient quantity, but they are no less deadly in the long run if fed to us steadily and in very small quantities. They weaken, irritate, and, in time ruin the stomach. Stomach disorders are more common than any other disturbances of a single organ. We have dyspeptics whose malady in time undermines the whole constitution, opening the door to a score of other diseases. The stomach is the foundation of our health. A man or woman with a weak stomach has seen the best of his or her days of usefulness. Dieting may help; drugs may alleviate, and careful study of conditions and symptoms may lead to a life of self-denial that may partly cure. But prevention is much better than cure.

The modern kitchen laboratory consists only of such articles and implements necessary for the housewife to determine in a simple way whether the food she is buying is pure and wholesome. A few test tubes, a few simple chemicals, a little experience in using them, and a few directions, suffice to make the kitchen laboratory a force in the land more powerful than that of pure food laws. Some of these chemicals are dangerous unless properly handled, and they must therefore be labeled and kept in glass phials the same as medicines. The laboratory closet is no place

for unlabeled bottles. It should be kept under lock and key so that children or ignorant girls may not fool with its contents. If such simple precautions are observed the kitchen laboratory is no more dangerous than a medicine chest which every careful housekeeper has in the home.

And the whole equipment, including utensils and chemicals, should not cost more than a few dollars. Many of the articles are already found in the family medicine chest or in the kitchen. A lactometer should be the first to add to the laboratory. This can be purchased for less than a dollar almost anywhere. With this little instrument on hand one can tell in a few minutes, by following directions accompanying it, whether the milkman is selling you water with your milk, and also how much. Is not such an instrument an essential part of every kitchen outfit?

Then add to the equipment a few six-inch test tubes of glass, and an eight-inch glass stirring rod, such as you may see in any drug store or chemical factory. These are for holding the chemicals in making tests, and the rod for stirring them. Then come a graduated glass in which anything can be measured accurately down to a small fraction of an ounce, a glass funnel, a medicine dropper, some filter paper, glass saucers and phials for holding the chemicals. A list of chemicals for a complete equipment for testing almost any kind of food include alcohol, both the grain and amyl; ammonia, both aqua and carbonate, saturated solution; borax; chloroform; ether; Fehling's solution; ferric chloride, five per cent solution; Halphen's reagent; hydrochloric acid; iodine tincture; logwood tincture; strips of red and blue litmus paper; nitric acid, phenolphthalein in solution; 10 per cent solution of potassium hydrate, and another phial of 20 per cent solution; 10 and 20 per cent solutions of sodium hydrate; 10 per cent solution of sulphuric acid, and turmeric tincture, U. S. Pharmacopoeia.

A rather formidable list, you think, and somewhat dangerous. Not at all. There is no more danger in this outfit than you will find in the average medicine chest. There are explosives in the list, which might cause trouble if exposed to a flame; but so is there in the naphtha or benzine which we use to clean our gloves with or in the kerosene oil we fill our lamps with. There are poisons and powerful acids among them, but so are there in the medicines which we keep for emergencies. All the poisons and acids are properly labeled, and this should remove any chance of danger.

With this outfit we can make simple tests that will put each housekeeper above the danger of using adulterated or poisoned foods. If used by every housekeeper of the land it would drive the food poisoners and adulterators out of business within a year. Many of the more powerful acids will not be needed except for rare occasions. The simple tests answer most purposes. But it is well to be prepared for all emergencies.

Here are a few common tests which the girls of the State Normal schools learn to make to ascertain if their food is pure. We have already tested the milk with the lactometer to see if it is being watered. Now we wish to see if our milkman is using formaldehyde, a most dangerous substance, as a preservative. Take a little of the fresh milk in a tea-cup and add to it an equal amount of hydrochloric acid and a drop of ferric chloride. What is the result? Five minutes later the milk may show a beautiful purple or lavender hue. You can rest assured that your milk man is slowly serving up poison at your breakfast table, and you can order him to discontinue serving you. But if the milk has not changed its color at the end of five minutes you know for a certainty that there is no formaldehyde in it. But some unscrupulous milkman may add borax to

their milk to give it body, and, while not so injurious to the stomach as the former preservative a small quantity taken in the stomach every day is enough to ruin the best digestive organ. Well, take a teaspoonful of the milk and put in it a drop of hydrochloric acid and five drops of the tincture of turmeric. Result—if there is borax present—a beautiful red or orange color. Once more you know how to act.

Having disposed of your milkman take up your grocer. He sells you such a variety of things that it will take some time to test all of them. Take coffee first. Do you buy it ground? Then how much coffee, and how much chicory, starch, or roasted wheat and barley are you getting? You don't know because you have never before been able to find out absolutely. You may have your suspicions because the coffee seems weak and a good deal of it is needed to make a cup. You don't have to guess any more, but place a teaspoonful of the ground coffee in a glass tube of ice cold water. Stir it gently, and all the sediments and particles which drop to the bottom of the water are adulterants. If dyes are used for coloring the foreign particles these will quickly stain the water. The pure ground coffee will not sink to the bottom for a long time, and will not discolor the water even a slight brown. The color that shows comes from artificial dyes. Starch in the coffee is often used, and this is not so easily detected. Boil a little of it in a test tube, pour off the water, and dilute it a good deal with cold water. Then add a drop of tincture of iodine. If starch is present the fluid will immediately become blue. This test should be applied to all ground coffee, for starch is one of the most common of coffee adulterants.

Now we will try our bottle of olive oil, for which we have paid a big price with a fancy label on the outside proclaiming that it was bottled in Italy or France. We are not looking for injurious substances in it, but for cottonseed oil which we can purchase for one-fifth the price we pay for pure imported olive oil. Some people like cottonseed oil, but they do not want to pay big prices for it. If we are going to buy it we want it honestly labeled as such. Our test of the pure olive oil in the kitchen laboratory is almost as simple as that for milk or coffee. Pour some of the oil in a test tube, add an equal amount of Halphen's reagent, and heat the two in a pint of water. While heating stir into the mixture about three times as much table salt as oil, and at the end of 15 minutes critically examine the result of the test. If there is cottonseed oil in the mixture it will appear in a layer of red on the surface. If the oil is half olive and half cottonseed, the mixture will divide about evenly in a red and a light layer. Thus you can tell just about how much you have been imposed upon.

To make the test doubly sure apply another chemical combination. Add to the olive oil an equal quantity of nitric acid, and stir the mixture with the glass rod. In a short time the oil will turn to brown, red or orange if it is adulterated, and remain a pale or dark green if pure olive oil. It is a fact that olive oil is adulterated so generally that it is impossible to rely upon labels. Both the domestic and imported are often adulterated, and the surest way is to test every brand until one is found that is pure. Then stick to that. In that way only can the housewife drive out the food adulterators.

Another common article that is adulterated is tea. When you buy a pound of tea you are not by any means sure that you are not getting a goodly proportion of herbs that are raised in the ordinary kitchen garden not 100 miles away from home. These herbs are worth probably a few cents a ton, while you pay anywhere from 50 cents to a dollar a pound for them when mixed with real tea. Moreover, pigments and graphite are often mixed with the cheaper grades of tea to make them weigh more and to increase their bulk. Insoluble, mineral substances can be detected by shaking vigorously a little tea in cold water about



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six times the bulk of the herb. Then strain off the water through a sieve, and the mineral substances will sink to the bottom of the bottle. Various herbs and leaves mixed with the tea are not so readily detected, for many of these have about the same characteristics as the tea leaves.

Many sins have been committed in the name of baking powder. There apparently is nothing easier to adulterate than this substance, and alum, one of the most common substitutes, is both harsh and injurious to the stomach. Taken in sufficient quantities daily it will knock out the strongest stomach. Imagine, then, the harm of feeding children and old, feeble people with alum under the guise of pure baking powder.

The housewife of the future will walk into her kitchen, and open her box of baking powder, take out a quarter of a spoonful, and drop it into a glass test tube. Then she will add an inch of potassium hydroxide, and warm the mixture. If pure baking powder it will entirely dissolve in a short time, but if there is alum, gypsum, talc, or terra alba it will remain undissolved and collect in the bottom of the tube. Away with such baking powder! It is a slow poison, and not to be tolerated an instant in the kitchen. Ammonia in the baking powder will not show up so readily, and to determine its presence you mix a teaspoonful of the powder with two ounces of cold water. Boil and filtrate, and add about half as much sodium hydroxide of the 10 per cent solution. Take a strip of red litmus paper and hold it over the fumes of the mixture. If there is ammonia in the baking powder it will turn the litmus paper blue, and if there is none the paper will remain unchanged.

There are many other simple tests for ordinary foods which we use in the home that the housewife of the future will make before she admits any particular brand on her table. There are innumerable jams, jellies and catsups on the market that no one is exactly sure of. It is true that the law requires that these shall have stated upon the label the nature and quantity of any preservative used in their preparation. But in spite of the government's efforts many of these contain dyes to color them appropriately, and sometimes when we purchase jams which have the beautiful color of the natural fruit we are really getting an inferior article artificially dyed. There are many kinds of dyes used, good, bad and indifferent—vegetable dyes, animal dyes, and aniline dyes. The natural fruit colors can nearly always be removed from wool cloth by washing and boiling in soap and water with a little ammonia added; but coal tar and animal dyes will survive all the washing processes and continue to stain the cloth. All dyes of vegetable origin are comparatively easily removed from woollen cloth, and if this test is applied one can find out whether the jams and jellies are colored with the injurious aniline dyes.

Even our common soap should not be passed over lightly by the economical housewife. An excess of free alkali in soap eats and rots the fibres of cloth so that in a short time the materials go to pieces. Can we wonder that our fine table linen and undergarments go to pieces so quickly when tests are made of some of the cheap soaps? Shave off some of your soap, and put half a teaspoonful of it in a glass test tube. Add four teaspoonfuls of strong alcohol. Then immerse the tube in hot water to warm the mixture, shake and filter, and put two drops of phenolphthalein in solution in it. If free alkali is in the soap the mixture will turn a fine pink color. That soap is unsuited for washing fine fabrics. It will eat and destroy the material very rapidly.

The housewife has thus only just begun to dechase a silent but effective warfare on the manufacturers and dispensers of adulterated and poisonous foods and household articles. She has it within her power to accomplish more than all the legislators and health boards of the country can do. With her little kitchen chemical laboratory always at hand she can test and sift out the goods which are not as they are represented to be. She needs no gaudily-colored labels to tell her whether the goods she buys are pure. She accepts no man's word for it, but applies her own knowledge with infallible results. The chemists have made the tests for her, and all she has to do is to follow directions. It is no more difficult than following the directions for making a pudding or cake.

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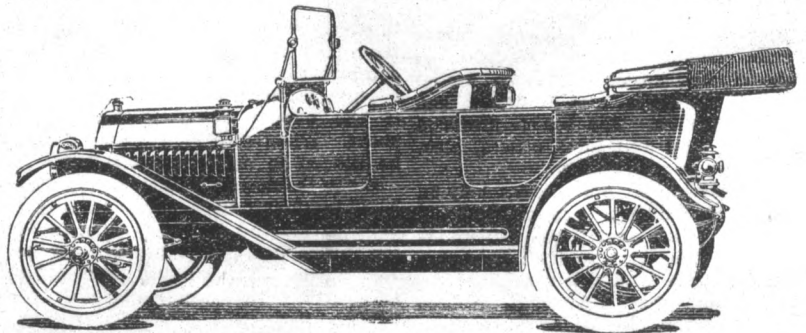
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FLORAL WORK FOR SEPTEMBER.

BY EVA RYMAN-GAILLARD.

SOMEONE spoke of hardy bulbs as the "gardener's insurance policy" against lack of blooms during winter and spring, indoors and out, and in writing of them first consideration should be given to those intended for forcing as there is no time to lose in getting those wanted for holiday decorations started.

The things to be decided on now are when, how many, and what sorts to order and after many years of experience we would say: Order as soon as new catalogs are to be had; as many as can be afforded, and the sorts that appeal to individual taste, but to help the beginner avoid some of the unsatisfactory results we did not know how to avoid we make the following suggestions:

Bulbs that produce slender foliage and small or medium-sized blooms are never very satisfactory when potted singly and experience taught the lesson that half-a-dozen bulbs of small flowered or three of medium-sized type in a four-inch pot have plenty of room and make a much finer showing. Among the small-flowered type would be all the scillas (except *S. clusi*), alliums, tritelas, brodiaeas and others that will be recognized by the catalog descriptions, while hyacinths and similar blooms would belong in the medium class.

Among the large flowered sorts that make a good showing when potted singly the Scilla Clusi has foliage as fine as an amaryllis and produces a large umbel of blue, star-shaped flowers. Ornithogalum Arabicum (sometimes called Star of Bethlehem), has an equally large umbel of pure white flowers, each of which has a jet black center. The bunch flowered forms of Narcissi and some others, also, are suited to potting singly.

Catalog descriptions are a great help in selecting varieties not commonly seen, but Sparaxis, Ixia and Allium Neapolitanum deserve special mention as being unusual in type and very satisfactory bloomers. The first has bright colored flowers about the size of a freesia; the second has saucer-like flowers arranged in a spike form, and the third has white flowers that keep in perfect condition for weeks if left on the plant, and are unusually lasting when cut.

Another little bit of experience taught that six bulbs showing flowers of different colors were not to be compared for beauty with six of one color. Six Roman hyacinths grown in one pot and all of one color was one of the most commented things in a large collection.

A second little hint worth heeding is to the effect that if circumstances make it possible for the buyer to select bulbs from open stock, large specimens that have a "give" or spongy feeling when pressed in the hand should be avoided. The experienced buyers select the smaller and firmer bulbs knowing that they will produce finer flowers.

Examine the base of each bulb before potting and if a hard scale, or symptoms of dry rot can be found cut it away as the scale will interfere with the starting out of roots and the rot will develop rapidly when placed in moist soil. Undeveloped roots stored in the bulb will show as white dots when cut across and as long as these can be seen no injury is done by cutting away the base while, if the diseased condition extends above them the bulb might as well be thrown away before time, space, and care is wasted on it.

Soil for bulbs should be free from stones or hard lumps, though not necessarily very rich. Fill the pot partly full, firm it down lightly, and set the bulbs in position. Fill in soil as needed but do not fill the pot full, and do not cover the neck of the bulb. All roots start from the base and leaving the top of bulb exposed removes one source of failure by preventing water from settling and standing in neck before the foliage gets a start. If clean sand is available a layer placed just under and around the bulb is a fine thing for it.

When the pots are filled give the soil a good wetting and put away in some dark, cool place where there is a fair circulation of air. If the soil gets very dry water once or twice, as needed, but remember that bulbs without growing foliage need very little moisture. Leave the bulbs in the dark until a good strong root growth is established and the foliage is an inch, or more, high. When this stage is reached bring them to the light and let them develop as rapidly as they will in a cool room, remembering always

that the bulbs we "force" make a natural growth in the spring in a cool soil and show their stocky flower buds long before freezing weather is past. Bringing them into the house makes no change in their nature and a warm place, among hot-house plants, does not suit their needs.

If it is more convenient to pot the full supply of bulbs at one time, and be done with the job, it can be done safely. Have the soil dry when the potting is done and give no water to those to be kept dormant until you want to start them into growth. Keep them as cold as possible without actual freezing, and in a perfectly dark place, as another means of retarding growth. If there is no need to pot all at one time they may be left wrapped in the papers, as they come from the dealer, in a cool, dark place until wanted. Another method of keeping the succession up is to leave some bulbs in the dark until the foliage is two or even three inches tall and then bringing into strong light gradually, as the foliage darkens and toughens. Retard growth in the way that is most convenient but do not lose sight of the fact that a few bright blooms all the time will give more pleasure, under ordinary circumstances, than a greater display for a short time, only.

There is little beauty in the foliage of bulbs and they may as well be allowed to stay in some cool, out of the way, room until about ready to bloom, and the fact that they need be on exhibition for but a short time makes it expedient to use receptacles that are not at all ornamental if the supply of regulation pots runs short. When displayed the ugly dish can be hidden in an ornamental one.

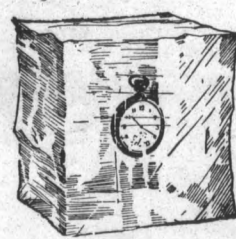
When the flowers wither, carry the pots back to their out-of-sight quarters if you care to let the bulbs develop and ripen for future use in the garden, but do not fuss with them, thinking they will prove satisfactory for future forcing. In the garden they will gradually regain the vitality lost in the forcing process and after a few years produce very good blooms, and they will reach this stage sooner if the bulbs are pinched out for a year or two after bedding the bulbs.

An article on forcing bulbs would be very incomplete without some mention of methods of water-forcing as almost everyone enjoys the novelty of watching their development. The plant most often forced in water is the Chinese Sacred Lily and those who know and practice the Chinaman's trick of gashing the bulb get the finest blooms and most of them from each bulb. First clean off the brown base, being careful not to break off the small bulbs, then cut four gashes from the tip to the base, leaving the latter whole. On a large bulb the gashes may be half an inch deep and this gives the layers of which the bulb is formed a chance to spread apart and let the flower-buds out. In an uncut bulb most of the buds fail to get up through the neck of the bulb and the grower gets a couple of stalks of bloom where four or six should appear.

The usual custom is to hold the bulb in position by placing pretty pebbles or shells around it and if this is done a few pieces of charcoal placed among them will help to keep the water sweet, and provide elements that increase the growth of the plant. Change the water as needed by pouring in tepid water until the old is flushed out—never replace water that has taken on the temperature of the room with cold. After buds form, add a tiny bit of nitrate of soda, or saltpetre, to the water once a week to act as a stimulant.

Hyacinths and other bulbs may be forced in water but the bulb should never be submerged. If the base is in the water and the roots train down into it nothing more is needed. With small bulbs a dish filled with moss, shredded sponge, or clean sand makes a good "bed" if the water is kept just about to the level of the filling material. A very large sponge may have the pores stuck full of small bulbs and if kept standing on a plate and water supplied frequently the result will be very pleasing as a table decoration. Many little schemes may be worked out if the water supply is unfailing and each will find some different one. Let the roots start in the dark, as with soil-grown bulbs, or the tops will outstrip the roots at the expense of the stored vitality needed for the production of perfect blooms.

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The South Bend is sold only by expert retail jewelers—never by mail. You thus get the jeweler's regulation with the South Bend. That is important, for watches don't run the same for everybody. They've got to be regulated to the buyer's personality. Ask the jeweler why.

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Mandan, N. D., March 25, 1911.

SOUTH BEND WATCH CO.
South Bend, Ind.

Gentlemen: I would say in regard to Studebaker Watch that I am very much pleased with it. I loaned this watch to Conductor Ed. Nichols of the Northern Pacific R. R. Said watch came in on time for three consecutive weeks. Mr. Nichols stated to me it was the best watch he ever carried. Yours very truly,

C. CONYNE.

Write for free book, "How Good Watches Are Made." It tells interesting things about watches and their construction. You need this book if you are going to buy a watch.

The South Bend Watch Company
9 Market Street, South Bend, Indiana

The "South Bend" Watch

(101)

Clean Fruit Jars For Preserving Time



Fruit and preserve jars take on a new lustre—an air of inviting cleanliness, when cleaned with Old Dutch Cleanser. The fine porous particles go into every corner and rout out the small stuck-on particles—quickly and easily. It will also clean the hands of stains.

Many other uses and full directions on large sifter can—10c.

Old Dutch Cleanser




Please mention the Michigan Farmer when you are writing to advertisers and you will do us a favor.

Velvet
THE
SMOOTHEST
TOBACCO

is Burley leaf,
mellowed un-
til it's delici-
ous.

At all
dealers

10c.



FARMS AND FARM LANDS FOR SALE OR EXCHANGE

Our New York Improved Farms are the best and cheapest. Send for illustrated list. B. F. McBurney & Co., 703 Fisher Bldg., Chicago, Ill.

To Buy, Sell or Exchange Property—any kind, any-where, address Northwestern Business Agency, Minneapolis, Minn.

Farm for Sale Small farm near St. Louis, Mich. Terms cash. Inquire of J. B. Halbert, St. Louis, Mich., or Jessie Phelps, Ypsilanti, Mich.

Fertile Farms and unimproved lands in Delaware, diversified farming, live stock, delicious fruits and ideal homes. For information only, Address, State Board of Agriculture, Dover, Delaware.

OUR BIG LIST OF FARMS will save you time and money in buying a farm. Come now while crops are growing. **MICHIGAN FARM HOME CO.**, Greenville, Mich.

GOOD 180 ACRE FARM FOR SALE. 80 acres improved. 20 acres pasture, 80 acres timber, good soil and buildings, big orchard, 1 silo, 3 barns, large house and other outbuildings. Sold with or without crops. Come now when crops are growing. For information write Albert Dietz, R. 1, Box 28, Hawks, Mich.

FARMS WANTED—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property FREE. American Investment Association, 3 Palace Bldg., Minneapolis, Minn.

Choice Michigan Lands—20,000 fine unimproved lands. Also some improved farms in Gladwin and Clare counties. Write us for maps and folders. McClure-Stevens Land Co., Gladwin, Mich.

WHY PAY RENT when you can buy the Best Land in Michigan at from \$7 to \$12 an acre near Saginaw and Bay City. Write for map and particulars. Clear title and easy terms. Stalfeld Bros., (owners) 15 Merrill Bldg., Saginaw, W. S. Michigan.

CENTRAL MICHIGAN. Write for list of stock and Grain Farms, also our booklet "Facts about Central Michigan", giving complete information regarding the finest farming district in Central Michigan. **HOLMES REALTY CO.**, Lansing, Mich.

FOR SALE—Three quarter sections of Presque Isle County, Mich., clay soil, cornering at school house 5 1/2 miles south of Millersburg. Well watered, well grassed and easily cleared. Price \$10 an acre—easy terms. Also partly improved farms at \$15 and \$20 an acre. High class land only. **JOHN G. KRAUTH**, Rainy Lake Ranch P.O., Millersburg, Mich.

For Sale, Farm of 80 Acres. Located 4 1/2 miles Town and good market. 6 1/2 miles from Howell on milk route and telephone line. Farm has good house, nearly new, large hip roof basement barn, \$3500 worth of buildings, 10 acres of young timber, balance all plow land. 1/2 of a mile from good fishing lake. Price only \$5000. Write Lock Box 277, Howell, Michigan.

For Sale Farms—Fruit farm of 37 1/2 acres in village of Farmington, in richest apple belt of Oakland county, right on Grand River Avenue. Cement sidewalk in front, 200 bearing apple trees, 400 young apple trees, one-half acre grapes, 25 young cherry trees, variety of berries. About 6 acres of woods with elegant flowing springs. Dandy little house newly decorated, electric lights, hardwood floors down stairs. Electric car service, and just 19 miles from city hall, over best road in Michigan now nearly finished. An ideal fruit farm and home. Price five thousand dollars (\$5000). Apply on farm. **OTTO SHAWPETER**, West end of Village.

FREE HOMESTEADS IN ARKANSAS Under new 3-year law, 500,000 acres now open near railroads and markets. Our Homesteaders' Guidebook tells just how to locate, acquire title, number of acres vacant in each county and full text of new law. Price 25c. **FARM PUB. CO.**, Little Rock, Ark.

For Sale—the Chandler Lands—consisting of 20,000 acres cut over hardwood lands located in Presque Isle and Cheboygan counties near railroad and market, finest of farming lands, prices from \$5 up according to improvements and location. Thad. B. Preston, Trustee for Merritt Chandler, Onaway, Mich.

166 Acres, \$3500, Easy Terms
Livestock and Tools Included.
Immediate income here from your own cows, which go with the farm, and a chance to clear up a nest sum from wood and timber; excellently located in New York; only one mile to R. R. station, near neighbors, stores, school, churches; cuts 40 tons hay, pasture for 40 cows, 400 cords wood, 35,000 ft. timber; 2-story 8-room house, 40x60 basement barn, other buildings; aged crippled owner recently left alone must make quick change, includes if taken now 2 horses, 6 cows, wagon, machinery and small tools, all for only \$3000 part cash, easy terms. Complete details and traveling directions to see it and another of 160 acres with 2-story 10-room residence for only \$2500, page 48, "Strout's Farm Catalogue 35," 2nd Edition, copy free. Yearly farm products of New York State valued at \$245,000,000. Station 101, E. A. STROUT FARM AGENCY, Union Bank Building, Pittsburg, Pa.

SUNNY TENNESSEE!

That section of Kentucky, Tennessee, Alabama and Georgia traversed by the Nashville, Chattanooga & St. Louis Railway is rich in natural resources, and its climatic conditions and the fertility of its soils offer unexcelled opportunities for the profitable production of grains, grasses, live stock and truck crops. Fertile and attractive farm lands may be had at very low prices. WRITE me at once for Descriptive Literature FREE. H. F. SMITH, Traffic Mgr., Dept. B, Nashville, Tenn.

HAPPENINGS OF THE WEEK.

(Continued from page 184).

Railways, telegraph and telephone property has been badly demoralized in the storm-stricken district.

Senator Isaac Stephenson, of Wisconsin, one of the most prominent members of the United States Senate, is reported seriously ill at his fishing camp 50 miles north of Escanaba, Mich.

Lumber dealers have filched fully \$60,000 annually from the city of San Francisco through an underweight system. The law provides for a harbor fee of five cents per ton. Short weights to reduce this tax is the charge against the dealers.

Unprecedented interest is taken in the political campaign in Vermont, which ends with an election on Tuesday of this week.

Because of a seeming lack of discipline at Jackson prison, the board of control met Monday and restored corporal punishment in the institution.

Detroit is having considerable trouble in disposing of her garbage. The situation has been made more acute by the recent warm days. The inability of the reduction company to handle the large amount of garbage brought to them has so congested the traffic that the proper collections cannot be made.

In an effort to prevent the shipment of coal, striking miners tore up railway tracks above Elkdale, West Virginia, on Monday. It became necessary to call a company of militia to the scene.

The bureau of mining has sent 35 experts to Alaska to investigate the extent and availability of the Bering river coal fields. It is hoped that the coal there will be found available for naval purposes.

Four persons were killed, 26 injured, six of them seriously, when a passenger train plunged into the Lemonweir river near Camp Douglas, Wis. The stream was swollen and a bridge had been washed away, causing the accident. Serious damage from floods is also reported from a number of points in northern Wisconsin. Property loss estimated at \$100,000 is reported at Traverse City, Mich., where storms were severe.

Ohio votes on the question of women's suffrage Tuesday of this week.

Col. Chas. A. Booth has been relieved of the command of the Twenty-Sixth United States Infantry at Fort Wayne and Col. Robt. A. Bullard will succeed him. Col. Bullard gained considerable fame during the Spanish-American war. One person was killed and four injured when a work car ran into an open switch on the electric line at Birmingham, Mich., last Saturday.

A grand jury probing the situation surrounding the textile strike in Massachusetts is reported to have indicted Wm. A. Wood, who controls the industry at Lawrence, charging him with planting dynamite for the purpose of breaking the strike and discrediting the strikers. The jury will continue its investigations, believing that other persons of prominence are connected with the conspiracy.

A ruling by the Postmaster-General provides for the closing of city post offices on Sunday.

At the Michigan primary election held Aug. 27, Amos S. Musselman, of Grand Rapids, was nominated for governor by the republican party; W. N. Ferris, of Big Rapids, by the democrats, and L. Whitney Watkins, of Manchester, by the progressives.

Justice Charles E. Blair, of the supreme court of Michigan, died at Lansing after a short illness. Funeral services were held on Tuesday. Remains will be taken to his old home at Jackson for interment. The American bar association in session at Milwaukee passed resolutions declaring the movement to recall judges and decisions of our courts as a dangerous one to the country.

Complaints are being made by residents of the southwest that railroads are exacting large tariffs from shippers for the transportation of goods. Through the ownership of coastwise vessels competition from that source is destroyed and thus the railroads are left unhampered in making their charges for intra-state service.

Foreign.

Mexican rebels captured Cuchillo Parado, a town 35 miles south of the American border, and are now reported approaching Ojinaga.

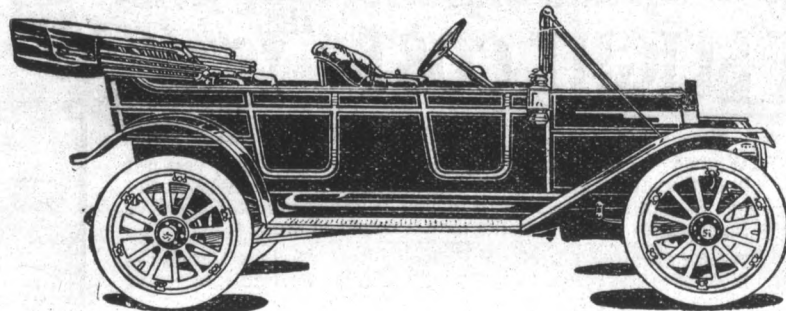
Order has been restored in Nicaragua by American marines and now 1,000 men are busy rebuilding the dismantled railway to Managua, the capital.

Information is being sent to Washington by Great Britain intimating that the Canal dispute will be appealed to The Hague for settlement. The question concerns the allowing of American vessels the free use of the canal while other nations will be required to pay toll, as provided in the law passing congress at the recent session.

FIRST COUNTRY LIFE CONFERENCE.

This year Bay View inaugurated an innovation—a three days' country life conference; then got up a great program and invited all Northern Michigan farmers. They came in large numbers, and there would have been many more but for a big storm which swept the region the day before and on the morning of the opening day threatened a continuance. On the program was the secretary of the National Grange; two from the Agricultural College; the state sent Mrs. Mary C. Spencer, state librarian, and California, New York and other states were represented. It was a great program and at times the attendance ran up to nearly 2,000. Bay View proposes to hold such a conference every year, and it has treated the farmers who attend this year so generously and with such a sincere welcome that next year will see a large increase in attendance.

K-R-I-T



Model "K" Touring Car, Fully Equipped \$900

Equipment includes three oil lamps, two gas lamps, generator, top with side curtains and top cover, windshield, horn, demountable rims with spare rim, tool kit with jack, and tire repair outfit with pump.

Prove on your own roads what we say of the Krit

Telephone or call on the nearest Krit dealer and arrange to have him bring a Krit to your farm.

Have him drive you over your own country roads, up the steepest hills—anywhere—so you can see how the Krit behaves and rides.

He will gladly do this, if you will only give him the opportunity.

We want you to judge the Krit on what you see and how it acts and behaves on the roads and hills you travel daily.

We know that you will be delighted with the outward appearance of the Krit.

But that alone does not sell Krit cars.

It's the remarkably reliable, efficient and economical service the Krit gives its owners that sells the Krit.

For \$900 the Krit offers you more actual value, we believe, than any other car at its price and in many cases equals cars costing \$1500 or more.

The car carries five people in comfort, is easy riding, powerful, durable and comes to you with a complete equipment.

Write for catalog and name of nearest Krit dealer.

Other Models

Model "KR" Roadster : : \$900
" "KD" Covered Delivery 900

KRIT MOTOR CAR COMPANY, 1003 E. Grand Boulevard, Detroit, Mich.

A Hay Press That Carries Its Own Power Plant

Combination Solid Steel, Big-Capacity Press
With Gas Engine Mounted on Same Truck

This sensational Money-Making Hay Baling Outfit, which we introduced in 1910, has just about doubled the profits of the hay baler. Many balers cleaned up \$10, \$12 and even \$15 a day right along. Hay now commands a big price, and everyone wants theirs baled.

It's a compact, big-capacity, all-steel press, handling 2 1/2 to 3 1/2 tons per hour. Carries its own power plant, completely equipped. Easy to move. Coupled up short, you don't need a 40-acre field to turn it around. Always ready for business. You can get in a big day's work every day. The press has a big feed opening. It's a self-feeder, too! Feeds direct from fork. Friction clutch sprocket on press. Lever convenient for feeder; starts or stops press instantly. No condenser box, no dangerous foot tamping, no balance wheels, no complicated gears, no high-speed machinery. Simple block dropper. Extra-length tying chamber. Lever brake. IT'S A WONDER FOR WINDROW WORK.

Sandwich Motor Press

Engine is the very best quality. Hopper-cooled type—requires little water. Has both batteries and magneto. Heavy steel roller, chain drive. No belts to lose power or cause trouble. Chain delivers full power of engine.

Comes completely and fully equipped. Engine can be removed for other work. Can furnish outfits with 4, 5, 7 and 9-horsepower engines.

Both press and engine are of the very best quality—made for hard, continuous service—yet the cost of the outfit is very reasonable.

Horse-Power Presses, Too!

We make a complete line of hay presses—not only motor presses, with which we furnish engine (or you can use your own en-

gine), but horse-power presses of the very latest type—steel frame or wood frame—small or large capacity.

Catalog FREE

Few people realize how well hay-baling pays. Baled hay is in tremendous demand every place. It's shipped all over the world. Pays every farmer big to bale his hay. Pays you big to do the baling!

Send us your name and address on a postal TODAY, stating whether you wish a motor, belt or horse-power press, and we will send you our latest catalog showing the complete line of Sandwich Presses. The catalog will also give you a good idea of the big profits in hay-baling.

Sandwich Manufacturing Company, 200 Main Street, Sandwich, Ill.

Branches: Box 200 Kansas City, Mo.; Box 200 Council Bluffs, Ia.

My Chatham Mill

Grain Grader and Cleaner

Loaned free for 30 days—no money down—freight prepaid—cash or credit. FREE! LOAN!

It grades, cleans and separates wheat, oats, corn, barley, flax, clover, timothy, etc. Takes cockle, wild oats, tame oats, smut, etc., from seed wheat; any mixture from flax. Sorts corn for drop planter. Rids clover of buckhorn. Takes out all dust, dirt, chaff and noxious weeds from timothy. Removes foul weed seed and all the damaged, shrunk, cracked or feeble kernels from any grain. Handles up to 80 bushels per hour. Gas power or hand power. Easiest running mill on earth. Over 250,000 in use in U. S. and Canada. Postal brings low-price buy-on-time proposition and latest Catalog. I will loan 500 machines. "First come, first served." Write today if you want to be one of the lucky 500. Ask for Booklet 80.

THE MANSON CAMPBELL COMPANY, Detroit, Kansas City, Minneapolis

When writing to advertisers please mention the Michigan Farmer.

PROTECTION for YOUR CARRIAGE OR AUTO AT SLIGHT COST



When you paint with Acme Quality Carriage Paint, you get both fine appearance and wearing quality. The cost is nothing as compared to what it means in added life and service. But inferior paint is worse than a waste of money.

Acme Quality Carriage Paint is best carriage varnish—highest grade color. That's why it holds its fine look—and wears. Like all

ACME QUALITY Paints, Enamels, Stains and Varnishes

it gives fullest value. To get a brilliant gloss that will resist the wear of elements, be sure to see the Acme Quality trade mark on the can. There's an Acme Quality kind for every purpose. Made in the largest paint and varnish works in the world.

To know how to get finest possible painted surfaces, write to-day for a copy of the

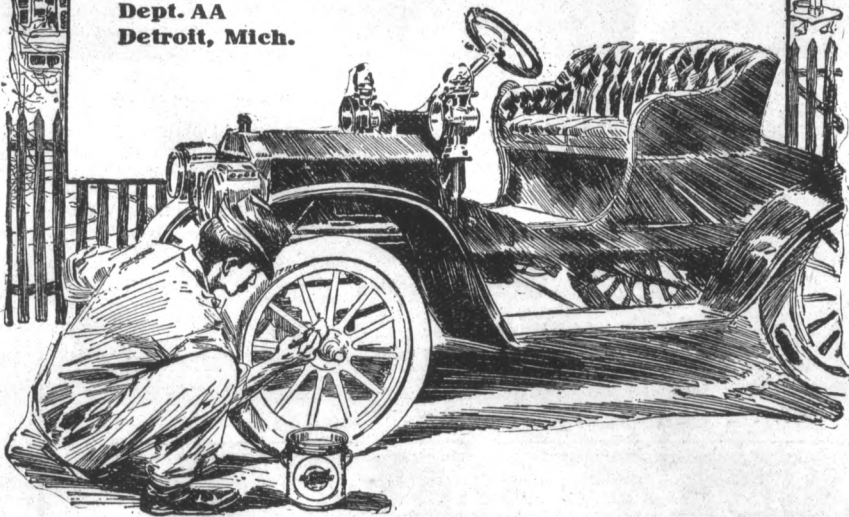
Acme Quality Painting Guide Book

We will gladly send you a copy—FREE. You have only to consult its pages to know how to get perfect painting and finishing results.

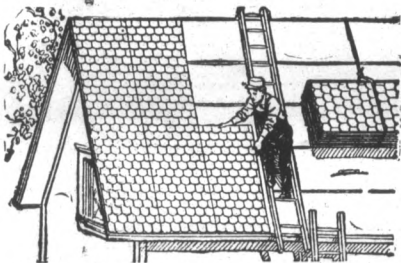
Your dealer should have Acme Quality Paints and Finishes. If he can't supply you, write to

ACME WHITE LEAD AND COLOR WORKS

Dept. AA
Detroit, Mich.



Edwards STEEL Shingles Last Longest Cost Least



Fireproof—Rotproof—Rustproof
Put 'Em On Yourself

Roof that building of yours with genuine Edwards "Reo" Steel Shingles! Can't trust, can't trot, can't catch fire, can't leak. Guaranteed against lightning by our \$10,000 Guarantee Bond. Never need repairs or paint. Outlast three wood-shingle roofs and five composition roofs. Now selling at low factory prices—all freight paid. Put them on yourself. Don't hire carpenters or mechanics.

Edwards "REO" STEEL Shingles

are Open-Hearth Steel, finest quality. Made absolutely rustproof by our world-famous "Tightcote" Process (explained in catalog). Come in large sheets, 24 inches wide, 5 to 12 feet long. Nothing to do but nail the sheets on old roof or sheathing. Edwards Patented Interlocking Device covers all nails, makes permanent water-tight joints, unaffected by heat, cold or dampness.

You'll have the handsomest, most lasting roof in existence. 100,000 buildings now roofed with "Reo" Steel Shingles. Write for our big, free Catalog 967, and Factory Prices. Send dimensions of your building; let us quote price, delivered to your railroad station. You'll be amazed at how cheaply and easily you can roof your house or barn with "Reo" Steel Shingles.

The Edwards Mfg. Co., 917-967 Lock St., Cincinnati, Ohio
Makers of Steel Shingles, V-Crimp Roofing, Imitation Brick Siding, Etc.



The SILO FILLER YOU SHOULD BUY---

Because it will fill your Silo cheaper, better and with less labor than any other machine on the market.

THE KALAMAZOO ENSILAGE CUTTER...

"THE MACHINE OF EXCLUSIVE FEATURES"

Is controlled by one lever, is simplest in design and construction (has fewest parts), and is the most durable, most effective and easiest to operate, requiring less power. Mounted on heavy structural steel trucks, with steel wheels, and of extra heavy construction throughout. It is the STRONGEST SILO FILLER on the market, AND WILL LAST A LIFETIME—AND MORE.

Three sizes fulfill the requirements of all classes, from the small individual farmer to the largest STOCK FEEDER or RANCHMAN.

We have a money-saving proposition for you and will forward it, together with an illustrated Booklet demonstrating the superiority of the KALAMAZOO ENSILAGE CUTTER, if you will write for it.

KALAMAZOO TANK & SILO CO. Kalamazoo, Michigan, Dept. 12
Minneapolis, Minnesota

PRACTICAL SCIENCE.

SPECIAL ARTICLES ON MILK.

BY FLOYD W. ROBISON,
City Milk Supply.

The public generally has very little conception of what a stupendous problem the supplying of milk to a city the size of Detroit is. When we think that to approximately 100,000 families varying quantities of milk is delivered every morning, we may readily understand something of this enormous task.

The supplying of milk is entirely different from the supplying of any other commodity which is generally used among the city's population. Ordinary food stuffs may be handled without any special regard as to temperature or the necessity of immediate delivery. But because of the very nature of milk, its composition and the peculiar uses to which it is put in the home, it is imperative that great care be thrown around the condition of its marketing. This means that from producer to jobber and from jobber to consumer there may be no unnecessary delay.

The City Population is Very Dependent Upon the Milk Supply.

Another feature of the city's milk supply which is different from any other food product is the fact that upon this supply most of these families are depending with an unusual interest. Milk is the exclusive food of many infants in the city and the failure to respond to that daily demand presents a condition which cannot be endured. When we look at the problem of the city's milk supply from this point of view it seems almost strange indeed that municipalities do not take upon themselves the responsibility of providing a municipal milk supply which will eliminate the risk that all cities as a rule, in this country, do now tolerate.

Ignoring this point, which is well deserving of attention, we may say that the bulk of official attention in the last few years has been centered on raising the standard of quality of the milks which are offered to the consumers in cities. This condition has not been brought about through any great foresight or through any great knowledge of the subject on the part of the city's population, but because of the fact that the question has been forced upon them and because the conditions to which milk is subjected in the city are necessarily much less simple than is the case in the rural communities.

Milk Sold in Cities Must be a Superior Product.

Where milk can be taken directly from the source of supply to the consumer's table in a very short time after the milk has been produced, the opportunity for this milk to develop any inferiority which it may possess is very restricted. Therefore the farmer may be content for his own purposes with milk which would be absolutely unsuitable if transported to the city. We now know some of the reasons why this is so. Milk that might pass muster on the farm when one to three or four hours old may, in that brief period, exhibit no marked symptoms of inferiority, whereas this same milk if transported to the city whereby ten to twenty hours have elapsed, may through the natural incubation of the organisms present exhibit its inferiority in a very marked degree. Not only does it exhibit its inferiority but it is actually less wholesome than it was when originally produced. Of course, if this inferiority consists in the presence of dirt and other visible forms of contamination, these are probably as marked or nearly so, at first hand as after the period of rest. We know, however, that the existence of foreign matter in milk is accompanied by the introduction at the same time of various kinds and species of bacteria whose end products, or in other words, the waste products of whose life activities have been increasing steadily during the time which has elapsed between the production and the marketing and we may thus readily see that the milk has actually become greatly deteriorated during its transportation to the city.

City Milk Supply Has Been Considered a Local City Problem.

The impetus, then, to the production of clean city milk has come because of the demand for a marketable article within the city. Strange as it may seem, while this demand has been known, the greatest effort within the state has not been put upon the city milk supply. This

undoubtedly is because communities have had in their own hands the problems of looking after their municipal matters and the cities have been indeed slow to take up the problems revolving around their food and drink supply. What has been done, with a few notable exceptions, has been done by men who have very little correct knowledge of the nature and properties of milk, and consequently have been unable to outline any intelligent plan for its improvement.

What is Good Market Milk?

Good milk for city supply means milk which is clean and which will remain under ordinary care, a whole day at least in the possession of the consumer without becoming sour. To the producer there is very little milk which comes under his observation which will not stand this test but where that milk has been transported to the city, which practically requires an extra day, then it becomes evident at once that to stand the test at the close of the second day necessitates a much better product at the beginning than the producer has been in the habit of delivering. Good milk means a milk which will not coagulate inside of 25 hours. It means a milk which has a good clean odor and which on finally curdling gives a good clean, firm curd. Such a milk should have not more than 50,000 bacteria per cubic centimeter and in order to hold this comparatively low number it must not exceed during the day a temperature of 50 degrees F.

The Condition Shown by Dairy and Food Department Studies.

An experimental study of the milk supply of various cities made by the Dairy and Food Department, in 1908 and 1909, revealed the fact that practically no milk at that time sold at retail in the cities was satisfactory. From a food standpoint much of this was of an exceedingly high quality but in no single instance when examination was made for bacteria did the content fall as low as 50,000 bacteria per cubic centimeter.

During the past year the city of Lansing has been making a rather exhaustive study of its milk supply and the results of these investigations have brought forcibly home to Lansing the fact that little can be expected in the way of an improved city milk supply until the department of inspection is placed in the hands of men who are selected because of competency rather than through political qualifications. The present city milk inspector of Lansing is a man well fitted by training for this position and the public may well look to him to guard their interests in this matter. A milk inspector should be a capable man and then besides that he should be a man of tact who can secure the co-operation of dairymen instead of their antagonism.

(Continued next week.)

LABORATORY REPORT.

Can you tell me how to keep cider as you want? Have tried many things and they do not hold it as I want.

WILDWOOD.

Cider may be kept sweet in either of two ways. If it is desired to place it in bottles it may be kept sweet by pasteurizing it, or heating it to boiling point and sealing it in exactly the same way that canned fruit is sealed. If it is not desirable to put it up in the above manner, it may be kept sweet for a considerable period of time by the introduction of about 0.2 per cent of benzoate of soda. We cannot, however, refrain from stating that we do not approve of the use of benzoate of soda although its use is permitted by the rulings of the secretary of agriculture and by the law of the state of Michigan, provided the fact of its employment be stated on the label.

In a test of the value of cottonseed meal as a supplementary feed, with three lots of four hogs each weighing about 100 pounds, the average daily gain per head for 77 days was as follows: On corn chop and cottonseed meal in the proportion of 4:1, 1.05 pounds; on the same feeds in the proportion of 6:1, 1.2 pounds; in the proportion of 8:1, 1.18 pounds.

Stop My Advertisement.

H. M. Ferry, Detroit, Mich., writes: "Please cancel our advertisement of Holstein stock. Bull calves all sold."

The Michigan Farmer 10 weeks for 10 cents to those not now subscribers. See page 202 for the big premium offer.

MICHIGAN'S GREAT STATE FAIR

SEPTEMBER NEXT,

**An Unexcelled
Exhibition for 50c**

WEEK OF THE 16th

It is Both Agricultural and Industrial—The Fair of Innovations

UNTIL THREE YEARS AGO THE MICHIGAN STATE FAIR was operated much on the plan that is followed by other State Fairs in America.

DISPLAY EXHIBITS WERE MADE THEN, BUT NOW the exhibits show the actual manufacturing of goods, the making of butter and cheese, the building of good roads and demonstrations that must prove more interesting than the still exhibits of old.

MIGHTY LITTLE ATTENTION as compared to its importance even at that time. But now

THE FAIR IS SO DIFFERENT from all other Fairs that have gone before, and so different even than last year or the year before

THAT THERE IS LITTLE COMPARISON, for the Michigan State Fair this year embodies more innovations and features than were ever seen in one Fair before.

THE PRODUCT OF THE BRAINS OF MEN WITH IDEAS who started out to give the State of Michigan and of the country a Fair that would startle the country.

AND THE MANAGEMENT OF THE MICHIGAN STATE FAIR believes that it has provided for the people of Michigan an event that will rank above any other State Fair in the land.

NO IDEA THAT WAS WORTH WHILE HAS BEEN OVERLOOKED, and the result is a Fair that is educational alike to the country folks as well as the city folks, and

TO THE YOUNG PEOPLE IN PARTICULAR it is especially interesting from every standpoint. The family will find the Fair for 1912

CLEAN AND INTERESTING IN EVERY WAY and replete with interest in its every department, including the

MANY NEW AND INTERESTING FEATURES, which include departments of sterling importance to the people of the entire State.

FOR INSTANCE, TAKE THE BOYS OF OUR STATE, whose interests must be studied, as it is the boys who will be the men of the future.

THE BOYS' STATE FAIR SCHOOL IS FOR THE BOYS OF THE ENTIRE STATE OF MICHIGAN. One boy has been chosen by examination from each county of the State to attend this school at the Fair without expense.

THE MINIATURE MODEL FARMS FOR THE CITY BOYS who have been farming all summer to bring forth the crops for Fair time will prove interesting to all. There are thirty boys from the Boy Scouts

AND THE CHILDREN WILL HAVE AN AMUSEMENT ROW that will occupy the site of the Midway of last year where they will find everything to interest them.

THE MIDWAY HAS BEEN MOVED TO one corner of the grounds and cleansed of all questionable attractions, making it attractive alike to men, women and children.

THE CHILDREN AND GROWN UPS WILL BE INTERESTED TOO in the great fireworks display showing the FALL OF OLD MEXICO, the fort of Chapultepec and Mount of Popocatepetl—fireworks that show history, including also "THE BATTLE OF THE SKIES."

FOR THE GROWN UPS ALSO there will be the demonstration Dairy Barn, complete and up-to-date, built right to the minute and showing everything that is latest in dairy farming, one of the most superb buildings ever constructed in dairy farming, one of the finest buildings every constructed at a State Fair AND JUST COMPLETED.

EVERYONE KNOWS OF THE GREAT ROAD BUILDING WORK for that has been a feature at the Michigan State Fair for two years and will be continued on a larger scale than ever this year.

BUT FEW KNOW OF THE PROCESS BUILDING in which every exhibit will be seen in active operation—manufacturing articles native to Michigan manufacturing.

AND THERE'S ANOTHER FEATURE—THE NAVY EXHIBIT; for the United States Government will show everything of interest from the United States Navy, including models of all sorts of vessels.

THERE'LL BE AN AUTOMOBILE SHOW OF COURSE, for the automobile show building will be filled with the very latest in the product of two score manufacturers.

THE NIGHT HORSE SHOW IS ALWAYS INTERESTING for the finest show horses in the world are always seen here.

AND THE GRAND CIRCUIT HORSE RACES ALL THE WEEK have an entry list that promises a carnival of grand sport and record breaking.

THE AUTOMOBILE RACES WILL BE MORE INTERESTING THIS YEAR for Louis Disbrow with his 200 horse power special racing car, which holds all records and which is built in the shape of an inverted boat, will be seen against records with competitive events for scores of entries.

THERE'LL BE THE EXHIBITS OF FARM PRODUCE AND STOCK and greater than ever, the entries having broken all records. The finest will be seen in every agricultural department.

AND, OH YES! THERE'S ANOTHER NEW EXHIBIT—THE LAND SHOW with the exhibits of the great Chicago Land Show displayed.

BUT THERE'S A WHOLE LOT MORE AND THIS SPACE IS LIMITED, so the score more good things will have to be seen in September and enjoyed.

THERE'S A LOT WE WANT YOU TO TELL US and one of these is a reply to a question we shall ask you: "What have you obtained for your fifty cents?" and again

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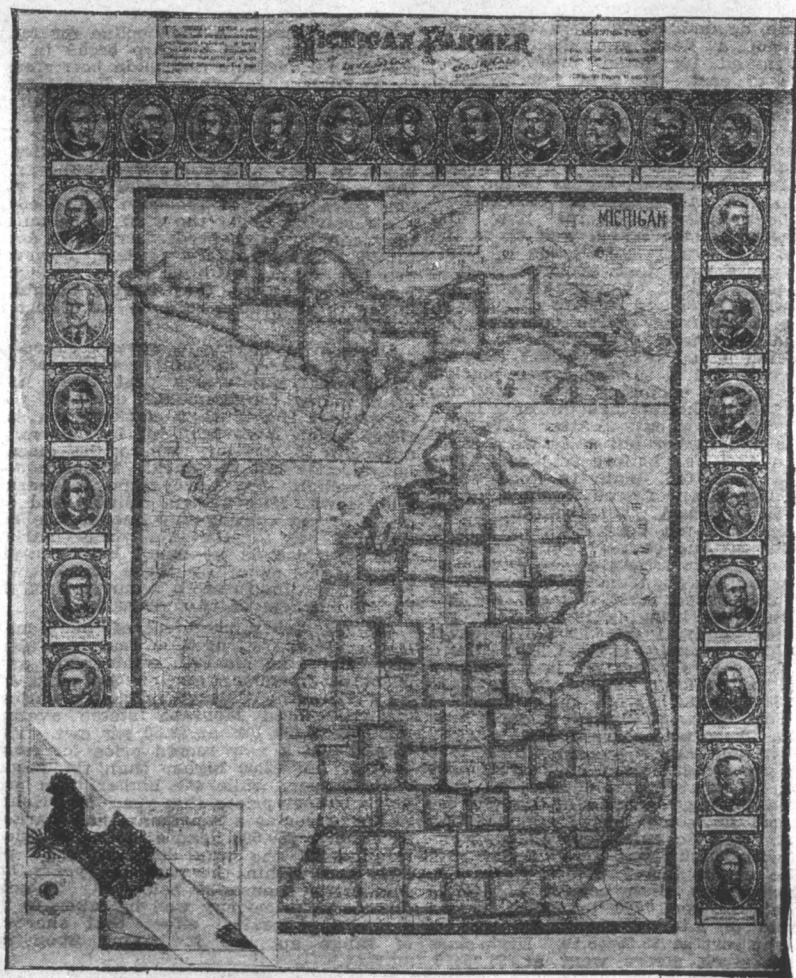
THIS YEAR'S FAIR IS GOING TO BE THE ONE FAIR IN ALL AMERICA TO SEE AND YOU WILL NOT WANT TO MISS IT, FOR THERE WILL BE SO MUCH THAT IS NEW AND INTERESTING THAT YOU WILL REGRET NOT SEEING EVERYTHING AND IF YOU DO THE FAIR RIGHT YOU'LL BE DELIGHTFULLY PLEASED.

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MARKETS

DETROIT WHOLESALE MARKETS.

September 4, 1912.
Grains and Seeds.

Wheat.—The tone in the wheat deal is more bearish than a week ago. Farmers have been forwarding wheat to the elevators in liberal quantities this past week. These accumulations have made the bears more daring and they have not hesitated to allow their supplies to run low. Frost has held off in northwestern Canada, thus increasing the assurance of a large crop from that quarter. This had a depressing effect upon Liverpool where buying of American wheat has diminished. This lack of support and the accumulations are the two most important factors in depressing the trade. Flour is still in active demand, but millers are not taking wheat as readily because of the stocks already on hand. One year ago No. 2 red wheat was quoted at 89¢ per bushel. The visible supply increased nearly one million bushels the past week. Quotations for the week are as follows:

	No. 2	No. 1	Dec.	July.
Thursday	1.10½	1.09½	1.12½	1.16½
Friday	1.10	1.09	1.12	1.15½
Saturday	1.08½	1.07½	1.11½	1.15
Monday	1.07½	1.06½	1.10½	1.14
Tuesday	1.07½	1.06½	1.10½	1.14
Wednesday	1.07½	1.06½	1.10½	1.14

Corn.—There is practically no change in this cereal. Stocks of old corn have not varied to a degree that would alter prices. The new crop is doing well considering its chance, but there is the constant probability of early frosts which would produce a very large percentage of unmarketable grain. The visible supply shows a very small increase. One year ago No. 3 corn was quoted at 66¢ per bu. Quotations are as follows:

	No. 3	No. 3
	Corn.	Yellow.
Thursday	81	84
Friday	81	84
Saturday	81	84
Monday	81	84
Tuesday	81	84
Wednesday	81	84

Oats.—Oat values are about steady with a week ago. While offerings are liberal, the quality of the grain averages much below normal and it is with difficulty that the demand for the higher grades is filled. One year ago standard oats were quoted at 54¢ per bu. The visible supply increased a million bushels. Quotations for the week are:

	Standard.	Oat.
Thursday	38	37½
Friday	38	37½
Saturday	38	37½
Monday	38	37½
Tuesday	37½	37
Wednesday	37½	36

Beans.—The nominal prices published by the board here remain the same as one week ago, except that cash beans are 2¢ higher. News from the bean fields of this state and elsewhere declare that much damage has already been done this year's crop. Too much moisture has destroyed the vines in many instances. To what extent this damage reaches cannot at present be predicted. Nominal quotations are as follows:

	Cash	Oat.
Thursday	\$2.70	\$2.30
Friday	2.70	2.30
Saturday	2.70	2.30
Monday	2.70	2.30
Tuesday	2.70	2.30
Wednesday	2.70	2.30

Clover Seed.—Better offers are being made for clover seed than previously. Continued wet weather has been detrimental to the production of seed and the probable shortage is causing anxiety among dealers. Following are the quotations:

	Oat.	Alsike.
Thursday	\$10.75	\$11.75
Friday	10.75	11.75
Saturday	10.60	11.75
Monday	10.75	12.00
Tuesday	10.75	12.00
Wednesday	11.25	12.00

Rye.—This cereal is inactive and the price remains at 71¢ for No. 2 rye.

Timothy Seed.—Offerings of timothy seed are more liberal than usual and a further decline of 15¢ is noted in the price for prime spot, which is now 23.35¢ per bushel.

Flour, Feed, Potatoes, Etc.
Flour.—Prices unchanged. Market is active.

Straight	\$5.60
Patent Michigan	5.85
Clear	5.00
Rye	5.00

Feed.—Bran, cracked corn and coarse corn meal are higher, while coarse middlings are down. Carlot prices on track are: Bran, \$28 per ton; coarse middlings, \$26; fine middlings, \$31; cracked corn and coarse corn meal, \$34; corn and oat chop, \$31 per ton.

Hay and Straw.—Market rules steady. Quotations are for new hay. They are: No. 1 timothy, \$17@18; No. 2 timothy, \$16@16.50; clover, mixed, \$14.50@17; rye straw, \$9@10; wheat and oat straw, \$8.50@9 per ton.

Potatoes.—Michigan tubers continue to move in increased volume but the wide demand is maintaining former quotations. They are selling at 75¢@85¢ per bu. The ruling price for southern offerings is \$2.50 per sack.

Provisions.—Family pork, \$22@23; mess pork, \$19.50; clear, backs, \$21@22; hams, 15½@16½¢; briskets, 12½@13½¢; shoulders, 13¢; picnic hams, 18¢; bacon, 16@18¢; pure lard in tierces, 12½¢; kettle rendered lard, 13¢ per lb.

Dairy and Poultry Products.
Butter.—This product is firm. While

good pastures have given a heavy flow of milk which yielded a large amount of butter, still the demand has been unusual, probably because of the high price of other food stuffs, and kept quotations slightly higher than usual. Storage people are taking advantage of the present situation, although many declare the price too high to encourage packing the product. Quotations: Extra creamery, 26¢; first creamery, 25¢; dairy, 21¢; packing stock, 19¢ per lb.

Eggs.—This market has improved for the seller. The output is shrinking while the demand continues steady. The quality of the offerings has been slightly impaired by recent weather conditions. Current receipts, candled, cases included, are quoted at 23¢ per dozen, a cent advance over last week's price.

Poultry.—This market is firm with prices for hens a full cent higher than a week ago. An increase in offerings is noted at nearly all leading markets, but this increase is being met by improvements in the demand. Quotations are: Broilers, 16@17¢ per lb.; hens, 14½@15¢; No. 2 hens, 9@10¢; old roosters, 9@10¢; turkeys, 15@16¢; geese, 10@11¢; ducks, 14¢; young ducks, 15@16¢ per lb.

Veal.—All grades steady. Fancy, 13½@14¢ per lb.; choice, 9@10¢.

Cheese.—Market steady. Michigan flats 16@17¢; York state flats, 17@18¢; limburger, 17@19¢; domestic Swiss, 22@23¢; brick cream, 17½@18¢.

Fruits and Vegetables.

Peaches.—Offered more freely. Fancy Elbertas, \$2.25; AA, \$2; A, \$1.75; B, \$1.25 per bushel.

Pears.—Bartlett's are quoted at \$5@5.50 per bbl.

Plums.—Higher. Per bushel, \$1.50@1.75.

Huckleberries.—Selling at \$3@3.50 per bushel.

Apples.—New apples are quoted at \$2.25@3 for fancy, and \$1.25@2 for common; per, \$1@1.25 per bbl. Good apples by the bushel are selling at 50¢@75¢.

Honey.—Choice to fancy comb, 15@16¢ per lb.; amber, 12@13¢.

Tomatoes.—Per bushel, 75¢.

OTHER MARKETS.

Grand Rapids.

Tuesday morning's market was big, with 450 loads of produce offered. Close to 1,000 bushels of potatoes were in sight, prices ranging from 50¢@55¢. Other vegetables were as follows: Celery, 15¢; turnips and carrots, 50¢; beets, 70¢; cucumbers, 75¢; corn, 10@15¢; white cabbage, 25¢; red cabbage, 40¢; cauliflower, \$1.50 per bu; watermelons, 20@25¢; muskmelons, \$1.75 per bu; tomatoes, 50¢. On the fruit side of the market apples were in biggest supply, selling at 50¢@75¢. Only 75 bushels of peaches were in sight, the price ranging from \$1@2.25. Pears brought \$1@1.25; plums, \$1@1.50; grapes, 20¢ per basket. The egg market is firm at 20¢@21¢; butter unchanged. Hay is selling at \$12@15.

Chicago.

Wheat.—No. 2 red, \$1.02@1.04½; Sept., 91½¢; Dec., 92¢.

Corn.—No. 3, 78@78½¢; Sept., 72½¢; Dec., 54½¢.

Oats.—No. 2 white, 32½@33½¢; Sept., 31½¢; Dec., 32½¢.

Butter.—Supplies of creamery well cleaned up and the market is firm at an advance of 1¢ over last week. Dairy stock unchanged. Quotations: Creameries, 23½@36¢; dairies, 21@23¢.

Eggs.—Market very steady with prices showing an upward tendency. Quotations are: Firsts, 20¢; ordinary firsts, 18¢; at mark, cases included, 17½@18½¢; per dozen.

Potatoes.—Offerings continue ample and prices are unchanged from last week's lower range. Michigan stock quoted at 50¢@55¢; Minnesota, 45¢@50¢; Wisconsin, 45¢@55¢.

Beans.—Market inactive; quotations largely nominal and unchanged. Pea beans, choice, hand-picked, \$2.85@2.88 per bu; prime, \$2.75; red kidneys, \$2.50@2.60.

Hay and Straw.—Prices unchanged from a week ago; trade steady. New timothy selling about \$4 per ton lower than old hay. Quotations: Timothy, choice, \$21@22; No. 1, \$19@20; No. 2 and No. 1 mixed, \$16@18; clover, \$7@10; No. 2 and no grade, \$5@7; alfalfa, choice, \$18@18.50; No. 1, \$17@17.50; No. 2, 14@15. Straw—Rye, \$9.50@10; wheat, \$6.50@7; oat, \$7@7.50.

New York.

Butter.—Market firm at an advance of 1½¢ on the better grades of creamery butter. Quotations: Creamery, special extras, 27½@28¢; do., firsts, 26½@27¢; do., seconds, 25¢@26¢; factory do., June made, firsts, 22½¢.

Eggs.—All offerings meeting a good demand at prices generally ½¢ above last week's figures. Fresh gathered extras, 25½@26½¢; extra firsts, 23½@24½¢; firsts 22@23¢ per dozen.

Poultry.—Dressed—Broilers are again lower but fowls have regained last week's loss. Market weak. Fresh killed western broilers, 14@23¢; fowls, 14½@17¢; turkeys, 16@17¢ per lb.

Boston.

Wool.—There is unusual firmness in the wool trade. All the dealers are busy. During the past week over 13,000,000 lbs. changed hands on this market. This was nearly double the transactions for the corresponding week in 1911. There is a tendency on the part of dealers to hold back their fleeces, some firms having already disposed of about all the good grades they possess. Territory wools occupy the center of interest. Fine unwashed delaines are held at 34@35¢.

Elgin.

Butter.—Market is firm at 25¢ per lb., which is the quotation for the past several weeks.

THE LIVE STOCK MARKETS.

Buffalo.

September 2, 1912.

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

Receipts of stock here today as follows: Cattle, 150 cars; hogs, 70 double decks; sheep and lambs, 70 double decks; calves, 1,000 head.

With 150 cars of cattle on our market here today, and 17,000 reported in Chicago, all the best grades of cattle sold from 10@15¢ per cwt. higher than last week. The market closed strong and everything was sold.

Best 1,350 to 1,500-lb. steers, \$9@9.70; good prime 1,200 to 1,300-lb. steers, \$8.50@8.75; do. 1,100 to 1,200-lb. do., \$8.25@8.50; medium butcher steers, 1,000 to 1,100, \$7@7.50; butcher steers, 950 to 1,000, \$6.50@7; light butcher steers, \$5.75@6; best fat cows, \$5.50@6; good to best do., \$1.50@5.50; fair to good do., \$1@4.25; common to fair do., \$3.25@3.75; trimmers \$3@3.25; best fat heifers, \$6.75@7.50; good to prime heifers, \$6.50@7; fair to good do., \$5@5.25; light butcher heifers, \$4.50@5; stock heifers, \$4@4.25; best feeding steers, \$4.75@5; stockers, inferior, \$4.25@4.50; prime export bulls, \$5.75@6; best butcher bulls, \$5.25@5.50; bologna bulls, \$4@4.50; stock bulls, \$3.75@4.25; best milkers and springers, \$6@70; common kind do., \$35@45.

Receipts of hogs today light, demand good, and the general market 5@10¢ higher; several decks of extreme heavies sold at \$9@9.15, with the general sales of light mediums and mixed at \$9.25@9.35; a few decks of fancy at \$9.40. Yorkers, as to quality, sold from \$9.25@9.40; pigs and lights, \$9@9.15; roughs, \$7.50@8; stags, \$6.50@7.25. Market closed steady; outlook appears fairly good for the balance of the week.

The lamb market was active today, with prices about the same as the close of last week; most of the choice lambs selling for 7¢; yearlings, \$5@5.50. The sheep market was active on the heavy kind, but dull on the light kind. Look for a little improvement in lambs and about steady prices on sheep the balance of the week.

We quote: Choice lambs, \$6.90@7; cull to fair do., \$5.50@6.50; yearlings, \$5@5.50; bucks, \$2.50@3; wethers, \$4.75@5; handy ewes, \$4@4.25; heavy ewes, \$3.35@3.50; cull sheep, \$2@3; veals, choice to extra, \$11@11.50; fair to good, \$7.50@10.50; heavy calves, \$4.50@6.

Chicago.

September 2, 1912.

Declining values for all excepting prime beef steers is the logical sequence of an overloaded beef market—a market burdened with beef, cost of which is beyond the consumer's purchasing power. This situation was plainly shown last week, when despite supplies running a few thousand below the previous week, values declined 15¢@40¢ and were down 75¢@1.25 for common to good grades as compared with the high point in mid-August. The prime grades did new price-climbing stunts, however, one drove of 32 head of 1,500-lb. Illinois-fed beefs selling at \$10.65, but there were smaller supplies of the choice grades on offer than in many weeks past. This was an indication that prime beefs are running much shorter than the trade had looked for and that September marketings of choice to prime grades will fall considerably below those of August. Thus, while it is a down-going market for the common, plain and medium to good steers which come in competition with western rangers, there is expected to be still higher rates materialized for the prime beefs. Eleven dollar cattle are looked for before September closes, but materialization of this price will depend solely upon the maintenance of a keen and discriminating hotel demand for fancy beef cuts regardless of cost. Bulk of fair to good beef steers have sold of late at \$8.25@9.50, showing 50¢@60¢ decline from top point for the better kinds, while the biggest share of \$8@8.50 cattle were down \$1. Grassers at \$7@7.75 are still claimed by killers to be costing higher in the beef than do the range steers. Marketings from the ranges are liberal now and choice western steers held well up to the season's top levels. Two loads of Montana rangers went last week at \$9.50, a record price. Bulk of range beefs are selling at \$7@8.25 and feeders at \$6@6.50. Butcher stock from native pastures has sold sharply lower, declines of 25¢ last week being added to 50¢@60¢ cuts the previous week and a 50¢@85¢ lower market is now shown compared with top this season. Prime heifers are the only kinds escaping this big cut. Latter have still made \$9 and higher but sales were rarely above \$8. Fat heifers sold at \$6.50@7.75 and grass-fed, plain to good stock at \$5@6.25. Cows of good to choice grade made \$5.40@7, and prime sold up to \$8 with the grass-fed beef cows at \$4.40@5.25. Cutters and cannery get better demand from packers than do the good beef cows, a fair to good cutter class selling at \$3.85@4.20 and most cannery at \$3@3.35. Bulls are bringing high prices, recent sales being at \$5@6.50 for butchers and bolognas made \$4.25@4.85. Record prices for calves prevailed last week, a prime kind making \$11.50 and good to choice, \$10.50@11.25, while only plain big calves sold below \$6.50 with a good kind at \$7@8. These prices are due to scarcity of supply and are susceptible to terrific decline upon resumption of liberal marketings. It is a favorable time for feeder cattle buying, declines of 25¢@40¢ being forced for some liberal supplies last week and 50¢@75¢ cuts were shown compared with high time two weeks ago. Still the choice heavy feeder steers are on a high basis, these costing \$6.75@7.25 while fair to good 700 to 900-lb. steers have sold of late at \$5.85@6.60, with a plain light sort at \$5.25@5.50. High-class yearlings stock steers went at \$5.75@6,

a fair to good sort at \$5.15@5.65 and common stock steers and helpers down to \$4.50.

Hog trade is on the highest basis since October, 1910, and the indications favor continued strength in values. Nine dollars was paid last week and in subsequent days values have held close up to the level. Shortage in the movement, as indicated by a crop, of less than 105,000 at Chicago last week and only 225,000 at six markets in the same period, is the chief bullish factor. There is exceptionally good fresh meats demand and the packers are finding a good foreign outlet for lard, two factors which induce them to buy freely at current rates, although there is expectancy of strong opposition to a rising market later this season. The bear in the hog trade has had his day, however. Supplies are running short of consumptive needs and the opinion prevails that hogs are due to go to a \$10 top before the fall season is at an end. The pig crop shortage, it is claimed, will run 25 per cent this fall, and this indicates a comparatively small winter supply of matured hogs. Light hogs are the premium getters, these having sold at \$9 this week while next highest killers were the butchers, but heavy shipping went only 15¢ below the top price of \$9. A spread of \$8@8.60 has taken most of the heavy packers and mixed kinds with the fair to good butchers making \$8.70@8.90 and bulk of selected light bacon and butcher grades made \$8.75@8.95.

In sheep and lamb trade alone is the packer control ably shown. Here the supplies are running full up to demand requirements and while sheep sold 25@35¢ higher last week there was a weaker trend of values for lambs, the latter selling lower most of the week though some little recovery was made before the finish. Still both sheep and lambs are selling relatively low as compared with cattle and hogs and traders declare there should be some readjustment of values in the ovine market. Big receipts from the west, however, and some generous southern supplies as well as bearish factors, and until the range crop is well in the market cannot be expected to go materially higher. There is good demand for feeding sheep and lambs and not many of these kinds on offer, because of the excellent mutton producing capacity of range grass this season. A top of \$4.40 has been paid for range wethers of late and natives went at \$4 with a plain kind at \$3.75@3.90, while yearlings sold at \$4.50@4.75. Range and native ewes went at \$3.15@4.10 and feeding yearlings at \$4.50@5.30. Choice to prime native lambs have sold at \$6.75@7 and rangers up to \$7.10. Common and plain natives for slaughter made \$5@6.25 and culls sold down to \$4.50. Range feeding lambs have made \$5.75@6.40.

Horse market is strong and high for the good to choice drafters selling at \$275@325 but there is the usual late summer dullness for all plain and medium quality kinds. Little country call for work horses is being shown and the city demand for general purpose animals remains quiet although the liberal receipts are finding outlet at steady rates compared with a short time ago. Most fair to good work horses are bringing \$150@225 and a high-grade of feeders are selling at \$250, with light feeders around \$175@200.

The Chicago Live Stock Exchange last Thursday voted down by 265 to 167 a proposition to amend the commission rule which provided for a 20 to 50 per cent increase in selling charges for various classes of live stock. By the negative vote the commissions in force for years past will stand.

LIVE STOCK NOTES.

Another factor in the decline for feeding stuff has been a sharp break in the market for medium and plain beef steers, these kinds now being down 75¢@1 from the high point, but a short fall crop of range cattle should force them back to higher rates. With the feeder cattle the situation is different. It will require a big corn crop and a broad demand from the east to effect a material rise in values since many of the corn belt feeders are resolving to let the stuff alone unless they can buy well-bred steers close down to \$6. The distillery feeders, however, are not shying at high prices for well-bred range steers, they having bought a lot of these grades recently at a cost of \$6.35@6.65.

Cholera is having a severe effect on the porcine crop in many sections of the corn belt. For weeks past there have been many consignments of little pigs arriving in the Chicago market from sections which have been hit by cholera or adjacent to territory where the disease has already left its mark. Thousands of underweight piggies have come to market from Iowa, Missouri and Illinois and every sick pig coming now means one less matured hog for the late winter market. This in itself is no small bullish argument made up of by those traders who see in the dim future a recurrence of the \$9@10 markets of two years ago.

Conrad Kohrs, president of the Pioneer Cattle Company, of Montana, last Monday celebrated his 50th anniversary as a Montana rangeman and on the same day he sold in the Chicago market a carload of native-bred Montana steers averaging over 1,400 lbs. at \$9.50 per cwt. This established a new record price for range beefs, full \$2.60 higher than the record of last year, while 45¢ higher than previous banner prices this year. Mr. Kohrs, in his career as a rangeman, has marketed close to 250,000 head of cattle at prices ranging all the way down to \$3.50 per cwt. and within the past ten years has sold many thousands below \$5. The difference in price may well be taken to indicate the marked effect that shortage of range supplies is having upon the market.

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.
September 5, 1912.
Cattle.

Receipts, 1,776. Bulls 15@25c lower; others grades steady.

We quote: Extra dry-fed steers, \$8@9; steers and heifers, 1,000 to 1,200, \$6@7.25; do. 800 to 1,000, \$5@6; grass steers and heifers that are fat, 800 to 1,000, \$4.75@5.50; do. 500 to 700, \$4.25@4.75; choice fat cows, \$5.25@5.75; good do., \$4.50@5; common cows, \$3.25@3.75; canners, \$2@3.25; choice heavy bulls, \$5@6; fair to good bolognas, bulls, \$4.25@4.50; stock bulls, \$3.25@4.25; choice feeding steers, 800 to 1,000, \$5.25@5.75; fair do., 800 to 1,000, \$4.50@5; choice stockers, 500 to 700, \$4.75@5; fair stockers, 500 to 700, \$4@4.50; stock heifers, \$3.50@4.25; milkers, large, young, medium age, \$4@6; common milkers, \$2.50@3.50.

Roe Com. Co. sold Hammond, S. & Co. 3 bulls av 877 at \$4.15, 3 do av 826 at \$4.25, 4 butchers av 675 at \$4, 2 do av 965 at \$4.25, 2 cows av 850 at \$3.50; to Newton B. Co. 2 do av 845 at \$3.25; to Sullivan P. Co. 8 butchers av 656 at \$4.25; to Mich. B. Co. 4 do av 800 at \$5, 1 heifer weighing 790 at \$4, 2 steers av 925 at \$4; to Frisbie 5 stockers av 440 at \$4.50, 4 do av 530 at \$5, 10 do av 502 at \$4.25; to Thelen 13 do av 740 at \$5; to Wilkins 9 do av 473 at \$4.25; to Wyness 7 do av 511 at \$4, 1 do weighing 583 at \$3.50, 18 cows av 854 at \$3.50, 5 do av 840 at \$3.25, 1 steer weighing 530 at \$4, 11 stockers av 450 at \$4, 8 do av 506 at \$3.75, 1 cow weighing 900 at \$3.50, 1 do weighing 860 at \$3, 5 do av 890 at \$3.50; to Frisbie 12 stockers av 500 at \$4.40; to Thompson Bros. 5 cows av 824 at \$3.25, 4 do av 960 at \$4.25; to Ratikowsky 2 do av 860 at \$4.25; to Newton B. Co. 13 butchers av 670 at \$4.65, 18 do av 647 at \$4.65, 5 do av 604 at \$4.35.

Bishop, B. & H. sold Newton B. Co. 10 cows av 894 at \$3.50, 2 butchers av 1,050 at \$4.25, 2 cows av 845 at \$3.25, 3 heifers av 670 at \$4.50, 2 canners av 885 at \$5.25, 2 cows av 910 at \$3.50, 4 do av 1,185 at \$5.50, 3 do av 963 at \$3.25, 9 butchers av 740 at \$5, 5 do av 780 at \$5, 1 do weighing 1,000 at \$4; to Parker, W. & Co. 3 cows av 1,163 at \$5.50, 2 do av 1,000 at \$4.25; to Morgan 9 stockers av 625 at \$5.50, 5 feeders av 744 at \$5.50; to Bresnahan 14 butchers av 440 at \$3.75; to Breitenbeck 19 do av 844 at \$5.60, 3 do av 820 at \$4.50; to Sullivan P. Co. 15 do av 730 at \$4.50, 2 cows av 720 at \$4, 4 do av 962 at \$4.50, 5 heifers av 634 at \$4.50, 6 cows av 913 at \$4, 6 steers av 873 at \$5.50; to Newberry 6 stockers av 600 at \$4.75; to Chase 12 stockers av 477 at \$4.25, 3 do av 466 at \$4.25, 9 do av 491 at \$4.25, 9 do av 451 at \$4.15; to Parker, W. & Co. 24 butchers av 660 at \$4.70, 3 cows av 893 at \$4; to Mich. B. Co. 12 butchers av 830 at \$5.25; to Regan 5 do av 586 at \$3.75; to Shopfel 5 bulls av 490 at \$3.75.

Haley & M. sold Newton B. Co. 3 butchers av 700 at \$5, 3 do av 710 at \$4, 12 do av 732 at \$4.85, 8 cows av 920 at \$4, 6 do av 888 at \$3.50; to Breitenbeck 11 butchers av 765 at \$4.85; to Kamman 11 do av 508 at \$4, 12 do av 672 at \$5, 2 do av 700 at \$4; to Thelen 7 feeders av 703 at \$5, 7 stockers av 560 at \$5; to Haugh 28 do av 611 at \$5; to Jackson 6 do av 521 at \$4.65, 10 do av 457 at \$4.25; to Morgan 12 do av 615 at \$5, 7 feeders av 711 at \$5.15; to Thelen 4 stockers av 675 at \$5; to Frisbie 7 stockers av 492 at \$4.50; to Bresnahan 16 butchers av 534 at \$4.10; to Sullivan P. Co. 1 cow weighing 1,000 at \$4.50, 7 do av 960 at \$4.50, 2 do av 1,070 at \$3, 2 do av 890 at \$3.25, 3 butchers av 647 at \$3.75, 6 do av 533 at \$4.20; to Hammond, S. & Co. 2 bulls av 1,215 at \$4.65, 1 do weighing 1,320 at \$4.80; to Kamman B. Co. 3 cows av 893 at \$4, 11 butchers av 771 at \$4.75; to Sullivan P. Co. 2 cows av 820 at \$4, 2 oxen av 1,410 at \$5.50, 2 cows av 1,100 at \$5.50, 11 do av 1,009 at \$4.25; to Goose 7 butchers av 460 at \$3.80; to Regan 16 do av 514 at \$4.35; to Bresnahan 2 cows av 890 at \$3.25; to Rattikowsky 5 do av 1,018 at \$4.35, 7 butchers av 453 at \$4.

Downing sold Thompson 11 cows av 983 at \$4, 1 bull weighing 1,030 at \$4. Allington sold Breitenbeck 5 cows av 900 at \$4.20.

Same sold Applebaum 9 butchers av 520 at \$3.90. Kalaher sold Mich. B. Co. 11 butchers av 944 at \$4.50, 1 heifer weighing 1,030 at \$7.50.

Sandall sold same 4 butchers av \$40 at \$4.75, 7 steers av 1,000 at \$6.50.

Veal Calves.

Receipts, 588. Good grades steady to 50c higher; common 50@75c lower than last week. Best, \$10@11; common, \$4@7.50.

Roe Com. Co. sold Sullivan P. Co. 4 calves av 155 at \$10.50, 2 do av 135 at \$8; to Thompson Bros. 1 do weighing 120 at \$10; to Burnstine 2 do av 240 at \$6, 4 do av 155 at \$10.50, 1 do weighing 200 at \$10.50, 13 do av 160 at \$10; to Goose 15 do av 225 at \$5, 16 do av 180 at \$5; to Sullivan P. Co. 4 do av 155 at \$7.50, 9 do av 150 at \$9.50.

Sheep and Lambs.

Receipts, 4,205. Good grades steady; all others 25c lower. Best lambs, \$6@6.50; fair to good lambs, \$5@5.75; light to common lambs, \$3.75@4.75; yearlings, \$4.50@5; fair to good sheep, \$3@3.50; culls and common, \$1.75@2.75. Bishop, B. & H. sold Sullivan P. Co.

34 lambs av 62 at \$5.50, 11 do av 60 at \$5.50, 7 sheep av 97 at \$1.75, 5 lambs av 50 at \$4.50, 34 do av 53 at \$5, 47 do av 73 at \$6, 34 sheep av 110 at \$3.60, 12 do av 70 at \$3.50, 11 lambs av 67 at \$6.50, 19 yearlings av 70 at \$4.50, 10 do av 94 at \$4; to Newton B. Co. 88 lambs av 70 at \$6.25, 65 do av 65 at \$6.50, 20 sheep av 105 at \$3.60, 43 lambs av 73 at \$6.50, 19 do av 60 at \$6.25; to Thompson Bros. 12 sheep av 105 at \$3, 27 do av 110 at \$3.50, 10 do av 107 at \$3; to Nagle P. Co. 114 lambs av 65 at \$6.15; to Miller 48 do av 55 at \$5.25, 18 do av 50 at \$5.50; to Brewer 49 do av 72 at \$6.25; to Miller 45 do av 50 at \$5.25; to Burt 207 do av 68 at \$6, 17 sheep av 100 at \$3.50; to Fitzpatrick Bros. 109 sheep av 100 at \$3.25, 10 lambs av 68 at \$6, 43 do av 65 at \$6, 10 sheep av 112 at \$3.25, 56 do av 65 at \$6.25, 40 lambs av 80 at \$6; to Hammond, S. & Co. 10 sheep av 89 at \$2.75, 18 do av 100 at \$3.50; to Hayes 22 lambs av 58 at \$5.50; to Nagle P. Co. 60 do av 65 at \$6.50; to Sullivan P. Co. 62 do av 68 at \$6. Spicer & R. sold Thompson Bros. 20 lambs av 54 at \$5, 13 do av 65 at \$6, 11 sheep av 95 at \$3.50; to Sullivan P. Co. 10 do av 107 at \$3.50, 2 lambs av 80 at \$6, 6 sheep av 70 at \$2, 61 do av 82 at \$3.75; to Breitenbeck 28 lambs av 65 at \$6.25; to Sullivan P. Co. 78 do av 67 at \$6; to Newton B. Co. 17 yearlings av 85 at \$4.75; to Hayes 20 lambs av 53 at \$5. Haley & M. sold Wright 33 lambs av 80 at \$6.30, 24 do av 75 at \$6.30, 60 do av 67 at \$6.30, 115 do av 75 at \$6.25; to Newton B. Co. 8 sheep av 90 at \$3.25, 100 lambs av 62 at \$6.40.

Roe Com. Co. sold Barlage 29 lambs av 45 at \$5, 26 do av 75 at \$6, 4 yearlings av 80 at \$4.50; to Sullivan P. Co. 9 lambs av 80 at \$6.50.

Hogs.

Receipts, 2,447. Market steady to 5c lower than last week.

Range of prices: Light to good butchers, \$8.80@8.90; pigs, \$8@8.25; light yorkers, \$8.80@8.90; stags one-third off.

Roe Com. Co. sold Sullivan P. Co. 240 av 200 at \$8.80, 43 av 190 at \$8.90.

Bishop, B. & H. sold Parker, W. & Co. 440 av 200 at \$8.85, 710 av 175 at \$8.80, 507 av 160 at \$8.75, 350 av 150 at \$8.60, 109 av 130 at \$8.50.

Spicer & R. sold Hammond, S. & Co. 180 av 190 at \$8.85, 110 av 180 at \$8.80, 80 av 160 at \$8.65.

Haley & M. sold same 165 av 175 at \$8.85, 98 av 160 at \$8.80, 47 av 150 at \$8.75.

HOLSTEIN BREEDERS MEET.

On invitation of Mr. and Mrs. Fred R. McDowell, the Central Michigan Holstein Breeders' Association will hold their annual basket picnic at the McDowell farm, Wednesday, Sept. 11. All are welcome. The McDowell farm is pleasantly located on the north bank of Grand River four miles west of Lansing and one and one-half miles east of Delta station. Come and enjoy a good visit and a picnic dinner.

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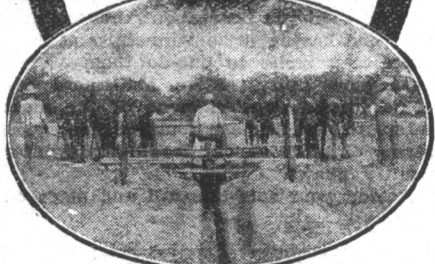
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ABLE bodied men wanted for the U. S. Marine Corps, between the ages of 19 and 35. Must be native born or have first papers. Monthly pay \$15 to \$60. Additional compensation possible. Food, clothing, quarters and medical attendance free. After 30 years service can retire with 75 per cent. of pay and allowances. Service on board ship and ashore in all parts of the world. Apply at U. S. Marine Corps Recruiting Office, 161 Griswold St., 50 Monroe Ave., 52 Woodward Ave., 143 Gratiot Ave., Detroit, Mich.; Hamilton National Bank Building, corner Calhoun & Main Sts., Port Wayne, Ind.; 195 Monroe Ave., N.W. Grand Rapids, Mich.; Post Office, Lansing, Mich.; Corner Superior & Adams Sts., 701 Summit St., Toledo, Ohio; 509 Phoenix Block, Bay City, Mich.; 2 E. Main St., Battle Creek, Mich.; Post Office, Manistee, Mich.



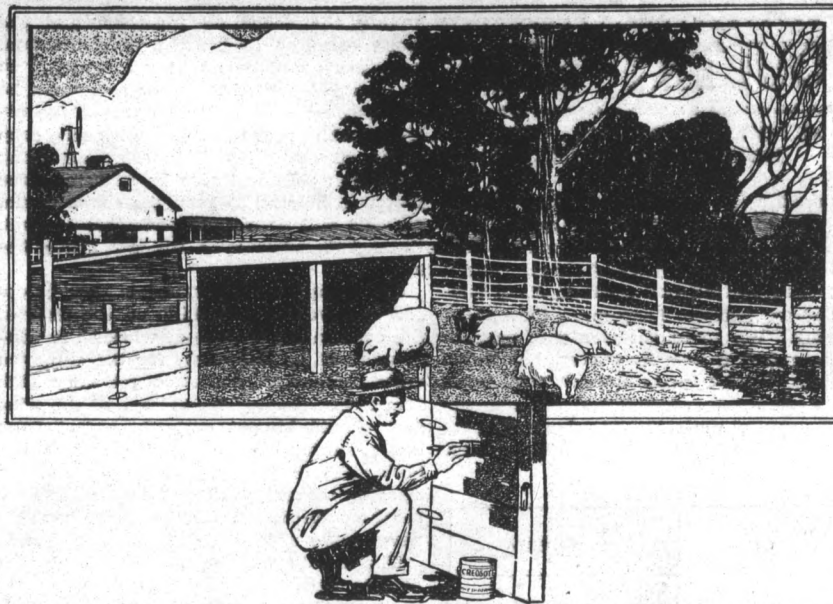
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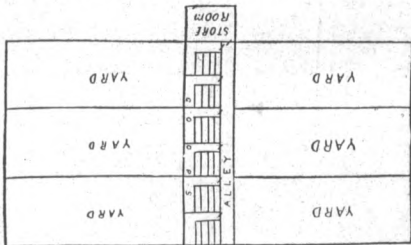
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POULTRY AND BEES

PLAN FOR CONVENIENT POULTRY HOUSE AND YARDS.

Some time in the not too distant future we hope to go into the poultry business on a more extensive scale than has been possible up to the present date. For a long time we did not seem to have success if we tried to keep more than 15 or 20 hens. We could get plenty of eggs in summer and a few in winter, but never enough winter eggs to make it very profitable. We have studied and experimented, however, until we are beginning to be fairly successful in getting winter



Plan of House and Yards.

eggs, even with larger flocks, and so are beginning to plan for increase.

A great deal has been said of late years about plenty of fresh air. Our main trouble has been too much fresh air. I believe that up here in northern Michigan it is more important to harp on the subject of warm coops. I believe ventilation is necessary but I believe warm coops are more necessary. So when I build more coops, this will be one of the things I shall pay quite a lot of attention to. We must be economical in our building if we expect to make it pay, and we must aim to make our coops as free from places where lice can get a foothold as possible. Lots of sunshine is needed, and cleanliness is a virtue. So there should be plenty of light on the south side of the building, and everything made as handy as possible for cleaning the coops. Along the line of economy, at present prices cement and gravel seem cheaper than lumber.

Now I am going to give my plans for coops, and if some of you poultrymen who are in the business on a large scale see fit to criticize them, so much the better. I shall build on the idea of having a number of coops or apartments placed end to end in a building whose length will be determined by the amount of room required. The accompanying illustrations show such a house containing six coops and a storeroom. Each coop or apartment is calculated to accommodate 25 Leghorn hens or 15 hens of the larger breeds.

The drawing shows a wood structure but I shall probably build of cement. As I aim to have each coop just ten feet square and a four-foot alley all along the north side of them, the building will have to be 14 feet wide and, for six coops and a store room it will have to be 70 feet long. The outside walls will be four inches of cement grout; also the partition between the coops and the alley, and the one between the last coop and the feed room. The partitions between the coops will be of poultry netting. Beneath these partitions will be placed the feed hoppers, so arranged that food can be taken from either coop.

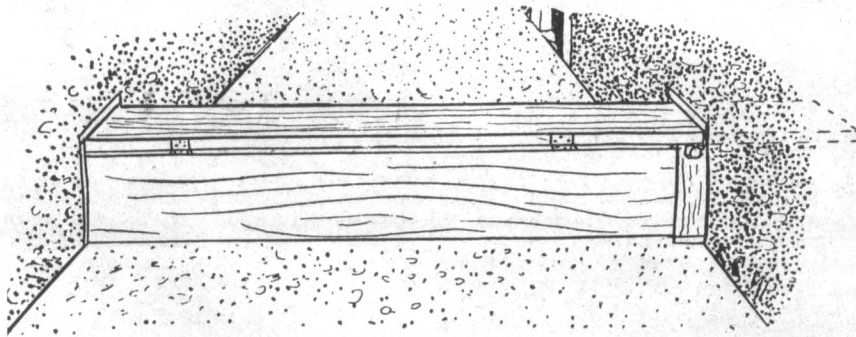
To save netting, and at the same time make good roomy yards, I plan to have the yards run both ways from the house

having the coops all together, and the store room or feed room in connection, your work will be all in "a bunch," so to speak. A wheelbarrow or a car can be run through the whole length of the alley, enabling one to get at each coop easily to clean it. This alley all along the north side will also be a tremendous factor in helping to keep the coops warm. No cold will be able to penetrate through those two walls with the air space between.

One thing I have learned is that in order to have the sun shine on the floor of the coop in the middle of winter the windows must be built low, for the sun, you must remember, does not get very high about that time. The bottom of the window should be not over three feet from the ground. The nests I now use are built with an alley back of them and a slanting cover to keep the hens from roosting on them. With these nests I never have any dirty eggs.

The roosts will be made so that they can be raised and hooked up out of the way in the day time, leaving the whole coop for a scratching pen. This will effectively put a stop to the hens sitting on the perches all day, as they are sometimes inclined to do.

Using the coops in this way will necessitate frequent cleaning, and to make this as simple as possible the alley will be arranged for the use of a wheelbarrow or a car. I suppose you are wondering how I am going to manage to get the hens through the alley to the yards on the north side. Well, my first plan was to raise the floor of the alley and run them through under the floor, but I did not like the idea of having to get up and down so often from the alley to the coops. So my present plan is to put the floor of the alley on the ground, on a level with the floor of the coops, and make chutes or runways above the floor



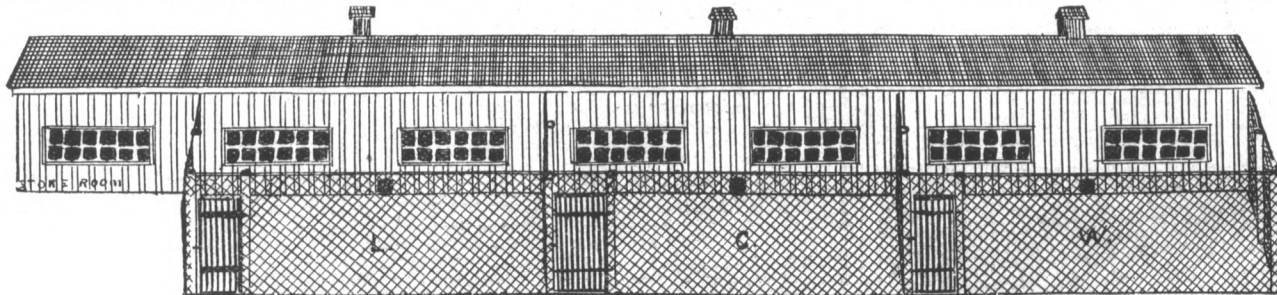
Passageway for Hens Made to Fold Flat Against Wall of Coop.

through which they can go back and forth. These will be made so they can be lifted to get them out of the way of the wheelbarrow or cart. They will be arranged so that when lifted up they will automatically close the opening into the coop. The accompanying illustration makes this plain, I think.

Now some of this I have never tried. What do you think of the plan of putting the netting in for partitions? Will it be all right, or are there some difficulties in the way? Can we keep, profitably, more than 25 hens per coop in the coops which we are not breeding from? I notice that some men tell of keeping 100 to 150 hens in a coop and doing well with them, but among the farmers who keep large flocks here I have never seen any that made a success of it.

Mecosta Co. L. C. WHEELER.

(There is a possibility that a poultry house of this length, without any solid partitions, may prove draughty. This, however, can probably be remedied, if found necessary, by using canvas cur-



Illustrates Side View of Poultry Plant. Yards for adjacent Compartments are on Opposite Sides of Building.

and let the hens from the first coop go to the south and the next to the north, etc. This will give me yards just twice as wide as I could get the other way and save nearly half on the poultry netting, getting the same amount of room. As you will notice, building on this long coop idea I will also save a lot on the lumber or cement, as the case may be, for there will be only two ends to build instead of 14 as would be necessary if the coops were built separately. Then,

yards between the apartments. Twenty-five hens are about all that can safely be kept in a 10x10-ft. coop. This allows 4 sq. ft. to each fowl, which is close to the minimum and somewhat less than is advocated by some good poultrymen. Of course, the larger the number of fowls the more ventilation required. As a whole the plans are to be commended and we regard the scheme for utilizing yards on both sides of the house a very good one.—Eds.)

COMPETENT POULTRY JUDGES.

What about the fairs which are soon to be held? Will you enter one or more birds so as to help the good work along? You might win a prize; that would be pleasing to you, but it would only be a small part of the good that comes from placing them on exhibition. It is at these fairs that all, who are interested, can learn much as to the qualifications of the different pure-bred fowls. But let me say that of the benefits derived from these exhibitions much depends upon the qualifications of the men employed to decide as to the merits of the birds.

A poultry judge, who is fully competent to pass upon the different breeds and is well posted upon their advantages and disadvantages, and is willing and free to answer questions put to him, by those who know little about pure-bred poultry, but who are anxious to learn, can do a world of good in explaining matters to these inquirers. There are thousands of poultry keepers, both on a large and small scale, who never take enough interest in the work to ask a question through their agricultural or poultry paper, but if they come face to face with a man whom they know to be thoroughly posted on matters pertaining to this industry; one whom they can depend upon to give reliable information, they will learn a great many things that will be of benefit to them in keeping poultry so as to make something out of it.

But do we have men at our local fairs to place the ribbons who are well posted enough to go into the details of poultry culture and give all the desired information in the correct way? Yes, I think as a rule we do. So far as I have been able to learn, I believe that the men who act in this capacity understand their business pretty well, and are able to tell

THIRTEEN YEARS

Unlucky Number for Dakota Woman.

The question whether the number "13" is really more unlucky than any other number has never been entirely settled.

A So. Dak. woman, after thirteen years of misery from drinking coffee, found a way to break the "unlucky spell." Tea is just as injurious as coffee because it contains caffeine, the drug in coffee. She writes:

"For thirteen years I have been a nervous wreck from drinking coffee. My liver, stomach, heart—in fact, my whole system being actually poisoned by it.

"Last year I was confined to my bed for six months. Finally it dawned on me that coffee caused the trouble. Then I began using Postum instead of coffee, but with little faith, as my mind was in such a condition that I hardly knew what to do next.

"Extreme nervousness and failing eyesight caused me to lose all courage. In about two weeks after I quit coffee and began to use Postum, I was able to read and my head felt clear. I am improving all the time and I will be a strong, well woman yet.

"I have fooled more than one person with a delicious cup of Postum. Mrs. S. wanted to know where I bought my fine coffee. I told her my grocer had it and when she found out it was Postum she has used it ever since, and her nerves are building up fine.

"My brain is strong, my nerves steady, my appetite good, and best of all, I enjoy such sound, pleasant sleep." Name given by Postum Co., Battle Creek, Mich. Get the little book in pkg., "The Road to Wellville." "There's a reason."

Ever read the above letter? A new one appears from time to time. They are genuine, true, and full of human interest.

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GETTING GOOD, MARKETABLE BEESWAX.

Some bee-keepers consider beeswax useless, hence give no attention to securing this product of the apiary. In this they are seriously in error, since experience tells me, as well as others who make money out of bees, that converting every salable product into cash is necessary to offset the losses to which bee-keepers are always subject.

As with all marketable products, the value of beeswax depends upon its quality, and the quality and marketability of this product depend upon the care exercised in rendering the wax. To have it retain its natural color it must not be over-heated. Over-boiling will convert it into a grainy mass having the appearance of pulp. It is possible to change cakes of wax into powder by over-boiling. If you find something resembling mud at the bottom of the cakes you may rest assured that it is wax, but its color can only be improved by dry melting.

One precaution is to avoid melting the combs with water in pans that contain iron, as iron will cause the wax to turn black. Another is to refrain from using acids in rendering wax. As a general rule, those who make use of acids use them in entirely too large quantities. The use of acids removes the smell of the bees from the wax.

Before beginning the melting, take the old combs and crush them as much as you can, then put them in clean water and melt them. It is not necessary to use a press until after you have taken out the best of the wax. I use a press only for the residue.

If you spoil the wax during the boiling and get it into the grainy condition described above, that part which is grainy, and which is more or less dirty and contains considerable water, must be returned to good condition by subjecting it to dry heat. Even then you will not have as good beeswax as you otherwise would have had.

Jackson Co. JESSE SMITH.

JOTTINGS FOR BEE-KEEPERS.

Honey is being recognized as so healthful a diet, especially for children, that few families can be found, where honey enters into the everyday diet, that have any cause to call the family physician. A single pound of well-ripened honey contains more nutriment than two pounds of pork, and more medicine than any druggist would put up for 50 cents. Honey is also one of the choicest foods for man, and not the least valuable, as it is the only food that, having undergone chemical change in the body of the bee, can be taken directly into the system and used as a force-producer without having to pass through the ordinary digestive process.

Extracted honey comes nearer being a staple article than does comb, and I believe if we exert ourselves more in the introduction of extracted honey the future will see the greater portion of our honey sold in the liquid form. It costs so much less to produce it and prepare it for market, and we can produce so much more per colony that we can sell it for about half what we get for comb honey and give us the same profit. It is estimated that it takes about 15 pounds of honey to make one pound of comb. If honey is extracted from the combs without mutilating them, and the combs replaced in the hives, one can obtain nearly twice as much honey.

NATIONAL CORN SHOW.

The next exhibit of the National Corn Exposition, will be held at Columbia, South Carolina, on January 27 to February 13, 1913. At this time Michigan will have a chance to show not only corn, but grains of all kinds in an exhibit which will be compared with similar displays from all the other states of the Union. Last year at Columbus, Ohio, the Michigan exhibit was attractive and educational and was a credit to the state. We have secured more space for 1913 and hope to be able to put up a better exhibit than at any previous show. Farmers sending material for the Exposition should send not less than one-half bushel of any variety of grain or less than ten ears of corn. Shipments should be made before December 25, 1912, to the Michigan Experiment Station, care of W. F. Raven, East Lansing, freight or express prepaid.—W. F. Raven, Vice-President for Michigan, of National Corn Exposition.

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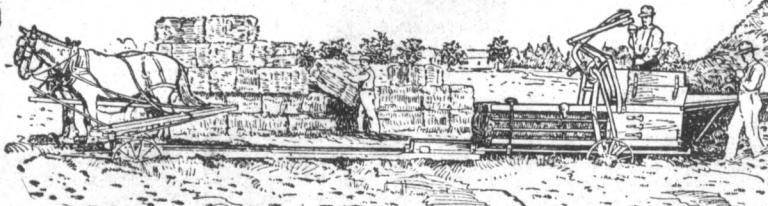
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HORTICULTURE

A DANGEROUS CONDITION IN MICHIGAN ORCHARDS.

Last year, following a most peculiar spring, in which growth of all fruits and crops was very excessive, very severe attacks of fire blight were observed. There was probably no fruit-growing country which did not send specimens for determination to the College. This year the attack of fire blight is not so excessive—nor are the fruit-growers showing any alarm about the conditions this year. Nevertheless, observations made on a recent trip taken through northern Michigan, and observations made in southern and central Michigan, lead me to believe that fire blight is doing considerable damage, and especially since the fruit-growers are not making any special fight upon the disease.

The Disease.

Fire blight is probably the most characteristic and easily determined disease of apples and pears. It attacks several parts of the plant—in fact, all parts except the root. The different kinds of attack are sometimes given special names, but it is very important that the growers recognize that these are all evidences of the same disease. For example, fire blight exists as a blossom and twig blight. It also produces a rot of the fruit, while in its most serious form, it produces a limb canker, which may develop into a body blight. At present, in the orchards throughout the state, I find abundant evidence of twig blight. Trees of susceptible varieties are dotted with brown and dying branches. As I have said, this disease shows some very decisive signs, and in these blighted branches we have such a well-marked sign. The twigs are dead and the leaves, browned or blackened, cling to them tightly. Fire blight is a quick-working disease, and the leaves are killed quickly and wither on the dead stems, exactly as if the branches were broken from the trees.

If the effect on the twigs were the whole of the story, no fruit-grower would need to be alarmed over the effect of fire blight this year; but the disease is not going to stop with the twig—it will work down the twigs into the smaller branches, and the chances are that at least one serious limb canker will be produced on every tree that is now showing the few evidences of twig blight. Here is where the serious loss to the apple tree will commence. The limb canker may take a good-sized limb, or it may even take a main branch, and if a main branch is killed, the tree is cut in two, and its appearance and strength is badly impaired.

Life History of Disease.

From what has been said, it can be seen that fire blight is a disease which advances, if it once gets a start in a tree. Fire blight is a bacterial disease. It is therefore, a disease of plants, comparable, so far as cause goes, with the bacterial diseases of animals, such as tuberculosis, or typhoid fever. Its progress within the plant, and its manner of lasting over winter are well known. It is known that the bacteria live over in the limb cankers; and in the spring, with the beginning of growth, the bacteria within the diseased limbs so increase in number that they push out in sticky drops from cracks in the bark. These masses can be seen on blighted limbs during rainy periods. These sticky drops are visited by insects and the bacterial masses are carried by the insects to the flowers and twigs. The germs that are carried to the flowers grow in the nectar and eventually penetrate the thin cell-walls and get within the plant. Bees visiting such an infected flower, of course, become heavily infected with the germs, and it is a frequent observation that the majority of blossoms on a tree are blighted, following, of course, the path of the bee.

The disease works down the flower stalk into the twigs, and a few of the twig blights, as has been explained, produce limb cankers.

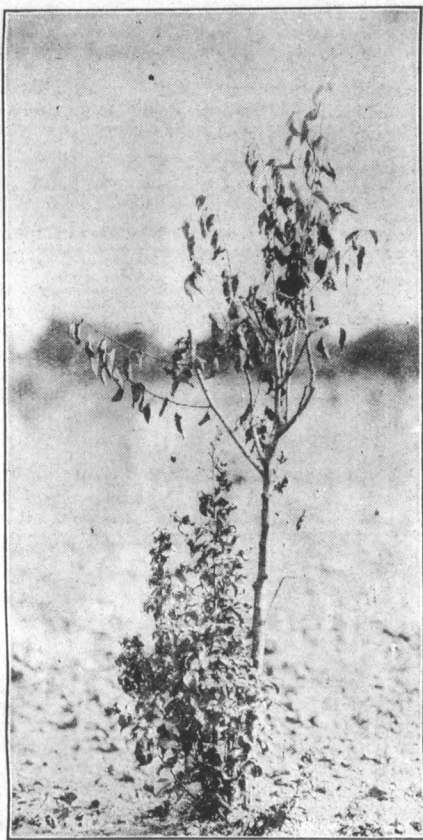
Body blight usually arises from water sprouts, which are blighted as the disease progresses into the trunk or main branch from this source. With such a condition, girdling the tree is commonly the result. This is the most dangerous form of the disease, since it results in the death of the whole tree.

Control.

Fire blight was at one time the most discussed of any plant disease. It is true

that the old horticulturists knew nothing of the cause of the disease and did nothing to control it. Things are only slightly different now. This is largely due to indifference and a full realization of the danger that threatens. We have much knowledge about control methods, contributed for the most part by Waite, of the United States Department of Agriculture, and by Whetzel, of the Cornell Experiment Station.

Waite showed in several badly infested sections of the country that it was possible to control fire blight by painstaking pruning-out of the cankers, and by the establishing of the vase-form in the tree. The pruning destroys the hold-over places and thus prevents spring infection by destroying the sources of infection. The vase-form tree is the tree most readily sprayed, and the one in



Young Tree Affected with Twig Blight. New Orchards as Well as Old Need Systematic Inspection.

which the disinfectant effect of sunshine is most active. It can be seen that the bulk of this treatment is a treatment of dormant trees.

To Whetzel belongs the credit of showing fruit men another point of attack. Where Waite emphasized the cutting out of the cankers from dormant trees, Whetzel urges constant inspection in the growing season. Fight the blossom blight and the cases of twig blight and thus avoid the cankers. He has saved orchards in New York by this treatment. At first thought it seems a hard course to follow—constant inspection. It means going over the trees at least once a week during the seasons when the trees are growing rapidly, and it may even mean daily inspection during blossoming time.

Whenever a blossom is blighted, and this condition can be seen at a glance, the blighted blossom or spur is to be broken off. An ordinary long-handled pruning hook will do this nicely. A blighted twig must be cut off and these two small wounds do not of necessity need to be disinfected. Should the inspection be tardy, there will doubtless be cases of limb cankers. These must be sawed out, and here the principles that govern pruning must be followed. Make the cuttings flush, disinfect the cut surface and paint over with good white lead paint. Should the blight show up as a body canker or blight, the dead wood must be cut or chiseled out and for this purpose a carpenter's gouge is very handy.

Any standard disinfectant will do, but no doubt corrosive sublimate is the most convenient. But the user must know that this is a very powerful poison, and also that it has a corrosive action on metals. Tools must not be allowed to remain in it nor can it be made up in metal receptacles. It is handiest to carry the disinfectant in a two-quart Mason jar and apply it to the surfaces with a sponge. Corrosive sublimate is sold at the drug stores in tablet form, and one large tablet or four small ones to a pint of water gives a solution of the proper strength. Five per cent carbolic acid

can also be used, or a 1 to 100 formula solution.

I strongly advise fruit growers to inspect their orchards carefully at this time and follow Whetzel's recommendation to the letter. A good-sized orchard can be gone over in one or two days, and it is a certain thing that the fruit grower is thus protecting himself against next year, and is no doubt saving some large limbs of his trees. It doesn't require a very large limb of an apple tree to bear enough fruit to pay for a whole week of a man's time.

It, of course, is necessary in cleaning up a whole district that every man see to it that his trees are clean. But because your neighbor is willing to let his trees go is no reason for you to do the same. Take care of your own yard and you can save your trees. It is true that you will have to keep inspecting and keep fighting the diseases so long as your neighbor lets the sources remain, but the point is that you can keep yourself free from body blight and limb cankers if you are on the alert. If a man has careless neighbors, it is indeed too bad, but fire blight can be fought without your neighbors' help. They merely make the fight longer and harder.

The accompanying cut shows the effect of the disease on young trees. Here we have a case of twig blight that is doing grave damage to the tree. A plantation of young trees needs inspection just as much as an orchard, and careful cutting out and disinfecting the cuts will save many times the cost of such inspection.

Mich. Agl. Col.

G. H. COONS.

CHICKWEED IN STRAWBERRIES.

Keeping chickweed out of strawberry patches probably is the greatest problem the strawberry grower has to face today. This has been one of the leading questions since strawberries have been grown commercially.

In the first year, as a rule, chickweed is not bothersome, but late in the fall after the hoeing and cultivating are discontinued, or early in the spring when it is impossible to cultivate, the pest makes its appearance.

There are two types of chickweed. One has a smooth leaf, is light green in color and attains a very rapid growth; the second is more stocky, having a long, hairy, dark green leaf, and this type has a tendency to grow more in bunches than does the former, thus making it easier to clean out by hand. The first type is the hardest to combat, and at the same time is the most common. Both types will succumb to the same treatment.

Chickweed is a plant which thrives best in wet weather, and of course is seriously damaged by drought. Where it grows in a thick mat within the row, it will hold the moisture collected during the night or from a rain until 10 or 12 o'clock in the day. This causes much injury both to green and ripening fruit.

As has been stated, during the first summer while the strawberries are being hoed and cultivated, the chickweed does not become a source of extraordinary annoyance, as it is rather a tender plant and cannot stand much disturbance. During the fall the plants get so thick in the rows that it is impossible to use a hoe to any advantage. Now is the time the little chickweed makes its appearance, especially if the fall is a wet one. As soon as the chickweed plant has reached a height of about two inches it begins to branch out, covering the strawberry plants and producing seed in abundance which, falling to the ground, germinates immediately, growing up through that already in evidence. This, of course, produces a thick mat which will choke out any other growing plant. The prevention of this, to a certain extent, is by hoeing dirt into the row in the early fall, to break down and cover the little chickweed plants. At this season strawberries will stand considerable dirt covering and still grow upward through the dirt.

A small amount of chickweed may be a good thing in a strawberry patch during the winter, but only a small amount, because it would not be wise to have enough so that the berry plants would be smothered. A little of the chickweed plant prevents heaving, and is more or less a sort of cover crop or protection against the cold winter weather.

Now comes the real problem, how to get rid of the chickweed, which has been a good thing during the period of low temperatures, but which in the spring becomes a nuisance. Hitherto there has been no other method than the laborious

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one of having the grower get down on his hands or knees and pull it out with his fingers. Already I have shown how it can be controlled the first year, perhaps leaving enough for all the good effects during the winter. But during the warm spells in the winter season chickweed grows rapidly, especially early in the spring. So I have carried on an investigation on spraying chickweed in the spring with sulphate of iron to meet this situation.

These experiments were undertaken at Webster, N. Y. It was known, to begin with, that sulphate of iron would kill chickweed and strawberries as well. Thus the object of the experiments was defined if possible, to a time when the berry patch might be sprayed to kill chickweed and leave the strawberry plants uninjured; also to discover what strength of sulphate of iron solution would be most effective. Three solutions were employed as follows: One pound to a gallon of water, one and a half pounds to a gallon of water, and two pounds per gallon of water, which we will call respectively 10, 15 and 20 per cent solutions. Each solution was applied to two small plots. The first plot was sprayed thoroughly, but not overdone, while the second plot was drenched. The first spraying was done April 3, 1911. The last snow was just disappearing. The second spraying occurred about a week later and the third just before the blossom buds appeared.

The results were that on the first spraying the 20 per cent sulphate of iron solution killed all the chickweed and took all the leaves off the strawberry plants as it did all the others, but it did not kill the plants. They soon came on fresher and greener than before. The 15 per cent solution killed most of the chickweed and the 10 per cent solution, some of it only. There were no benefits from drenching the plants with the solution, thus showing that the making up for lack of strength of solutions by applying an extra amount cannot be accomplished.

Chickweed came up from seed and covered the ground before the end of the blossoming season. Thus while the spraying was effective it was done too early. The second spraying produced about the same results as the first. It, of course, caught a week's additional growth of chickweed.

The third spraying was the one which produced the most effective results, showing that the 10 per cent solution is not quite strong enough, but that the 15 to 20 per cent solution is about right. All the leaves of the plants were taken off as in the previous experiment, but the crowns were uninjured even where the drenching was resorted to. The time of blossoming was delayed probably from four days to a week. This will vary with the time of spraying and the season. If the weather is clear and sunshiny the chickweed will be killed in two or four days, and the strawberry leaves will be black and the whole patch will look as though it had been burned. As the crowns are uninjured fresh green leaves soon appear. They grow exceptionally fast, shading the ground so that the chickweed does not re-appear to any extent.

As previously observed, it is not possible to make a 10 per cent solution of sulphate of iron equal to a 15 or 20 per cent solution by applying an extra amount. Either a 15 per cent or 20 per cent solution must be applied evenly and just enough thoroughly to wet all the chickweed through to the ground. It may be applied with a broadcast sprayer, carrying a nozzle over every row. In these experiments, however, a hand-pump and a "Tiger" nozzle were used. This combination gave a very fine, forceful and effective spray. No chickweed will be killed below where the spray goes. I do not think a sprinkling pot would be satisfactory. In a day or two after the spray is applied the patch should be gone through and the thick bunches of chickweed raked off with an ordinary garden rake or similar tool. Otherwise it will die down, forming a dense mat and will smother the plants beneath it.

New York.

B. B. ROBB.

A SERIOUS APPLE DISEASE.

In the apple growing sections of the northwest, the apple tree anthracnose is a most serious fungus disease. It causes cankers on the trunk and branches, the infection usually taking place in the fall of the year. In addition to the cankers on the tree the fungus is sometimes found upon the fruit. The Oregon Sta-

tion has studied the disease and after experiments has found that treatment with Bordeaux mixture, using a 4:4:50 solution, in the fall before the beginning of the rains, to be followed as soon as the fruit is picked, by an additional spraying of a 6:6:50 Bordeaux mixture, has proved successful in reducing the amount of disease. It is believed that under ordinary conditions this treatment should be sufficient for controlling the disease, but where the fungus is very prevalent, an additional spraying should be given the trees, beginning somewhat earlier in the season. Where practical the cankers should be cut out before fully formed during the winter or early spring.

COVER CROPS FOR BUSH FRUITS.

In maintaining the productivity and prolonging the bearing period of bush fruits it is essential, among other things, that plant food in proper quantities be supplied at proper times, and that the humus content of the soil be maintained or increased. Humus may be supplied by the application of coarse strawy manure or other like material, which, being worked into the soil by spring and summer cultivation, and decaying, adds to its supply of vegetable matter. There is another way in which this needed vegetable matter may be supplied and with but little expense, namely, through the use of cover crops. Cover crops will give the same beneficial results with bush fruits as with tree fruits, and the most successful orchardists owe not a little of their success to the practice of growing cover crops in their orchards.

Clovers, vetches, and like crops are not suitable for cover crops in bush fruit plantations; however, a grain should be used that is killed by winter freezing. Oats or peas answer this purpose well. This rule is, of course, applicable only for those latitudes where there is sufficient freezing to kill these grains. It is quite probable though that the cover crop plan may be utilized in warmer latitudes, as well, and clovers, vetches, and like crops utilized for this purpose, in all sections, providing the seed is drilled in, allowing sufficient margin between cover crop and row of canes to permit this growth to be turned under with a plow. But the furrows should be very shallow. The depth should not be greater than the cultivation given, else a great many roots will be destroyed and this we can in no wise afford.

Grain for this cover crop may be sown the last of August or the first of September. If cultivation throughout the season has been as thorough as it should be, the surface soil will be moist and mellow; except of course, where a drouth has prevailed, and under these conditions the cover crop will grow rapidly. This cover crop will not, as it might appear, rob the canes of needed plant food, for at this season the canes should be directing their energies to the ripening of fruit buds and wood growth. And for this purpose those elements of plant food used in making vegetative growth are not needed by the vines. The fact of the matter is that the cover crop takes up plant food that might otherwise be lost through leaching, washing of the soil, or other action of the elements. Being held by these plants of the cover crops, these valuable nitrates revert again to the soil, upon their decay.

Then, too, these cover crops will afford some protection to the roots of bush fruits against severe freezing. This in some cases may be an aid of no small consequence.

Not only are these cover crops a means of saving fertility during the fall in the manner mentioned, but during the winter and spring months, when the ground is subject to washing by heavy rains, these crops, although now dead, are still beneficial and in much the same way. And then, when we come to give the plantation its first spring cultivation, we find that the ground thus protected works up ever so much more mellow than that which has had no such protection. And this beneficial result is noticeable throughout the entire season of cultivation.

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DO NOT RELENT.

The struggle against injurious bacterial and fungus diseases and insect pests is a never-ending one. The battle for the remainder of the summer will be confined to the bombardment of the winter strongholds of such enemies. Fruits and remnants of plants are burned, rubbish and weeds destroyed and infected soils will be plowed to expose the foe to their fate against the elements.

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A recent act of Congress reduces the period of residence on homestead land from five to three years and permits a five-months' leave of absence each year.

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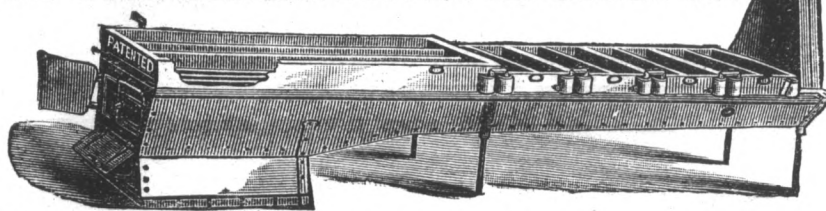
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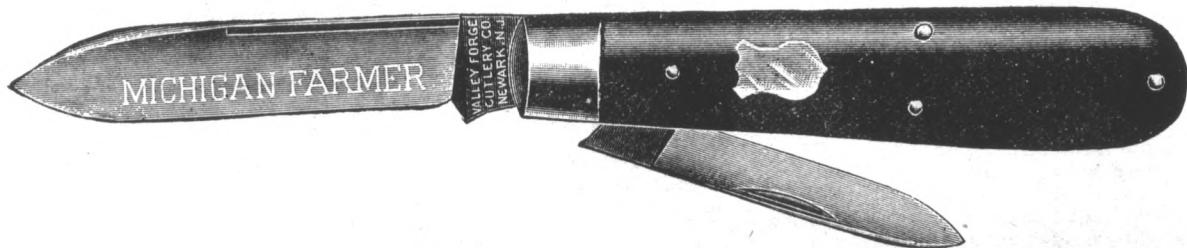
It is not too early to get this beautiful 159-piece Christmas assortment, as you will then have it when you need it. It is the finest assortment of Christmas and New Year's Post Cards, Tags, Seals and Stickers ever collected. The decorative emblems will enhance the attractiveness of your gifts, while beautiful holiday post cards will make a pleasing remembrance to friends to whom you do not give presents. This assortment contains the following, all in gold and beautiful colors:

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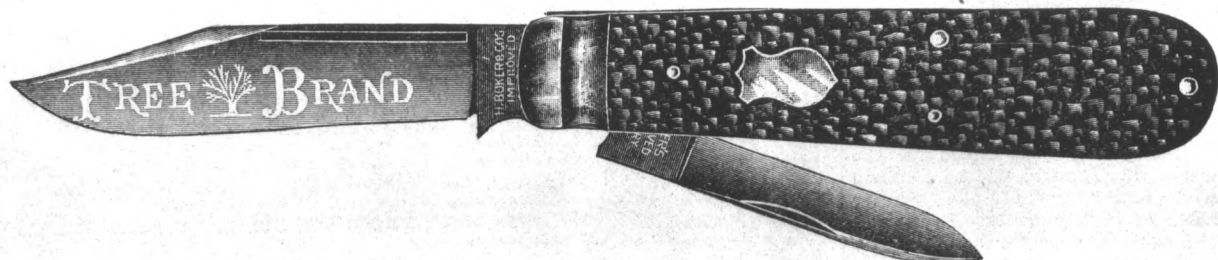
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These spoons are made of the same metal throughout and are guaranteed to last a life time. They can be kept looking bright by cleaning them with a good cleanser. The design is beautiful and the spoons are good enough to use on all occasions. Ask for Premium No. 216.



Ebony Handle Knife. Made by the Valley Forge Cutlery Company, of finest razor steel. Two blades, brass lined and well finished throughout. Fully guaranteed. Ask for Premium No. 217.



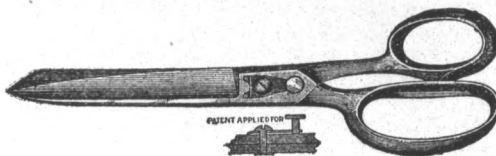
Stag Handle Knife of the famous Tree Brand cutlery made by the H. Boker Company. Best razor steel, brass lined, large and small blade. Fully guaranteed. Ask for Premium No. 167.



"PRESTO" The "ALL-IN-ONE" RAZOR STROP

This strop is made from the finest horse-hide leather, tanned by special processes, then chemically treated with "all-in-one" solution. This preparation is so thoroughly incorporated in the leather that it is guaranteed not to peel, wear, scrape or wash off.

Any man can strop a razor with as keen an edge as can the most expert barber. A few strokes on the sharpening side, followed by a like number on the finishing side does the trick. The lot we have purchased are "Extra Strong" and it requires but little stropping to bring a deadly dull blade to a hair splitting edge. Ask for Premium No. 211.



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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.

INTERESTING THE YOUNG PEOPLE IN FARMERS' CLUB WORK.

At the conference of the local Club workers, which is made a feature of the annual meeting of the State Association of Farmers' Clubs each year, it is a very common thing to hear the delegates from many local Clubs say that one difficulty which is experienced in the Clubs which they represent is in getting the young people interested in the work. If one were to investigate the causes which led up to the disbanding of the few Farmers' Clubs which have not developed into permanent organizations it would doubtless be found that one prime cause of their failure to survive the first few years of existence was due to this very thing—inability to get the young people of the community interested in the Club work.

While this proposition has not been of such a serious nature in most Farmers' Clubs as to endanger the prosperity of the Club greatly, to say nothing of its very existence, it is still a fact that comparatively few of the local Clubs in the state have improved their opportunity along this line to anywhere near the limit of its possibilities. Yet there are a few examples of Clubs in which the young people have been interested in the work to a more than ordinary extent, and we believe that if these examples could be brought prominently before more members throughout the state that they would be emulated in other organizations of the kind.

In a few Clubs, for instance, the attempt to interest the young people has been carried so far as to bring about the organization of a Junior Farmers' Club, an organization which is conducted by the young people themselves, with, of course, some help and advice from the older and more experienced members. The organization of one such junior Farmers' Club was reported in a recent issue. This movement should result in making the Farmers' Club work an educational work which will accomplish not a little good in any community where it is effectively carried out.

There are, however, many ways in which the young people can be interested in Club work without the formation of a new organization for them. Take, for instance, the Farmers' Club Fair. The young people could be given a department in this feature meeting, or it might be turned over to a committee of them whose duty it would be to make all arrangements for the holding of the fair, secure and place exhibits, etc. If this were done the result would be a surprise to the older Club members in many cases, and in quite a few cases it is not unlikely that the result would be a better Club fair than any which had preceded it, ceded it.

Likewise where institute meetings, or other special meetings are held during the winter season, the arrangement of the entertainment program might well be left to a committee of young people, and in many similar ways the young people of any Club community could be interested in the organization, and thus new blood introduced which would help materially in adding to the interest of the meetings and the success and permanency of the organization.

The older members of any Farmers' Club should not forget that this is the day of accomplishment by young people and that by interesting the young people of the community in the Farmers' Club work they themselves will receive a benefit which would not otherwise accrue to

them through the advanced ideas which the young people would bring into the discussions. The proposition of interesting the young people in Farmers' Club work is well worth while. The suggestions above given are but a few among many which might be advanced. If a few of the leaders in any Farmers' Club will but give this subject serious consideration there will be little difficulty in interesting the young people in the work to an extent which will be more beneficial to all, and which will do more than any other one thing to perpetuate the organization in which the effort is made, besides increasing its immediate value to the community in which it exists.

GRANGE

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

THE SEPTEMBER PROGRAMS.

State Lecturer's Suggestions for First Meeting.

Opening songs.
Are the Michigan Development Bureaus helping or harming this section of the state? How?
Dialect song.
What treatment of the meadow gives best results?
The Referendum vote as proposed at State Grange, 1911.
Instrumental music.
Book review, by a woman.
Character song, "Mary Ann," in charge of Equal Suffrage Committee.
Current events in Equal Suffrage circles.
Refreshments, "My wife's favorite treat," furnished by the husbands.

A STATE UNION OF RURAL FORCES.

An organization of organizations—in other words, a Country Trust, if you so please to call it, this is what results when all the forces working in one way or another for the betterment of life in the open are brought into co-operative relations. Such a "trust" grows out of the present tendency to inquire into the conditions and stimulate progress among folks—in this case, country folks.

A state meeting of this kind was recently held at DeKalb, Illinois. It was a significant affair in several ways. For one thing, it, being the second annual of its kind, was better than its first; which indicates it is growing in the right direction. Sometimes these new things prove to be fads with no more staying quality than a mushroom. Not so this second "Illinois Federation for Country Life Progress." It was decidedly bigger, better and brighter than a year ago when it was started. For another thing, its tone was more confident, its place in the work of the state more assured. For a third reason this meeting was significant—it brought in the farmers themselves, besides country school teachers, rural ministers and editors. During the first morning I observed a good many farm men and women—though fewer women—filling into the room in squads of four to six. At noon the big autos lined up beside the walks told the story of how these farm folks came in; and later in the day I caught a message passing from lip to lip that next day 20 auto loads might be expected from a county 70 miles distant.

That is rural getting-together by modernizing methods. There were no more interesting features of this Illinois meeting than when one after another "ordinary" farmer told of his community—how its neighborhood spirit had been instilled and cultivated and local institutions built up thereby. One of these was "Rock Creek Community," another was "Clear Creek Community," still another was "DuPage Community," and so on—all making the term "community" instinct with new possibilities to one not used to hearing it spoken with such evident local pride. For instance, one farmer with stereopticon pictures showed us how a little country church had been the nucleus of a virile "community" life; how a manse had been built beside the church and of how the people accepted no pastor who would not cast his lot and live among them. He told how improved roads, an enlarged school, play days, lecture courses and such accomplishments of a contented and social community life had followed as a natural consequence of this get-together spirit.

And so Illinois has thus undertaken to strengthen its rural forces by federating them in an organization that meets once a year. Michigan has not done this; therefore we may well look over into

Illinois and ask what it expects of this movement. Its aim is to stimulate and direct all its country organizations toward definite ideals in rural progress. It hopes that the leaders in these various organizations by conferring together will learn of one another and the work of each be strengthened accordingly. The farm home, rural church, country school, Grange, Farmer's Club, farmer's institute, county Y. M. C. A. and Y. W. C. A., the traveling library, the agricultural press, and all other organizations fundamentally interested in the welfare of country life are eligible to membership in the federation.

Some of the specific purposes of this union of country life forces are:

1. To hold large annual Country Life Conferences and inaugurate a state-wide campaign for rural progress.
2. To get all the rural organizations and institutions of the state working together in a harmonious manner in such a campaign.
3. To stimulate farmer leadership.
4. To study and investigate farm life conditions so as to get truthful facts with which to work.
5. To foster the upbuilding of local country communities.

The programs at these meetings have dealt with concrete things. First, a definite community ideal was set up in order that all might get a vision of neighborhood possibilities. Second—and far the bulk of the time was devoted to this—concrete examples given of how strong rural communities have actually been built up. Each story of genuine accomplishment in a neighborhood was told by a resident of the community described, perhaps a progressive farmer or his daughter, or a preacher, teacher, farm institute worker, or an officer in a Grange. All of these were stories with red blood in them. They recorded difficulties and indifferences such as everyone meets who tries to do something for the public good; but in the end each community story was a tale of triumph over obstacles and of a people grown into better farmers, happier neighbors and more efficient citizens. In every one of these concrete accounts of how country communities had been built up, the personal element stood out. In every instance there was someone who took the initiative, who went to the people personally and brought them together by some common bond of interest. Sometimes it was through the church need, sometimes through the child at school; sometimes it was a piece of particularly infamous country road, sometimes a crop failure that was made the point of contact.

Besides the stories of things being done in local neighborhoods, there were thrilling tales of rural activities on larger scales, as in a county, state or over the nation. Prof. W. D. Hurd, of Massachusetts, told how his state is planning to spend \$50,000 in taking the knowledge and experience of its agricultural college out to the people upon their farms. Mr. B. F. Harris, a banker-farmer, said bankers dealt every day with farmers, and it is the duty and privilege, and is getting to be the pleasure, of bankers to help in every movement for public welfare, therefore the business men and farmers of DeKalb county have hired a consulting expert to help solve their agricultural problems. Prof. O. J. Kern, of Illinois, told, with eloquent photo slides, how, gradually over his county, school grounds are being beautified, schoolhouses made more homelike and children are growing more appreciative of their surroundings. Edward J. Ward, of Wisconsin, told his experience in using the schoolhouse as a men's club house. Dr. H. W. Wiley presented the relation of pure food to public health, while Dr. Warren H. Wilson, of Presbyterian department of church and country life, delivered his powerful appeal in behalf of the church of the open country.

Each of these state programs for rural progress in Illinois have so far been held at one of the State Normals during its summer session in order to reach teachers of country schools in large numbers. A carefully prepared exhibit, showing effects of community effort, formed a striking adjunct to each meeting.

This scant review of what a sister state is doing to assist country neighborhoods is made simply in order to raise the question: "Do we not need more of this sort of getting together in country matters in Michigan?"

JENNIE BUELL.

Have you read page 202? If not don't fail to do so at once.



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This is the verdict of all who have tried them, and we have the personal testimonials of many Michigan Farmers on this point.

There are good reasons for this.

You cannot get a more economical shoe than Rouge Rex Shoes. You may get some for less money, but they haven't the quality that is maintained in Rouge Rex Shoes, for few shoes are made under so favorable conditions.

1 We operate our own tannery, the leather being made expressly for Rouge Rex Shoes.

2 Our shoe factory is within a stone's throw of the tannery, freight charges on leather thus being eliminated.

3 The entire plant is located in a small town, just outside the city, where taxes, insurance, and all other expenses are at the lowest possible point.

Then, these shoes are sold direct by us to your dealer, where they are open to your most rigid examination, so when you buy Rouge Rex Shoes you know just what you are getting—no "pig in a poke" deal about it as when buying shoes by mail—and when you carry them home you know you have just what you paid for, and that they fit.

The trade-mark here illustrated is a guarantee of the superior quality of Rouge Rex Shoes.

Get into a pair and see how they wear; they are Wolverine Leather, well put together.

They are made right, they fit right, and they wear right.

Ask your dealer for them. Write us if he does not have them, giving us his name.



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The same kind which the U.S. Gov't finds good enough as security for

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Bonds yield from 4% to 5% Write for Free Circular

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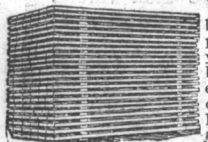
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We have determined that the Fall of 1912 is going to be the Banner Year in our great lumber department. We have on hand 20,000,000 feet of high-grade lumber suitable for the construction of Buildings, no matter for what purpose intended. Come to our great yards in Chicago and let us show you this stuff actually in stock. No other concern in the world has a more complete stock of everything needed to build, whether Lumber, Shingles, Structural Iron, Plumbing, Heating, Doors or anything else that you may need. Do you know that lumber is getting scarcer and scarcer every year? Yet our prices are lowest and will continue so until our stock is gone. WRITE TODAY.

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We have a special lot of 1,000,000 5 to 2 Common Clear Shingles coming in, on which we are making an exceptional low price of \$2.47. Other grades at lowest prices.

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Lot MS-39. Four panel painted door, size 2 ft. 6 in. x 6 ft. 6 in. 1200 in stock. A high quality door for the price. This is only one of our many special bargains. Our grand Building Material Catalog and Bargain Sheets will show a full line of Inside Millwork of all kinds.

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CONSIDER what becomes of the stock of goods when a manufacturer, jobber or big retail merchant goes bankrupt, or "busted" as the saying goes. In the year 1911 ten thousand merchants met with financial distress—that's why the Chicago House Wrecking Co. exists. If the stocks offered are sufficiently large, if the goods are new, clean and desirable, they find their way naturally to our 40 acre plant for distribution, at a small added profit to our hundreds of thousands of customers, who, in this way get wonderful bargains.

Where Your Dollar Does Double Duty

Every time you buy from us, your dollar takes on an increased purchasing power. We are the safety valve between the public and high prices. We recognize no Trusts or Associations—our methods are along original and unique lines. We are not plodders—we are merchants in the fullest meaning of the word, and the wise public have not been slow in realizing our position in the world. Our great plant at 35th and Iron Sts. is a Mecca for the people of Chicago and surrounding country. Thousands of visitors from every part of the country make a yearly pilgrimage to our institution, and buy their yearly supplies. Are you getting all the benefit that you should from this excellent opportunity? We urge you to learn more about the wonders of our plant, and the opportunities that we afford when you deal with us. You get full value for your money. There is nothing fanciful about our methods—we are just straight, clean business men.

WE SELL PRACTICALLY EVERYTHING

Our stock includes practically "everything under the sun". It's in truth, from a needle to a locomotive. No matter what your vocation, or what position in life you occupy, or what your business, or how great a merchant you are, you have use for us, and we have the goods that you can buy from us to a decided advantage. The quicker you learn to recognize this fact, the sooner you will be "putting money in your pocket".

Our stock includes Building Material, Lumber, Roofing, Sash, Doors, Millwork, Wire and Fencing, Hardware, Plumbing Material, Heating Apparatus and Supplies, Furniture, Household Goods, Rugs, Stoves and everything needed to furnish or equip your home, your club or hotel. It includes Groceries, Clothing, Dry Goods, Boots and Shoes, Furnishing Goods, and every single article to clothe a man, woman or child. It includes Sporting Goods, Fishing Tackle, Hunting Outfits, Tents, Guns, Harness and Vehicles, Jewelry, Sewing Machines, Clocks; also structural iron needed in the construction of buildings, bridges, etc., Machinery, gasoline, gas and electric power outfit. In fact you cannot think of a single manufactured article that we cannot supply you at a saving in price. Let us convince you—it means but little effort on your part to prove the truth of all we say. Write us to-day for our Catalogue and literature. Fill in the coupon shown below.

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You can buy a carload of Building Material from us without paying us one cent in advance. All we want to know is that the money will be paid us as soon as the material is received, unloaded and checked up. Our terms are more liberal than any one else offers.

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You can order a complete carload of material including everything you need to construct a building and we will ship it forward to you without your paying us a cent down.

Write Us for Our Liberal Terms

You are safe when you deal with us. Our capital stock is \$2,000,000.00 and 20 years of honest dealing have earned a place for us in the public confidence that is unquestioned.

\$13 Buys Complete BATHTUB

This is a white enameled, cast iron, one-piece, heavy rim bathtub, fitted with the latest style nickel-plated trimmings, including Fuller double bath cocks for hot and cold water, nickel-plated connected waste and overflow, and nickel-plated supply pipes. It is 5 ft. long and is good enough to answer the needs of any man. Lot 6AD-101.

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Good iron pipe in random lengths for gas, oil, water and conveyance of all liquids; size 3-8 to 12 inches; our price on 1-in. per foot \$1 1/4 inch at 4c per foot. Complete stock of valves and fittings. Send us your specifications.

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Our House No. 6A.

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